INFORMAL RISK CAPITAL IN NEW ENGLAND

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INFORMAL RISK CAPITAL

An Investigation of Cost, Availability, and Market Efficiency

Research Proposal Submitted to:
Small Business Administration
Office of Economic Research
Funded October, 1979

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I. INTRODUCTION

The Office of Economic Research of the Office of Advocacy, U.S. Small Business Administration, contracted with the Center for Industrial and Institutional Development at the University of New Hampshire to examine the characteristics of the informal risk capital markets in New England. The research was carried out between October 1979 and January 1981.

The contributions of young, small firms to the pace of technological innovation and new job formation have been revealed by recent studies to be even more significant than the contributions of large, established firms. Despite these characteristics, the availability of essential risk capital (venture and equity capital) to finance new and growing small firms declined steadily during the 1970 decade. Risk capital problems are particularly acute for new and existing firms requiring funds in excess of those available from founders and other friendly sources but without access to professional venture capital organizations, or to the public equity markets. Informal investors may represent an appropriate source of external risk capital for many of these ventures.

Informal investors are defined as sources of risk capital other than professionally managed venture capital funds, equity-oriented Small Business Investment Companies (SBIC's), other institutional investors and the public equity markets. Informal risk capital investors tend to be financially sophisticated individuals of means, often with previous investment or management experience with entrepreneurial ventures. Despite their essential role, little is known about informal investors as a source of risk capital, about how to reach informal investors, their investment criteria, or the volume of informal risk capital available. The research reported herein attempted to answer these questions with respect to informal risk capital in New England. The research focused on the role of informal investors as a source of funds for three types of investment situations: 1) financing technology-based inventors; 2) start-up and early-stage financing for emerging firms; and 3) equity financing for established firms growing faster than retained earnings can support. Further details on the background and objectives of the research can be found in the original research proposal. See Appendix A.
The research faced two major challenges: identifying informal investors, and collecting and analyzing useful data. Informal investors are a diverse and dispersed group with a preference for anonymity. The techniques employed to reach these individuals are discussed in Section II of this report. A comprehensive questionnaire was used to gather data. See Appendix B. Development of the questionnaire is discussed in Section III.A. The balance of the report presents an analytical discussion and summary of the data.

The assistance of the following organizations and individuals in carrying out this research is gratefully acknowledged:

1. National Association of Securities Dealers, Inc. (NASD)  
   Gordon S. Macklin, President  
   Douglas F. Parillo, Vice President  
   J. Stephen Putnam, Director - N.E. Region

2. Smaller Business Association of New England (SBANE)  
   Daniel A. Cronin, Jr., President  
   Lewis A. Shattuck, Executive Vice President  
   Paul Serotkin, Director of Communications

3. U.S. Small Business Administration (SBA)  
   Office of Chief Counsel for Advocacy  
   Milton D. Stewart, Chief Counsel  
   Gerald L. Feigen, Associate Advocate  
   Lloyd M. Arrington, Jr., Assistant Advocate

4. Vermont Bankers Association, Inc.  
   Paul N. Wormwood, President  
   Dean T. Rowden, Executive Vice President

5. December 13, 1979 Workshop Participants  
   (See Appendix C)

Thanks are also extended to Mrs. Maddy Piper and Ms. Marylou Chag for extraordinary typing services and to Brad Smith for preparing the figures and graphs.
I. ABSTRACT
The demonstrated national shortage of risk capital for small firms is particularly troublesome for inventors, for new firms without access to professional venture capital sources and for established, growing firms without access to the public equity markets. Firms without access to venture capital or the public equity markets typically will generate annual sales between $1 million and $20 million, employ between 20/30 and 400/600 people, and represent a significant foundation of employment and technological innovation in the United States in general, and in New England in particular. Recent studies have documented the major economic and technological contribution of these "foundation" firms.

Informal investors, essentially individuals of means and successful entrepreneurs, represent an alternative source of venture and equity capital for inventors, entrepreneurs, and established growing firms. However, little is known about the volume of informal risk capital potentially available, about the investment criteria employed by informal investors, or about how to locate informal investors.

