

**BUSINESS CAPITAL NEEDS
IN CALIFORNIA:
DESIGNING A PROGRAM**

By
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April 1998

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CONTENTS

DIGEST	1
I. EARLY-STAGE EQUITY CAPITAL FOR FAST GROWING SMALL BUSINESSES IN CALIFORNIA	5
CALIFORNIA'S SMALL BUSINESSES ARE IMPORTANT FOR DEVELOPING THE STATE'S ECONOMY	5
A FEW RAPIDLY GROWING FIRMS –“GAZELLES”– ACCOUNT FOR MOST JOB GROWTH.....	6
REGIONAL DISTRIBUTION AND CHARACTERISTICS OF CALIFORNIA'S GAZELLES	7
GAZELLES ARE NOT RESTRICTED TO FAST GROWING INDUSTRY SECTORS	9
EARLY-STAGE FINANCING IS CRITICAL TO THE INITIAL DEVELOPMENT AND GROWTH OF GAZELLES	13
RISK, FINANCING AND BUSINESS STAGE OF DEVELOPMENT	14
GAZELLES ARE LESS STABLE THAN SLOWER GROWING FIRMS	15
ESTIMATE OF GAZELLE EARLY-STAGE CAPITAL NEEDS.....	17
SOURCES OF EARLY-STAGE SMALL BUSINESS FINANCING.....	19
INDUSTRY CLUSTERS AND THE EMERGENCE OF VENTURE CAPITAL NETWORKS	21
OWNER SELF-FINANCING	22
BUSINESS ANGELS.....	23
VENTURE CAPITAL.....	24
<i>California Venture Capital Investments</i>	27
<i>Corporate Venture Capital</i>	34
<i>Foreign Direct Investment Venture Capital</i>	35
II. ACADEMIC EVALUATIONS OF STATE GOVERNMENT EARLY-STAGE INVESTMENT PROGRAMS	37
STATE CAPITAL FINANCING PROGRAMS	37
BEST PRACTICES OF STATE EARLY-STAGE INVESTMENT PROGRAMS	41
EVALUATIONS OF GOVERNMENT PROGRAMS INTENDED TO INCREASE BUSINESS ANGEL INVESTMENTS	42
III. IMPLICATIONS AND OPTIONS.....	43
ADDITIONAL ANALYSIS WOULD BE HELPFUL	45
APPENDIX: METHODS FOR ESTIMATING CALIFORNIA'S EARLY-STAGE INVESTMENT NEEDS.....	47
ENDNOTES.....	49

CONTENTS

COMPARISON OF OTHER STATES' CAPITAL PROGRAMS FOR SMALL BUSINESSES	55
1. INTRODUCTORY REMARKS.....	55
<i>Definition of Venture Capital.....</i>	<i>56</i>
2. PROGRAM FEATURES OF STATE-SPONSORED VENTURE CAPITAL PROGRAMS.....	56
MISSION OF STATE-SPONSORED PROGRAMS	56
<i>Necessary Steps to Determine a Program's Goal.....</i>	<i>58</i>
TYPE OF INVESTMENTS	58
ORGANIZATIONAL STRUCTURES OF THE PROGRAM	61
<i>Limited Partnership Structure</i>	<i>62</i>
<i>Advantages of Programs with Privately Managed Funds</i>	<i>62</i>
<i>Publicly Run Venture Capital Programs</i>	<i>63</i>
CREATION OF A STATE-SPONSORED CAPITAL PROGRAM	64
LIMITS AND DURATION OF THE FUNDS	65
PROGRAM COSTS AND FEES	65
PROGRAM OVERSIGHT	66
CRITERIA IN MAKING INVESTMENTS	66
SIZE OF INVESTMENTS	67
INITIAL CAPITALIZATION OF THE FUND AND SUBSEQUENT SOURCES OF CAPITALIZATION	68
LEVERAGE REQUIREMENTS.....	70
TYPE OF INSTRUMENTS USED IN PUBLIC VENTURE CAPITAL PROGRAMS	70
SIZE OF INITIAL AND CURRENT FUNDS	72
RETURNS ON INVESTMENT.....	72
ADDITIONAL ASSISTANCE TO CAPITAL FINANCING: THE VALUE OF INTEGRATED PROGRAMS.....	73
CRITERIA OF PROGRAM SUCCESS AND PERFORMANCE MEASURES.....	74
3. FINAL REMARKS	76
4. BIBLIOGRAPHY.....	77
5. SUMMARY CHART.....	79
MISSION.....	81
SPECIFIC GOALS.....	82
STRUCTURE.....	84
STRUCTURE (2).....	85
ADDITIONAL DECISIONS ON THE PROGRAM'S DESIGN.....	86
ADDITIONAL DECISIONS ON THE PROGRAM'S DESIGN (2)	87
INVESTMENT CRITERIA, SIZE OF INVESTMENTS AND TYPE OF INSTRUMENTS.....	88
6. DESCRIPTION OF THE MAIN FEATURES	89
OKLAHOMA, LOUISIANA, MASSACHUSETTES.....	91
CONNECTICUT, HAWAII, KANSAS	101
NEW HAMPSHIRE, PENNSYLVANIA, TEXAS.....	115
ARKANSAS, IOWA, MAINE	123
MICHIGAN, OREGON, UTAH.....	129

DIGEST

Assemblywoman Susan Davis asked the California Research Bureau to assess the availability of early-stage capital for California businesses and to survey programs in other states to increase the availability of this kind of capital. This report consists of two separate papers by different authors on this theme. The first, by Gus Koehler, explores the availability of start-up and venture capital to California's fastest growing business, now popularly known as "Gazelles." The second, by Rosa Moller, is a survey of the architecture of early-stage business capital programs in 15 other states.

Gazelles and Venture Capital

Dr. Koehler begins by observing that small businesses, and especially fast growing Gazelles, played a central role in pulling California out of the recession of the early 1990's. To learn more about the role of California's Gazelle herd, the Research Bureau purchased and analyzed a new data file about these businesses. Among the key findings:

- California has more Gazelles than any other state, and a third more than New York, its nearest competitor.
- There are 36.5 Gazelles per thousand firms in the San Francisco Bay Area, and only 30.6 per thousand in the Sacramento Valley. Los Angeles and San Diego are in between. However, Los Angeles has nearly twice as many Gazelles as the Bay Area.
- Contrary to conventional wisdom, Gazelles are not especially concentrated in the technology industry, but are distributed throughout wholesale and retail trade, manufacturing, finance, services, and other business categories.

Obviously, Gazelles are getting some capital; they could not grow as quickly as they have without it. Are they getting as much as they could effectively use? Dr. Koehler adapts four approaches to estimating the unmet capital needs of California's Gazelles. Each shows an intimidating shortfall, ranging from \$5 billion to more than \$11 billion. If the current level of Gazelle capital financing in Silicon Valley is taken as sufficient (it probably is not), then the Los Angeles/Orange County area had a relative shortfall of \$5.4 billion, San Diego a shortfall of nearly \$459 million, and the Sacramento Valley a shortfall of \$231 million.

Early-stage capital for Gazelles and other small businesses comes from a mix of the business owners' own money and assets, bank loans, investments by "business angels," and venture capitalists. Dr. Koehler surveys recent developments in California's venture capital industry. Most importantly, he observes that the industry makes investments through an organic web of personal interconnections and specialized knowledge that began in high technology and has not yet matured to the point where it provides capital to other fields that are probably as economically attractive.

Dr. Koehler's examination of evaluations' programs in other states to promote early-stage business investment is somewhat discouraging. He finds little evidence that these programs have been especially effective, and notes that they would have to consume a sizable share of

the state's budget to fill many of California's unmet business capital needs. So he suggests several modifications:

- Other state programs were mostly established to try to create a venture capital industry in places where there was none. California's problems are more complex. Perhaps a California venture capital program should focus on geographical areas where the industry is least well developed, such as the Sacramento Valley, and, to a lesser extent, San Diego and Los Angeles.
- California venture capitalists focus on electronics, software, and biotechnology. Other promising technologies are comparatively neglected. These include mechanical engineering, pollution control, and Gazelles in wholesale and retail trade and services.
- California's venture capital shortcomings can be understood as resulting from insufficient development of the web of interpersonal connections and intelligence gathering through which businesses that are investment opportunities are matched up with investors. Dr. Koehler makes a number of suggestions about government activities that might help expand the venture capital web while still leaving investment decisions entirely in private hands.

The Architecture of Other State Programs

The second paper in this report, by Dr. Rosa Maria Moller, reviews the structure and experiences of programs in 15 other states to increase early-stage business capital. Despite the rapid growth of private venture capital, these states have chosen to establish state investment programs for several reasons:

- There are holes in venture capital's coverage. They tend not to invest in the earliest stages of businesses. They tend not to invest in very small firms. They tend not to invest in healthy but initially slow growing firms. They may not invest in certain industries or businesses.
- These states may seek to provide cheaper early-stage capital to some kinds of businesses or in some geographic areas that need stimulation.
- A private venture capital industry may simply not exist in some states. State programs are intended to jump start their establishment.

All of these state programs involve at least an initial contribution of money by the state for business capital investment purposes. The programs can then be divided into two main categories:

- Public-private funds are principally privately managed. The state contributes initial capital, although it is usually matched by private investments and sometimes by pension fund investments. The state often sets some criteria for selecting companies in which investments will be made. The New Hampshire Business Development Corporation is a good example. It is a for-profit private corporation run by a board with both public and private sector members. Its capital comes from the state and a consortium of banks and corporations, and from securities that it sells.

The public-private model has been successful in attracting additional capital to some states (for example, Oklahoma and Louisiana, in addition to New Hampshire).

- Publicly run venture capital programs have a larger public role in their management. Some studies show these programs having higher company failure rates and lower than average returns on investment. This is probably because they are intended to pursue social goals more than immediate returns. These programs may also have trouble attracting highly skilled investment managers and making rational investment decisions within the confines of state government bureaucratic rigidities. The Massachusetts Technology Development Corporation is an example of a successful publicly run program. It enjoyed fairly substantial initial public funding, some dispensation from state personnel rules that allowed it to retain experienced investment staff, and a requirement that a private investment partner be found for each deal.

The most important lessons learned from other states are the need for establishing:

- a flexible program structure that allows the organization to function without typical bureaucratic restriction, and
- an oversight mechanism that detects operation deficiencies in an early stage of the program.

Funds to establish these programs have come from several sources. Most states directly appropriated some initial capital. A few states were able to supplement that with federal grants. Most programs are revolving funds, and are allowed to reuse repayments of investments made. Connecticut's program began with \$10 million in general obligation bond proceeds. There were some odds and ends. Oregon's program uses lottery proceeds. Michigan used a state loan from oil and gas royalties, and more recently gaming revenues. Oklahoma found a remarkably innovative way to use tax credits to fund its programs. The legislature gave the program \$50 million in tax credits. The program uses those tax credits to guarantee loans made at its direction by institutional investors (banks, mostly). If a loan fails, the program sells tax credits sufficient to make good on the institutional investor's loan. So far, Oklahoma has used this device to raise over \$20 million, and has not had to sell any tax credits.

Rosa Moller's part also provides some charts summarizing alternative actions for the design of a state-sponsored capital program and showing examples of other states' programs with interesting features. The charts also pose questions and comments that may be useful for the decision of choosing a given program feature.

I. EARLY-STAGE EQUITY CAPITAL FOR FAST GROWING SMALL BUSINESSES IN CALIFORNIA

California's economic recovery from the 1990-1994 recession was led by small businesses, especially by rapidly growing small companies nicknamed "Gazelles." However their continued success may mask a serious barrier that slows the growth of many of the state's most dynamic small firms: access to early-stage equity capital. This analysis examines the existence of such a barrier, its implications for business growth, and what an appropriate response by state government might be.

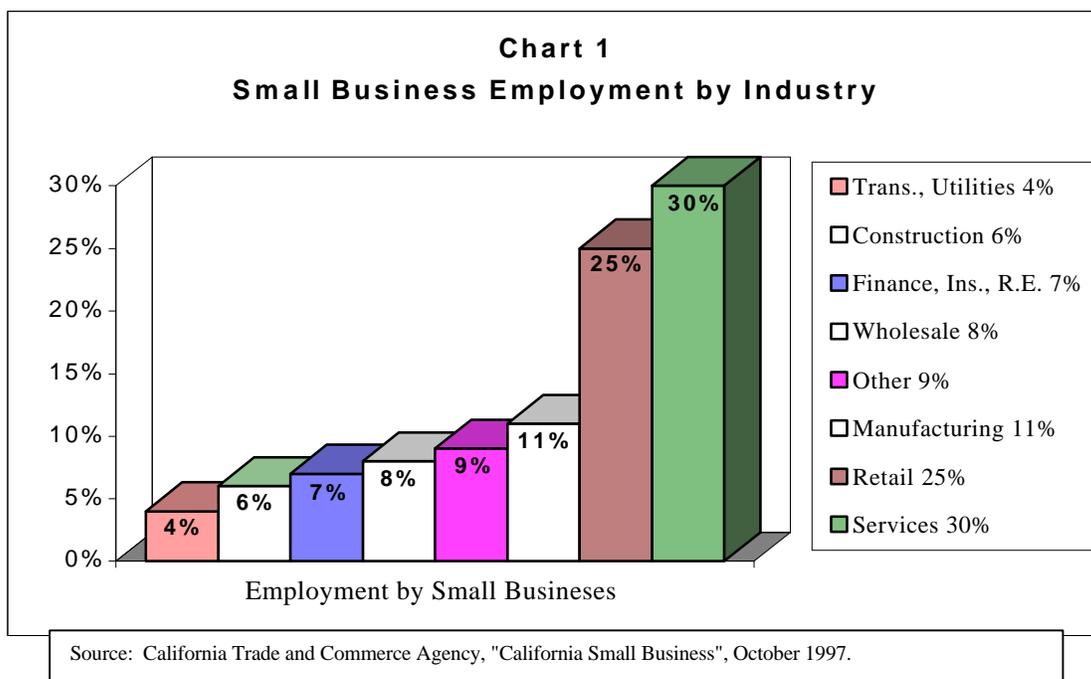
- How important are California's small and rapidly growing businesses to the state's economy?
- Are the most rapidly growing small businesses concentrated in any one industry or area of the state?
- Do rapidly growing businesses have special problems securing investment capital in the early-stages of their development?
- Is there an early-stage investment gap of between \$500,000 and \$5,000,000 for small rapidly growing businesses? If so, what accounts for this gap?
- How well do state government early-stage investment programs address this need?
- What issues must be addressed to have a successful California early-stage investment program?

CALIFORNIA'S SMALL BUSINESSES ARE IMPORTANT FOR DEVELOPING THE STATE'S ECONOMY

In 1996, California had 937,164 businesses. Over 99 percent had fewer than 500 employees. In fact, 98 percent (917,607 businesses) had fewer than 100 employees (the usual definition of a small business). Taken together, small firms with less than 100 employees employed over 6.7 million people.¹

Small businesses played a central roll in producing the new jobs that brought the state out of the worst recession it had experienced since the 1930s. From 1993 to 1997, small businesses created over 1.3 million new jobs in California, while large businesses lost 277,443 jobs. Job growth occurred across all industry sectors.² Very small businesses (less than 20 employees) accounted for 65 percent of this growth.³

The greatest number of small businesses was in the service industry, followed by retail trade, construction, and manufacturing (Chart 1). The services sector saw the greatest job growth, adding 74,500 jobs in 1996. Business service computer programming, for example, added 31,000 jobs. Health services, engineering, accounting, and research services both added more jobs in small businesses than in large businesses.⁴



A Few Rapidly Growing Firms –“Gazelles”– Account for Most Job Growth

In 1996, three to four percent of firms (between 28,115 and 34,618 firms) generated a majority of all new California jobs.⁵ These firms, called “Gazelles” by David Birch and his colleagues at the economic analysis firm Cognetics Inc., managed to double their size in four years. A Gazelle is defined as a firm that exhibits a growth in sales of 20 percent per year, starting with a base revenue of at least \$100,000.* This growth rate is comparable to that achieved by venture capital-backed companies during the five year period from 1988-1993.⁶

Most Gazelles are small to medium in size, with only six percent having more than 100 employees (Table 1). In 1996, California Gazelles with fewer than 100 employees employed more than 470,000 workers. Over 53 percent of the state’s Gazelles are less than 15 years old. About 65 percent of California Gazelles have yearly sales between \$500,000 and \$5 million; 17 percent have sales of less than \$500,000.

* The term "Gazelle" was coined by David Birch of Cognetics. We will adopt his usage and capitalize the term throughout this paper. Birch uses the Dun and Bradstreet DMI file to determine the number of Gazelles. The DMI file reported that there were about 1.1 million firms in California in 1996, compared to 937,000 reported by the California Employment Development Department’s Report 524.

Table 1 California Gazelles by Firm Size and Employment (1996)						
	Firm Employs 1-4	Firm Employs 5-19	Firm Employs 20-99	Firm Employs 100-999	Firm Employs 1000+	Total Firms/Total Employees
Percent Gazelle Firms	18.1%	52.0%	23.8%	5.6%	0.5%	34,548
Percent Gazelle Employment	1.4	12.5	21.9	23.7	40.4	1,305,775
Source: CRB using Cognetics data.						

The California Research Bureau used Cognetics Inc. data in order to understand California Gazelle firms and their unique role in the state's economy. The data show that Gazelles have a somewhat different profile than the rest of California's firms. They tend to be larger, employing a greater percentage of the workforce than small Gazelle firms. Gazelles represent only three percent of the state's total firms but employ 12 percent of the state's workforce.

California has nearly a third more Gazelles (34,618) than New York, its nearest competitor (20,522).⁷ While California ranks first in the number of Gazelles, it ranks 15th in the number of people employed by Gazelles.

Business publications rank California's Gazelles very highly:

- California had 25 of the nation's top 100 fastest growing companies in 1996 (based on growth in sales, earnings, and return on investment).⁸
- California has about 13 percent of the nation's firms but 20 percent of the nation's 500 fastest growing companies.⁹
- For seven years in a row, *Fortune* magazine has ranked California as the top state with the most "fast-growing companies".¹⁰

Regional Distribution and Characteristics of California's Gazelles

The number of Gazelles per thousand firms varies by California metropolitan area:

- 36.5 per thousand in the Bay Area,¹¹
- 34.8 per thousand in Los Angeles/Orange,
- 34.7 per thousand in San Diego, and
- 30.6 per thousand in Sacramento.

Although the Bay Area has a higher ratio of Gazelle firms, Los Angeles has nearly twice as many firms, employing over a third more people. Los Angeles/Orange and Sacramento Gazelles tend to be smaller than those in the Bay Area. San Diego has the largest

concentration of young (less than 15 years old) Gazelle firms (60 percent), followed by Los Angeles (55 percent), San Francisco Bay Area (54 percent), and Sacramento (51 percent).¹²

Area	Firms with 1-4	Firms with 5-19	Firms with 20-99	Firms with 100-999	Firms with 1000+	Totals Firms*	Total Employees
Los Angeles	17.8%	51.5%	24.4%	5.8%	0.5%	16,851	616,624
San Francisco-Oakland-San Jose	17.8	50.6	24.2	6.5	0.8	8,714	392,953
San Diego	17.4	52.2	24.0	5.9	0.5	2,811	107,071
Sacramento	19.0	55.4	21.9	3.3	0.5	1,546	60,162
California	18.1	52.0	23.8	5.6	0.5	34,548	1,305,775
Nationally	17.8	53.1	23.4	5.1	0.5		

*Based on estimates by Birch, 1997. This data series does not have complete information for all firms resulting in a lower firm total. The total California Gazelles are reported as is the total Gazelle state employment.
Source: CRB based on data from David Birch, Anne Haggerty, and William Parsons, *Corporate Almanac*, Cognetics, Cambridge, MA, 1997, p. 72.

Area	<\$500K	\$500K-\$5M	\$5M-\$50M	\$50M-\$500M	\$500M+
Los Angeles	15.5%	64.2%	18.0%	2.2%	0.1%
San Francisco-Oakland-San Jose	16.8	63.2	16.9	2.7	0.4
San Diego	17.2	64.7	16.0	2.0	0.1
Sacramento	19.2	70.5	8.9	1.2	0.2
California	17.0	64.5	16.3	2.1	0.2
Nationally	20.0	65.0	16.0	na	na

Source: CRB using data from David Birch, Anne Haggerty, and William Parsons, *Corporate Almanac*, Cognetics, Cambridge, MA, 1997, p. 74.

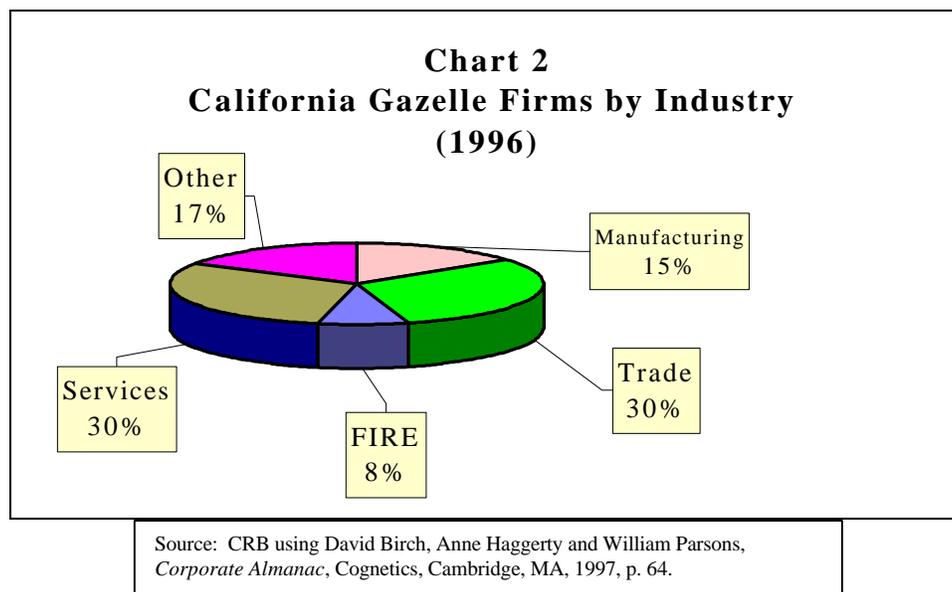
The data in Tables 2 and 3 clearly demonstrate that young rapidly growing firms are not concentrated in one geographic area but occur across the state. In fact it appears that Los Angeles has the largest number. Compared to the Bay Area, Los Angeles/Orange has more firms with revenues in the \$5 million to \$50 million-dollar range. (This geographical point is important to our analysis of the distribution of venture capital investments below.)

Gazelles are Not Restricted to Fast Growing Industry Sectors

California's 34,618 Gazelles are *not* concentrated in a single industry (Table 4): services, wholesale/retail trade, and manufacturing each are significant. Employment is distributed across industry sectors.

Area	Manufacturing	Wholesale/ Retail Trade	FIRE*	Service	Other
Los Angeles Firms	16.0%	32.9%	8.0%	28.8%	14.2%
<i>Employment</i>	<i>25.3</i>	<i>27.6</i>	<i>7.4</i>	<i>28.7</i>	<i>10.9</i>
San Francisco- Oakland-San Jose Firms	15.8	27.8	7.9	33.6	14.9
<i>Employment</i>	<i>34.1</i>	<i>20.3</i>	<i>6.8</i>	<i>29.1</i>	<i>9.7</i>
San Diego Firms	15.0	30.0	8.7	30.7	15.6
<i>Employment</i>	<i>28.4</i>	<i>23.4</i>	<i>6.6</i>	<i>31.9</i>	<i>9.7</i>
Sacramento Firms	8.0	26.6	9.5	33.6	22.3
<i>Employment</i>	<i>22.9</i>	<i>25.1</i>	<i>9.1</i>	<i>30.5</i>	<i>12.4</i>
California Firms	14.6	30.9	7.9	29.8	16.8
<i>Employment</i>	<i>27.4</i>	<i>24.8</i>	<i>7.1</i>	<i>28.8</i>	<i>11.9</i>
Nationally (firms only)**	12.0	31.0	8.0	26.0	23.0
<p>*FIRE - Finance, Insurance, & Real Estate **Employment data is not available. Source: CRB, data from David Birch, Anne Haggerty, and William Parsons, <i>Corporate Almanac</i>, Cognetics, Cambridge, MA, 1997, pp. 76-77.</p>					

Chart 2 shows the relative concentration of California's Gazelles by industry.¹³



Interesting differences in industry concentration emerge when we organize the data by metropolitan area (Table 4). For example, Gazelle firms in Los Angeles and the Bay Area are equally concentrated in manufacturing, but the Bay Area firms employ significantly more people.

This industrial distribution of California Gazelles is consistent with national data in which Birch and his colleagues have identified the national industry sectors that have been particularly "hot" in growing Gazelles from 1992-1996 (Table 5). They find that growing companies are not necessarily found only in growing sectors."¹⁴ For example, manufacturing and wholesale were among the slower growing sectors during this period, yet they produced the largest proportion of rapidly growing firms. Services were one of the fastest growing industry sectors, yet produced the fewest rapidly growing firms. A more detailed analysis found that only two of the top twenty national Gazelle growth sectors were in "high-tech" industries (electronics and instruments). Most Gazelles were located in average or slow growing industrial sectors such as textiles, paper products, heavy construction, and stone, clay and glass products.

Rank	Sector	Percent of Gazelles
1	Wholesale Trade	7.1%
2	Manufacturing	7.0
3	Mining	4.9
4	Construction	4.6
5	Transportation, Communications, Utilities	4.4
6	Finance, Insurance, RE	3.1
7	Retail Trade	2.6
8	Agriculture, Forestry, Fish	2.6
9	Services	2.2

*Standard Industry Category.
Source: David Birch, Anne Haggerty, and William Parsons,
Hot Industries, Cognetics, Cambridge, MA, 1997, p. 3.

These trends can change quickly. Isolating new start-up firms from the more mature Gazelles in 1992-1996 reveals a different picture for the future. These “Baby Gazelles”, are concentrated more in manufacturing and transportation, communications and utilities (Table 6).

Rank	Sector
1	Manufacturing
2	Transportation, Communications, Utilities
3	Wholesale Trade
4	Services
5	Construction
6	Mining
7	Finance, Insurance, RE
8	Retail Trade
9	Agriculture, Forestry, Fishing

Source: David Birch, Anne Haggerty, and William Parsons,
Hot Industries, Cognetics, Cambridge, MA, 1997, p. 5.

What has historically accounted for this movement into new economic sectors?

- Large firms in mature industrial sectors may downsize or contract out for parts and services. This creates new niches for new products and for methods to manufacture existing products more efficiently.

- Gazelles adopt new technologies faster than other firms, making it easier to capture any cost advantage.¹⁵ It is not the production of new technology but its application that creates economic advantage: “Only 1.8% of the Gazelles are in [high-technology product producing sectors]; the remaining 98.2 % are appliers of technology.”¹⁶

EARLY-STAGE FINANCING IS CRITICAL TO THE INITIAL DEVELOPMENT AND GROWTH OF GAZELLES

As a company develops, its financing needs and available sources for capital change. Business financing can be divided into two stages: early-stage and later-stage. Early-stage financing funds the founding of a company up to the point where it is just about to make a profit and includes seed, start-up, first stage, and some second stage funding (see definitions below). Later-stage financing includes: second stage, mezzanine, bridge, and expansion financing. Later-stage financing can lead to making a public stock offering, sale of the company, or expansion.¹⁷

- *Seed financing*: Capital provided to an entrepreneur to prove a concept or to develop a product. It rarely covers initial marketing costs.
- *Start-up financing*: Capital provided to companies for product development and initial marketing. Companies are generally in the process of organizing or are less than a year old. They have not yet sold their product commercially. Key managers are assembled, a business plan developed, and some market studies conducted.
- *First stage financing*: Capital provided to companies that have expended their initial capital (often in developing a prototype), requiring funds to initiate commercial manufacturing and sales.
- *Second stage financing*: Working capital for the initial expansion of a company that has growing accounts receivable and inventories. Although the company has made progress, it may not be showing a profit yet.
- *Mezzanine financing*: Capital for a major company expansion when sales volume is increasing and the company is breaking even or is profitable. The additional capital supports further expansion, marketing or development of an improved product.
- *Bridge financing*: Financing for a company expecting to go public within six months to a year.
- *Expansion stages*: Capital supports expanded manufacturing, marketing and other capabilities to meet growing opportunities, including designing new products and refining manufacturing processes.

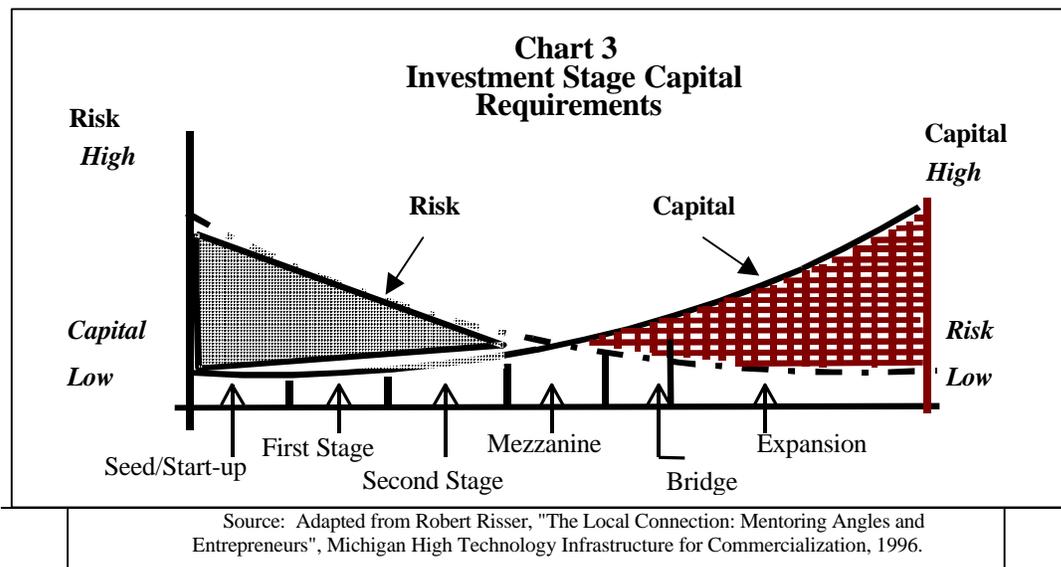
Capital requirements vary from stage-to-stage in the life of a firm.¹⁸ *The 1995 White House Conference on Small Business* defined a firm's need for seed and start-up capital as between \$250,000 to \$5,000,000.¹⁹ A new business requires \$4.2 million to \$16.5 million (or more, depending on the industry) in funding for its first five years.²⁰

- Seed or conceptualizing the company – \$50,000 to \$250,000
- Start-up – \$100,000 to \$1 million
- First stage (involving product prototype, proof of concept, some marketing, etc.) – \$250,000 to \$2 million
- Second stage:
 - * Expansion of marketing – \$1 million to \$5 million
 - * Expansion of production capabilities – \$3 million to \$10 million
- Mezzanine, Bridge, and Expansion (leading to public offering) – \$2 million to \$20 million.

Four-fifths of California's Gazelles have annual revenues of less than \$5 million. Of these, about 16 percent have sales of less than \$500,000. Clearly, these firms cannot meet their capital requirements if their retained earnings do not keep up with their rapid growth without turning to external sources of capital.

Risk Financing and Business Stage of Development

Early-stage financing is far riskier than later-stage financing (Chart 3). Two factors account for higher early-stage risks. First, a firm may need to grow faster than its ability to generate internal capital from profits. Increased debt financing (one way of generating capital), when combined with expenditures of internally generated capital can, under some conditions, cause a negative cash flow. Second, untried technology, difficult management problems, and other risks associated with company development increase early-stage risks (these factors are discussed below).



Companies cannot grow faster than their retained earnings unless they are able to obtain outside capital. The following ratios must remain balanced for a firm to be healthy:²¹

- Annual sales to inventory,
- Current assets to current liabilities,
- Cash and equivalents to accounts payable, and
- Debt (short- and long-term) to equity ratio.

If a company's sales and payroll double in volume, it must also nearly double:

- Inventory—to meet customer demands in a timely way,
- Trade accounts receivable and payable because sales have doubled,
- Capital equipment to produce more of the product,
- Facilities to make room for additional employees and equipment, and

- Equity – to keep debt-to-equity ratios balanced.

A firm's ability to raise capital is also associated with the risks inherent to its stage of development. These risks can be grouped into six categories:²²

- *Technology risks*: Does the technology or product work as expected? Can intellectual property be protected? How will rivals respond to the introduction of a new product?
- *Nature of firm's assets*: Are assets tangible – i.e. machines, buildings, land, or physical inventory? – or intangible, such as trade secrets? When assets are intangible (and thus difficult to retain and/or sell), raising outside financing from traditional sources may be difficult.
- *Manufacturing risk*: Can the product be reliably manufactured at an acceptable cost that is competitive in the market place?
- *Management risk*: Does the management team have the experience and capability required to manage a rapidly growing company? Is management risk-averse or over optimistic? Is the founding entrepreneur likely to take detrimental actions that the investors can not observe, such as funding high profile, but unnecessary projects at the investors' expense?
- *Market growth risk*: Will the market grow fast enough or be large enough to justify the investment?
- *Overall degree of uncertainty*: Based on the above factors, is the range of possible outcomes so large as to generate a high level of uncertainty?

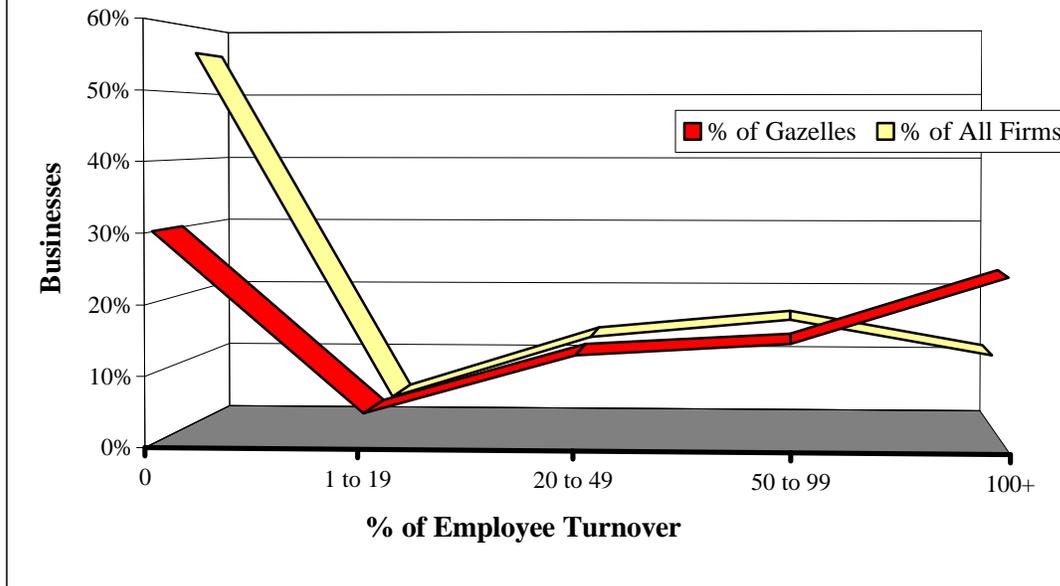
Clearly the earliest stages of a firm's development have the highest risk. Not only must the new technology be proven, but also the chances for successfully manufacturing and marketing the product to an unknown customer are uncertain. Furthermore, management may lack the capacity to expand the company. For example, the engineer or scientist who developed the technology may not know how to market it or how to manage an expanding company. Even though firm capital needs are low, the risk of investment loss is high.

Risks associated with later-first and second stage financing are reduced because the product technology works and initial manufacturing tests have been passed. The risks that remain are associated with the firm's assets and developing a management team to guide growth. At this stage capital needs are high and risk of failure is reduced. Also, the possibility of getting a quick return on investment is higher.

Gazelles are Less Stable Than Slower Growing Firms

The faster a firm grows the higher the risk. The firm must be able to quickly expand by increasing production and hiring new employees. Fluctuations in number of employees or "volatility" are an indirect measure of this growth process. Cognetics' Volatility Index (Chart 4) compares the employment volatility of all California firms to that of California Gazelles. Higher volatility indicates a high rate of restructuring and growth, accompanied by a greater risk of success or failure.

Chart 4
Employment Volatility of California Gazelles Compared to
All Firms (1992-1996)



Source: CRB using David Birch, Anne Haggerty, and William Parsons, *Corporate Almanac*, Cognetics, Cambridge, MA, 1997, pp. 48 and 68.

Gazelles are much more volatile than slower growing firms. Twenty-five percent of the California Gazelles are highly volatile, compared to only ten percent of all firms. Gazelles are more volatile because they face higher risks. These risks are associated with:

- *Higher product and manufacturing risk:* Producing new and experimental products in high-risk sectors increases both the chances of dramatic success or failure.
- *High rate of manufacturing which is tied to market growth risks:* The rate of growth may exceed the ability to obtain capital and to manage a higher rate of manufacturing, causing failure*
- *Overall degree of uncertainty is high:* market demand may undergo sudden expansions or contractions requiring a just-in-time workforce and access to just-in-time capital.

California ranked fourth among the states in Gazelle volatility from 1992-1996 (Alaska was first, followed by Nevada and Washington).²³ Areas with higher volatility may be fast growing areas in which new start-ups quickly emerge and succeed or fail.

* Smaller firms helped pull the state out of the recession, even though they had a noticeably lower survival rate (67 percent) than larger firms (83 percent) (1991-1995). The Employment Development Department attributes this to the fact “that the smallest firms generally lack the financial resources needed to survive. For example, small firms usually are not as well capitalized as larger firms, nor do they have the same ability to attract credit.” They may also have management and other problems that increase their risk of failure.

Studies of small firm development emphasize the need to help rapidly growing firms overcome financial and other barriers to expansion or market entry.²⁴ Access to capital for this purpose is much more important than the cost of capital. A new enterprise or a rapidly growing one must have access to “different sources and kinds of funds at different times. Foreclosing any one of them...can have the same effect as depriving a developing organism of a vital nutrient.”²⁵ Dynamically balanced capital, management, and marketing are necessary to succeed.

The timely availability of early-stage financing and assistance to reduce risk can have a substantial, positive effect on a firm’s immediate growth, employment and on long term company revenues. Fast growing companies that received funding from investors two to three years after start-up produced 30 percent higher revenues and raised nearly five times more money than those receiving bank financing.²⁶ Another study found that venture-backed companies increased their employment by 45 percent in their first five years.²⁷ Constraints on capital limit many forms of internal business investment, particularly research and development, that are key to Gazelle development in all industry sectors.²⁸

Estimate of Gazelle Early-Stage Capital Needs

There is little current California data on the financing needs of Gazelles or small businesses generally. This makes it very difficult to confirm that a funding gap exists or to ascertain its size. Several surveys are instructive.

- Surveys of firms in Southern California conducted in 1993-94 found a considerable level of pent-up loan demand. From 30 percent to 40 percent of the firms surveyed had been in business less than five years. Between 35 percent to 45 percent of all surveyed firms planned to expand in the next two to three years, depending on location. More than 50 percent stated they would expand if financing were available. Of those actually planning expansions, about 35 percent needed access to business loans. A majority of these firms required a loan of less than \$50,000, nearly 15 percent needed a loan between \$51,000 and \$100,000, with the remainder of firms (about 13 percent) requiring \$101,000 to \$250,000 or more.²⁹
- A 1996 survey found that 30 percent of the Orange County businesses surveyed identified lack of access to credit, working capital, and cash flow as major obstacles to business expansion.³⁰

Fifteen of the top 60 recommendations adopted at the 1995 White House Conference on Small Business identified capital access as a top priority.³¹ A 1996 Small Business Administration study found that: “The number of entrepreneurial ventures that need equity financing is estimated to include about 50,000 start-ups per year (5%-10% of total start-ups) and 300,000 ventures growing faster than 20% per year (including about 80,000 growing faster than 50% per year).”³² The 1997 “National Survey of Early-Stage Capital

Investing” by state programs reported that 95 percent of the state program fund managers believe there is a capital gap in their state/region.³³

Over the past few years numerous state and regional studies have consistently called for increased and timely access to capital in order to increase the number of firms that survive and grow. Examples include:

- *California Master Plan for Economic Development*, California Engineering Foundation, 1987.
- *Toward an ADEPT California*, by the California Assembly Democratic Economic Prosperity Team, 1992.
- *California Economic Strategies*, by the California Economic Strategies Work Group, 1993.
- *Mobilizing for Competitiveness*, by the California Roundtable, 1994.
- *The New Economy Project*, The Friedman Group for RLA, 1994.
- *New Challenges to California State Government’s Economic Development Engine*, Gus Koehler, Ph.D., California Research Bureau, 1994.
- *A Strategic Response to Base Reuse Opportunities*, California Military Base Reuse Task Force, 1994.
- *Regional Comprehensive Plan and Guide*, Southern California Association of Governments, 1995.
- *Defense Conversion in California: Economies in Transition* (Draft), Trade and Commerce Agency, 1996.
- *Report on Small Business Credit Availability*, Rosa Moller, Ph.D., California Research Bureau, 1996.
- *Collaborating to Compete in the New Economy*, Trade and Commerce Agency, 1996.
- *Gateway Cities Economic Strategy Initiative*, Council of Governments Southeast Los Angeles County, 1996.

The U.S. Small Business Administration (SBA) estimates small businesses’ yearly unmet need for patient, early-stage high-risk investment equity capital to be about \$60 billion: “Raising additional patient, high-risk equity financing in the range of \$20-\$30 billion per year is our country’s real capital formation challenge.”³⁴ California accounts for about 12.8 percent of the nation’s firms.³⁵ Projecting from SBA national estimates, California firms yearly need for early-stage high-risk investment equity capital is between \$10.2 - \$11.5 billion. The state's shortfall would be \$7.2 to \$8.4 billion at current investment rates.

As noted above, Gazelles are the fastest growing three percent to four percent of California’s businesses. About 70 percent are relatively young and employ from one to 19 employees. Each of these approximately 24,000 small Gazelles competes with other businesses as they seek between \$50,000 and \$5 million in financing. The smallest Gazelles (one to four employees) need between \$200,000 and \$1 million per firm. As a group, they need about \$1.2 - \$6.3 billion in early-stage financing. If we assume that these companies require seed, start-up or early-stage financing, and received an estimated \$0.8 billion in

1996, the short-fall was between \$400 million and \$5.7 billion.³⁶ Larger Gazelles who are farther along in the development cycle require substantially more funding.

In 1995, Oregon attempted to estimate the total venture capital requirements of its firms. The estimate was based on the amount of venture capital invested in Oregon as a percent of Gross State Product over ten years, and over 15 years in Washington, Colorado, and Arizona. Applying the same method for California (which is probably low, see Appendix), California businesses require around \$77.9 billion in total venture capital to fund all stages of the business development cycle in 1997; of this amount, about 35 percent is required for investment prior to a public offering (IPO). Therefore, California firms need about \$27.3 billion in financing up to this point.³⁷ Venture capitalists and business angels (whose role will be discussed in more detail further in the report) typically provide this money. Available data indicate a significant shortfall, as discussed below.

Sources of Early-Stage Small Business Financing

Small businesses depend on owners, family, and friends for the lion’s share of seed and start-up financing (Table 7). “Business angels” or wealthy individuals willing to invest in a start-up are an additional major source of capital. Venture capitalists, banks, and business alliances generally do not play a very significant financial role at this early-stage.³⁸ Table 7 shows how various funding sources meet early-stage capital needs.

Owners, Family & Friends	73%
Outside Investors	
Venture Capitalists	1%
Business Angels	12%
Banks	8%
Alliances With Other Businesses	6%

Table 8
Sources of Equity Capital⁴⁰

<u>Business Needs</u>	<u>Sources</u>	<u>Market Structure</u>
Under \$250,000	Founders, Family, Friends Investment Clubs, Cooperatives	Local
\$200,000 - \$5 million	Business Angels	Networked and Geographically Concentrated
\$5 million+	Venture Capital: Domestic Corporate Foreign	Networked and Geographically Concentrated.

As a firm develops and moves to late first and early second stage financing, investment capital sources gradually shift from personal resources, such as credit cards, to business angels and venture capitalists (Table 8). These sources of capital tend to operate in regional networks, specialize in particular industries, and often become personally involved in the business (these points are discussed below).

Rather than investing all of the funds in a single stage, investors tend to parcel them out over several stages or “rounds,” based on the progress that a company is making. Individual investors, including business angels, play an important role in seed and start-up financing, as shown in Table 9. Venture capitalists concentrate their funding in first and

Table 9
Number of Investment Rounds by Stage of Investment (1991)

Investment Stage	Private Individuals: # of Investment Rounds and % of Invested \$	Venture Capital: # of Investment Rounds and % of Invested \$
Seed	52 (29%)	11 (6%)
Start-Up	55 (31%)	38 (22%)
First Stage	29 (16%)	56 (32%)
Second Stage	26 (15%)	46 (27%)
Third Stage	10 (6%)	19 (11%)
Bridge	5 (3%)	3 (2%)
Totals:	177 (100%)	173 (100%)

Source: M. L. Lohr, MCM Systems, Inc., presentation to Defense Conversion Panel.

second stage development phases. Each type of investor – owners, business angels, venture capitalists – has a special role to play if the business is to develop quickly and successfully.

Industry Clusters and the Emergence of Venture Capital Networks

The growth of venture capital in California has not solved all start-up financing problems. Venture capital investment has concentrated mostly in a few high-technology sectors – perhaps even with too much investment – while other sectors receive too little. There also seems to be a continuing asymmetry in funding between regions, even though a number of California’s regions have a significant number of Gazelles. Are these funding patterns an appropriate response to investment opportunities or do they represent underdeveloped markets?

Industries tend to agglomerate in regions.⁴¹ This is particularly true of high-technology industries that develop around universities and other research-oriented resources.⁴² Once these agglomerations begin to develop, they accelerate in their formation by drawing other similar companies and services to the same geographic area.⁴³ Highly specialized and institutionalized legal, accounting, workforce training, capital and other support structures emerge along with an industry cluster.⁴⁴

California venture capital investments tend to flow to established high technology industry clusters.⁴⁵ Venture investing is a unique form of highly institutionalized financing that emerged historically along with high-risk, high technology industrial clusters.⁴⁶ This form of investment requires sophisticated industry cluster-related technical knowledge and management skill.

Local wealthy entrepreneurs (business angels), who made their money in the early years of a cluster’s development, provided the initial venture capital. Once it is clear that risks are being overcome and profits made, the cluster attracts new local venture capital, eventually producing a more institutionalized investment structure. This structure makes it possible for national and foreign venture capitalists to form co-ventures with local venture capitalists, resulting in an increased capital flow to the emerging industry cluster.

For example, from 1973 to 1987 there was a substantial shift of venture capital offices out of the financial centers of Chicago and New York to newly emerging high technology centers such as Silicon Valley and Route 128 in Boston. In 1993 Boston and San Jose attracted almost two-thirds of the investments made by San Francisco venture capitalists and about one-half of the investments made by New York venture capitalists. San Jose venture capitalists made over 45 percent of their investments locally.

This analysis suggests that there is a highly mobile capital flow of venture co-investments directed by local, knowledgeable venture capitalists towards geographically concentrated emergent industry clusters. Co-investing or “syndication” also channels the flow of foreign or national capital through local venture capitalists to those local investments with the best potential opportunity. Richard Florida and Donald Smith of Carnegie Mellon University

argue: “Capital mobility occurs, not through the operation of a free market, but through the network structure of the venture capital industry, which is strongly rooted in geography.”⁴⁷

Owner Self-Financing

There is limited data on the ability of individual entrepreneurs to fund start-up businesses. Personal credit cards are an increasing source of capital, while bank loans are a decreasing source. Since 1993, the number of small-established firms using credit card financing has grown from 17 percent to 34 percent (in 1997). About 24 percent of the companies that rely on credit card financing carry a balance forward each month. Concurrently, the number of firms that secure commercial bank loans has declined from 49 percent in 1993 to 38 percent in 1997. These firms also have less access to vendor credit, leasing, inventory collateral, and other methods of financing used by larger firms. A 1997 Arthur Anderson survey found that 31 percent of firms with fewer than 19 employees obtained no outside financing at all. Larger and more mature firms (100 to 499 employees) are more likely to receive commercial bank loans, or leasing and asset-based financing. Table 10 shows percentages of firms receiving each type of financing; totals are more than 100 percent as many firms have multiple sources of funding.

Financing Source:	Up to 19 Employees	20 to 99 Employees	100 to 499 Employees
Commercial bank loan	34%	62%	67%
Credit cards	34	27	22
Vendor credit	19	28	27
Private loans	17	10	8
Leasing	13	34	40
Personal or home equity bank loan	16	8	5
Selling/pledging accounts receivable	4	8	8
SBA guaranteed loan	4	5	5
Asset based, inventory as collateral	3	8	20
Private placement stock	3	3	2
Venture capital	1	0	2
Public issuance of stock	1	0	2
Obtained no outside financing	31	19	13
Source: Arthur Andersen, “Survey of Small and Mid-Sized Businesses,” 1997, p. 39.			

The increasing dependence of small start-up firms on personal financing (two-thirds rely on credit cards, private loans or home equity loans) suggests that they experience significant problems in generating the necessary capital to grow. Early-stage companies, or those in an

unusually risky market, are even less likely to find a good balance of financing between personal investment, debt, and equity capital. Early-stage bank debt financing seems particularly remote given decreasing commercial bank loan availability for smaller companies.

Business Angels

Business angels are wealthy individuals who invest risk capital in the range of \$200,000 and \$1.5 million in early-stage companies. They are often self-made, wealthy individuals, with extensive entrepreneurial experience in specific technologies or areas of commerce. They tend to have financial investment experience in their specialty areas,⁴⁸ invest close to home, involve themselves in managing the firm, and invest with trusted friends. In 1997 most business angels financed seed and start-up deals in the range of \$200,000 to \$1 million. Investment returns were often no higher (and often less) than comparable returns to venture capital firms.⁴⁹

There is little California-specific data on the activities of business angels. For this reason the following discussion draws from national studies.

Informal investor markets tend to be self-contained regional networks of investors who know each other and are networked to obtain informal local information about good deals. Activity varies by region and industry. For example, ethnic business angels associated with particular industries may play a very important local financing role. The presence of business angel networks is related to the maturity of regional industry clusters such as those in Silicon Valley and Route 128 in Boston.⁵⁰

Investors often experience difficulty in finding sufficient investment opportunities. A 1992 study found that 54 percent of those surveyed wanted to invest up to 34 percent more money in firms than the volume of opportunities permitted.⁵¹ Limiting factors included:⁵²

- *Low quality investment proposals:* Sixty percent of the investors in the survey said that they do not read beyond the executive summary of more than 70 percent of the proposals they receive.⁵³
- *Poor communication:* Business angels tend to depend on opportunities presented by friends and do not engage in a proactive search for good deals. Furthermore, networking connections become less useful over time. A majority of investors expressed dissatisfaction with this approach and wanted improved channels of communication with businesses seeking risk capital.
- *Insufficient expertise:* Many informal investors have little or no experience in pricing and structuring an investment in a sector outside their own expertise.
- *Inadequate analysis:* There is no alternative system for investigating the availability of investment opportunities outside of traditional intermediaries such as accountants, venture capitalists and banks.

A 1991 study found that 60 percent of new technology companies raised their *initial* capital of under \$1 million from business angels.⁵⁴ In contrast, venture capitalists provided about 48 percent of the *total value* of initial seed investments. This is because when venture capitalists do invest in the seed or start-up stage they tend to invest larger amounts. In addition, the role of business angels declines after a firm's investment requirements exceed \$1 million and it has moved into the later first stage or early-second stage. Nonetheless, the size of the business angel market, measured in terms of total dollars invested, is at least five times that of the institutional venture capital market. Business angels finance at least 20 times more firms than do venture capitalists.⁵⁵ This suggests that many firms backed by business angels either do not grow or fail. Only a few that show high growth potential benefit from subsequent venture capital investments.

Researchers estimate that the need for patient, high-risk business angel equity capital is about 15 times the annual investment of the institutional venture capital pool in the U.S. Based on our previous estimate of small Gazelle capital needs (pages 13 and 14), California firms need an additional \$18 - \$97.5 billion in patient high-risk business angel financing.