The proposed research will investigate the cost and availability of informal risk capital in New England and will examine the efficiency of the informal risk capital markets. Research results will include profiles of informal investors and their investment criteria, an analysis of the most efficient means of accessing informal investors, an estimate of the volume of informal risk capital potentially available in New England, public policy proposals for stimulating the flow of informal capital, and recommendations for a market intervention mechanism designed to improve the efficiency of the informal risk capital market.

Research methodology will be based upon a comprehensive investment capital questionnaire, developed and tested in 1978 pilot research. The questionnaire will be modified and administered in cooperation with entrepreneurial assistance organizations and Federal programs designed to stimulate the commercial application of innovative technologies.

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CID
II. RESEARCH PROBLEM

The contributions of small firms to the pace of technological innovation and new job formation have been revealed by recent research to be even more significant than the contributions of large, established firms. Despite these characteristics, the availability of essential risk capital (venture and equity capital) to finance new and growing small firms has declined steadily over the past fifteen years. Well known recent studies have documented this phenomenon.

Risk capital problems are particularly acute for new and existing firms requiring funds in excess of those available from founders and other friendly sources but without access to professional venture capital organizations or to the public equity markets. These firms typically generate annual sales between $1 million and $20 million, employ between 20/30 and 400/600 people, and represent a significant foundation of employment and technological innovation in the United States as a whole, and in New England in particular. Firms with existing or potential sales between $1 million and $20 million are referred to hereafter as "foundation firms". For further elaboration see The Cost and Availability of Credit and Risk Capital in New England (Exhibit A attached) prepared for the U. S. Small Business Administration, June 1979.

As a general rule, access to the public equity markets is feasible only for firms with sales volume, existing or potential, in excess of $20 million per year and with after-tax profits in excess of $2 million. Smaller firms are obliged to rely on alternative equity
sources to finance growth. By the same token, in the absence of a potential public offering within five to ten years, new foundation firms are typically foreclosed from raising venture capital from traditional venture capital organizations, including equity-oriented SBIC's.

Informal investors, essentially individuals of means and successful entrepreneurs, represent a potential source of venture and equity funds for foundation firms, yet little is known about informal investors as a source of risk capital, about how to reach informal investors, their investment criteria, or the volume of risk capital potentially available. The proposed research will explore the cost and availability of informal risk capital in New England. The research will focus on the role of informal investors as a source of risk capital for three types of investment situations: 1) financing inventors, 2) start-up financing for new foundation firms and 3) equity financing for foundation firms growing faster than new retained earnings can support.

1) Inventors

Historically, New England has generated more patents per capita than any other region of the country. In the last two years, fifteen percent of the energy-related inventions recommended for development by the National Bureau of Standards have originated in New England, yet New England contains less than six percent of the U.S. population. In recent years several organizations have been established in New England to assist inventors in the commercial application of new

Despite the regional interest in inventors as a source of commercially useful technology, they remain among the most troublesome to finance. Informal investors, in particular successful technological entrepreneurs, represent a potential source of funds:

"Venture capitalists, in general, are not interested in inventors. Focusing on inventors uses enormous amounts of time and results in very little money being invested, since so few ideas turn out to be worth pursuing. It is very difficult to finance and to staff a venture company to work with inventors. Individual investors, particularly successful entrepreneurs, are often the most helpful to inventors". (Exhibit B, page 4, emphasis added).

Inventors as a group appear to be receptive to participation with outside investors. In a recent Canadian survey of private inventors, 88% would sell some equity in a business which produced their invention and 75% were willing to take a minority equity position in a business which produced their invention. (1)

The proposed research will explore the interest of informal investors, especially successful entrepreneurs, in financing inventors. The research will include an analysis of the role of organizations, established to assist inventors, as a source of investment opportunities and the ability of these organizations to facilitate financing by providing services which

enhance the likelihood of successful commercial applications of new technology.

2) Start-up and Early Stage Financing for New Foundations Firms


"Most venture capital firms have adopted a policy of staying away from startups and have put their available capital in safer and more liquid investments". (p. 7)

"Seed capital of any nature for new and interesting innovative products or processes" was among the capital gaps in New England identified by T. A. Associates in their 1976 report to the New England Regional Commission, Verification of Capital Gaps in New England (p. 15).