Some commentators contend that the business angel market could grow by a factor of five to ten if latent or potential investors – “virgin angels” – participated. They are being held back by the perceived risks associated with early-stage investment, lack of technical evaluation and financial expertise, limited access to deals, and less personal wealth than current investors.⁵⁶ They might invest if they personally knew a company's management team, received trustworthy investment information, and could benefit from investment tax incentives.⁵⁷

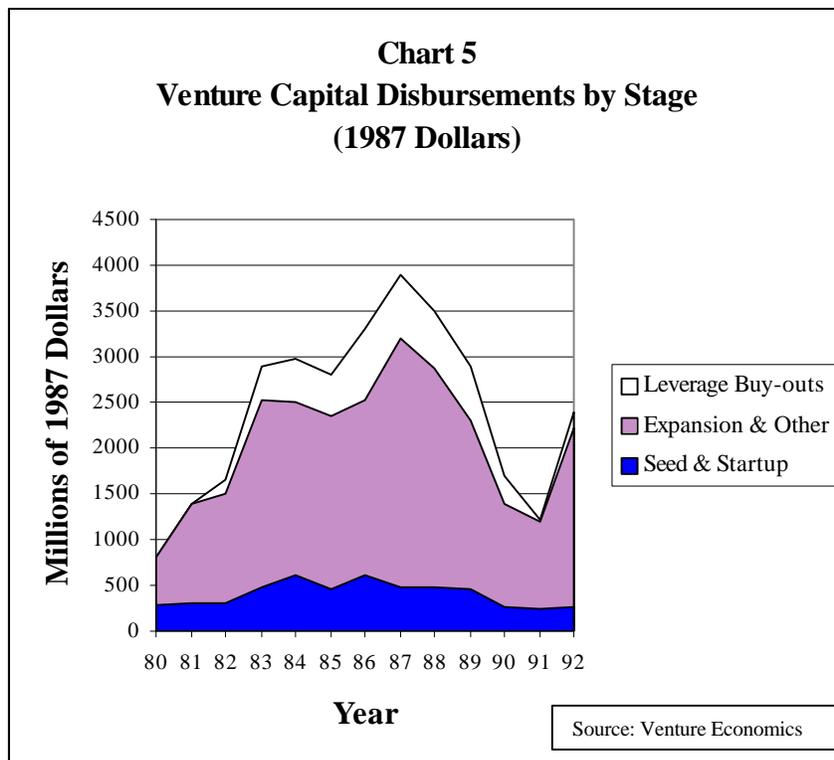
Venture Capital

“Venture capitalism in general may be defined as highly selective equity investment in small, young, growth-oriented businesses.”⁵⁸ Up until the late 1980s, venture capitalists provided over half (56 percent) of the funds necessary to start a company in the U.S.; company founders provided 23 percent, private individual investors 12 percent, and other sources nine percent. Venture capitalist investments were usually between \$250,000 and \$1 million. However, venture capital investment has fallen off, although it continues to be very important for later-stage growth. What accounts for this shift?

In the last decade, the number of venture capital funds in the U.S. have fluctuated from a high of 74 in 1987 to a low of 25 in 1991, rebounding to 72 funds in 1996.^{†59} The sudden growth and decline in venture capital funds resulted in part from changes in the tax code, an economic boom and recession, and the sudden influx of pension and private investor capital. During the economic boom in the late 1980s, a sudden increase in investment funding tended to increase the cost of good deals because there were more investors chasing them and spreading capital into less attractive deals.⁶⁰ A greater number of the more risky deals failed. This trend was exacerbated by new funds and less experienced fund managers that

[†] The number of venture groups has been declining from a high of 670 in 1989 to a low of 610 in 1995.

played follow-the-leader into a limited number of industries, investing in riskier deals and again resulting in a significant number of failures and a souring of various industry markets. As a consequence, pension fund and other investors moved to more lucrative opportunities, leading to the collapse of a significant number of funds.



Since there was so much venture capital available in certain industries, key people defected from large, profitable firms to establish their own start-up firms. These companies with their need for continued infusions of capital, lack of distribution and marketing networks, and less experienced management teams, often were unable to sustain their initial momentum. A kind of “churning” pulled technical talent out of larger companies into smaller ones and did not create a significant number of jobs or failed. Finally, more funds tended to push fund managers toward bigger deals since it costs more to evaluate and manage many small ones. (These trends may be at play again in “hot” investment markets such as the Bay Area.)

Average venture capital fund size in the U.S. grew from \$30 million in 1988 to \$138 million in 1996. The total amount of capital managed by all firms grew from \$19.6 billion in 1985 to \$44 billion in 1995. Each firm also manages larger investments averaging about \$4.7 to \$6.7 million. In 1990, new venture capital investments totaled \$2 billion; in 1996 new investments reached an all-time high of \$6.6 billion.⁶¹ Pension funds account for more than 40 percent of the venture capital raised during the last eight years. Endowments and foundations are the second largest source of investment, averaging about 20 percent of the funds each year.⁶²

Due to the often time consuming and costly negotiations, institutional investors prefer making relatively large investments (typically \$10 million or more) in a few funds.⁶³ Some analysts are concerned that this trend toward larger and safer investments, combined with efforts to improve profit margins by managing fewer investments, has moved venture capitalists away from riskier, smaller start-up deals to the more profitable, later-stage firm investments.⁶⁴

Venture capital disbursements in the U.S. have varied considerably by stage of firm development (Chart 5). There was a steady but gradual increase in seed and start-up funding, peaking in the early-to-mid 1980s at over \$500 million. This dropped to about \$200 million from 1989 to 1992, just below the 1980 level. By 1995 all early-stage investments (seed through early second stage) accounted for slightly more than 25 percent of total venture capital investments: "This included \$88 million for 74 seed deals (averaging \$1.2 million per deal), and \$1.8 billion for 395 first-round deals (averaging \$4.6 million per deal)."⁶⁵ Funds committed to leveraged buy-outs, firm expansion and other activities have grown at a substantially greater rate than early-stage investments.

Venture firms often invest in more advanced early-stage companies, add to their investments, and then sell out or make a public stock offering. In 1994, about two-thirds of venture capital investments went to additional later stage support for firms already in their portfolios.⁶⁶ Individual venture capital company investments may be cyclical, with an early seed and start-up investment phase followed by a later-stage investment period as the earlier investments ripen.

Researchers tracked 1,004 national venture capital investments totaling \$2.8 billion made by 40 venture partnerships between 1985 and 1992. Table 11 reports the results. About 46 percent of the investments resulted in write-offs, were sold below cost, or were sold at cost for a loss of \$726 million. The remaining 54 percent of the investments, which achieved returns of one to ten times the initial investment, resulted in a profit of \$5.3 billion.

Table 11			
Results of 1,004 U.S. Venture Capital Investments Made Between 1985 and 1992 (as of 1996)			
Investment Action:	Number of Investments and (%)	Cost (Millions)	Value (Millions)
Write-Offs	172 (17%)	\$395	\$40
Sold Below Cost	221 (22%)	596	225
Sold At Cost	70 (7%)	187	187
Return 1-5 xs Investment	382 (38%)	1,164	3,059
Return 5-10 xs	83 (8%)	242	1,713
Return over 10xs	76 (8%)	206	3,703
Total	1,004	\$2,790	\$8,927
Source: Philip Horsley, "Trends in Private Equity" Conference of State Sponsored Seed and Venture Funds, Santa Fe, New Mexico, October 22-25, 1997.			

California Venture Capital Investments

California received \$4.8 billion in venture capital funding in 1997,[‡] 32 percent of the national total.⁶⁷ The number of deals increased from 734 in 1996 to 912 in 1997, up 24 percent.⁶⁸ Current rates of return are in the 25 percent to 30 percent range in California.⁶⁹

Table 12 shows that the Bay Area received the lion's share of both national (26 percent) and California (76.5 percent) venture capital investments in 1997.⁷⁰ The average firm investment for the state was \$5.3 million, but the amount varied by region:

- Silicon Valley, \$5.3 million,
- LA/Orange, \$5.9 million,
- San Diego, \$4.7 million, and
- Sacramento/Northern California, \$4.4 million.

[‡] Nationally, 2,690 venture capital-backed companies received \$12.8 billion in 1997, a 34 percent increase over \$9.5 billion in 1996. The 1997 figure represented a 52 percent increase in the number of companies funded over 1996, and a 70 percent increase over the \$7.5 billion invested in 1995.

Region	Total Investment (millions)	Number of Investments	Average Investment (millions)	Percent of National Investments	Percent of California Investments
Silicon Valley	\$3,662.2	698	\$5.25	28.6%	76.2%
LA/Orange County	722.1	125	5.78	5.6%	15.0%
San Diego	397.4	84	4.73	3.1%	8.3%
Sacramento/Northern California	21.9	5	4.38	0.2%	0.5%
Total	\$4,803.6	912	\$5.03	37.5%	100%

Source: CRB using data from Price Waterhouse, "National Venture Capital Survey", 1998.

Silicon Valley experienced the greatest increase in investments from 1996 to 1997, \$2.3 billion to \$3.6 billion, and an increase from 552 to 698 deals. The Los Angeles/Orange county region increased from 83 deals in 1996 to 125 deals in 1997. The total amount invested in this region increased substantially during that time, from \$455 million to \$722 million. San Diego remained relatively constant, with 73 deals valued at \$319 million in 1996 and 84 deals valued at \$397 million in 1997. Investment in the Sacramento/Northern California region grew from \$15.3 million in 1996 to \$21.9 million in 1997; the number of deals decreased from six to five.⁷¹

Table 13 compares the number of Gazelles per thousand firms and the number of venture capital investments per thousand firms by California region. The Bay Area generated more Gazelles per thousand firms than the Los Angeles/Orange or San Diego regions. The number of Gazelles created in the Sacramento/Northern California region decreased but the rate of investment increased.

The number of investments in Silicon Valley Gazelles is about eight times more than in Los Angeles, and twice that of San Diego. Table 13 also shows that Gazelles in the Bay Area were funded at a significantly higher rate between 1995 and 1996. San Diego and Sacramento rates of investment increased. Los Angeles was not as fortunate; its rate of investment per thousand Gazelles fell off slightly during this period. This data supports the contention that Los Angeles in particular has a venture capital funding gap when compared to other regions in the state.

Table 13
Gazelles Per Thousand Firms Compared to Number of Venture Capital Investments
Per Thousand Gazelles (1993 vs. 1996)

Region	Gazelles per Thousand Firms		Number of Venture Capital Investments per Thousand Gazelle Firms	
	1993	1996	1995*	1996
San Francisco-Oakland-San Jose	35.8	36.5	42.2	63.3
LA	34.1	34.8	5.25†	4.9†
San Diego	34.5	34.7	20.9	26.0
Sacramento	33.1	30.6	0	3.9

*1995 Price Waterhouse data on venture capital investments is the most comparable data available. †Includes investments made in Orange County. Data on Gazelles is not available for Orange County.
The Cognetics 1993 data is the most recent survey data available.
Source: CRB using Cognetics firm data.

These varying regional rates of venture capital investment suggest an additional way to estimate the venture capital needs of California firms. First, we assume that rapidly growing Gazelles are good investments wherever they are located. Second, venture capital investment per one thousand Silicon Valley firms is probably at its maximum. The difference between the percent of Silicon Valley Gazelles with investments and the percent of firms with investments in other regions could be interpreted as a venture capital shortfall. Table 14 reports these calculations.

Region	Firms Funded by Venture Capital	Number of Gazelles	Percent of Gazelles Funded by Venture Capital	Additional Percent for Parity with San Francisco/Oakland/San Jose	Additional Firms needing Funding	Estimated Total Regional Shortfall Funding* (millions)
Los Angeles/Orange†	83	16,854	0.49%	5.84%	984	\$5,389.5
San Francisco-Oakland-San Jose	552	8,714	6.33	na	na	na
San Diego	73	2,811	2.60	3.73	105	458.8
Sacramento	6	1,546	0.39	5.94	91	231.1
Totals	714	30,639			1,180	\$6,079.4

*Estimated by multiplying number of firms that needed funding by 1996 regional average venture capital funding level per firm (Table 12). †Data on firms funded and average amount per firm includes Orange County. Gazelle data is for Los Angeles County only. Source: CRB using Price Waterhouse and Cognetics data for 1996.

Based on this method of estimation, in 1996 California firms needed an additional \$6.1 billion in venture capital. They received \$3.1 billion, for a total requirement of \$9.2 billion. Estimated regional shortfalls for 1996 are:

- Los Angeles/Orange \$5.4 billion,
- San Diego \$458.8 million,
- Sacramento \$231.1 million.

The continuing growth in the amount of venture capital funding directed at Silicon Valley firms may be creating problems similar to those seen in the boom of late 1980s.⁷² There are more venture capital firms, and they are growing in size and moving away from seed or start-up investments. Venture capitalists are bidding up the size of the deals. Entrepreneurs are demanding huge valuations for often promising but unproven ideas. Some venture capitalists believe that start-up companies may be receiving too much cash, causing management and other growth problems. For example, according to a survey of pre-initial public offering (IPO) companies, the average salary of non-founding CEOs exceeded \$180,000, not counting hefty bonuses. The funding cycle is growing shorter in a rush to be the first to market. It is not uncommon for an IPO to occur 18 to 24 months after a company is founded.

Excess venture capital investments could have a detrimental effect on the long-term development of Silicon Valley. It could contribute to an “. . . accelerated pattern of new business formation or ‘chronic entrepreneurship’ which may leave [Bay Area] high-technology firms and industries increasingly vulnerable to large foreign competitors. There are some concerns that venture capital contributes to the ‘breakthrough bias’ of U.S. high technology – the growing inability of U.S. firms to turn cutting edge innovations into profitable product lines by turning them into mass produced products.”⁷³

Start-up companies are under considerable pressure to produce high-end innovations and to disregard manufacturing. Venture capital’s tendency to incentivize groups within large companies to spin-off new technology breakthroughs may limit larger companies’ ability to adopt and manufacture new products.⁷⁴

Table 15 shows a significant concentration of California venture capital in high technology industry sectors in each region: software, communications, medical instruments, and electronics/instruments. The regional investment profiles do show some variation. Southern California’s investments are more diverse, with a greater portion of funding for consumer, retail, and industrial-related companies.

Table 15 California Regional Venture Capital Investments by Industry With Top 5 (1997)			
Industry*	Bay Area # (rank)	LA/Orange County # (rank)	San Diego # (rank)
Biotechnology	25	6	10 (4)
Business Services	15	7	5
Communications	121 (2)	16 (2)	13 (2)
Computers/Periph.	47 (3)	5	5
Consumer	6	10	3
Distrib./Retailing	7	8	3
Electronics/Instrum.	37 (5)	11 (5)	8 (5)
Environment	0	1	0
Healthcare	23	13 (3)	6
Industrial	7	10	5
Medical Instruments	41 (4)	12 (4)	12 (3)
Pharmaceuticals	3	0	1
Semiconductors.	14	0	0
Software and Info.	349 (1)	26 (1)	14 (1)
*An “other” category is not included. Sacramento’s deals were in business services (1 deal), computers/perif, (1 deal), and distribution/retailing (1 deal). Source: Price Waterhouse, “National Venture Capital Survey”, 1998.			

As noted above, California had about 33,000 Gazelles in 1996, of which only 714 (2 percent) received venture capital funding. The substantially higher rate of investment in Silicon Valley firms shown above may have reduced the number of Gazelle failures in the Bay Area by reducing later-stage volatility. Cognetics data for a large sample of California Gazelles does show that between 1990-1995 the San Francisco-Oakland-San Jose region had a different profile when compared to other regions:

- More firms expanded,
- Younger firms expanded more quickly, and
- Fewer firms, especially younger ones, either declined or closed.

The data also show a slightly higher 1990-1995 survival rate for early-stage Bay Area firms than firms of the same age in other regions (Table 16). Again, this may reflect more venture capitalist investment.*

Region	Firm Age in 1990 was:				
	0-1 years	5 years	10 years	20 years	30 years
San Francisco-Oakland-San Jose	52.0%	65.1%	70.0%	76.5%	80.3%
LA/Orange	48.8	61.5	68.2	75.8	77.8
San Diego	47.2	59.8	67.9	74.6	81.5
Sacramento	54.8	62.8	68.6	75.4	84.2

Source: CRB using data from: David Birch, Anne Haggerty, and William Parsons, *Corporate Evolution*, Cognetics, 1995.

Another way to indirectly examine the effect of venture capital on business development is to compare the number of initial public offerings (IPOs) by region. Unfortunately, there is no standard reference that reports IPOs by California Metropolitan Area or by any other regional breakdown. The state Department of Corporations does tally the number of IPO applications at its regional offices in San Francisco, Los Angeles, and Sacramento. For example, in 1997, the Los Angeles office received 854 IPO applications, San Francisco 211, and Sacramento 403. It is highly unlikely that the Sacramento region is producing more IPOs than the Bay Area. Still, it may be possible to achieve some insight into what effect venture capital has on the number of IPOs in different regions. VentureOne, and Horsley, Bridge Partners supplied the California Research Bureau with IPO data that provides a very general view of the relationship.

* Cautious interpretation of the data is necessary because California was going through a recession at this time. Each region also experienced different defense spending reductions. The Bay Area was the first to recover.

- In 1997 California firms had 113 completed IPOs out of 628 in the U.S.
- Of these, 55 were venture capital-backed (47 percent), with 35 in Northern California (64 percent) and 20 in Southern California (36 percent).

Thus, while Southern California had 59 percent of the state's Gazelles (Table 2), it only had 36 percent of the venture capital-backed IPOs in 1997. It also appears that the San Francisco area was able to bring a greater portion of its IPOs to market. In contrast, business angels appear to be financing more Gazelles in the Southern California area. Research shows that IPOs that receive venture capital equity financing outperform other offerings such as those backed by business angels.⁷⁵

The impact of venture capitalists on local economic development is context sensitive. In geographical areas with an established or rapidly emerging industrial cluster demonstrating potentially high rates of return, venture capital can contribute to its growth. If the underlying network structure of the local venture capital industry is weak, a "capital gap" can occur.⁷⁶

The manner in which venture capital institutional networks develop, and their impact on the direction and flow of national and international venture financing, helps to explain why there is such a geographic difference in venture capital investment in California. The following discussion raises several key examples that support this important point.

- *Defense-dominated industry clusters:* The defense industry dominated the economies of both Los Angeles and San Diego for decades until the early 1990s. The private market did not drive this industrial cluster, so the industries did not develop the supporting services or entrepreneurial culture necessary to establish and interact with a venture capital network. In addition, venture capitalists tend to avoid investing in defense-related products because they often do not understand the industry and do not know where to look for deals.⁷⁷
- *Geographic dispersion of some emerging clusters:* Los Angeles' large geographical size makes it difficult for industry networks and tight industrial clusters to develop, as in Silicon Valley.⁷⁸ These factors slow the development of financial, legal, and other services. The movie industry in Hollywood is an exception. Industry cluster components are often scattered across the entire LA basin. In contrast, emerging industries in Orange County are growing around UC Irvine.
- *Lack of locally-focused venture capital networks:* Historically, Los Angeles venture capitalists have made the largest percentage of their investments outside of California (48 percent). In 1994, LA received 22 percent of local investment capital, the Bay Area 23 percent, and San Diego 7 percent.⁷⁹
- *New sector high-technology clusters are emerging:* University of California campuses in Orange and San Diego Counties are the nexus for newly emergent biotechnology and communications-related industrial clusters. These very new industries are just beginning

to develop the local venture capital networks that will eventually attract national venture capital through co-investing. It took Silicon Valley over twenty years to mature as an industrial cluster and to build the accompanying venture capital investment networks.

Corporate Venture Capital

Nationally, large corporations are investing more in venture funds, a \$920 million increase from just seven percent of venture funds in 1990 to 19 percent in 1996. This development parallels corporate downsizing and outsourcing. Simultaneously, large firms have been forming alliances, joint ventures, and other collaborative relationships with small firms at an increasing rate. They are doing this to accomplish a multitude of objectives such as performing research, providing services, or manufacturing component parts. Their corporate venture strategy (on a scale of increasing risk and corporate commitment) ranges from venture capital investment and managing a start-up's growth, to spin-offs and joint ventures, and internal corporate venturing.⁸⁰ The following discussion focuses on external corporate venture capital strategies.

External corporate venture strategy describes a relationship in which a large corporation takes an equity stake in a small, private company. These strategies can be either externally or internally managed.⁸¹ Externally managed strategies involve investing as a limited partner in an independent venture fund. The fund may pool investors and invest in a particular industry sector. Alternatively, the fund may be client-based with the corporate investor the only limited partner and targeted toward a sector of corporate interest. In the early 1990s, firms tended to move toward external investment strategies. Corporate investments in dedicated funds began to rise.

Internally managed venture capital funds work the same way as external venture capital funds. They identify and evaluate investment opportunities, make a minority equity investment, and may become involved in company management by taking a position on the board. Opportunistic investments may be made in a particularly attractive start-up. Currently, there are more than 72 large corporations that directly invest over \$500 million annually via internally managed funds.⁸²

Internal venture capital investment strategies have often not worked as well as external strategies.⁸³

- They may lack a well-defined mission (such as conflict between obtaining new technology and achieving good financial returns).
- There may be insufficient corporate commitment, leading to struggles over scarce funding resources.
- Inadequate compensation schemes for venture managers may make it hard to attract top people.
- There may be reluctance to write-off unsuccessful ventures, lest the firm or manager incur a poor reputation for investment failure.

Foreign Direct Investment Venture Capital

Over the past several years international private equity activity has boomed, fueled primarily by U.S. investors: “Fundraising by private equity partnerships based in Asia, Canada, Europe and Latin America climbed from \$7.6 billion in 1991 to \$22 billion in 1996, and is expected to be even higher in 1997.”⁸⁴ A full examination of the role of foreign direct investment in California is beyond the scope of this paper. A 1997 survey found that large U.S. institutional investments in foreign private equity funds increased by 50 percent.⁸⁵

We will briefly examine the reasons that U.S. investors may be investing more in foreign equity funds. First, there is a the perceived imbalance between the supply of capital and attractive domestic investments: too much money chasing too few good deals. This supply/demand imbalance may have led to an unjustifiable increase in prices. For example, the *San Jose Mercury News* reports a possible over-supply of capital relative to promising local investment opportunities.⁸⁶ Second, the pool of private equity capital under U.S. management grew from \$4 billion in 1980 to about \$150 billion in 1997. Institutional investors feel that the large size of many deals, and accompanying management fees, tend to act as a disincentive by reducing the private investor’s share. Finally, many venture capitalists have encountered strong demand when they seek to raise new funds. This demand allows them to negotiate partnership agreements without the protection of covenants that many investors require.

II. ACADEMIC EVALUATIONS OF STATE GOVERNMENT EARLY-STAGE INVESTMENT PROGRAMS

The preceding analysis suggests that small, fast-growing companies require significant early-stage financing which is presently not supplied by personal resources, business angels or various sources of venture capital. States have experimented with two approaches to augment local early-stage equity investment capital: capital financing programs and “business introduction services” for business angels. How well do these approaches work?

State Capital Financing Programs

Richard Meyer, an expert on state program activities, conducts a yearly survey of state early-stage capital financing programs (See Attachment). His 1997 survey reports on 22 funds in 16 states. The following profile of these states’ early-stage capital financing programs emerges from the data:

- *Program characteristics:* The average age of the 22 funds was 6.4 years. The funds were managed by state employees, nonprofits, and/or private companies. About half of their operating budgets were above \$500,000, with an average of four full-time employees per fund. One third of the funds emphasized business or job development – not in return-on-investment, and thus were able to invest in slower growing firms. Another third followed a return-on-investment approach and restricted their investments to rapidly growing high-tech firms. The remaining third utilized both approaches. The funds invested were \$285 million in 1996, or about \$14 million per fund. Investments were made in 122 new companies, 98 seed/start-ups and 61 follow-ons.
- *Investments:* A majority of the funds made their *first* investment when company revenues were between \$25,000 and \$100,000. In 1996 their typical investment was \$100,000 to \$250,000, with follow-on investment of the same amount. About one in 15 new proposals were funded.
- *Investment results:* Programs attributed the creation of an estimated 3,369 jobs in 1996 to fund investments. Funded companies introduced 100 new products (6.7 products per fund), 22 new services (2.4 services per fund), and filed 50 patents. Eleven funds reported that 54 companies failed.

In 1996, the 22 state investment funds represented only three percent of the nation’s total venture capital investments. From the perspective of California’s high risk early-stage capital needs, total investments from these 22 state programs would cover between four percent to 24 percent of estimated venture capital requirements, and a much lower percentage of business angel seed and start-up investment needs.

Have state early-stage investment programs been useful? The answer to this question depends on their goals and the measurements used to determine success. Several efforts to answer these questions, or even to compare programs, are severely flawed. For example: evaluation criteria were not consistently applied across all programs; one state program was confused with another; state programs were confused with private venture firms; return on

investment was defined differently; and inaccurate and conflicting data was reported on rate-of-return and other measures. Regional economic variations and the national and international business climate could not be separated from program outcomes.

- Eisinger summarizes the current state of state venture programs evaluation as follows: “Evaluation of state venture capital programs establishes neither that they are failures or successes as economic development tools. Nor does evaluation provide unambiguous guidance to the analyst or a political oversight body in assessing their contributions.”⁸⁷
- Commenting on early state efforts, Dyer concluded in a 1984 study that states should not attempt to stimulate capital flows. He found that states lacked the high levels of necessary expertise, did not have the organizational advantages of large private financial institutions, and were under considerable political pressure to obtain quick results.⁸⁸
- Thompson and Bayer (1990) surveyed 14 public venture programs and found that they produced 17,683 jobs at an average cost of \$7,632 per job in public investment. (This is considerably more than training and other costs for developing jobs.)⁸⁹
- The number of jobs attributable to program activities may be grossly overestimated, perhaps only ten percent of the estimated total, according to a study of nine state programs by the Illinois Office of the Auditor General.⁹⁰
- In a 1993 study, Hanson compared changes in the number of firms in states with lender commitment programs* (Illinois, Ohio, Massachusetts, and Washington) to states of comparable population without such programs (Indiana, Michigan, and New Jersey).

“Overall, the results of the analysis support . . . the research hypothesis; that lender commitment programs do have a stimulating effect on the small business establishment sector. On the other hand, these results provide no evidence to support the [other hypothesis]; that these programs contribute to sustained growth over time. The programs are able to immediately raise the level of percent change in the number of establishments, but the rate of percent change per year becomes negative. The positive effect is canceled within six years.”⁹¹

Reasons for this long-term failure include failure of companies in the portfolio and lending to companies that do not grow. Such programs may be most suitable for generating short-term growth.

- In a 1993 study, Eisinger examined the fate of state venture capital programs by comparing a 1991 census that identified 23 different programs in 17 states to a second census conducted 20 months earlier which had identified 30 programs in 23 states.⁹² Six states had eliminated seven programs in two years by failing to enact enabling

* In lender commitment programs the state selects loan prospects, approaches a lender on their behalf, and provides a portion of the financing to lower the interest rate.

legislation, terminating programs or phasing them out. The reasons for failure fell into three categories: loss of political support or failure to develop a political constituency; hard economic times which shifted funding priorities; and inadequate programmatic flexibility to deal with the world of venture capital. Eisinger comments that the tension between a political culture that wants to achieve quick results, driven by a short election cycle with little tolerance for risk (one failure with tax money might generate a public scandal), is incompatible with the venture capital culture. This culture expects returns in five to seven years, accepts high risk, and wants a high return on investment.⁹³ The cumulative employment impact of the state programs was very small relative to a state's labor force.

- Florida and Smith (1993) found that in some states most of the locally-subsidized venture capital and companies were exported to high growth high technology centers in other states. Investments were also made in companies that failed to grow. Most state programs lost money or generated rates of return below that of private funds. Those programs that were successful, such as in Massachusetts, already had the technological infrastructure to support high-tech business development and provided an avenue for venture capital investments. In their opinion “. . . government involvement in venture capital is not necessary, is not likely to succeed and may divert government's scarce resources from other, far more effective and efficient uses [such as: developing infrastructure; developing more flexible and responsive financial and industrial regulations].”⁹⁴
- Meyer (1993) surveyed 67 seed capital investment funds in the U.S.⁹⁵ He found that public funds invested significantly more in early-stage deals (75 percent) compared to private funds (43 percent). Private funds provided management and other support; only 20 percent of the public funds provided this support. Table 17 summarizes the performance of the surveyed funds. Public funds had economic development rather than rate-of-return goals, which could account for some of this difference. Combination (private and public) funds had the best rate of return-on-investment and the lowest firm failure rate.

Table 17		
Performance of Public, Private and Combined Seed Investment Funds (1993)		
Fund Type	Return on Investment	Invested in Firm Failure Rate:
Combination	23%	12%
Private	19	16
Public	6	20
Source: The 1993 National Census of Seed Capital Funds, p. 13.		

- According to Aronson and Schwartz in a 1995 review, direct government loan programs that seek to address gaps in capital markets create management difficulties. State government officials are unaccustomed to running high-risk programs. They may face political pressure to make unsound loans. There may be media and public pressure to avoid any loss of tax funds at all. Programs “. . . that encourage private financial institutions to address gaps in capital markets, such as Michigan’s CAP [Capital Access Program], may make more sense.”⁹⁶

Generally, several studies have shown that state-financing programs can contribute to economic growth but are not good at sustaining it over the long run. First, states may simply not have the resources to make a large enough number of equity investments or loans to make a difference. Second, successful economic development strategies, including those that contain a financial investment component, involve a coordinated multi-programmatic strategy that pulls together business development, manufacturing improvement, marketing and other services.⁹⁷

The negative results from some academic evaluations of early-stage investment programs have initiated a lively debate. First, critics of these evaluations point out that most state-sponsored capital programs specialize in financing early-stages of business development, so a high rate of failure would be expected. Second, comparing the rate of return with that of private venture capitalists is not appropriate because state programs have different investment goals. The goal may be to achieve various social benefits such as increased employment or targeting different, less lucrative markets than venture capitalists. State programs may also produce net public benefits simply by redirecting investment to underserved areas. Finally, as noted above, it is very difficult to measure the social benefits of investment programs since: almost any investment will generate jobs; it is not known if alternative funds might have been available from another source; or is it certain that the fastest growing firms received investments.

This paper can not resolve this conflict. It is useful to point out that the conflict between rate-of-return and economic development may not be as serious as it seems. According to Meyer, a program that combines the best of both worlds may have the lowest rate of firm failure and the best rate of return. This suggests that economic development goals are not

necessarily inconsistent with good investment practices. Firms that do not fail and grow quickly create more jobs than firms that do not grow or grow slowly. The balance between rate-of-return and economic development is a difficult one to achieve, but it would seem reasonable for a state program to focus on Gazelles. This should not obscure that fact that Gazelles in different industries may require more patient capital and different investment strategies than these in the industries that currently receive venture capital investments.

Best Practices of State Early-Stage Investment Programs

A 1996 Economic Innovation International study identified the four main “best-practices” of a successful state early-stage investment program. The program’s goal was to mobilize the investment of private sector capital in small business industry sectors. At the outset, the review notes that the involvement and commitment of a community’s public and business leadership is critical. ⁹⁸

- The program should address small business capital gaps resulting from “(a) rigidities in our existing capital market institutions and (b) market imperfections restricting the ‘connection’ of these companies to potentially interested investors.”⁹⁹
- It should define the small-business capital investment needs that would be served by the program. This analysis should identify investment opportunities with a rate of return equal to that of the market.
- Bottlenecks should be identified (statutory, regulatory or institutional practices) that restrict the availability and flow of capital to the targeted businesses.
- Investment intermediaries should be established that catalyze the formation of new investment organizations that can collect and channel existing community private sector capital to the targeted businesses.
- Investment intermediaries should be substantially capitalized with private sector funds. Public-private funds would leverage investments from both inside and outside of the region.

Economic Innovation International summarizes their best-practices study as follows:¹⁰⁰

In almost all successful cases, the overriding objective of these programs has been to change the availability and flow of private sector capital and to spur the development and growth of businesses through harnessing the for-profit, market-based incentives of program sponsors, investors and business owners/managers. Frequently, these capital-market programs have been coupled as well with job training programs sponsored by the private sector. Where long-term commitments have been established, based on the self-interest of the private sector and the participation of the public sector, these private-public partnerships have generally succeeded in converting and raising the job-base of the community and in strengthening and/or revitalizing the area’s economy.

Evaluations of Government Programs Intended to Increase Business Angel Investments

Various governments have developed “business introduction services” to expand the number of actively investing business angels. The goal of these services is to increase the visibility of developing businesses, identify potential deals and provide a channel of communication between informal investors and entrepreneurs. Services include an investment bulletin, forums on investing, informal introductions by a matching service manager and computer matching services.*

Efforts to evaluate business introduction services face many of the same research problems already identified. Studies in 1991 and 1992 of United Kingdom and American efforts to set up business matching services show that they have “. . . had only modest success in unlocking the substantial sums of uncommitted money that most business angels have available.”¹⁰¹ This limited success is due to several factors:

- Failure to build up a critical mass of investors and entrepreneurial clients.¹⁰²
- Understaffing and underfunding, with little if any funding dedicated to marketing. (There is a direct relationship between funding and the number of investors and clients attracted to the service.)¹⁰³
- An inability to maintain a sufficient flow of good investment deals.
- Passive approaches to match-making; prior vetting and assistance with developing deals are needed.¹⁰⁴

Given who business angels are and their personal investment patterns, it is unlikely that they will respond positively to what are essentially cold calls from business persons they do not know. The deal may be outside of their expertise, located in another area, and outside their investment profile.¹⁰⁵

Recent efforts by the SBA (ACE-Net),[§] Band of Angels in San Francisco, the Rural Venture Capital Network in Chico, Mass Ventures in Massachusetts, and the Rockies Venture Club in Colorado are trying to overcome these limitations. For example, ACE-Net is helping small businesses to work with local universities and state-based non-profit organizations to develop their business plans and network with local business angels. ACE-Net’s national home page lists initial securities offerings and “test the waters” documents. The goal is to tie local venture capital to the national network, permitting investors to identify and select companies of interest.

* New England’s Venture Capital Network, and SBA’s ACE-Net are examples of computer-based networks.

§ The Angel Capital Electronic Network home page is <https://ace-net.sr.unh.edu/>.

III. IMPLICATIONS AND OPTIONS

A preliminary public policy question is whether California already has enough venture and start up capital for its growing businesses, or whether it would be beneficial to try to stimulate more. This chapter has shown that California has a large number of rapidly growing firms, distributed across many industries throughout the state, that need early-stage capital to grow. Various studies and surveys have identified an investment gap in the range of \$50,000 to \$5 million for individual firms. One estimate developed in this report indicates that California firms required \$9.2 billion in early-stage venture capital in 1996, but received only \$3.1 billion, for a shortfall of \$6.1 billion. For the smallest firms (one to four employees), a second estimate suggests a gap or short fall of \$1.2-\$6.3 billion. Dr. Moller suggests in her companion section of this report that many firms experience additional funding shortfalls or gaps as they are being established, or in the later second and expansion stages of their development.

A more difficult question is whether we can devise a government program that would help to make up this shortfall. Experiences from other states shed some light on this question. There is considerable debate about whether these programs have been truly effective, and the outcome depends on what criteria one uses to judge success. Mostly, these other state programs are modestly updated revisions of the older industrial loan programs, based on the premise that the most appropriate state role would be to accumulate a fund of money, and then to step in and make loans or make equity or semi-equity investments in worthy companies. In the case of California, the amount of funding needed to fill the gap for hundreds of Gazelles would consume a substantial portion of the state's General Fund. Such an approach might also distort existing early-stage investment activities, causing considerable damage. While this type of program may well have a role, it seems fruitful to examine some modifications.

One modification has to do with focus. The other state programs were nearly all established in places where there was no venture capital industry to speak of, or a very limited one. Their point was to stimulate a local replication of the venture capital model that was largely invented in California (several of these states would be loath to admit that, probably). California's venture capital problems are more complex. In the Santa Clara Valley, we have a venture capital industry as well developed as any in the world. We have some areas, such as Sacramento and the Central Valley, where venture capital is limited and which roughly correspond to these other states. Other areas, such as San Diego and possibly Orange County, are in between. The notion that Los Angeles has been relatively neglected (compared to the Santa Clara Valley, not to the rest of the country) has been extensively aired in the newspapers in recent weeks. Recognizing these differences, a venture capital program for California might adopt a strategy that focuses on the unique needs of the relatively under-capitalized Central Valley, and continues to develop the emerging investment structures in San Diego and Los Angeles.

Another focus modification has to do with the range of industry groups with access to venture capital. Venture capitalists tend to develop expertise in investments within a fairly

narrow technological area. In California, electronics, software, and, more recently, biotechnology are examples of technologies that have attracted considerable attention from venture capitalists. Other promising technologies are comparatively neglected. Firms working on mechanical engineering products appear to have difficulty raising capital, an odd situation for a state with ambitions of becoming a center of zero polluting automobile production. Development of pollution control technologies appears to have similar problems. Perhaps a state program to stimulate increased venture capital emphasis in individual industries such as these would be in order.

A more fundamental modification has to do with the nature of the venture capital industry. As described in this chapter, this industry is a complex, almost organic web of personalities and informational interconnections about what is happening in an industry, usually within a region. Venture capitalists and business angels tend to be local and concentrated on a particular industry, such as film and entertainment. Their investments are directly related to who they know, the industry they are knowledgeable about, their financial analysis capabilities and their access to good deals. Investment occurs through a network structure that emerges with and is strongly rooted in a geographically established industrial cluster. Venture capital clusters require strong communication structures, reliable data, knowledgeable industry and management specialists and ancillary services such as accounting and law firms. Perhaps a state program could be designed that would help encourage the development of these information webs and investment networks.

A promising early-stage capital market growth program for California regions that is industry specific might take the following form.* Local entrepreneurs could be mobilized to create a public/private intermediary that would catalyze the development of existing or new networks. The public/private intermediary could analyze currently under-funded industries and emerging firms, and investigate their funding needs. The intermediary would also analyze the strengths and weaknesses of the associated business angel and venture capital investment structures. The goal would be to fund (perhaps with a local match requirement) local public/private intermediaries whose mission would be to catalyze the formation of early-stage investment structures, particularly in underserved industry markets and regions. The long term political and financial support of a community's business and investment leadership would be necessary for success.

A program element might involve engaging private sector experts to identify and work with selected Gazelles, for example, to prepare high quality proposals. Reliable risk-reducing information about a firm's management, its technology, markets and other factors (identified above), and the industry is critical. Once underway, emerging early-stage investment networks could be encouraged to expand to meet underserved needs. Venture capital firms might form or be attracted to an underserved region or industry once a sufficient number of successful deals are accomplished.

* Many of the proposed elements are already being implemented by the Los Angeles Regional Technology Alliance. Both business and investors have responded favorably to their approach. See also: National Association of State Venture Funds, *Seed Investing as a Team Sport: a working session for private investors in entrepreneurial ventures*, 1997.

For example, business networks, professional associations, colleges, county and city economic development organizations, and others could be consulted by the public/private intermediary to identify Gazelles and other early-stage small companies with growth potential. A committee of knowledgeable local business angels, venture capitalists, technical experts, and legal and financial experts could review and rate the companies. A mentoring group might assist the companies to develop their business proposals and presentations. The public/private intermediary and local advisers could identify potential domestic, national, international and corporate investors who might be interested in particular companies. Corporate venture funds might also be encouraged to participate or to become a strategic partner in order to reduce the risk of investing in a particular company.¹⁰⁶ Information about each company's offering could be circulated among potential investors and made available on a website such as Angel Net.

The public/private intermediary could hold quarterly venture capital forums, organized by industry and by business stage of development. For example, a forum might be held for seed, and start-up financing for music-oriented and graphics-oriented small businesses. Other forums could concentrate on first stage, later-stage and expansion financing, and on other industries. Business angels might be particularly interested in such targeted forums. If successful, the public/private intermediary could assist in bundling smaller business angel investments into a single deal under one manager. Referrals to specialized legal and financial services could also be available to both business angels and the companies. Acting through the public/private intermediary, the state might take a small equity position (California's Constitution may limit this type of investment)^{*} in particularly promising companies in order to attract and encourage investment in regions or industries that do not have an established investment record. The public/private intermediary would be responsible for managing the investment, including providing technical assistance and other services (such as access to product development, process improvement, marketing, and other forms of technical support that contribute to business success). Any state program would need to take care to invest the correct amount of funds so that the local market would not be degraded or the deal failure rate increased. Any of these developments could sour potential future investment. (Investment instrument options, potential sources of funding, methods for monitoring and evaluating the state program, and other key design elements are summarized in Dr. Moller's following report in this volume.)

Additional Analysis Would be Helpful

Statistical information and analysis are critical to understanding and tracing the development of emergent and existing industries in California. This information is not readily available and restricted the development of this paper. For example, assessment of early-stage investment risks requires a high level of technical knowledge and direct personal contact

^{*} California constitutional limitations on state investments in private firms were not evaluated.

with firm management. The state does not develop or have access to useful survey data such as this.

Information is also lacking about California's community investment structures for both business angels and venture capitalists. A study of how the private equity market finds and shares information with business angels and venture capital firms would be particularly helpful. (A 1995 Oregon study by Arthur Anderson, KPMG Peat Marwick, and Price Waterhouse made similar data gap recommendations.¹⁰⁷)

APPENDIX: METHODS FOR ESTIMATING CALIFORNIA'S EARLY-STAGE INVESTMENT NEEDS

I. Estimate of California's Total Venture Capital Needs

Oregon Method: the following attachment shows the method used by Arthur Anderson, KPMG Peat Marwick, and Price Waterhouse to estimate Oregon's need for venture capital. California's estimate uses the average amount invested as a percent of the Gross State Product, or GSP (8 percent) of Washington, Colorado, and Arizona. California's estimated GSP for 1997 is \$974 billion. This assumes that the economy has grown about \$33 billion per year since 1994. Using this method, California businesses require about \$77.9 billion in total venture capital (early- and second stage) in 1997. About 35% would go to early-stage investment for a total of \$27.3 billion.

II. Estimates of Venture Capital Short-fall

- A. *Estimate to achieve regional parity with San Francisco:* First, we assume that rapidly growing Gazelles are good investments wherever they are located. Second, venture capital investment per one thousand Silicon Valley firms is probably at its maximum. The difference between the percent of Silicon Valley Gazelles invested in and the percent of firms invested in other regions could be interpreted as the venture capital shortfall. The method and calculations are fully presented in Table 14. For 1996, California needed \$9.2 billion but received \$3.1 billion for a short-fall of \$6.1 billion.
- B. *Estimate based on U.S. Small Business Administration national data:* The U.S. Small Business Administration estimates small businesses' yearly need for patient, early-stage high-risk investment equity capital to be about \$80 to \$90 billion. California accounts for about 12.8 percent of the nation's firms. Projecting from SBA national estimates, California firms' yearly (1996 base) need for early-stage high risk investment equity capital is between \$10.2 and \$11.5 billion (see page 18).
- C. *Total requirements based on individual firm seed- and start-up capital needs:* There are an estimated 6,253 Gazelles in California with one to four employees. They need between \$200,000 and \$1 million to grow. Multiplying these figures results in an estimated need in 1996, of between \$1.2 - \$6.3 billion (page 19).

ENDNOTES

¹ California Employment Development Department, Labor Market Information, "California Unemployment Insurance Reporting Units by Size, Industry and County," Report 524, Third Quarter, 1996.

² Small Business Administration, "Small Business: Backbone of the California Economy," Small Business Profile, 1997, p. 2.

³ This growth was often associated with corporate downsizing, reengineering, and outsourcing. These jobs often turn over more quickly than jobs in large firms. Bruce K. Mulock, "Small Business and Job Creation," Congressional Research Service, The Library of Congress, February 14, 1995.

⁴ California Trade and Commerce Agency, "California Small Business," October 1997.

⁵ David Birch, Anne Haggerty, and William Parsons, *Corporate Almanac*, Cognetics, Cambridge, MA, 1997, p. 11. We will use Birch's California Gazelles estimate of 34,618 throughout the paper. The file probably reports only about 38% of the new start-ups that occurred during a three-year interval. Their data is based on Dun and Bradstreet DMI file which includes sole proprietorships.

⁶ Coopers and Lybrand, "Fourth Annual Economic Impact of Venture Capital Study," Coopers and Lybrand, and National Venture Capital Association, 1998, p. 8.

⁷ The top ten in rank order from highest to lowest are: California, New York, Texas (18,834), Florida (15,928), Pennsylvania (12,011), Illinois (11,964), Ohio (10,929), Michigan (10,083), New Jersey (9,900), and Massachusetts (7,595).

⁸ *Business Week*, May 26, 1997.

⁹ *Inc.*, October 20, 1997.

¹⁰ *Fortune*, July 7, 1997.

¹¹ The Bay Area is defined as San Francisco, Oakland, and San Jose.

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**COMPARISON OF OTHER
STATES' CAPITAL PROGRAMS FOR
SMALL BUSINESSES**

COMPARISON OF OTHER STATES' CAPITAL PROGRAMS FOR SMALL BUSINESSES

1. INTRODUCTORY REMARKS

During the last two decades, several states have created state-sponsored venture capital programs to provide financing for new and small businesses. Venture capital programs are public sector activities that mimic or work with venture capitalists to provide capital for companies in a development state. This section of the paper discusses the various structures and program features that states have chosen to implement a state-sponsored venture capital program. The analysis is based on a comparison between fifteen venture capital programs that have been implemented in other states. These programs are:

- **Arkansas:** Arkansas Science and Technology Authority.
- **Connecticut:** Connecticut Innovations, Incorporated.
- **Hawaii:** Hawaii Strategic Development Corporation.
- **Iowa:** Iowa Seed Capital Corporation.
- **Kansas:** The Kansas Technology Enterprise Corporation, Ad Astra Funds.
- **Louisiana:** Equity Program of Louisiana Economic Development Corporation.
- **Maine:** Maine Science and Technology Investment Fund.
- **Massachusetts:** Massachusetts Technology Development Corporation.
- **Michigan:** Michigan Strategic Fund.
- **New Hampshire:** The New Hampshire Business Development Corporation. The New Hampshire Capital Consortium.
- **Oklahoma:** The Oklahoma Capital Investment Board's Venture Capital Investment Program.
- **Oregon:** Oregon Resource and Technology Fund.
- **Pennsylvania:** Ben Franklin Partnership Program. The Seed Venture Capital Program.
- **Texas:** Texas Growth Fund.
- **Utah:** Utah Technology Finance Corporation.

The following section of this paper presents a summary chart of alternatives available for the design of a state-sponsored capital program. Section 3 describes the main features of each of these state-sponsored venture capital programs in detail. Information on the various aspects of these state programs were obtained through interviews with program representatives, information and brochures published by the state programs, and bibliographic references.

Many of these states have more than one capital program. However, for simplicity, references to these programs in the discussions that follow will use the name of the states where these programs are operating rather than the entire name of the program.

Definition of Venture Capital

Venture capital, also called equity, risk, or speculative investment capital, is money used to support new business ventures, generally new businesses or companies exploiting new technical processes. Venture capitalists provide funding to new or existing firms which exhibit above-average growth rates, a significant potential for market expansion, and are in need of additional financing to sustain growth or further research and development. Traditional sources of venture capital financing include:

- public and private pension funds,
- commercial banks and bank holding companies,
- small business investment companies licensed by the Small Business Administration,
- private venture capital firms,
- insurance companies,
- investment management companies,
- bank trust departments,
- industrial companies seeking to diversify their investments, and
- investment bankers acting as intermediaries for other investors or directly investing on their own behalf.

2. PROGRAM FEATURES OF STATE-SPONSORED VENTURE CAPITAL PROGRAMS

It is difficult to make comparisons between the various state capital programs. Each has been structured to meet the needs of different economies, with different industrial structures, business specialization, and different venture capital flows. Despite their differences, state-sponsored venture capital programs show some consistent patterns.

Mission of State-Sponsored Programs

The most important step in the creation of a state-sponsored venture capital program is the definition of the general and specific objectives of the program. The structure of a program depends on the goals the program wants to achieve. Program objectives include:

- the promotion of economic development,
- employment expansion,
- the correction of capital market inefficiencies, and
- the provision of capital where there is a gap.

The general mission of most publicly created venture capital funds is to promote *economic development and employment expansion*. Some of these programs are specifically structured to spur economic development in targeted geographic areas. These programs generally pursue their mission by providing capital to small and emerging technology-based businesses. The justification for pursuing economic development by providing capital financing for new and small businesses is that they are

the major generators of employment and technological innovation in the American economy, and that the sources of venture capital for such firms are too scarce. State-sponsored venture capital programs are oriented to *fill such a capital gap*. Some examples of this type of program are Massachusetts, Connecticut, Utah, and Arkansas.

New and small firms may not be candidates for venture capital for many reasons:

- It is difficult for most new small firms to obtain debt financing because traditional lenders provide money to businesses that already have a track record of sales and revenues. Businesses at an early stage of development do not have a history of cash flows because they may be just starting to develop and commercialize their products or because it takes time for firms to start generating profits once a product has been developed. For this reason, new small companies are more likely to look for equity financing rather than debt financing.
- Some companies do not fit the investment target profile of the venture capitalist. Venture capitalists pursue high profits and an investment exit strategy in the near future. Some firms are slow growing companies and it takes time for them to generate high returns. These types of businesses need “patient capital,” which is not available through traditional investors. Furthermore, some firms may be unwilling to sell or go public when a venture capitalist would require them to do so.
- Venture capitalists lack interest in financing small ventures (under half a million dollars) because it is easier and cheaper to invest in larger deals and there are plenty of opportunities for larger scale investments.

Some programs, such as those in Oklahoma, Louisiana and Hawaii, focus on attracting and expanding a venture capital industry in their states. These programs were designed at a time when there were virtually no venture capital sources in those states.

Another objective of some of these programs is *to correct inefficiencies* in the venture capital market. Some economists have indicated that the venture capital industry is not highly competitive,¹ therefore the returns on venture capital are disproportionately higher than the average return on other investments. Furthermore, the perceived risks of new ventures tend to be higher than their actual risk. This gap between perceived and actual risks inflates the expected rates of returns on venture capital. Lack of competition in the private venture capital industry can also lead venture capitalists to demand disproportionately large shares of business ownership that some entrepreneurs are unwilling to provide. In this context, the creation of a new fund increases the supply of venture capital, and if large enough, may reduce the costs of venture capital.

The design of some public programs allow them *to provide cheaper venture capital investments for starting businesses*, or to offer investments under more favorable

¹ Premus, Robert. 1984. Venture Capital and Innovation. Study prepared for the Joint Economic Committee of the U.S. Congress. Washington: U.S. Government Printing Office.

conditions than those offered by institutional investors. The cost of capital that small firms can obtain from traditional investors may be expensive for two reasons:

- The risk of investing in new small businesses is high. However, traditional investors perceive a higher level of risk of doing businesses with small firms than actually exists.
- Small business deals are generally too small. Since the costs of oversight are relatively high, investors spend relatively more resources in small deals compared to larger deals.

Most state-sponsored capital programs expect to generate competitive rates of return on their investments, however, this is not their primary focus. While venture capitalists focus only on investments that would lead to high rates of return, state-sponsored capital programs pursue social benefits rather than monetary returns. For instance, some programs look for increased capacity for business creation and capital formation. Others redirect investments to industries or areas with high growth potential that may be under-served by traditional investors.

Necessary Steps to Determine a Program's Goal

The goal and target definition of a state-sponsored capital program requires a clear understanding of the state's availability of capital and the demand for it. Necessary steps to determine a program's goals include:

- A review of the amount and distribution of existing sources of venture capital throughout the State
- The identification of potential bottlenecks in the flow of capital and information on capital suppliers and potential clients
- The identification of the types of small borrowers that are under-served and their geographical distribution.

Type of Investments

Once the general goals of the program are established, the next decision is whether the program should meet the needs of a particular segment of the business community (for example, businesses located in selected geographic areas or selected industry groups) or should it avoid targeting a specific sector. The investment targets of other states' venture capital programs vary. Some programs focus on a particular stage of business development and/or a particular industrial sector. Others take a more general approach.

The accurate identification of the potential clients of the program is important for meeting the program's general objectives and also for determining the success of the program. A requirement for the success of a public venture program is the program's ability to find enough venture investments to spread its risks and yield a profit. If the number of applicants is larger, the probability of choosing the best deals increases.

Most state-affiliated funds target seed and early stage investments in technology-related companies. Some examples are Connecticut, Maine, and Iowa. Other programs focus on businesses in the commercialization stage, or combine early stage with later-stage financing programs. Massachusetts, for instance, has a wide variety of state-managed programs; each designed to provide a particular type of financing. Public-private partnership programs such as Oklahoma, Louisiana and Hawaii that invest in private venture funds tend to have a broader range of investment targets.

State venture capital programs provide capital for the following business stage of development:²

- *Early stage financing* refers to seed, research and development, start-up, and first-stage financing.
 - *Seed financing* is the small amount of capital needed to prove a concept and qualify for start-up capital. Seed financing may be used for product development and building a management team.
 - *Research and development financing* is usually a tax-advantaged partnership set up to finance product development. Investors may secure tax write-offs for their investments as well as a later share of profits if the product is successful.
 - *Start-up financing* is the capital provided to companies completing product development and initial marketing. Companies at this stage have not yet sold a product commercially, but they have usually conducted market studies, assembled key management, developed a business plan, and they are essentially ready to do business.
 - *Early growth or first stage financing* is capital to initiate full-scale manufacturing and sales. This kind of capital is provided to companies that have already developed a prototype or service for which commercial feasibility has been proven. Generally no profits are distributed to creditors during this phase; therefore financing at this stage does not pay a current return to investors.
- *Second-stage financing* are funds for working capital for the initial expansion of a company. The company has been making progress but probably is not yet showing a profit.
- *Mezzanine financing* or third-stage financing is capital provided for a major expansion of a company whose sales volume is increasing and that is breaking even or profitable. These funds are used for further plant expansion, marketing, working capital, or development of an improved product.