While the 1978 reduction in capital gains tax rates and a modest revival in the public new issues market has attracted several hundred million dollars into professional venture capital portfolios within the past year, less than 10% of these funds appear to be available for startups and then only for firms with the prospect of a public share offering within five to ten years. Minimum investment standards established by professional venture capital firms are in the neighborhood of $500 thousand, while equity-oriented SBIC's typically consider $250 thousand as a minimum.

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New foundation firms requiring venture capital in amounts between $50 thousand and $250 thousand are exceptionally difficult to finance. Informal investors are one of the few potential sources of such financing.

"Providing seed capital or startup financing to an inexperienced management team is also enormously time consuming, but it can be very rewarding. More venture companies are needed to specialize in this area. It is, however, difficult to find staff both qualified and interested, and it is difficult to finance such venture companies since they can invest relatively little money but need strong staff. Individual investors and groups of individuals are frequently the most likely sources of such financing. (Exhibit B, pp. 4 & 5, emphasis added).

3) Equity Financing Established Foundation Firms

The T. A. Associates report cited above identified a second capital gap in New England: "junior debt and equity for small companies growing at a rate too slow to attract venture capital" (p. 15). This gap is particularly troublesome for New England due to the region's relatively heavy reliance on foundation firms. These firms cannot raise funds in the public equity markets and, in the absence of alternative equity sources, growth rates are constrained to the growth in internally generated equity. A firm earning a 15% return on equity and paying no dividends can grow no faster than 15% per year without distorting the debt/equity proportions of its balance sheet. Growth rates in excess of 30% per year typically are necessary to attract the interest of professional venture investors. The troublesome firm to finance is the established foundation firm growing faster than retained earnings can support but not fast enough to attract venture capital. These troublesome but attractive growth rates tend to fall between 10% and 30% per year.
Informal investors are a potential source of equity financing for sound, growing foundation firms.

"For companies with modest growth prospects, private individuals are by far the most likely financing source. The same may also be true for many service businesses. A great deal of time can be wasted talking with institutional venture capital sources about deals which they are very unlikely to do". (Exhibit B, p. 4, emphasis added).

SUMMARY

Informal investors, essentially individuals of means, are one of the limited sources of venture and equity capital for inventors and foundation firms. However, very little is known about the extent of informal risk capital, its investment criteria, or how to locate informal investors. The essence of the problem is captured in the following excerpts from the Report of the Commerce Technical Advisory Board to the Secretary of Commerce, January, 1976:

1) "Probably the most important change in the environment for starting and developing new high technology companies during the recent past has been the decline in the supply of risk capital for small companies." (p. 7)

2) "Both the public issues data and the private financing data reflect the declining number of financings by clearly identifiable segments of the financial community. There are no data regarding the individual and truly private sources of seed money." (p. 9)

In summary, the proposed research will deal with the risk capital problems of inventors and new and growing "foundation" firms, firms without access to traditional venture capital sources and without access to public equity markets. The risk capital problems of these firms have been largely overlooked in recent years as attention has focused upon problems created by the demise of the new issues market and other problems affecting the
secondary market for shares in small firms. Informal investors (individuals of means and successful entrepreneurs) represent an alternative source of risk capital for inventors, entrepreneurs, and established foundation firms. The proposed research will examine the cost and availability of informal risk in New England and will evaluate the efficiency of the informal risk capital market.
III. RESEARCH HYPOTHESES

The proposed research is designed to test three hypotheses concerning informal investors as a source of risk capital.

1) Informal investors represent a potentially significant source of risk capital for inventors and for new and growing foundation firms. "Significant" is defined in relative terms to mean on the same order of magnitude as the funds available from Small Business Investment Companies. A limited investigation conducted in the Fall of 1978 identified potential risk capital in excess of $1 million per year in the portfolios of forty-eight informal investors located primarily in northern New England.

2) Informal investors employ investment criteria that differ in material ways from criteria employed by professional venture investors. "Material" differences are defined as differences which result in investment opportunities that are attractive to informal investors but unattractive to professional venture investors, including equity-oriented SBIC's; and vice versa.