² Definitions of stages of venture capital financing have been taken from: *Finance Authority of Maine. "A Study of the Availability and Sources of Venture Capital in Maine." March 1995.*

- *Accelerated growth financing* is capital for businesses with a proven product, good management, solid business plan, and a proven track record. Additional infusion of capital to expand or to meet occasional cash flow shortages may be needed.
- *Bridge financing* is needed when a company plans to go public in six months to a year. This capital can be repaid from proceeds of a public offering. Bridge financing payments can involve the restructuring of major stockholder positions.

Organizational Structures of the Program

The organizational structure of a program depends on the goals of the program, the economic conditions of the state that implements the program, as well as the political climate in that state. For instance, Oklahoma needed to mobilize venture capital activity, so they created a public-private partnership as an alternative to attract venture capital. Hawaii initially developed a public program, but later the state determined that such a structure was not appropriate for their resources. Shortly after the creation of the program, Hawaii switched to a private structure that operated more efficiently. A good program should be able to reach, in an effective way, the potential clients who really need the program and for whom the program was designed.

Key questions that need to be answered when choosing the structure of the program are:

- How can the state take advantage of the existing government structure to implement this program?
- What resources are already in place to implement the program?
- How can the available resources be best used?
- How can the state integrate the new program with the existing economic development programs and small business oriented programs in the state?
- What structure would best reach the potential clients who really need the program and for whom the program was designed?
- What political pressures might the proposed structure generate?
- What kind of arrangement will assure that the fund will have access to enough good venture investments to spread its risks and yield a profit?
- What kind of structure will operate most efficiently?
- What kind of program structure is easier and less expensive to implement, given the proposed goals?
- Under which structure can qualified and knowledgeable staff for investment decisions be found and recruited?

State-sponsored capital programs are divided between those using a state-managed venture capital organization and programs focused on investing in private venture capital firms. Examples of pure public models funded only with state funds and managed by a public entity are Utah, Arkansas, and Iowa. Massachusetts is a public program managed by a quasi-public self-sustaining corporation and initially funded by state appropriations and federal grants. Examples of programs that invest in private venture capital firms are Oklahoma, Louisiana, New Hampshire, Hawaii, Pennsylvania, and Texas. These programs are generally organized as a quasi-public, not-for-profit corporation, or public authority, and are governed by a publicly appointed board of directors.

The typical private venture capital fund is set up as a limited partnership. This arrangement limits investor exposure and improves returns since in many cases the tax structure of this arrangement has advantages over a corporation. Most state programs have chosen this structure.

Limited Partnership Structure

When the program is structured as a limited partnership, a general partner manages the fund. This general partner generally selects investment candidates, makes final investment decisions, and handles any other administrative needs of the fund. The limited partners rely on the general partner to manage the investments of the fund.

Public-private partnership programs are structured in this way. The state invests funds in one or more private capital funds. State funds are leveraged by private investment brought about by these funds. The state often sets the criteria for choosing the companies where the investments will take place and leverage requirements. Some publicly-established venture capital funds receive, in addition to public funds, capital from private investors or from public employee pension funds. These venture funds are generally privately-owned and operated. The government plays a role only by chartering them and providing some capital through tax credits for contributions or participating as a limited partner.

An interesting example of a public-private partnership is in New Hampshire. The New Hampshire Business Development Corporation (NHBDC) is a for-profit private corporation chartered by the state and run by a Board of Directors comprised of leaders from the public and the private sector. NHBDC organized a consortium with initial funding from public and private sources. A consortium is a coalition of organizations, such as banks and corporations, for ventures requiring large capital resources. This consortium is part of a Small Business Investment Company (SBIC) that manages the fund.

A Small Business Investment Company (SBIC) is a privately owned institution licensed by the Small Business Administration (SBA). The SBIC operates under SBA regulations, but its transactions with small companies are private arrangements and have no direct connection with the SBA. An SBIC may be formed by three or more parties, and must be chartered by the state in which it is formed. Most SBICs are profit-motivated entities that either make loans or equity investments. These companies can leverage their investments up to 300%. Leverage funds are made available in three ways: five or ten year debentures sold on the public market, preferred securities with a 15-year mandatory redemption, and participating securities with maturities up to 15 years.

The New Hampshire program chose a SBIC to manage the fund because this structure allows the program to spread its risk by being part of a larger fund. Furthermore, the program wanted to use the participating securities portion of the SBIC that allows the fund to issue participating securities with maturities of up to 15 years. This allows the program to invest patient capital as equity that may not produce a return for several years.

Advantages of Programs with Privately Managed Funds

State programs where the state becomes a limited partner in a professionally managed fund appears to be an effective and more flexible way to leverage initial state funding,

encourage investment in the state, and diversify risk. Compared to a public model, this kind of model is more flexible because it has more freedom of action. A public agency is subject to prescribed regulations and rigid operation processes that could become too restrictive for the efficient management of a venture capital fund. Furthermore, private investors are more likely to invest in a private fund rather than a public program. This kind of structure has been very effective in attracting venture capital to states or areas where there is a lack of it (for example, Oklahoma and Louisiana). However, the fundamental question with this type of arrangement is whether these programs actually behave differently from private venture funds, and whether the capital is provided to businesses that actually have been under-served.

Publicly Run Venture Capital Programs

Publicly run venture capital programs invest directly in companies, although the funds can be still managed by a contracted private fund. Some states have established a private or quasi-private intermediary to manage their venture capital funds and to connect institutional investors to investment opportunities. This mechanism has the advantage of being relatively removed from political changes and the state's bureaucracy (with their rigid operation processes, including hiring and firing employees). It also provides a more appealing neutral setting for attracting capital from the private sector.

There are questions about whether a public agency can run a venture capital firm successfully, and under which conditions. Public programs can be successful. An example is the Massachusetts Technology Development Corporation (MTDC). Elements contributing to MTDC's success include a fairly substantial investment of state funds, experienced professional staff, and the participation of other venture capital funds in each investment (matching funds requirements).

There is an open question about the success of these programs. Some studies on public seed-funds have shown a relatively high rate of company failure and lower than average return on these funds' investments. The results of these studies, however, are not surprising. First, most of these state-sponsored capital programs specialize in financing early stages of business development, when a high rate of failure is expected. Second, the comparison between the returns on these programs' investments with those obtained by venture capitalists is not appropriate when 1) programs pursue social benefits rather than high returns or 2) programs target different markets than the venture capitalists market. For instance, the Oregon program contains the specific mandate for the program to make social investments where the returns are measured through increased capacity for business creation and capital formation. A public investment program can also produce true net public benefits by redirecting investment in such a way that the structure of the economy or the nature of jobs and production changes significantly towards sectors of higher potential growth. In these cases, a better criterion to evaluate success is whether the fund is obtaining the public benefits it pursues beyond monetary returns.

Another concern with public programs is that they could be just displacing capital from the venture capital industry. A public venture fund that has different investment criteria

than venture capitalists is targeting a market that has been neglected by venture capitalists. For instance, programs investing in smaller deals or in projects with longer than average time horizons do not compete with venture capitalists. Perhaps some public programs are designed to tolerate more risk or accept a lower than average expected rate of return in the short run. In these cases, the programs will not be displacing capital from the venture capital industry, and may provide a social and economic benefit to the state.

A problem with some publicly run programs is the lack of viable investment exit strategies. Venture capital investments are generally locked for five to seven years, since the businesses (or their new products) are still at early stages of development. After five to seven years, venture capitalists expect to be able to “exit their investments,” in other words, to withdraw their investments. Exit strategies include initial public offerings, the sale of the company to a larger business, or the repayment of capital by the owners of the firm. Some public programs do not specifically define termination dates in their investments. This factor may discourage some venture capitalists from co-investing in these funds, which makes it difficult to attract capital from private sources to match the program’s investment.

Finally, programs managed by the public sector are more likely to be subject to state budget swings and to have less flexibility to hire and to pay competitive salaries to competent professionals. The operation of public programs may also fluctuate with changes in the state political leadership.

Creation of a State-Sponsored Capital Program

A state-sponsored venture capital program can be created in many ways, depending on the goals of the program and the public and private organizations that the state has already in place. States where there is a responsible government entity with similar functions already operating with broad powers may not need new legislative authority. For instance, some states have administratively expanded the authority of an already established public agency such as their Department of Economic Development or their Department of Commerce. Other states have established, by law, quasi-private intermediaries to manage their venture capital funds and to connect institutional investors to investment opportunities. Public-private partnerships programs such as those in Oklahoma and Pennsylvania have been created by a legislative act that establishes a new intermediary.

Creation of an investment fund can raise constitutional issues. In some states, the constitution has prevented the state from making equity profit-generating investments. Program design will require a review for possible constitutional barriers.

The Texas Growth Fund was created by the Texas Legislature by a constitutional amendment. A constitutional amendment was considered necessary since there was uncertainty in the interpretation of the Texas Constitution related to the scope of permissible investments of public pension and endowment funds.

Limits and Duration of the Funds

Funds can have limited duration or can be perpetual. When a fund has limited life (for example, five to ten years) and is successful, the general partner may start a new fund and a new cycle of investments. Investments usually last five to ten years. Money is invested over two to four-year periods and investments are returned in five to ten years.

Funds usually have limits. Once the fund raises the established maximum amount of capital, it is closed to further investors. The fund is invested in a portfolio of companies to diversify risk. Some amount of capital may be set aside to make follow-on investments to help companies that have received money from the fund to reach a higher stage of development or to assure their success.

Some public programs funded with only public money do not follow this structure. These funds are perpetual, and have a constant stream of investments with a portfolio of companies that change continuously. Revolving funds are created by state appropriations to a particular state entity or state-chartered corporation. The money is then extended to targeted businesses. As businesses repay the principal and interest, the funds grow. These funds also provide for exit strategies for each of their investments so those funds can be reinvested in new firms.

Program Costs and Fees

Public capital programs' costs are financed by state appropriations and are part of the administrative budget of the agency or board that runs the program (Arkansas, Iowa). Some programs like Massachusetts cover the program costs with the income and gains of the Corporation's investments. Some programs cover their costs by charging fees to participant venture funds (Louisiana, Hawaii). Many of these public-private programs pay a salary to their financial officers, with an additional bonus related to their performance.

In agreement with the governing boards, privately run funds retain management fees from the fund to pay their costs and sometimes a "back end interest" which is a percentage interest in the profits of a fund, calculated upon liquidation of the investments (Texas). Kansas' Astra Fund I receive a flat fee per year of \$120,000 from the fund to cover its costs. Astra Fund II receives a management fee equal to the greater of 1) \$150,000 or 2) five percent of the sum of all commitments up to the first \$5 million plus three percent of the sum in excess of \$5 million. In other programs managed by private funds, fees are calculated through negotiated agreement (Oregon, for example). Maine, a publicly run fund, has a policy of pro-bonus and an administrative fee based on volume of transactions. Finally, some programs like Connecticut collect fees from applicants to help pay some program costs.

Program Oversight

State-sponsored venture capital programs are subject to different forms of oversight, depending on their organizational structure. Public programs are typically required to report to the department or board that oversees them, the governor of the state, and the state legislature. These reports include audited statements by independent accounting firms. Some programs are periodically subject to the examination of the State Treasurer or the authorities of the Department of Finance. Other programs such as the Ben Franklin Partnership of Pennsylvania have been subject to sunset review. If the sunset review turns out to be satisfactory, the program can be renewed.

In public-private partnerships, the management of the investments is usually the fund's responsibility. The partnership annually provides each limited partner financial statements of the partnership, tax information, and information on the investments held by the partnerships. Some funds must file a report with a responsible state agency in order to maintain its venture capital certification. For example, Astra Funds management in Kansas must file a report with the Kansas Department of Commerce and Housing.

The Texas program is different in nature. This program is subject to annual report requirements to the Legislature and a sunset deadline in September of 1998. The Texas fund is also subject to specific state laws governing public trusts. In general, a public trust is a right of property, real or personal, held by one party for the benefit of the public at large, or a portion of the public.

The programs have established many forms of oversight mechanisms and performance evaluation criteria. To assure that the state-sponsored capital program meets its goals and operates efficiently, the program oversight and evaluation process should be clearly established at the outset.

Criteria in Making Investments

State-sponsored capital programs scrutinize their applicants using a variety of criteria, many of them closely related to the program's goals. For instance, programs that pursue economic development by fostering high technology industries and innovation accept applications from high technology businesses that are in the process of introducing to the market an innovative product. Examples of these programs are Connecticut, Massachusetts, Pennsylvania, and Kansas. Programs that have as one of their explicit goals the creation of employment (such as Connecticut, Utah, Massachusetts) require applicants either to demonstrate a significant employee presence in the state, or their ability to provide new employment through their projects.

Additional criteria used by state-sponsored capital programs to select investments are:

- *The ability of the firm to leverage funds.* Many state capital programs require companies to provide matching funds, as a way to increase the investment flow to their targeted projects. Michigan does not have a matching funds requirement.

- *Business management's strength and qualification.* Like venture capitalists, the majority of these programs emphasize the need for applicants to demonstrate strong and qualified business management (examples are Connecticut, Michigan, Utah, Oregon, Kansas, and Maine). Some of these programs require applicants to present a well-designed business plan that supports the chance of market success of the project.
- *The potential for high rates of returns on the investment.* Some programs (for instance Kansas, Oregon, and Michigan) finance investments with high profit potential or higher than average expected rates of returns.
- *The requirement of intellectual property as a collateral to guarantee the investment.* Connecticut, for instance, selects applicants that have a proprietary technology and necessary product protection with patents, trademarks, and copyrights. This requirement is important for this program since the collateral for their investments is the technology owned by the firms that receive the investment.
- *Proof of need for capital.* Massachusetts requires that applicants demonstrate that it was impossible for them to obtain the capital requested from other sources.

State capital programs that invest in private funds rather than companies (for instance Oklahoma, Louisiana, Hawaii) select funds by looking at their historical performance, track records, ethical standards of management, and portfolio composition. Louisiana chooses funds that tend to invest in smaller deals, while Hawaii invests in funds that finance industries that the state has identified as important for their economic development.

Size of Investments

Most of the state-sponsored venture capital programs provide funds in the range of a \$0.25 million to \$5 million. The average size of investments made by public programs that specialize in pre-seed and seed capital financing is smaller. For instance, Arkansas' typical investment is \$170,000. Some programs provide capital in deals as small as \$50,000.

The table below provides some examples of the amount of investment per company provided by some programs:

<i>Size of Investment Per Venture</i>	<i>State Programs</i>
\$250,000.00 to \$500,000.00 dollars	Louisiana Pennsylvania Kansas
A quarter of a million to one million dollars	New Hampshire
Up to \$500,000.00	Hawaii
Up to \$3,000,000.00	Oklahoma

Initial Capitalization of the Fund and Subsequent Sources of Capitalization

States fund their small business venture capital programs through various methods. Many of these programs are designed to maintain the solvency of the fund based on returns without perpetual taxpayer subsidies. Most state venture capital programs try to minimize the expenditure of public funds by leveraging private matching funds from traditional investors or using other innovative techniques. Some programs use the provision of tax credits to attract private investment into the fund.

Examples of sources of initial capital include:

- federal grants,
- direct state and local appropriations,
- local general obligation bond issues,
- specified revenue source funding (for instance a percentage of state lottery revenues, or revenue from oil and gas severance fees),
- public-private partnership vehicles, and
- regulatory relief.

Government funds. Direct state appropriation is the most common way of providing funds for business capital investment, particularly in the initial phases. Several programs are designed to rely on direct legislative appropriations at the beginning of their operations and to become self-sufficient later. For instance, the programs in Connecticut, Pennsylvania, Arkansas, Iowa, Maine, Utah, and Massachusetts (with seven years of annual appropriations) have been initially funded with state appropriations. Some of these programs (for instance Massachusetts and Utah) also received federal funds. Other venture capital programs are not only initially funded through annual appropriations, but they are annually capitalized through state appropriations.

Proceeds from previous investments. Most programs capitalize using repayments of previously disbursed funds. These programs have revolving funds that increase as the

investments of the fund generate earnings and they are expected to become self-sufficient after the initial capitalization is fully invested.

General obligation bond issues. Another way to raise capital is bond issuance. General obligation bonds are bonds secured by the taxing power of the state. There are legal limits for which these bonds may be issued and volume limits on the extent of their issuance. The Connecticut program was initially financed with a general obligation bond allocation of \$10 million.

Specified revenue source funding. Some public venture capital programs have been financed with the allocation of a portion of state revenues derived from taxation, royalties, or other fees. For instance, Louisiana used a portion of sales taxes that would have been kept by retailers. Oregon uses state lottery proceeds and Michigan used a state loan from oil and gas royalties, and more recently gaming operations.

Regulatory relief. Oklahoma has used one innovative form of financing. The program borrows money from banks using tax credits as collateral. When the Oklahoma program was created, the Legislature granted it \$50 million in transferable state tax credits. The program uses these tax-credits to create a guarantee for loans made to it by institutional investors (currently banks). This guarantee was created by a contract between the program and a consortium of tax credit purchasers (currently comprised of public utility companies) that requires the consortium to buy up to \$3.5 million worth of tax credits, annually, upon the program's demand. The tax credit purchasers receive no financial compensation for this commitment, and the program may sell the tax credits only upon a legitimate call on its guarantee. This guarantee allows institutional investors to lend funds for the program venture investments at very low risk. This structure allows the Oklahoma program to raise capital without having to put cash up-front. Anticipated returns from fund investments are supposed to cover all costs associated with the tax credits. This model uses a form of credit enhancement (tax credit sales) to raise capital using credit from private institutions. It has the virtue of minimizing the use of state funds and secures capital at a low interest rate. Furthermore, by permitting the state tax credit to be transferable, Oklahoma has solved a problem common among many state venture capital tax credit programs; it directs the tax credit to the entities with capital available to invest in the program.

States may need to eliminate restrictive investment laws to assure the flow of funds from private institutional investors such as pension funds, or to improve the private investment mechanisms. For instance, Texas had to enact a constitutional amendment that broadened the range of permissible investments of public pension and endowment systems. Prior to the amendment, many state pension and trust fund managers felt their duty was to make investments solely based upon achieving maximum returns, without regard to the impact on the Texas economy. The TGF amendment permits all state pension and endowment funds to invest, at their discretion, up to one percent of the book or cost value of their respective funds in TGF, in projects targeting job creation and economic growth in Texas. This specific authorization eases investment managers' concerns about violating fiduciary standards.

Public-private partnership vehicles. Initial capital can be raised from private sources such as bank funds allocated for Community Reinvestment Act investments, pension funds, and funds from public utility companies allocated for economic development. One example is New Hampshire, where the venture capital program was initiated by creating a Consortium of various public utilities, banks, public corporations, and the state of New Hampshire to provide funds for venture capital investments.

Some programs have received initial funds from a combination of sources. For instance, the Michigan program received funds from oil and gas royalties, pension funds, individuals, and corporations.

Leverage Requirements

Most programs require leverage of the public capital. Leverage requirements range from less than one dollar of private investment for each dollar invested by the program fund (Connecticut) to three dollars of private investment for each dollar provided by the program (Pennsylvania, Arkansas). The program subject to the SBA matching requirements of two dollars from the private sector for each dollar invests programs with funds managed by a SBIC intermediary. Many programs have been successful in leveraging private funds. For instance, for each dollar invested, Oregon has actually leveraged \$20 dollars; New Hampshire has leveraged more than eight dollars; Hawaii has leveraged six dollars, and Massachusetts has leveraged more than five dollars from private sources.

Type of Instruments Used in Public Venture Capital Programs

States provide venture capital financing through a variety of instruments. Typical instruments include near-equity arrangements, royalty sharing arrangements, stock or equity purchases, and equity guarantees. Often an entrepreneur will have to supplement state funds with matching private funds.

Common stock. The most frequently used instrument for purchasing ownership in private or public companies. Owners of stock have no guarantee of receiving returns but have the opportunity of sharing in the company's profits. In liquidation, common stockholders are the last to share in the proceeds from the sales of assets of a corporation, since bondholders and preferred shareholders have priority over common stockholders. Common stock is often used in first-round startup financing.

Convertible preferred stock. A class of stock that pays a reasonable dividend and is convertible into common stock. Generally, the convertible feature may only be exercised after being held for a stated period of time. This arrangement is usually considered second round financing when the company needs equity to maintain its cash flow.

Near equity. Near equity sources are typically specialized loan funds supported by some form of federal, state or local development organization. Near equity financing is distinguished from equity sources in that it requires the business to pay debt service

payments with existing resources. Programs that provide high-risk capital under these arrangements have a public-benefit orientation that justifies them to accept a lower return on investment. A problem with this kind of instrument is that businesses need to have an immediate cash flow to service the debt. Near equity programs include loan guarantees and subordinated debt.

Subordinated debt. Lending programs that use this type of instrument are subject to higher risk and often act as a substitute for venture capital. These programs operate by making direct loans to eligible companies. Loans may be offered at special rates or special structures. Loans can be matched with conventional sources of debt or even venture capital. The subordinated lender is generally willing to take higher than normal risk by accepting a junior position on collateral, which in turn frees up company assets for leveraging conventional debt. Many lenders have suggested that subordinated debt using real estate owned by the small business as collateral is a good arrangement to meet the credit needs of many emerging firms while reducing the lender's risks. Traditional lenders do not take real estate as collateral for loans.

Convertible securities. A feature of certain bonds, debentures, or preferred stocks that allows them to be exchanged by the owner for another class of securities at a future date in accordance with terms of the issue.

Warrants. These securities guarantee the opportunity to purchase stock at a future date at a specified price, generally slightly over the issue price of the security purchased that coincides with the issue of the warrant.

Royalty sharing arrangements. Royalty sharing arrangements are usually used to provide risk capital funding for research and development. States invest in a specific product, in exchange for the rights to a certain percentage of the proceeds derived from the sale of the product. Failure to commercialize the product usually results in default of the royalty sharing arrangement. Royalty payments are paid according to a schedule until an agreed amount is reached. For instance, payments may continue until the amount of investment is doubled. The Connecticut program frequently used this instrument, however, they have recently found that entering in equity participation agreements is more efficient and lucrative than royalty agreements.

Hybrid debt-equity instruments. These instruments are generally framed as loans, but they become equity upon the occurrence of a specified event or on a certain date. They are usually unsecured. Upon conversion of the loan to equity, the state shares the returns of the company. These instruments are best suited for a growing business, which is generating revenues or can provide assets as collateral.

Size of Initial and Current Funds

The size of initial and current funds depends on the purpose and scope of the program, the actual demand for its services, and the time elapsed since the program creation. The table below shows some examples:

<i>Examples of the Size of Initial Funding</i>	<i>State Programs</i>
Annual appropriations of less than \$1 million	Iowa Maine
3 to 5 million	Massachusetts Pennsylvania New Hampshire Kansas Michigan Hawaii
10 million	Connecticut
20 million	Oregon

Oklahoma is a special case. Initial funding of \$250,000 came from the state, but the state also provided \$50 million of transferable tax credits as guarantee capital for money borrowed from banks or other sources. Today the Oklahoma fund has committed more than \$25 million to various investments. Up to now, there has not been any need of selling these tax credits.

The current size of the various funds included in this analysis range between \$3 million and \$75 million. The smallest funds are between \$4.2 and \$6.5 million (Iowa, Hawaii, Kansas, and Michigan). Utah, Oregon, and Massachusetts's funds range between \$18 and \$25 million. New Hampshire and Connecticut's funds are over \$50 million.

Returns on Investment

Comparing programs on the basis of their return on investments is difficult. Returns on investment that are in the process of maturing are hard to assess. Capital venture programs use various alternative approaches regarding the estimation of the return on their investments. Some of these approaches are:

- The fund calculates the internal rate of return using a projected terminal value.
- The program calculates the rate of return on funds upon total liquidation.

- The program calculates the internal rate of return based upon cash out, cash in, and the market value of the portfolio as of June 30 of the year (or as of December 31).
- The program can use standard methods for the return on investment, when primary investment instruments are debt-based and have an attached interest rate.
- Some programs do not calculate the rate of return on an interim basis.
- Some programs measure returns based on the outstanding cash balance of the investment in the portfolio from the first investment to a specified time. At any time, the market value of the portfolio plus cash is considered the return on that investment. Since operating expenses reduce cash balances, this method includes the operation costs in the computation of returns.

The reported rates of return on the investments by the various programs analyzed here are difficult to compare, since these rates are calculated using different methods. Most of the reported rates are in the range of 15 to 20 percent. Connecticut estimates the high rate of return of 34 percent on their investments.

Additional Assistance to Capital Financing: The Value of Integrated Programs

State-sponsored capital programs also vary in terms of their integration with other state economic development programs. On one hand, some programs such as the ones in Pennsylvania, Massachusetts, and Kansas are part of an integrated and comprehensive package of economic development programs centered on technological innovation (two of them run at the regional level). On the other hand, some public-private partnerships where the state provides the initial funds and the funds are managed privately tend to run fairly independent from other state development activities. Technical assistance and other related features needed for the success of young ventures are left to the fund managers, who interact directly with companies. However, some public private partnerships develop and organize activities to inform and bring together potential investors and companies (Hawaii, for example).

In most states, economic development programs operate piecemeal; one for venture capital, one for seed capital, one for incubators, and another for management assistance. In achieving the goal of promoting economic development through the development of new technologies, programs that are likely to work best are tied into comprehensive support networks for start-up companies. Integrated systems allow a wide array of services to reinforce each other. If in addition to seed capital or start up capital, new businesses also have access to management and technical assistance, research grants, local bankers, venture capitalists, and other services, they will have a better chance of success. In this context, Kansas and Pennsylvania experiences show that decentralized integrated systems tend to work better, since they provide more flexibility to provide the required services locally.

Some states (such as California) have plenty of programs offering research and development financing. However, many businesses cannot raise capital for bringing their new concepts into production. Many research and development resources get lost in that

process. States designing state-sponsored venture capital programs may consider integrating these new programs with the existing ones. For instance, they could provide capital to successful research and development projects that the state has already financed.

Important complementary features to state-sponsored capital programs are:

1. *Technical assistance.* Assisting companies technically and in the formalization of transaction documents as required by traditional investors. This can be done directly or through referrals. Technical assistance can be provided through consulting, workshops, and seminars.
2. *Management assistance.* Many programs have come to the conclusion that management assistance is very important. Without management skills, all the capital in the world will not guarantee success.
3. *Information networks.* States have formed investor networks to match potential private capital investors with entrepreneurs. These networks assist companies by referring their viable opportunities to institutional investors. These networks can go beyond investors and companies. Some programs act as broker/facilitator organizations to bring industry, university, personnel, and resources together. Examples are the integrated, comprehensive programs of Kansas, and Pennsylvania.
4. *Assistance in financial procedures.* States can assist institutional investors in screening and structuring transactions.
5. *Risk management assistance.* States can assist investors and companies with risk management or with credit enhancement mechanisms, for instance by packing the deal with a subsidy or guarantee for the investment.
6. *Providing follow up investments and funding for support activities.* Some programs, like in Pennsylvania, award-matching grants for research and development and seed venture capital, but they also do far more. They provide grants to fund industrial extension work, grants to small-business incubators, and grants to business development organizations such as management assistance firms.

Criteria of Program Success and Performance Measures

There are many ways to evaluate state-sponsored programs. Once the targets of a program have been decided, a program can measure how closely it is hitting its targets. Evaluations of capital programs are usually based on quantitative measures, such as:

- number of jobs created by the assisted businesses,
- tax revenues brought about by the increase of sales from assisted companies,
- sales increases,
- value added increases,
- number of loan repayments,
- number of companies assisted,
- amount of leveraged investment,

- return on investment in portfolio companies,
- fund's performance at liquidation,
- financial health of the corporation, and
- comparison of projected performance to actual performance.

The number of companies served, jobs created, amount of sales increases, value added, and tax revenues increases are usually used as a measure of performance by state capital programs. However, evaluations focused on these indicators can be misleading. Almost any investment will generate expenditures, value added, and jobs. However, some investments generate more jobs and value than others do. The problem is that it is not possible to prove that these programs have granted capital to the businesses with the highest potential to generate wealth, or that these jobs would not have been created using alternative sources of investment. Programs like Massachusetts require applicants to provide proof that they have not been able to receive money from other sources.

The issue of whether the program actually funded the project with the best economic potential still remains. Counting jobs does not say anything about the quality of those jobs, or the social implications of the new economic activities, including environmental effects.

The establishment of projected performance measures, such as rate of return is an alternative way to evaluate a program. Massachusetts uses expected performance measures to evaluate its fund.

Judging program success by looking at the rate of return of the program's investments is also tricky. As discussed earlier, the focus of the program may be the achievement of social benefits that are far more valuable than measurable rates of return. Furthermore, methods for measuring rates of return on venture capital investments differ widely since venture capital investments take time to mature and start producing profits. Venture capital programs exit their investments after five or more years. The value of stocks that are not publicly traded is difficult to assess.

Qualitative evaluation, while inherently subjective and difficult to assess, is also an important part of the evaluation process. Quantitative data cannot describe the whole picture, for instance, quantitative data cannot measure qualitative aspects such as the programs acquired credibility to raise subsequent funds thanks to its good performance. The programs' board of directors, members of the executive branch and the legislature periodically evaluate the performance of many state capital programs. Some funds are subject to sunset reviews.

Frequent evaluation from the beginning of the program is crucial. Oversight mechanisms and criteria for performance evaluation should be defined when the program is created. First, program managers need to know on what basis they will be evaluated, if they are to manage effectively. Second, evaluation systems installed several years after a program has started can be subject to controversy and criticism.

The experience of some state-sponsored capital programs, such as Mississippi Magnolia Venture Capital Program confirm that a good designed program should have an effective mechanism to identify problems at an early stage of its operations.³ A legislative committee examining the Mississippi program determined that the contracted private company that managed investments improperly used the fund's capital. The audit strongly recommended that for the continuation of the program, several aspects of their operations needed improvement. These aspects included oversight, accountability of investment management, and compliance with state law governing the program. In particular, the committee suggested that the legislature should amend the act by which the program was created to require more frequent and more detailed financial and program activity reporting to various responsible parties, including the state auditor. The auditors also suggested that such amendment require the fund management to pay a penalty if the reporting requirements were not submitted on a timely basis.

3. FINAL REMARKS

The comparison of various state-sponsored capital programs show that there are a variety of questions that policy makers have answered in order to design this kind of program. There are a large variety of choices for the various structural features of such a program. All structural features can have advantages and disadvantages, and their applicability depends on the established program goals. Certain structures work better in some states than others. Their adequacy depends on the needs the program wants to satisfy and the states' economic conditions, including their capital availability. The following section presents a decision making chart for the construction of a state-sponsored capital program. The chart summarizes structural choices available to built such a program, key questions that need to be addressed in the decision making process, and some of the advantages and disadvantages associated with those choices.

³ Report to Mississippi Legislature by the Joint Legislative Committee on Performance Evaluation and Expenditure Review. "A Review of the Implementation of the Venture Capital Act of 1994 and the Operations of the Magnolia Venture Capital Corporation. March 11, 1997.

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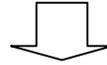
SUMMARY CHART

ALTERNATIVE ACTIONS AVAILABLE

FOR THE DESIGN OF A

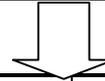
STATE-SPONSORED CAPITAL PROGRAM

MISSION



ALTERNATIVES	EXAMPLES	FUNDAMENTAL QUESTIONS	COMMENTS
Promote innovation and high-technology industries	Kansas Pennsylvania Massachusetts Oregon Connecticut	Have all innovative projects in the State access to enough funding? Are successful state funded Research and Development Projects able to find capital for the later stages of development?	High Technology industries are high value added generators. There is a gap in funds available for start-up production of technologies that benefit the environment, mechanical devices, and transportation. State may consider providing financing for successful research and development projects that the state has already financed.
Promote employment	Hard to evaluate	How can capital flows be diverted to maximize both employment and value added growth?	Almost any investment generates income and jobs. The state needs those investments that have the highest effect on employment and at the same time high value added.
Fill a capital gap	Oklahoma Oregon Connecticut Massachusetts	Which industrial sectors are not well served by traditional investors? In which geographic areas is there a lack of capital? What kind of business and at what stage of development is there a lack of venture capital?	Unless they operate more efficiently than the private sector, state-sponsored venture capital programs that do not fill a capital gap may just be displacing private investment.
Attract and/or redirect the flow of capital to sectors that are key for economic development or specific geographic areas.	Texas Kansas Pennsylvania New Hampshire have decentralized programs with information systems to connect investors with companies.	What industrial sectors are those that will be key for California growth, and where are these industries located? Which regions and industry sectors have a sufficient number of Gazelles? What are the structural characteristics of these sectors? How can the program establish and grow a capital market for the targeted businesses?	In this case, the emphasis is on redirecting or increasing the flow of capital to targeted sectors or geographic areas. A program may be designed to target gazelles in under-served regions. For this, the identification of capital needs and the characteristics that restrict investment are necessary.

SPECIFIC GOALS TYPE OF INVESTMENTS



ALTERNATIVES	EXAMPLES	FUNDAMENTAL QUESTIONS	COMMENTS
Businesses in the high technology industrial sector	Kansas Massachusetts Pennsylvania Oregon New Hampshire	Is the targeting of a particular sector too restrictive? How can clients be identified?	Decision closely related to the program's mission.
Businesses in selected geographic areas, or regions	Pennsylvania Kansas	How can clients be identified?	
Businesses in a specified stage of growth	Massachusetts	What business stages are currently being financed and what stages of development are neglected by venture capitalists? How to assure financing at the various stages of development? The state of California has a variety of research and development grants. How can the state assure that state financed successful research and development projects can be translated into production?	Some programs such as Massachusetts provide financing to businesses in all stages of development. A program oriented to redirect capital flows to targeted industries could target businesses in any stage of development.
Build a capital market structure by attracting investors to businesses with high growth potential in industries or geographic areas currently neglected by traditional investors.		What source of capital (business angel and/or venture capital for example) is most suitable? How can business angels, corporate investors, and foreign investments be targeted?	The question whether the designed program could cover a sufficiently large number of high growth firms to attract investors has to be answered.

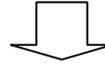
POTENTIAL TARGETS: BUSINESS' STAGES OF DEVELOPMENT

<p>I</p> <p>SEED CAPITAL</p>	<p>II</p> <p>RESEARCH AND DEVELOPM ENT</p>	<p>III</p> <p>START-UP FINANCING</p>	<p>IV</p> <p>FIRST- STAGE FINANCING</p>	<p>V</p> <p>SECOND- STAGE FINANCING</p>	<p>VI</p> <p>MEZZANINE FUNDING</p>	<p>VII</p> <p>BRIDGE FUNDING</p>
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POTENTIAL TARGETS: INVESTORS

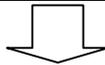
<p>BUSINESS ANGELS</p>	<p>VENTURE CAPITALISTS</p>	<p>CORPORATE VENTURE CAPITAL</p>	<p>FOREIGN INVESTMENT CAPITAL</p>
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STRUCTURE



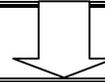
ALTERNATIVES	SUCCESSFUL EXAMPLES	FUNDAMENTAL QUESTIONS	COMMENTS
<p>Public agency creates an intermediary to manage the program and the fund.</p> <p>Public agency runs the program, but a private firm manages the funds. An economic development corporation or a SBIC may perform the management role of the private firm.</p>	<p>Massachusetts Connecticut</p> <p>Pennsylvania Oregon</p> <p>To attract capital, the program could use a similar structure to the Los Angeles Regional Technology Alliance. (See Koehler's section)</p>	<p>What kind of structure is the most adequate for California? Which is the most flexible structure?</p> <p>Which is the most efficient organization to achieve the proposed goals?</p> <p>Which kind of structure is the easiest to implement, and the least expensive to operate?</p> <p>How can the available resources be best used?</p> <p>What kind of structure is the best for serving the targeted sector (for instance, firms at early state of business development and/or firms within a targeted region)?</p> <p>What kind of structure is the best for attracting "specialized investors" to "specialized projects"? For instance, venture capitalists that specialize in investing in environmental projects should be connected to environmental type of business ventures.</p>	<p>A public program with funds managed privately has the advantage that the state retains control over the investment decisions, at the same time that the management of the fund can be more flexible, and less subject to the limits imposed by rigid bureaucratic rules.</p> <p>A public program can integrate its venture capital program with other business assistance programs. Decentralization of regional decisions would enhance the efficiency of this kind of program.</p> <p>The program may incorporate various traits from other states' programs and integrate them with Los Angeles Regional Technology Alliance type of structure.</p>

STRUCTURE (2)



ALTERNATIVES	SUCCESSFUL EXAMPLES	FUNDAMENTAL QUESTIONS	COMMENTS
<p>Public-Private Partnerships. The state is a limited partner in investments. Private sector manages the fund. State contributes with funds and set criteria for investment selection, usually on “best effort” basis.</p> <p>Creation of a public trust. Private corporation manages funds. State contributes with funds.</p> <p>Creation of a Consortium. State and private funds are contributed to a fund that is managed by a SBIC.</p>	<p>Hawaii Louisiana</p> <p>Oklahoma</p> <p>New Hampshire</p>	<p>Same questions as those stated in the previous page.</p>	<p>If the goal is to increase the flow of venture capital in certain regions, Oklahoma is an example of a very successful model.</p> <p>The Oklahoma model may not be the best for programs with very specific targets. The fundamental question here is whether the targeted groups are actually receiving the funds raised by the program.</p> <p>The state may consider using many types of structures to simultaneously achieve different goals.</p>

ADDITIONAL DECISIONS ON THE PROGRAM'S DESIGN



DECISION	EXAMPLES	FUNDAMENTAL QUESTIONS	COMMENTS
Governance	Boards of Directors manage all programs.	How to assure that investment decisions are made wisely? How can the private and public sector be represented in a balanced way? How to integrate financial expertise and technological knowledge in the decision-making process?	Must combine control and oversight of operations with a decentralized decision making process.
Oversight	Hard to assess how successful the oversight systems of the various programs actually are.	<p>What reporting requirements should be established? What are the institutions that should be able to oversight these operations?</p> <p>What criteria should be established to evaluate the performance of the program? How is the program going to measure performance?</p>	<p>Clear criteria for performance evaluation should be established at the beginning of the program.</p> <p>Performance is tightly connected to the program's goals. The fundamental questions are: How well does the program achieve its goals? How does the program assure firm success?</p>
Duration of the Fund	Massachusetts (revolving fund) Connecticut (revolving fund) Pennsylvania (was subject to sunset review)	Should the fund be perpetual such as in Oregon, or should have limited life.	<p>Establishing a sunset review for the operations of the fund can be an effective way to assure efficient management of the fund.</p> <p>Programs with limited term funds usually open a new fund after the closing of the initial fund.</p> <p>For programs oriented to redirect capital flows to regions or sectors: Should the investments in the fund be privatized or sold once capital flows have been redirected?</p>

ADDITIONAL DECISIONS ON THE PROGRAM'S DESIGN (2)

DECISION	EXAMPLES	FUNDAMENTAL QUESTIONS	COMMENTS
Program Costs	Massachusetts Connecticut Oregon	Should the program be a self-financing program? How the initial costs of the program will be paid? Can the state allocate resources for this purpose? What are other available sources for this matter?	Costs depend on the size of the fund and scope of the program. Program costs also depend on the structure of the program. Most programs are self-financing programs after the first returns on the investment materialize.
Size of Initial Capital	Oregon Oklahoma Connecticut	What is the size of the gap the program wants to address?	Small programs can start with only \$5 to \$7 million. More ambitious programs can raise as much as \$50 million (Oklahoma). Initial funds also depend on established capital matching requirements and how much capital the program can leverage.
Integration of the program with other existing programs and support activities. Particularly, information systems that bring clients and investors to the program.	Kansas Pennsylvania Massachusetts	How can the program best target their clients? How does this program fit with other existing programs that provide financing for small businesses? How can the various programs be connected or integrated? How can we integrate technical assistance, managerial assistance, electronic networks, and other existing support activities for small businesses to the newly created program? How can private sources of capital (business angels, corporate investors, and foreign investment) be targeted?	Integrated systems operate the best. Programs that provide some type of technical, managerial, and financial assistance at various stages of development have a greater chance of success, since companies that are supported through all stages of business development have less risk of failure. The program could focus simultaneously on building supply (deals) and demand (investors).

INVESTMENT CRITERIA, SIZE OF INVESTMENTS AND TYPE OF INSTRUMENTS

DECISION	EXAMPLES	FUNDAMENTAL QUESTIONS	COMMENTS
<p>Investment Criteria:</p> <ul style="list-style-type: none"> ➤ The ability of the firm to leverage funds ➤ Business management's qualifications ➤ Marketability of the product ➤ Technological value of the product ➤ Proof of need for capital 	<p>Most programs ask for matching funds.</p> <p>Most programs look at management's strengths or require a business plan.</p> <p>Most programs have a mechanism to evaluate the technological value of the product.</p> <p>Massachusetts require applicants to show their business could not find other sources of financing.</p>	<p>How can it be assured that the firms with most potential be selected?</p> <p>How can it be assured that the program target groups receive the benefits of the program?</p> <p>How can it be assured that the program actually is filling a gap rather than displacing private capital?</p>	<p>Related to the definition of the program's target groups.</p> <p>Some programs may vet firms and mentor them to improve their offering.</p>
<p>Investors Selection Criteria</p>	<p>Oklahoma, Louisiana</p>	<p>How can the right investors be brought to the table?</p>	<p>The program should look at investor's records and specialization.</p>
<p>Size of Investments</p>	<p>Pre-seed programs provide smaller investments (\$50,000). Venture capital programs can provide as much as \$5 million.</p>	<p>What stage of business development will the program fund?</p>	<p>Decision related to the program target (stage of business developed of the company). Lenders and small business organizations have stated that venture capital of the range size between \$250,000 to \$2 million is hard to obtain by new small businesses in California.</p>
<p>Type of Instruments</p> <ul style="list-style-type: none"> ➤ Near equity or subordinated debt ➤ Equity ➤ Warrants ➤ Royalty agreements ➤ Hybrid debt equity instruments 	<p>Most programs use equity or warrants.</p> <p>Connecticut uses royalty agreements</p> <p>Public programs use near equity or subordinated debt, particularly when the program's focus is very early stage of business development financing.</p>	<p>What is the best instrument for managing the program risk?</p> <p>Which instrument will allow the fund to maximize its share of benefits when projects are successful?</p>	<p>Programs usually tailor deals for each company individually. Legislation must authorize the use of a variety of instruments to provide the program with many alternatives. Practice determines the instrument that works best. Connecticut discovered that royalty agreements are not as profitable as equity deals.</p> <p>The use of near-equity instruments is badly needed by small business at a very early stage. The state may consider guaranteeing loans collateralized by real estate.</p>

**DESCRIPTION OF THE MAIN FEATURES
OF STATE-SPONSORED
CAPITAL VENTURE PROGRAM**

State	Oklahoma	Louisiana	Massachusetts
Name of the program	The Oklahoma Capital Investment Board' s Venture Capital Investment Program	Equity Program Louisiana. Department of Economic Development Venture Capital Match Program and Venture Capital Co-Investment Program	Massachusetts Technology Development Corporation (MTDC)
Source of information	Interview with Mr. Robert G. Heard (January 14, 1998) Phone: (405) 848-3572 Report by Center for Policy Alternatives	Interview with Mr. Mike Williams Deputy Director (January 14, 1998) Phone: (504) 342-5675	Interview with Mr. John F. Hodgman President (January 23, 1998). Phone: (617) 723-4920 Analysis by Kansas Legislative Research Department
Date of creation	The Program was created in 1992 and began operating in 1993.	The program began in 1988.	The program started in 1978.
Mission	To mobilize equity and near-equity capital, supporting the growth of a local venture capital industry that finances companies from early stage start-ups. The goal is to accelerate the growth of a strong, professional venture capital industry resident of the state.	To accelerate the growth of a venture capital industry resident to the state. To mobilize capital for start-ups and seed capital.	To help create employment in technology-based industries in the state. To address the capital gap for start-up and expansion of early-stage technology companies. To attract and leverage private investment.
Type of investments	Provides seed capital, early state capital, growth equity capital, and capital necessary for technology commercialization.	Funds are provided for seed capital, early state capital investment, and mezzanine investment.	Capital is provided for early stage capital, technology commercialization, and mezzanine investment. They also make follow-on investments. Different investments can be provided to the same company throughout different stages of product development. For instance, the program may initially invest \$500,000 to \$1.5 million in a

State	Oklahoma	Louisiana	Massachusetts
			company. Later on, if the company is successful in the first stage of development, the program may provide more capital to get the company's product in the market. Finally, after five years or so, the program may provide mezzanine financing.
Investment recipients	Invests in privately managed funds. The program focuses on funds that invest in industries that are considered strategic for Oklahoma economic development. For instance, medical technologies, later stage services businesses, basic industries, and transportation. The OCIB looks at the history of the fund and the kind of investments undertaken by the group.	Louisiana venture capital funds. The state looks for portfolio diversification, and the composition of the early-stage investment plan of venture capital funds. The criteria for selecting funds are a minimum of \$5 million in size and good management. Venture Capital Match Program targets Louisiana businesses with investment from qualified venture capital funds.	<p>The program assists early-stage technology companies located in Massachusetts that through business expansion are expected to produce a significant growth in employment.</p> <p>The company must be able to demonstrate that it has been unable to secure sufficient capital on affordable terms to finance the expansion from conventional sources</p> <p>Investments for seed capital are provided to projects undertaken by engineers or scientists with a track record in technology, but who have not started any business before. Investments are targeted to companies with a small embryonic market need, companies that generally are looking to raise \$2 to \$5 million. The company must be able to show the prospect of a high rate of return on investment.</p>
Nature of the program	Public-private partnership. For profit program. The program invests in	Public-private partnership. The state co-invests with venture capitalists.	Public-private partnerships. Program managed by a quasi-public

State	Oklahoma	Louisiana	Massachusetts
	private funds.	State becomes a limited partner in venture capital funds that are profit motivated.	corporation.
Creation mechanism	By authorizing legislation. Legislature created new intermediary through statutory enactment.	In-house. Following agency authority expansion.	By authorizing legislation. MTDC was created as a body politic and instrumentality of the Commonwealth of Massachusetts, pursuant to Chapter 497 of the Acts of 1978.
Program structure	<p>The program began in 1992, created by the Oklahoma Capital Formation Act of 1991, a rewriting of the Economic Development Act of 1987. The first investment took place in 1993.</p> <p>The Oklahoma Capital Investment Board (“OCIB”) is a public trust of the State of Oklahoma created by legislature. Five directors govern OCIB. Each of the directors serves for terms of five years, with one member’s term expiring each year. The chairman of OCIB is elected annually by the directors. All directors serve without compensation. Meetings are open to the public, but information on the business features of the entities dealing with OCIB is treated as confidential.</p> <p>The Act grants the directors of OCIB Board broad powers for managing the day-to-day operations, such as power to contract, charge fees, and enter into</p>	<p>Public program. The Louisiana Economic Development Corporation (LEDC) administers several programs for small businesses, ranging from loan guarantees to venture capital. The Venture Capital Match Program and the Venture Capital Co-Investment Program are examples. The LEDC was established in July 1988 by Act of the Legislature. LEDC serves as the one reviewer and administrator of the Department of Economic Development’s loan guaranty and grant programs.</p> <p>A nine-member board of directors appointed by the Governor governs LEDC. The board has an Executive Director. Board meetings are held on the first Friday of each month. The board’s screening committee meets prior to the full board meeting to review and make recommendations on project requests. The full board has final authority.</p>	<p>The MTDC was created by the state of Massachusetts to provide financial and other assistance to innovative enterprises in Massachusetts. The MTDC is a self-supporting or quasi-public corporation, based upon returns from investments. The Corporation is governed by a Board of Directors consisting of 11 members, eight of whom are appointed by the Governor from the private sector and three are public officials.</p> <p>The Corporation manages the program and receives a management fee and a residual interest in the investments of the program. Until 1988, the costs of the program were covered with state money, through an annual subsidy that was decreasing gradually over the years.</p> <p>The Board has a close relationship with the Universities. This interaction provides Board members and staff</p>

State	Oklahoma	Louisiana	Massachusetts
	<p>any financial arrangement necessary to carry out its mission. OCIB selects and negotiates all partnership investments.</p> <p>There is also a private corporation, the Oklahoma Capital Formation Corporation (OCFC), which is an intermediary funding corporation to serve as the investor of record. OCFC borrows money from banks to invest in various partnerships. The existence of OCFC enables OCIB to comply with provisions of the Oklahoma Constitution that limits the ability of public trusts, such as OCIB, to invest in private concerns. OCFC receives administrative fee from OCIB. OCFC has a line of credit with banks.</p> <p>Program costs are financed through guarantee fees paid by intermediaries to the Oklahoma Capital Formation Corporation.</p>	<p>There is a single dedicated fund for all programs of the Economic Development Corporation. The Corporation has few constraints and very broad authority.</p> <p>The program contacts venture capitalists and offers matching funds to those the fund may bring from the private sector.</p> <p>The original investments have not matured yet. Once they mature and contracts are terminated, either the program will oversee the companies left in the portfolio directly or the program will pay another investor to do this.</p> <p>State receives a management fee and a share in the profits, with all standard procedures for private investors.</p>	<p>with a feel on the strength of the technologies developed by the companies that apply for capital.</p> <p>MTDC's management reviews investments for recommendation to the Board of Directors. MTDC's staff negotiates with each company an investment whose terms are tailored to meet the needs of the company and the interests of the co-investor.</p> <p>The fund does not have a specific life.</p> <p>In 1993 the Massachusetts Technology Development Corporation created a new investment program, the Commonwealth Fund Investment Program, to help state's early stage companies expand their businesses. This program was established by Section 105 of Chapter 110, MGL Acts of 1993. Initial capital for this program is \$3 million from returns on MTDC's and \$1million from each of the State's two largest banks, Fleet Bank of Massachusetts and Bank of Boston. The investments made by MTDC through the Commonwealth Fund are included in the Restricted for Investment Programs Fund Balance. Pursuant to the guidelines of the Chapter, the investment criteria for funds managed under the Commonwealth Fund are less</p>

State	Oklahoma	Louisiana	Massachusetts
			restrictive than for the Corporation's traditional programs. The Commonwealth Fund Investment Program provides investments of \$200,000 to \$300,000 for early-stage technology companies located in Massachusetts.
Oversight	OCIB's investment criteria are subject to review annually. Once a year OCIB submits its annual business plan to the Oklahoma Futures for its approval. OCIB legislation authorizes the central economic development policy planning and oversight board for Oklahoma's economic development activities (Oklahoma Futures) to oversee the activities of OCIB.	As a public agency, the institution has oversight by several entities. Must report periodically to the Governor and Legislature and it is subject to annual audits.	The institution is required to publish annual audited financials. MTDC reports annually to the Governor and the Legislature. The Governor appoints the Board of Directors.
Criteria in making investments	Funds with managers that 1) have high ethical standards and are recognized as good members of the venture capital community, and 2) have successful track records (that have historically outperformed the average within their class of venture capital firms).	Regarding the Match Program, State invests in funds of the size of \$5 to \$10 million oriented towards making investments in smaller deals. Funds must have at least \$5 million of private investment. The Venture Capital Co-Investment Program provides for a co-investment in a Louisiana business of up to one fourth of the round of investment, but no more than \$500,000, with any qualified venture capital fund. Each fund has a portfolio of 10 firms or so. The venture capital fund may be from outside of Louisiana.	Massachusetts-based early-stage technology companies experiencing difficulty raising capital and with high potential to generate employment. Applications for the funds can come from firms, venture capitalists, banking, legal, auditing, and academic professions. Initial funding can range up to a maximum of \$500,000. The average size of initial funding is between \$100,000 and \$300,000. Companies are expected to exit after 7-10 years, through an IPO or through sales of the companies to larger companies