3) Opportunities exist for facilitating the flow of risk capital from informal investors to inventors, entrepreneurs and established foundation firms. The absence of established channels of communication between informal investors and entrepreneurs, the diverse and dispersed character of informal risk capital sources, the random emergence of entrepreneurs, and the almost total absence of data concerning informal investors contribute to market inefficiencies. The proposed research should yield
insights to techniques for increasing the efficiency of the informal risk capital markets, with potential public benefits well in excess of costs.
II. METHODOLOGY

A. Background

The methodology employed in this research effort was developed and perfected during a 1978 pilot study. The major challenge of the project was to collect sufficient data concerning the investment preferences and characteristics of informal investors to enable the researchers to reach meaningful conclusions about this financial resource and to make relevant recommendations for improving the availability of risk capital in New England.

The objectives of the data collection effort were two-fold; first to identify qualified investors and second to administer a comprehensive questionnaire designed to quantify their investment preferences and characteristics. Due to the diverse nature of the informal investor base in the New England region as well as the confidential nature of much of their investment activity, a statistically-valid sample population was not sought. Thus, the findings and recommendations which follow cannot be assumed to be a product of a scientifically accurate sample of all informal investment activity in the region. They are, however, indicative of the style of investment common in equity financing for emerging firms and are meant to offer insights into the obscure and, to date, invisible market mechanism which matches risk capital with entrepreneurial opportunities outside the traditional venture capital markets.

B. Identifying Informal Investors

Perhaps the greatest obstacle facing the research involved identifying and contacting informal investors. Informal investors are defined as sources of risk capital other than professionally managed venture capital companies, Small Business Investment Company (SBIC's), other institutional investors and the public equity market. The pilot research had demonstrated that the typical individual involved with informal risk capital investments
tended to be an individual of means whose involvement with risk capital investments was sporadic and tended to be conducted outside of the public view. This low-key nature of the targeted investor base prevented the sole use of traditional research methods such as mass mailings, due to the negligible response rates anticipated. Furthermore, the types of individuals expected to be involved in risk capital financing, represent a wide range of social and economic population segments. Thus, the research objective required the use of somewhat non-conventional methods to identify and reach investors.

C. Data Collection

The search for informal investors was concentrated in the first part of the contract period, yet was maintained whenever promising leads were developed. A team of three graduate students from the MBA program at the University of New Hampshire, under the supervision of the assistant project director, developed a series of target lists which were used to solicit interest in the project. A major source of names was developed from the files of regional organizations providing support services for entrepreneurs and small, growing firms in New England. This approach, used successfully in the 1978 pilot research, included such organizations as the New England Industrial Resources Development Program and the Smaller Business Association of New England. Other names were developed from professional society membership lists such as state bar associations and CPA societies. Names and addresses of commercial bank and trust company presidents and loan officers were obtained from directories. Lists from alumni directories of the region's top professional schools were compiled and mailing lists of New England investors and company presidents were purchased.

In order to cost effectively solicit interest in the project, and to contact potential investors willing to commit the time necessary to fill out a comprehensive questionnaire, a brochure was developed which explained the project, solicited the interest of potential investors and included a self-addressed stamped return card. (See Appendix D). The brochure was bulk mailed using many of the lists described above. For
those individuals with access to other potential investors, such as bank
officers, a number of brochures were included with a cover letter
explaining the program and seeking their assistance in distributing the
brochures. Also, the return portion of the brochure requested the names
and addresses of additional investors known to the respondent. Brochure
respondents were then sent a full questionnaire to be completed and
returned via an enclosed, stamped envelope. The University's printing
and mail services were utilized for these purposes.

While the lists were being collected and compiled, a second effort
was aimed at identifying and contacting public and private organizations
involved with business financing and which might have access to informal
investors. Such organizations included the Worcester (Mass.) Cooperation
Council, Inc., the New Enterprise Institute in Portland, Maine, the
Connecticut Product Development Corporation, Maine Development Corporation,
Massachusetts Technology Development Corporation, New Hampshire Business
Development Corporation, state and local development groups, MIT Enterprise
Forum, SBA resource managers, and SCORE Chapters. Individuals known
to the researchers through the pilot study and/or through professional
contact were also utilized. New England representatives who attended
the White House Conference on Small Businesses in January 1980 also
received brochures for distribution. A news release describing the project
was published by many regional newspapers and newsletters. Appendix E
contains examples of this public relations effort.