State	Oklahoma	Louisiana	Massachusetts
Method of investing	Under the Venture Capital Investment Program, the OCIB invests as a limited partner in venture capital funds that are profit motivated. State acts as a wholesaler of capital (to venture capitalists) while venture capitalists act as retailer (investing in firms and managing the investments).	State invests in venture capital funds and becomes a partner to attract money that can come from other states (matching funds). Investments can be made either directly into a qualified Louisiana Venture Capital Fund or as a co-investment made with a qualified Venture Capital Fund in a Louisiana small business.	MTDC negotiates with each company an investment whose terms are tailored to meet the needs of the company and the interests of the co-investor. All investments are made on a co-venture basis with investors from the private sector, including; venture capital firms, banks, SBICs, insurance companies, limited partnerships, informal investor networks, and individual and corporate investors.
Initial funding	The initial funding was \$250,000 from the state. When OCIB was created, the State of Oklahoma granted OCIB \$50 million in transferable tax credits that OCIB uses to guarantee loans made by institutional investors to OCIB. Additional funds have been provided by banks and institutional investors, who take tax credits as collateral. Anticipated returns from fund investments should offset most if not all costs associated with the tax credits. OCIB is empowered to issue bonds if needed; however, OCIB has not exercised this power yet.	Initial capital came from a small amount of sales taxes that would have been kept by retailers. For venture capital investment there is a cumulative total of \$16 million.	Initial source of capital was from federal (EDA) \$2 million and state grants. Under this grant, the Corporation makes loans from a revolving loan fund to eligible borrowers. In 1991 the US Department of Commerce awarded \$1 million to establish a second revolving loan fund to assist in the creation and development of small, innovative high tech companies. In addition the state appropriated \$ 1 million as matching fund for the federal grant.
Capital sources	Borrowing from banks. Nothing restricts this program to use pension funds, insurance funds or any other kind of funds, however, money from these funds is more costly than the money from banks. OCIB keeps all	State funds served as an incentive to raise other funds. State co-invests with venture capital funds and becomes a partner to attract matching funds that can come from other states.	Each year from FY 1982 to 1988, the state appropriated additional amounts to supplement the Corporation investment fund. The Corporation uses gains realized from past investments as the primary source of

State	Oklahoma	Louisiana	Massachusetts
	<p>profits after repaying lenders.</p> <p>The Board raises capital for investment by using an innovative form of tax credit backed agency guarantee. The Board holds \$50 million of state income and premium tax credits and is authorized to sell these credits in the event of a call on the Board's guarantee. These tax credits can be sold to taxpayers. Four public utility companies have contracted to purchase these tax credits if there is need to sell them. Up to now there has not been any need of selling these tax-credits. This may occur if there is a major depression, or investments are unsound. The program is designed in a way to avoid the use of state money.</p>		<p>funds for current and future investments. The state appropriation is restricted to equity investments. As of June 30, 1996 the cumulative amount of these appropriations totaled \$4.2 million. Since FY 1988 no other appropriations have been made. Under the terms of the grants of investment funds from the federal government and the state, principal repayments and costs recovered are returned to the Restricted for Investment Programs Fund, to be reinvested. In addition the Board of Directors has transferred \$13.4 million cumulative through 1996 from earnings and gains realized on past investments.</p>
Leverage requirements	<p>The Act requires that "at least \$2 will be invested in Oklahoma businesses or projects for every \$1 of principal guaranteed by the Board. The leverage requirement is one for one for the entire portfolio (not deal by deal).</p>	<p>Venture Capital Match Program. Match \$1 for every \$2 of private investment in a venture capital fund up to a maximum of \$5 million.</p> <p>Venture Capital Co-Investment Program. Match up to one-fourth of venture capital investment round with a qualified Venture Capital Fund up to \$500,000.</p>	<p>The program has leveraged from private companies an average of 4.5 times the amount of capital invested through the program.</p>
Type of investment instruments	<p>Equity investments and near-equity investments.</p>	<p>Equity investments.</p>	<p>Investments are made as debt, equity or a combination of both. The debt portion of the financing is a long-term, unsecured, subordinated note</p>

State	Oklahoma	Louisiana	Massachusetts
			with a partial moratorium on principal repayment. As a condition of such debt financing, MTDC seeks equity participation, typically through the purchase of the company's stock. Royalty agreements are also authorized.
Risk management	Risks are managed by selecting carefully the partnerships and diversifying properly. The contracts follow the standard methods of company partnerships, such as participation in meeting, and receiving information on audits and quarterly reports.	Risks are managed by carefully selecting the partnerships. The program looks for funds that are diversifying properly.	By investing in stock or secured debt. Firms must demonstrate high future rates of return. To protect earlier investments the program provides follow-on investments.
Current size of the fund	The program has a limit of \$50 million in capacity. It has already committed \$25.5 million to seven partnerships and it has actually used \$10 million. It is of at least \$3.8 for each dollar invested.		As of June 1996, the fund size was \$18.5 million.
Number of total investments	Seven partnerships.		MTDC has exited 52 of the 83 companies in which it had originally invested. Seventeen companies have ceased operations. The program has invested more than \$32 million in 87 companies since 1979 through 1996. In FY 1996 the Corporation approved investments totaling \$1.5 million in 6 companies and closed investments totaling \$648,000 in three of these companies.

State	Oklahoma	Louisiana	Massachusetts
			During fiscal year ended in June 30, the MTDC committed investments totaling \$5 million and closed five new investments, 13 follow-on investments and three new investments from the Commonwealth Fund Investment Program.
Return on investment	Seventeen percent (the average rate of return for venture capitalists is 18 percent). The Board receives distribution from interest and returns on equity. It shares all profits that occur in the partnership.	Twenty percent in 1989. Target is 40 percent. When dealing with mezzanine investment, rate of return is expected to be between 20 and 25 percent.	The average return from the beginning of the program through June 30, 1997 has been 17 percent. In 1996 the program had net realized losses of \$569,651. Cumulative gains on equity investments since 1980 total almost \$21 million, while losses totaled \$6.6 million.
Other features	The program does not deal with firms; therefore there are not other features such as technical assistance.	There is also a program that offers a premium tax credit for insurance companies who are doing businesses in the state and that invest in venture capital. This premium tax credit is also offered to individuals or corporations willing to invest.	The Management Assistance Program has been quietly helping entrepreneurs launch or expand their businesses. MTDC's staff reviews initial business plans, provides counsel as to the most feasible ways of raising the necessary capital from private/public sources and assists companies in locating these alternative sources of funding.
Comments (Strengths/ Weaknesses)	According to Mr. Heard, venture capitalists and various experts consider this model to be the best in the country. It has been suggested that the program should be more privatized, by		MTDC is the oldest public equity-financing institution in the U.S. MTDC experience demonstrates that a public sector can be successful operating a venture fund.

State	Oklahoma	Louisiana	Massachusetts
	<p>elevating the role of the capital formation corporation and diminishing the role of the Board public trust since this is a state organization with constraints imposed by rules on purchasing and hiring. The Board public trust is subject to state rules on purchasing and hiring that make the operation of the program less flexible.</p>		<p>Constraints by state policies for offering incentives to well trained investment professionals. This kind of program needs committed professionals. Venture capitalists offer profit-participation to attract good professionals and improve their performance. Since the corporation is a public one, there are limitations on the profit-participation policy that the corporation can offer to its staff. This makes it difficult to retain well trained, competent professionals</p>

State	Connecticut	Hawaii	Kansas
Name of the program	Connecticut Innovations, Incorporated CII.	Hawaii Strategic Development Corporation (HSDC).	The Kansas Technology Enterprise Corporation (KTEC) (Ad Astra I and Ad Astra II Capital Funds)
Source of information	Interview with Mrs. Pamela Hartley, Director of Connecticut Technology Partnership (January 28, 1998) Phone: (860) 563-5841 Analysis by Kansas Legislative Research Department.	Interview with John Chock, President (January 26, 1998) Phone: (808) 587-3830	Documents from the KTEC program. Analysis by Kansas Legislative Research Department.
Date of creation	Established in 1989.	Created in 1990, but first investment took place in 1995. Initially was a state-managed venture capital fund, but due to lack of personnel resources no investments were made. In 1994 the structure of the fund changed to its current form.	KTEC was established in 1987. Ad Astra I, the first capital fund was established in 1988. Ad Astra Fund II, LP, the second capital fund, was established in 1994. There is also <i>Sunflower Technology Ventures, LP</i> established in FY 1996. This fund became operational in 1997. The fund makes investments in established companies with existing technology and a need for capital growth.
Mission	The creation and sustainable growth of a community of high technology companies.	Economic development, diversification, and job creation. The creation of a venture capital industry. The program wants to provide financing to new technology	Create and sustain a formal innovation network that supports technology advancement, technology transfer, and commercialization. Create and expand Kansas' enterprises through technological innovation. Provides seed capital for emerging technologies and for commercialization of

State	Connecticut	Hawaii	Kansas
		companies registered to do businesses in Hawaii.	technologies. The <i>Sunflower Technology Ventures, LP</i> fund's goal is to realize an exceptional rate of return while filling a niche in the State of Kansas for venture capital funding.
Type of investments	<p>Emphasis is in seed capital and early-stage development. The Corporation invests in emerging Connecticut technology companies, providing the risk capital companies need to develop, market, and launch new products and services. Connecticut Innovations has two main types of investment programs, the Product Development Investment and the Product Marketing Investment. Under the Product Development Investment program, CII may co-invest with the applicant company or others, in the development of new technology-based products. The Product Marketing Investments assists early stage companies or other manufacturers in launching new technology-based products. Funds can be used to pay for expenses associated with product development and marketing activities.</p> <p>The program has granted follow-on investments to companies in which there have been previous investments.</p>	Financing is for technology commercialization, seed capital, early stage, and growth equity expansions. Bridge financing is more rare. Follow-on investments are also provided.	<p>Astra funds provide seed capital and early growth equity capital.</p> <p><i>Sunflower Technology Ventures, LP</i>, will invest in early-stage high-risk emerging technology-based businesses.</p>
Investment recipients	High-technology businesses in targeted key industries.	Venture capitalists. Companies are referred to venture capitalists. The	KTEC invests through Astra Funds in a variety of technology-based

State	Connecticut	Hawaii	Kansas
		<p>program has established and provided commitments to four limited partnerships to invest in start-up and growth companies.</p>	<p>industries in Kansas such as medical, power/utility, transportation, information systems, communications, agriculture, electronics, and aviation.</p> <p><i>The Sunflower Technology Ventures, LP</i>, focuses on companies developing the following technologies: aerodynamics, biotechnology, materials, propulsion and power, avionics, medical technologies, software, communications, agriculture and food technologies, and it is open to others.</p>
<p>Nature of the program</p>	<p>Program managed by a quasi-public corporation, created by law. This corporation is profit motivated.</p>	<p>Public-private partnership program. Public program established by legislature, autonomous in investment.</p>	<p>Quasi-public corporation. Venture capital funds are part of an integrated strategy adopted by KTEC. This corporation manages a variety of programs, for instance: Finances Centers of Excellence (university-based centers) engaged in basic and applied research and technology transfer. Provides seed capital for emerging technology-based industries through the Ad Astra Funds. In FY 1996, KTEC received support from the Kansas Legislature to develop the state's first venture capital fund, <i>Sunflower Technology Ventures, LP</i>. This is a state-sponsored advanced-technology venture capital fund, which makes investments in established companies with existing</p>

State	Connecticut	Hawaii	Kansas
Creation mechanism	Created by the Innovation Capital Act of 1989, as the successor to the Connecticut Product Development Corporation (CDPC).	Public program established by legislature.	<p>technology and a need for capital growth.</p> <p>KTEC was funded by the State of Kansas through the Economic Development Initiatives Fund (EDIF), and corporate sponsors, KTEC has replaced the Kansas Advanced Technology Commission. Statutory Authority, Ad Astra I and Ad Astra II funds have been created by statute. KTEC was given authority to engage in seed-capital financing.</p> <p>In FY 1996, Kansas Legislature supported KTEC in the development of the state's first venture capital fund, <i>Sunflower Technology Ventures, LP</i>.</p>
Program structure	<p>CII manages the fund. CII is organized in three areas: 1) Investments, 2) Technology, Research and Information, and 3) Finance and Administration. A Senior Managing Director who reports to the President and Executive Director leads each area.</p> <p>A rotating, fifteen-member Board of Directors governs CII. The governor appoints eight members and three serve by virtue of their office. Four members are legislative appointments. The Chairman of the Commission of Economic Development is a member of the Board. The CII Board chairperson is appointed by the</p>	<p>Governed by a Board of Directors. Autonomous in investment. Directors appointed by the governor and legislature. There are nine directors, including five business representatives and the Director of the State Department of Business Economic Development and Tourism. Operating costs average \$40,000 and are funded by the General Fund. State funds plus returns from investments are deposited in a revolving fund. The program is run by one person in the staff and share support staff with the department of Business Economic Development and Tourism. Companies are referred to venture capitalists. By investing in</p>	<p>A 20-member board of directors composed of financial, industrial, academic, and government leaders governs KTEC. The governor or the secretary of the state department of commerce, the secretary of the state board of agriculture are on the board. Four directors are members of the legislature. Legislative officers appoint the governor appoint four directors and ten directors. Six of the directors appointed by the governor shall be persons from the private sector.</p> <p>KTEC provides seed capital for emerging technology-based industries through the Ad Astra Funds.</p>

State	Connecticut	Hawaii	Kansas
	<p>Governor from among the members, with the advice and consent of both houses of the General Assembly. There is the Finance Committee and the Eli Whitney Investment Advisory Committee that advises the Finance Committee. The Finance Committee is a subset of the CII Board of Directors that acts on investment recommendation and CII's investment policies. The Eli Whitney Investment Advisory Committee consists of members of the Finance Committee and additional members from the business and academic communities.</p> <p>The executive director, appointed by the board, is the chief administrative and operational officer of the corporation.</p> <p>Companies contact the program and receive an application for funding. Once the application is received, an Investment Manager will review it. The Investment Manager evaluates the application and discusses various aspects of the business with the company. Once approved by the Investment Manager, the proposal is presented to the Connecticut Innovations Investment Team. The team decides whether or not to recommend the investment to the Ely Whitney Finance Committee. Once an investment is approved both</p>	<p>four venture capital funds, the program has the long-term goal of achieving a financial return on its investments. These new funds can be reinvested in new-developing companies.</p> <p>The venture fund managers provide support to developing businesses by furnishing management expertise, access to markets and technology, and follow-on funds when needed.</p>	<p>KTEC decides how the funds are allocated.</p> <p>Campbell-Becker, Inc. in Lawrence manages ad Astra Funds. KTEC Holdings, who is the sole limited partner of Technology Partners. L.P Technology Partners, L.P was formed for the exclusive purpose of organizing and serving as general partner of Ad Astra Fund, LP and Ad Astra Fund II, LP. Ad Astra Funds were established to make equity, equity-related or debt investments in seed-capital and early stage financing. Follow-on investments are also provided.</p> <p>Ad Astra funds will be terminated on December 31, 1999 and Ad Astra II funds should last up to December 31, 2003. However, under certain circumstances, the life of both partnerships may be extended for up to five years.</p> <p><i>Sunflower Technology Ventures, LP</i> Kansas Sunflower Investors, LP is the sole General Partner of <i>Sunflower Technology Ventures, LP</i>. KTEC Holdings Inc., a wholly owned, for-profit subsidiary of KTEC, is the <i>Sunflower Technology Ventures, LP</i>. Initial limited partner. The General Partner will also appoint an Advisory Committee of three to seven people to provide expertise when called upon.</p>

State	Connecticut	Hawaii	Kansas
	<p>parties agree to the terms and legal documents are prepared. Companies must pay related fees and a commitment fee. The Corporation is self-funding. CII is a revolving fund. Deals usually mature within 5-7 years. In cases of IPO the maturity is shorter.</p> <p>The Corporation also has another program, the Access Connecticut, L.P, a venture capital fund formed in August 1996 with a \$4 million investment from Connecticut Innovations. Access Connecticut is managed by an affiliate of Prince Ventures, an investment firm in Westport with over \$100 million. Access Connecticut was developed to create successful new businesses based on innovations from leading academic research. The fund focuses on medical and life sciences, with expanding interests in the environmental and physical sciences, and information technology.</p>		
Oversight	<p>Annual reports to the governor providing a summary of the activities of the corporation and a complete operating and financial statement. State auditors periodically audit it and it is subject to examination by the state treasurer.</p>	<p>Reporting requirements for a state agency. Management of the investments is funds' responsibility.</p>	<p>KTEC is required to publish an annual report of its activities including an audit, and present it to the governor, the legislature, and Kansas Inc. Ad Astra Funds: KTEC Holdings, Inc. is a limited partner in each fund. The partnership annually provides each limited partner financial statements of the partnership, tax</p>

State	Connecticut	Hawaii	Kansas
			<p>information, and information on the investments held by the partnerships. Must also file report with the Kansas Department of Commerce and Housing to maintain venture capital certification.</p> <p><i>Sunflower Technology Ventures, LP</i>, portfolio companies will be required to provide monthly financial statements and undergo an annual audit performed by a certified independent accounting firm. Management of each company will be required to prepare and submit annual budgets.</p>
<p>Criteria in making investments</p>	<p>Connecticut Innovations invests in business that seek capital investments and are unable to secure private funds on commercially reasonable terms. Frequently, funds recipients gain the credibility to leverage investment capital from private sources. Investment is offered to:</p> <ol style="list-style-type: none"> 1. Targeted high-tech industries that have had that focus for a minimum of a year. 2. Industries that require between \$50,000 and \$1 million funds. 3. Industries that provide a minimum of 40 percent of the project funds. 4. Industries that have necessary product protection with patents, trademarks, and copyrights. 	<p>The four partnerships have been selected to provide diversity to the program's investment portfolio and to provide financing to companies at various stages of development. Funds have been distributed in the following way:</p> <p>A commitment of \$750,000 to Keo Kea Hawaii, a fund that invests in a broad range of industries. The focus of the fund is seed and early stage companies. The average investment is around \$50,000.</p> <p>An investment of \$2 million in HMS Investments, an early stage fund. This fund generally seeks participation in investments ranging</p>	<p>Companies that will have a reasonable chance of success. The corporation's capital is crucial since not other capital is available on commercially reasonable terms.</p> <p><i>Sunflower Technology Ventures, LP</i>, Seeks portfolio investments in companies meeting the following requirements:</p> <ol style="list-style-type: none"> 1. qualified management, and 2. a competitive advantage high-growth or profit potential, offering substantial appreciation and reasonable liquidity from multiple exit alternatives. <p>Initial investments in portfolio companies will be in the \$250,000 to</p>

State	Connecticut	Hawaii	Kansas
	<p>5. Companies that can demonstrate a significant employee presence in the state.</p> <p>6. Businesses that have a proprietary technology, since this is typically the collateral for providing funds.</p> <p>7. Companies must have a well-rounded management team.</p> <p>Applicants are required to provide basic information about the management team, owners of the company and a detailed business plan.</p>	<p>from \$500,000 to \$2.5 million. The fund has attracted co-investment from Asia and Silicon Valley.</p> <p>A commitment of \$1 million to the Tangent group, a fund that provides primarily later stage mezzanine financing to companies. Investments of this fund averages \$500,000.</p> <p>A commitment of \$500,000 to Hawaii Venture Fund. The fund has invested in a medical device firm. The program's shares have been restricted and could not be traded until this year (1998).</p>	<p>\$500,000 range. The fund's total investment in a portfolio company will rarely exceed \$1.5 million.</p>
Method of investing	<p>CII negotiates with each company an investment whose terms are tailored to meet the needs of the company and the interests of the co-investor. All investments are made on a co-venture basis with investors from the private sector.</p>	<p>The program invests in limited partnerships managed by venture capitalists. State is a general partner.</p>	<p>Public-private partnerships. Ad Astra Funds (and <i>Sunflower Technology Ventures</i>) are invested in limited partnerships through Innovation and Commercialization Corporations.</p> <p><i>Sunflower Technology Ventures, LP.</i> Investment managers will evaluate investment applications from companies. Companies need to present a complete business plan and background information. Investment managers will work closely with companies.</p>
Initial funding	<p>\$10 million appropriated in 1989.</p>	<p>State money from the general fund was provided (one time). The initial amount was \$6 million, but due to the</p>	<p>Ad Astra Fund was established with an initial investment of \$1.8 million in Economic Development Initiative</p>

State	Connecticut	Hawaii	Kansas
		<p>slow pace of the implementation of the program the initial fund was reduced to \$4.5 million.</p>	<p>Funds (EDIF). Ad Astra Fund II, LP was established in 1994 with a \$1.4 million investment of EDIF funds. An additional \$1.5 million EDIF investment in Ad Astra Fund II was made in 1995. Reallocation and re-appropriations from agency funds totaled \$5 million from the state. Original capitalization was based on a combination of private and state funds.</p> <p>(The <i>Sunflower Technology Ventures, LP</i>, became operational in 1997, with initial capital from the state totaling \$3.3 million, private matching, and a 2:1 federal match if the fund officially becomes licensed as a Small Business Investment Company (SBIC) by the SBA.)</p>
<p>Capital sources</p>	<p>In 1994 the State Legislature approved a \$5 million General Obligation Bond allocation for CII product Development Investments, financing 10 projects. There are over \$10 million a year available for risk capital investment. Now funds come from proceeds from past investments. Funds total now \$75 million. Currently looking for additional sources.</p>	<p>The program has been subject to budgetary cuts. More funds have been appropriated last year. Initially this appropriation was 1 and a half million for the 1998-99 biennium, but it has been reduced to less than \$1 million. The state funds plus returns go to a revolving fund. Funds managed totaled \$4.3 million. The program expects some distribution of funds this year, for the first time.</p> <p>Major private sources of investment (matching funds) are venture capital funds, business angels, and corporate</p>	<p>State funds and private matching. Tax credits for qualified investments to attract capital.</p>

State	Connecticut	Hawaii	Kansas
		investment. The program is also talking to pension funds.	
Leverage requirements	Leverage of 1:1 capital from private sources.	Needs matching funds in the ratio of at least 1:1. Actual history shows and average of \$6 for each dollar invested.	
Type of investment instruments	CII uses a variety of investment instruments, including debt, warrants, equity, and royalties on sales. Mechanisms vary according to how a deal is structured. This program found that debt convertible to equity was the most lucrative approach.	Participation in limited partnerships, purchases equity in companies.	Equity, debt, equity-related debt, and venture capital agreements. <i>Sunflower Technology Ventures, LP</i> , will invest in equity, share equity growth, and have liquidation claims.
Risk management	A key element is that the company's proprietary technology generally is used as collateral for the investment.	The program invests in a diversified portfolio of venture capitalists.	<i>Sunflower Technology Ventures, LP</i> . The 1996 Legislative body supported the creation of <i>Sunflower Technology Ventures, LP</i> ; fund by approving 25 percent tax credits for qualified investors. <i>Sunflower Technology Ventures, LP</i> , will exercise control over the business in the event of performance deficiencies. A Sunflower Technology Ventures manager will serve as a member of the board of directors of a portfolio company.
Current size of the fund	Currently the program has \$75 million.	As of February 1998 the fund has \$6 million.	Ad Astra: \$2.6 million, including \$800,000 of private funds. Ad Astra II: \$3.9 million, including \$950,000 from private funds.

State	Connecticut	Hawaii	Kansas
			<i>Sunflower Technology Ventures, LP</i> will provide \$30 million in venture capital funds.
Number of total investments	71 clients	The program has committed to four partnerships between half and two million each, encompassing 21 companies.	Ad Astra: nine active investments, three failed investments, and one liquidated investment. Ad Astra II: 15 active investments, one failed investment, and two liquidated investment. <i>Sunflower Technology Ventures, LP</i> , expects funding five to seven investment each year and a total portfolio of 25 to 30 companies by the end of the fund's sixth year.
Return on investment	In 1996 the average rate of return on investments was 34 percent.	Average expected rate of return on these investments is of 15 to 25 percent.	Portfolio company sales are reported to be \$11.5 million for FY 96. Equity returns to the state through these funds were \$330,800 in 1996 and \$362,824 for the life of the fund. <i>Sunflower Technology Ventures, LP</i> , expects rates of returns equal to or greater than returns found in the stock market on its investments.
Other features	Provides counsel and advice on technical market and business questions.	No direct involvement with technical assistance. However the program sponsors conferences, moderates venture capitalists panels and participates in various University of Hawaii programs. For instance, a 1998 the program is planning a major	KTEC has numerous supporting programs that provide technical assistance in various forms. In 1996, 21-day workshops were conducted across the state to inform small business owners of Federal and state grant programs available for

State	Connecticut	Hawaii	Kansas
		<p>international venture forum to expand investment activity and to continue to expand national and international awareness of Hawaii's investment potential.</p>	<p>developing technologies. Commercialization Corporations were created to bridge the gap in technology development between applied research and early-stage product development. These Corporations provide business consultation and assistance services. The organization also participates in experimental programs to stimulate competitive research, and provides technical and financial referral services to Kansas businesses.</p> <p><i>Sunflower Technology Ventures, LP</i>, portfolio companies will have access to a number of network resources, including KTEC and its partners.</p>
<p>Comments (Strengths/Weaknesses)</p>	<p>Program has found out that it is better to try to avoid participation in royalties and use debt convertible to equity, as more lucrative approach.</p>	<p>The program has become more flexible in the amount and sources of required matching funds. Today matching funds are required on the basis of each particular deal, while in the past, the amount of matching funds was a fixed amount.</p> <p>However, the program has been operating very slowly. Some initial state funding was taken away from this program since the program took too long to start operating.</p>	<p>New program will fill venture capital gap in Kansas. KTEC offers a very well integrated package of services and years of experience.</p> <p>New program. May be subsidizing indirectly private activities rather than helping companies, or may be displacing private investment.</p> <p>During the last months of 1997, KTEC has endured legislative investigation, Ad Astra evaluations, and legislative joint committee evaluations, as a result of a current attitude toward state involvement in venture capital. Two investments</p>

State	Connecticut	Hawaii	Kansas
			<p>managed by Astra Funds were questioned. Investigations determined that the fund managers had acted appropriately. However, a consequence of the criticisms to KTEC was that the <i>Sunflower Technology Ventures, LP</i>, were closed. Astra Funds are already fully invested. The State of Kansas owns Seventy percent of the investments. These funds may be sold to the private sector.</p>

State	New Hampshire	Pennsylvania	Texas
Name of the program	The New Hampshire Capital Consortium, created by The New Hampshire Business Development Corporation.	Ben Franklin Partnership Program. The Seed Venture Capital Fund Program.	Texas Growth Fund (TGF)
Source of information	Interview with Dede Dufresne. Office Manager (January 23, 1998) Phone: (603) 271-2591	Interview with Richard Miller. Marketing Director, Ben Franklin Technology Center Southern Pennsylvania. (January 20, 1998) Phone: (215) 382-0320 Program Reports.	Report by Center for Policy Alternatives. Interview with Mr. James Kozlowski. (February 1998) Phone: (512) 322-3100
Date of creation	NHBDC has been in existence since 1951, but it has been reorganized into its present structure in 1991. The New Hampshire Capital Consortium was established in November 1994.	Established in 1984.	Created in 1988. Began operations in 1992.
Mission	The New Hampshire Business Development Corporation (NHBDC) is a for-profit company chartered by the State of New Hampshire to foster economic development in the state. Supports small businesses in the state by providing qualified candidates with loans, investment capital, and business assistance resources on a for-profit basis. NHBDC organized the New Hampshire Capital Consortium (NHCC) for the purpose of funding early-stage, high potential growth companies in New Hampshire.	The Ben Franklin Partnership Program includes 7 separate programs that are administered by the Ben Franklin Partnership Fund Board. The mission of the programs is to stimulate economic development in the Commonwealth's advanced technology industries and to assist traditional firms seeking to use advanced technologies to improve their competitive position. The Seed Venture Capital Fund Program is one of them.	Make investments that are "directly related to the creation, retention, or expansion of employment opportunity and economic growth in Texas." TGF is a trust fund created as a vehicle so that pension funds and endowment funds could invest in Texas businesses, benefiting the economy of Texas without sacrificing investment returns.

State	New Hampshire	Pennsylvania	Texas
Type of investments	Equity investments for the initial production of a product and for bolstering market share. (Early stages and mezzanine-stage growth)	Equity investments. Seed capital.	<p>The program invests in firms that are beyond the venture capital stage. It finances second stage and restructuring of industrial projects. Economically targeted investments. Investments that pay a market rate of return; produce benefits to society; and provide capital for viable investment opportunities that currently suffer from inadequate financing. The constitutional amendment that created the fund enumerates some restrictions on the types of TGF investments.</p> <p>For instance:</p> <ol style="list-style-type: none"> 1. Equity investment. Only 10 percent allowed to be used for venture capital investment. 2. Fifty percent or more of the total fund to be invested in equity and/or debt securities for business modernization or industrial expansion in Texas. <p>TGF is not prohibited from investing in entities whose operations extend beyond the State or entities that are headquartered outside the state, as long as the board of trustees determines that the investment directly benefits the Texas economy.</p>
Investment recipients	High potential growth companies preferable based in New Hampshire, with five year sales forecasts of \$20-	Companies with 50 or less employees, including employees in affiliated firms. Firms must be independently	Texas businesses. Investments directly related to increasing employment and economic growth in

State	New Hampshire	Pennsylvania	Texas
	<p>\$50 million. The program prefers high-tech industries such as telecommunications, software, and biomedical industries. The company provides follow-on investments.</p>	<p>owned and operated in Pennsylvania or have moved to Pennsylvania prior to receipt of the investment.</p>	<p>Texas.</p>
<p>Nature of the program</p>	<p>NHBDC is a public private partnership. NHBDC invests in NHCC, a venture capital partnership (limited partner in a professionally managed fund).</p>	<p>Private program as limited partnership in 4 private funds.</p>	<p>Trust fund that invests capital from pension and endowment funds that has been committed to this program. Focus of investment are Texas companies with at least \$10 million in sales or more.</p>
<p>Creation mechanism</p>	<p>Venture capital partnership organized by a for-profit company chartered by the State of New Hampshire.</p>	<p>By Legislation. Venture capital partnership that is organizationally located under the Office of Technology Development under the Secretary of Commerce. Public funding authorized by legislation and administered by private funds.</p>	<p>Constitutional amendment established a new intermediary as a public trust. This amendment was considered necessary since there was uncertainty in the interpretation of the Texas Constitution related to the scope of permissible investments of public pension and endowment systems.</p>
<p>Program structure</p>	<p>The New Hampshire Business Development Corporation is a for-profit company chartered by the State of New Hampshire to foster economic development in the state. The corporation activities are overseen by a Board of Directors comprised of leaders from the public and the private sector. To achieve its goals, NHBDC may originate, sell, and service Small Business Administration (SBA) guaranteed loans to small businesses that are unable to obtain funding through conventional sources. The State of</p>	<p>The Ben Franklin Partnership Program includes 7 separate programs that are administered by the Ben Franklin Partnership Fund Board. Programs are managed by 4 regional advanced technology centers, which invest State funds in carefully chosen projects for technology and innovation, selected in accordance with locally developed strategic investment plans.</p> <p>The State's Ben Franklin Partnership Fund Board carefully evaluates the performance of the 4 Technology</p>	<p>TGF was established by amendment of the Texas Constitution. It is managed by a board of trustees composed by representatives of state pension systems. Four members of the board are public members appointed by the governor, 2 members are representatives from the permanent university fund, and 1 representative each from the Teacher Retirement System of Texas, the Employees Retirement System of Texas and the permanent school fund. The Governor designates the chairman of the board to serve a term</p>

State	New Hampshire	Pennsylvania	Texas
	<p>New Hampshire Department of Resources and Economic Development owns all issued and outstanding shares of the company. NHBDC organized the New Hampshire Capital Consortium, (a Small Business Investment Company affiliate) for the purpose of funding early-stage, high-potential growth companies in New Hampshire. This Consortium is part of a \$75 million affiliate Small Business Investment Company called Zero Stage Capital Company, Inc., Cambridge, Massachusetts, which manages the fund. The fund is terminated in 10 years.</p>	<p>Centers. To ensure accountability to community goals, independent Boards of Directors, comprised of private sector executives, university administrators, and economic development officials oversee the 4 Technology Centers.</p> <p>The Seed Venture Capital Fund Program is one of the programs under the Ben Franklin Partnership Fund Board. In 1984, the Pennsylvania General Assembly passed legislation making funds available for early-stage equity investments. The first step was taken by making \$4.5 million of Pennsylvania funds available to private venture firms through a Challenge grant program funded under the Pennsylvania Economic Revitalization Fund. Five independent private sector funds were selected. Once the investments began, one of the Funds have been liquidated and gone bankrupt and one has been very successful. The Ben Franklin Partnership Technology Centers serves as limited partners in the particular Seed Capital Fund serving its regions, although they do not assume any operational responsibilities for the funds.</p> <p>Ben Franklin Technology Centers creates strategic partnerships with public and private organizations,</p>	<p>of two years. The public members serve for 6 years. The term of the representative members of the funds is at the discretion of the funds. The board has retained TGF Management Corp.; private firm created for the purpose of managing the fund. The board of trustees must approve all investments of TGF funds, by majority vote.</p> <p>TGF Management Corp. receives an annual management fee and an interest in the performance of the Fund.</p> <p>The legislature periodically reviews the work of the board, but it is not empowered to abolish the board or TGF other than by sunset provision. The fund will be liquidated after 10 years (1998), but it can be extended by a two-thirds vote of each house through the creation of TGF II. Currently TGF II fund is in operation.</p>

State	New Hampshire	Pennsylvania	Texas
		<p>research institutions, and universities to provide funding and services for technology-based, growth-oriented companies</p> <p>Ben Franklin Program also has the Ben Franklin/Progress Capital Fund (\$100,000 to \$1 million). A venture capital fund for growth-oriented companies with proprietary technologies.</p>	
Oversight	NHBDC oversees NHCC, managed by Zero Stage.	In 1988, the Ben Franklin Partnership Fund was subject to sunset review. Management of the program has not published their investment's achievement.	Subject to general laws governing public trusts. Must report to the Legislature annually. Subject to sunset in September 1998.
Criteria in making investments	NHCC makes investments of between \$250,000 and \$1 million in high potential companies with 5 year sales forecasts of \$20-\$50 million. Companies either go to public or sell out to a larger company after 5 or 7 years.	Small businesses eligible to receive investments include: manufacturing firms, firms involved in international export-related services or international export-related mercantile ventures, and advanced technology and computer-related ventures which will increase Pennsylvania's share of domestic or international markets. Decisions on funding amounts and the nature of investments are made solely by the managing general partners, not by the Ben Franklin Partnership Board or state government. Investments must be made in accordance with the terms established by the Ben Franklin Partnership Board, but do not need prior approval	All businesses in which TGF invests must submit an affidavit disclosing whether they have any direct financial investment in Namibia or South Africa. The board's investment policy prohibits the following transactions: participation in hostile tender offers, investments leading to TGF holding over 50 percent of the voting stock of an entity, investment of more than 10 percent of TGF's total funds in one entity, direct investments in oil and gas reserves, real estate, precious metals, or similar assets.

State	New Hampshire	Pennsylvania	Texas
		from the board. Companies that apply must contact the Ben Franklin Technology Center of their region.	
Method of investing	NHCC buys equity in companies based on the valuation of the business and its long-earnings potential. NHBDC markets the programs. Companies present a business plan before Zero Stage, a SBIC that manages NHCC funds. Zero Stage decides based on their guidelines.	The Ben Franklin Partnership Technology Centers serve as limited partners in four private funds. Investment decisions are made by each of the fund managers, but must be made in accordance with the terms established by the Ben Franklin Partnership Board. At the Fund Manager's discretion, investments may be made in multiple stages. Investment in any firm usually does not exceed \$250,000 in any one round of funding and \$500,000 in total investment.	The state pension and endowment funds commit capital to TGF. The board of trustees of TGF employed TGF Management Corp. to identify and structure investments that fit the criteria established by the constitutional amendment. The board of trustees must approve investments. Chief investment officers of the participating funds are also consulted.
Initial funding	Initial funding of the NHCC came from: NHBDC, CFX Bank, EnergyNorth, First NH Bank, Fleet Bank, The New Hampshire Charitable Foundation, Public Service Company of New Hampshire, and Shawmut Bank. NHBDC put \$1 million in four increments of \$250,000 a year. Total fund was \$4.5 million.	\$4.5 million of Pennsylvania's funds available to private venture firms through a challenge grant program funded under the Pennsylvania Economic Revitalization Fund. (\$3 million in 1984 and an additional \$1.5 million in 1986) later on, funds from previous investments.	Initial costs come from commitments to TGF, which ultimately come out of profits of TGF Management Corp. The 1991 Trust has a portfolio of 14 companies with a total capital of \$52 million. The 1995 Trust has \$75 million.
Capital sources	Private sources.	Funds from previous investments. Leverage from: Pennsylvania two major pension funds. Private sources.	Teachers Retirement System (committed \$42 million in capital). Permanent university fund (has provided \$10 million). All public pension and endowment funds eligible to invest.

State	New Hampshire	Pennsylvania	Texas
Leverage requirements	SBIC requirement that is \$2 for each dollar invested.	Funds are expected to raise a minimum of \$3 of private money for each State dollar dedicated to the program. The actual leverage was much higher.	One dollar matching funds for each dollar of investment.
Type of investment instruments	Mezzanine loans. Equity-loans, warrants for stock.	Equity.	Although there are legal restrictions established by the constitutional amendment, investments can be made at the discretion of the board of trustees through traditional investment mechanisms such as: common stock, convertible preferred stock, and subordinate notes with warrants or convertible debentures.
Risk management	Buys Equity. Zero Stage structures the deals and participates on the Boards of the companies.	Relation between funds and Centers vary by region. Some Centers have representatives in the Fund's Boards.	
Current size of the fund	\$50 million		\$75 million
Number of total investments	Total direct NHCC investments are more than \$10 million in 7 companies, attracting \$11 million from co-investors. Half of the investments are mezzanine investment. It has not experienced investment losses.	All funds are fully invested. One of the funds did very well (NEPA), one fund failed and the others did not do very well.	
Return on investment	Returns on investment were estimated as 20 percent as of the end of 1966.		A target rate of return is not stated either in the enacting amendment or the Declaration of the Trust. The expected rate of return is that TGF must outperform the S&P 500 in order to be considered a success.

State	New Hampshire	Pennsylvania	Texas
			Actual rates of return are about 20 to 25 percent. (TGF I)
Other features	NHBDC markets the program.	The Pennsylvania program is 1 of a set of integrated programs oriented to promote technology development and innovation.	
Comments (Strengths/ Failures)	By being part of a larger fund, NHCC benefits from encouraging direct investment within the state, while investment risks are spread among several states.	The oversight mechanism of this program has not been very effective since it is very difficult to obtain information on the actual performance of the various funds' investments. Recently, the state has provided money for a new venture capital fund, the Keystone Venture Capital Fund that will be administered in connection with the North Tier Ben Franklin Technology Center.	The constitutional amendment was necessary for the investment of public pension funds. The existence of an independent intermediary protects the problem from political influence on investment decisions, leading to investments based on financially sound criteria. Independence of the intermediary is important for credibility within the investment community. Potential co-investors, as well as investment recipients, may refuse to work with a state-controlled intermediary for fear of dealing with bureaucratic interference in the various stages of the investment process.

State	Arkansas	Iowa	Maine
Name of the program	Arkansas Science and Technology Authority (ASTA).	Iowa Seed Capital Corporation (ISCC). (Iowa also has the Venture Capital Resources Fund and Iowa Capital Corp., a public with private advisor program. This program provides capital for later stage and mezzanine investment to companies that have a five-year history and a strong potential return).	Maine Science and Technology Foundation. The Maine Science and Technology Investment Fund.
Source of information	Analysis by Kansas Legislative Research Department. Virginia's Center for Innovative Technology Report. Interview with Program Analyst Phone: (501) 324-9006	Analysis by Kansas Legislative Research Department. Virginia's Center for Innovative Technology Report. Interview with Program Analyst Phone: (515) 242-4860	Analysis by Kansas Legislative Research Department. Virginia's Center for Innovative Technology Report. Interview with Mr. Spies, III Phone: (207) 623-3263
Date of creation	1983.	1983	1996
Mission	Promote economic growth and new employment in the state. Foster the formation and development of technology-based businesses. Fill a capital gap.	To support qualified Iowa entrepreneurs in need of capital that cannot be acquired from conventional sources due to high-risk levels. Attract venture capital from other public and private sources.	This is a pre-seed investment fund. Small Enterprise Growth Fund provides funds for early growth companies.
Type of investments	Seed investments in Arkansas-based start-ups. Follow-on investments can be made but none have been made to date.	Early-stage investment fund	Pre-seed investments. No follow-on investments. For that there is the Small Enterprise Growth Fund, which is also a public fund.
Investment recipients	Originally the program focused on scientific projects and high-tech businesses. Currently the focus is more general, businesses related to economic development.	Young companies with new products and unproven markets that have the potential to grow rapidly and provide new employment.	Companies in Maine that have a high growth potential.

State	Arkansas	Iowa	Maine
Nature of the program	Public program. State funded agency and portfolio.	Public program. State-authorized and created. State-funded managed by a private, nonprofit corporation.	Public program. Authority under nonprofit. Publicly funded. Publicly managed. This is also true for Small Enterprise Growth Fund.
Creation mechanism	Created by statute.	State funded program created by the Iowa legislature.	Created by statute.
Program structure	<p>Public agency. ASTA is an independent agency of the state government. It receives biennial appropriations. A Board of Directors oversees ASTA, ten of them appointed by the Governor and two of them from ex-officio from the House of Representatives and the Senate. An 11-member-scientific advisory committee aids the Board of Directors. ASTA has a variety of programs, including a technology financing and extension program. The staff of the Arkansas Science and Technology Authority (ASTA) manages the Arkansas Seed Capital Investment Program. Investment committee takes staff recommendations under review and then submits their approved plans to the full Board of Directors.</p> <p>Fund is a revolving fund with no sunset.</p>	<p>This is a state-funded program established by the Iowa legislature. ISCC receives annual funding appropriations from the state's general fund to support program administration and investments, and is governed by an independent seven-member board of directors appointed by the Governor and confirmed by the Senate. The Board takes decisions on investment. The Board sets the annual administration budget of the corporation. The fund is perpetual. The Corporation must report to the Board, Governor, and Legislature. The board and the legislature oversee the Fund management.</p>	<p>Investment decisions taken by: three members of the Maine Science and Technology Foundation Board and two members from other organizations. The Fund manager reports monthly to Board of Directors and annually to the Legislature.</p> <p>Administrative fees total \$20,000 and it is based on volume of transactions.</p>
Oversight	The Fund manager reports to the Vice President of Finance.	Board and legislative oversight.	Fund Manager reports monthly to the Board of Directors and annually to the Legislature. It can be subject to

State	Arkansas	Iowa	Maine
	Subject to annual audit and monthly reporting.		audits, if requested by relevant authorities.
Criteria in making investments	Companies apply. Staff and an expert advisory committee review the companies' business plan and cash flow and whether the companies meet the eligibility criteria. The program is restricted to those that have not been able to secure sufficient capital through traditional sources. The Investment Committee of the Board of Directors uses the staff and committee findings in its evaluation. The full ASTA Board makes final investment decisions. Average investment is around \$170,000. Requests must not exceed \$500,000. Businesses are expected to have experienced management team.	Criteria: companies with innovative products or processes, with high growth potential, substantial expected returns on invested funds. Business with a strong management team.	Chooses businesses with products that have high capacity for commercialization. Biotechnology industries, exporting businesses, software and value-added natural resources companies. Businesses with less than 25 employees. Maximum investment is \$150,000.
Method of investing	Invests in companies using debt instruments and royalties to obtain repayment of the investment.	The corporation invests in companies using debt instruments and royalties to obtain repayment of investment. Follow-on investments are common.	The program deals directly with companies, co-invest with companies.
Initial funding	One time appropriation of \$1.8 million.	State funds. Appropriation of \$729,000.	For FY 96-97: \$800,000. For FY: 98-99: \$800,000. A voters approved \$5 million bond issue funded the Small Enterprise Growth Fund.
Capital sources	Interest earned on the appropriation and repayments to the fund.	From FY 1984 through FY 1996, a total of \$13,476,466.	Public funds. Small Enterprise Growth Fund: this is a revolving fund. Proceeds of investments are deposited in the fund.

State	Arkansas	Iowa	Maine
Leverage requirements	Since the fund is small, applicants are required to provide at least \$3 dollars for each dollar of public investment.		Looking for one private capital for each dollar invested.
Type of investment instruments	Debt and debt with royalties, no equity. Each individual agreement is unique, tailored to the borrower's need.	Not specified by law. Use equity (preferred and common) debt with warrants, and debt with royalties.	Royalty based agreements, preferred stock, deferred loans. Small Enterprise Growth Fund: deferred payments, warrants.
Risk management	Debt instruments and royalties.	Debt instruments (collateralized loans, subordinate positions, guarantees) and royalties.	May adjust repayments and have flexibility in structuring the deals. Investor and borrower performance are monitored through the life of the investment. (Small Enterprise Growth Fund: Board of Directors follow due diligent process).
Current size of the fund	\$3.1 million portfolio. All funds came from the state.	\$5,778,706 from the state. (The differential between the current size of the fund and total appropriations is due to early losses and administrative expenses).	\$500,000 annually from state funds. Small Enterprise Growth Program has \$5 million.
Number of total investments	Ten active investments; two failed investments and two are pending failure; two investments have been liquidated.	25 active investments, 17 paid off investments, and 28 closed or inactive investments.	Small Enterprise Growth Program: First investment was to be made by the end of 1997. Currently three investments and eight committed investments.
Return on investment	Does not calculate rates of return. Pursue social goals rather than returns.		Small Enterprise Growth Program: expected rate of return of 22 percent.

State	Arkansas	Iowa	Maine
Comments (Strengths/ Weaknesses)	The program had problems investing its funds because there was a lack of high-tech start-ups that required funding in Arkansas.	By Legislative action this program will end soon.	Direct equity investment simplify the structure of the deals.

State	Michigan	Oregon	Utah
Name of the program	Michigan Strategic Fund (now Michigan Jobs Commission). Enterprise Development Fund (EDF)	Oregon Resource and Technology Fund (ORTDF).	Utah Technology Finance Corporation (UTFC)
Source of information	Analysis by Kansas Legislative Research Department. Successful State Capital Initiatives Report.	Analysis by Kansas Legislative Research Department.	Analysis by Kansas Legislative Research Department. Virginia's Center for Innovative Technology Report.
Date of creation	The program was created in 1985. It started to operate in 1986.	1985.	1983.
Mission	Meet the capital gap faced by small businesses. Promote technology development.	Promote development and creation of jobs in targeted technologies and value added natural resources. To provide initial capital and management assistance. Make investments at the very early stages, when risk to investors is the highest.	Promote economic development and job expansion. Expand business growth opportunities through focused financial leadership. Foster innovation and entrepreneurship.
Type of investments	Seed stage equity. The program does not provide follow-on investments.	Seed and applied research, and prototype development.	Early-stage capital. Loans and warrants can be spread in two phases.
Investment recipients	Generally the fund focuses on businesses technology, services, and food processing industries.	Businesses in targeted technologies and value added natural resources.	High-tech businesses.
Nature of the program	Quasi-public overseen by private sector interests. Limited Public-private Partnership.	Public. Managed by a private company that specializes in early stage investments.	Public.
Creation mechanism	Created by legislation.	State-chartered invested fund created by legislation.	State-chartered invested fund created by legislation.

State	Michigan	Oregon	Utah
<p>Program structure</p>	<p>Governor is co-chair of the partnership. Enterprise Development Fund is a general partner and manages the fund, but investment decisions are made by Michigan Strategic Fund (MSF).</p> <p>The MSF is the primary funding source for a number of independent organizations that provide services to companies. MSF has made technology and risk capital its priorities for the state's economic development.</p> <p>MSF has a seven-member board. Housed by the Department of Commerce, MSF is an independent agency whose board has decision-making authority.</p> <p>The life of the fund is 10 years, with optional extensions upon approval of the limited partners. (EDF was extended for 3 years).</p> <p>EDF receives a management fee established at 4.5 percent of total capital. In addition, up to \$500,000 of interest earned on idle funds could be used to supplement the management fee.</p>	<p>The legal organization of the fund is a public beneficial organization. The fund was a public fund but moved to private in June 1994. ORTDF's investment and management assistance functions have been contracted to Cascadia Pacific Management, LLC Fund. Although ORTDF is managed under contract, the Fund is an instrument of the state through the Treasurer's Office. Investment proposals are received and analyzed by the fund managers.</p> <p>The decision to invest is taken by the Board of Directors. The Board of Directors is composed of six members selected by the Governor and State Treasurer and approved by the Senate. The Fund is a permanently revolving fund. The Fund manager reports to the ORTDF Board. Annual management fee is calculated through negotiated agreement and is about \$400,000. Other fund expenses are audits, state services, attorney fees, annual reports, and board expenses.</p>	<p>The Utah Technology Finance Corporation (UTFC), an independent non profit corporation, was established in 1983 to foster innovation and entrepreneurship by providing seed and early stage capital to start-up and growing businesses throughout Utah. Between 1983 and 1992 the program struggled with developing the best vehicle to achieve its goals. At first, UTFC set up a granting program, which required royalty payments back to the State. Since 1992, the program has restructured providing a variety of lending programs and technical expertise to take the companies to the point where they can receive financing from traditional sources. UTFC has a variety of lending programs. Programs administered by UFTC include, the Early Technology Business Capital Program; Bridge Loans; Salt Lake County Revolving Loan Fund; Utah Rural Loan Fund; Defense Conversion Loan, SBA Microloan, Bank Participation Loan; and the Capital Access Program.</p> <p>UTFC staff and a three-person subcommittee of the UTFC board review loan applications.</p> <p>UTFC fund is managed on an annual basis but has no termination date.</p>

State	Michigan	Oregon	Utah
Oversight	The fund reports to limited partners (MSF) on a quarterly basis. The fund management is evaluated by its ability to raise subsequent funds, which is a test of its credibility in the marketplace.	Annual report to the Legislature and citizens, including an audited statement by an independent accounting firm. Annual rigorous in-depth financial statement by the Secretary of State's Office.	UTFC, board of trustees, state legislature, and applicable federal agencies complete reports for management review. The contracts in which UTFC is party specify that there may be separate reporting requirements depending upon the type of contract managed.
Criteria in making investments	Potential for significant success; management; highly differentiated proprietary products or services; marketability of the product; and valuation and return.	Focuses on those businesses that can generate a risk-adjusted market rate of return. Targeted industrial sectors are software, environmental, electronics, and medical devices, value added natural resources, biotechnology, and materials.	<p>The program focuses primarily on companies with sales below \$5 million, and on companies that are ready to commercialize technology and enter into the marketplace.</p> <p>Criteria for funding include the project's evaluation of market and commercial characteristics, its technical merit, the exclusivity of technology and its proprietary advantage, arrangements for follow-on funding, the potential long-term impact on employment, matching funds brought about by the applicant, the management expertise, and the maturity of the innovation.</p> <p>Criteria include the following:</p> <ol style="list-style-type: none"> 1. Probability that funds will be repaid, 2. Expected return on investment, and 3. Expected job creation.
Method of investing	Investment decisions are taken by MSF. State is a limited partner in the	Fund managers solicit and receive investment proposals, screen and	Invests in businesses. The staff of UTFC selects the investments for

State	Michigan	Oregon	Utah
	fund.	analyze them, and then present the selected investments to the Board of Directors.	review and approval by loan committees. Investment committees are composed of trustees and UTFC personnel.
Initial funding	\$4.2 million. First year received \$2 million legislative appropriation and \$2.2 million from pension funds, individuals, and corporations. State allocated revenues from oil and gas royalties, and more recently, from certain gaming operations.	Legislative appropriations from State lottery proceeds. A total of \$20.5 million was approved. The fund has received \$12.3 million. In 1985 \$5.5 million were received. In 1987, \$1.8 million were received. In 1989 the fund received an additional amount of \$3 million, and in 1991 the fund received \$2 million.	Initially, UTFC was funded by the state. In 1992, UTFC applied for federal funds. In 1994, UTFC started managing funds for the local Association of Governments.
Capital sources	In 1990, received an additional \$2.4 million legislative appropriation.	All funds are state funds.	The program has leveraged its state appropriations with funds received from the Small Business Administration, Farmers Home Administration, Housing & Urban Development, Economic Development Administration, and the Department of Defense. Federal funds totaled \$12.7 million.
Leverage requirements		Generally over \$20 has been invested for each \$1 invested in ORTDF.	
Type of investment instruments	No restrictions on how each fund is structured (mostly convertible preferred stock: sometimes warrants and/or low-priced common stock.)	The fund is authorized to use standard equity and debt instruments, such as debt with royalties and debt with warrants. Most investments are common and preferred equity.	Equity, debt, debt with warrants.

State	Michigan	Oregon	Utah
Risk management		Work closely with companies.	Requires principals to sign personal guarantees for all funding received.
Current size of the fund	\$6.6 million as of August 1997.	Approximately \$25 million with \$6.9 million in publicly traded stock which cannot be sold for approximately one year.	The fund has \$21.6 million (\$8.9 million state funds and \$12.7 million federal funds).
Number of total investments	16 companies: five failed, one repaid EDF and the other is in the process of repaying EDF; one was sold; eight are active. (Of the eight active investments, two are public companies. EDF expects to recover its investment in two and earn a significant return on some or all of the other six).	Invested in 53 proposals. 23 are active, 10 failed, 10 liquidated investments and 10 became another type of investment.	Approximately 350 loans have been made. Presently there are 164 active loans. Losses average between 5-6 percent annually. One investment has been liquidated.
Return on investment		The program aims at 40 percent rates of return. The program actually receives 20 percent due to a high rate of failure of the program investments. High rate of failure is expected at early stages of business development.	Part of an integrated package. Provides technical assistance.
Other features		Managerial assistance and technical referral to businesses.	Part of an integrated package. Provides technical assistance.