Especially helpful in the distribution of brochures were a number
of regional organizations that deal with the small business community
and/or informal investors in their daily activities. They included the
Smaller Business Association of New England (SBANE), the National Association
of Securities Dealers (NASD), the In Business magazine, and various New
England Bar and CPA Associations. These organizations provided membership
or subscription lists which were used in mailing brochures. Copies of
cover letters written by these organizations and which accompanied the
mailings are included in Appendix F.
D. Response

In total, some 10,000 brochures were distributed throughout the region. A rough break-down of the distribution by type follows:

<table>
<thead>
<tr>
<th>List Description</th>
<th>Number of Names</th>
</tr>
</thead>
<tbody>
<tr>
<td>High Income Investors in New England (purchased)</td>
<td>3,100</td>
</tr>
<tr>
<td>Presidents - New England Big Business (purchased)</td>
<td>3,100</td>
</tr>
<tr>
<td>SBANE Membership</td>
<td>2,200</td>
</tr>
<tr>
<td>College Alumni - Top Schools</td>
<td>500</td>
</tr>
<tr>
<td>New Hampshire Mercedes-Benz Owners</td>
<td>78</td>
</tr>
<tr>
<td>CPA's/Lawyers</td>
<td>200</td>
</tr>
<tr>
<td>White House Conferees</td>
<td>172</td>
</tr>
<tr>
<td>New England NASD Members</td>
<td>225</td>
</tr>
<tr>
<td>In Business Subscribers</td>
<td>500</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>250</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>10,325</strong></td>
</tr>
</tbody>
</table>

Responses for the questionnaire from the brochure distribution numbered nearly 300. Many were multiple requests, i.e., the respondent requested additional copies of the questionnaire for distribution and/or provided additional names and addresses to which brochures could be mailed. This response rate of approximately 3% was considered encouraging due to the diverse nature of the investor universe sought and to the relative obscurity of the subject matter. Questionnaires, with cover letter and stamped return envelope, were mailed to brochure respondents. In addition, some additional 1000 questionnaires were distributed to known investors or to potential distribution sources, many of which are mentioned above. Another 1000 were sent to New England bank presidents in packages of five or ten for their distribution. The Vermont Bankers Association provided a list of its members as well as a cover letter supporting the research effort (See Appendix F) in order to increase the response to the data collection effort.
Final questionnaire response numbered 139 completed. Of this total, five were returned anonymously and six were considered "institutional" responses and eliminated from the data base. Sources of the responses to both the brochure and the questionnaire were investigated in order to ascertain the most productive source, but difficulties in tracing the returns made this information less than completely accurate. In general, however, it was found that purchased mailing lists (Investors and Presidents) were not particularly productive in providing returns, nor were requests sent to CPA's and lawyers. The distribution of questionnaires by bankers was not as productive as anticipated. The most productive sources of contacts and referrals seemed to be the SBANE membership, the NASD membership, the White House Conferees, and most importantly, informal distribution among the friends and business associates of individuals interested in risk capital investment opportunities in New England. Personal contact and "networking" approaches worked best in obtaining qualified, completed questionnaires. Unfortunately, these methods of distribution are also the most expensive in terms of staff time necessary to collect the data. Based on this experience, recommendations for future data collection efforts along these lines include emphasizing the informal networking among friends and business associates and the use of "snowballing" techniques whereby qualified respondents are urged to distribute additional copies to other interested individuals. Furthermore, it is believed that the length and complexity of the data collection instrument may play an important role in the quantity (and quality) of the response received.
III. RESEARCH RESULTS

A. QUESTIONNAIRE DEVELOPMENT

During the Fall of 1978 an earlier investment capital questionnaire was employed in a pilot investigation of informal risk capital sources in northern New England. The original questionnaire was revised based upon experience with its use in 1978 and upon suggestions provided by participants in a research workshop held December 13, 1979. The revised questionnaire is attached as Appendix B. Appendix C lists the individuals attending the workshop.

An early judgement was made to employ a comprehensive questionnaire that would require an hour or more of an investor's time for a thoughtful response. This judgement undoubtedly resulted in receipt of a smaller number of completed questionnaires than would have been the case had a briefer and less probing questionnaire been used. On the other hand, a comprehensive questionnaire tended to limit responses to individuals with a serious interest in risk capital investing and provided deeper insights into their backgrounds and objectives. As a result, higher quality and more comprehensive data were obtained. The scope of the questionnaire received a number of favorable comments and appeared to attract the attention of serious informal investors. While the number of responses (139) was below the original research target, the quality of the data met expectations. In retrospect, the decision to employ a comprehensive questionnaire would not be changed.
B. DATA DESCRIPTION AND ANALYSIS FORMAT

Completed questionnaires were received from 139 respondents. Six questionnaires completed by respondents that did not fit the description of informal investors were eliminated from the dataset. The six eliminated questionnaires were returned by respondents who appeared to represent professional venture capital organizations or other institutional investors. Usable responses included 5 anonymous respondents. Identified, usable respondents totalled 128 or 96% of total usable responses. The substantial percentage of identified respondents was unanticipated and probably reflects the fact that identification was requested, confidentiality was assured, and that identified respondents were promised a summary of research results as well as an opportunity to participate in any follow-on programs.

To facilitate data analysis, System 1022 Data Base Management System was used to store and manipulate response data. System 1022 is a general purpose data management software system which operates on the University of New Hampshire's DEC-10 System computers.

Developing data that would contribute to the efficiency of the informal risk capital market was a major objective of the research. To achieve that objective, results are presented primarily in a narrative and graphic form designed for effective communication with policy makers, investors and entrepreneurs. The quality and quantity of the data lend themselves to experimentation with statistical techniques. Data and statistical tests of the data, beyond those presented in this report, will be made available to interested parties, on request.
C. DATA ANALYSIS

1. BIOGRAPHICAL PROFILES OF INFORMAL INVESTORS

a) Geographical Distribution

The geographic distribution of responses conforms roughly to the relative population of the New England states. Higher than average per capita response rates were generated by Massachusetts and New Hampshire, probably reflecting the incidence of wealth, technology-based entrepreneurs and venture capital in Massachusetts, and the researchers' contacts with a number of informal investors in New Hampshire.

The overall incidence of informal investors represented by respondents is 10.4 per million population. To the extent that the survey reached only a fraction of informal investors, the overall incidence rate is proportionately higher. By way of contrast, in 1972 the incidence of "millionaires" in the United States was in excess of one thousand per million population. Table 1 summarizes the geographic distribution of respondents.

<table>
<thead>
<tr>
<th>Location</th>
<th>Number of Respondents</th>
<th>% of N.E. Respondents</th>
<th>1977 Population (thousands)</th>
<th>% of N.E. Population</th>
<th>Respondents Per Million Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Connecticut</td>
<td>16</td>
<td>13%</td>
<td>3,107</td>
<td>25%</td>
<td>5.2</td>
</tr>
<tr>
<td>Maine</td>
<td>11</td>
<td>9%</td>
<td>1,084</td>
<td>9%</td>
<td>10.2</td>
</tr>
<tr>
<td>Massachusetts</td>
<td>73</td>
<td>58%</td>
<td>5,777</td>
<td>47%</td>
<td>12.6</td>
</tr>
<tr>
<td>New Hampshire</td>
<td>19</td>
<td>15%</td>
<td>850</td>
<td>7%</td>
<td>22.4</td>
</tr>
<tr>
<td>Rhode Island</td>
<td>4</td>
<td>3%</td>
<td>937</td>
<td>8%</td>
<td>4.3</td>
</tr>
<tr>
<td>Vermont</td>
<td>2</td>
<td>2%</td>
<td>482</td>
<td>4%</td>
<td>4.2</td>
</tr>
<tr>
<td>New England</td>
<td>125</td>
<td>100%</td>
<td>12,237</td>
<td>100%</td>
<td>10.2</td>
</tr>
<tr>
<td>New York</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anonymous</td>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 1: Respondent Location
b) **Age Distribution**

The median age of respondents is 47. Twice as many respondents (40%) are in their forties as in any other ten year age category. Figure 1 displays the age distribution of respondents.

![Figure 1: Age of Respondents](image)

**FIGURE 1**

**AGE OF RESPONDENTS**

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Number of Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>20-30</td>
<td>5</td>
</tr>
<tr>
<td>30-40</td>
<td>23</td>
</tr>
<tr>
<td>40-50</td>
<td>23</td>
</tr>
<tr>
<td>50-60</td>
<td>23</td>
</tr>
<tr>
<td>60-70</td>
<td>2</td>
</tr>
</tbody>
</table>


c) **Education**

Respondents are a well educated group. Ninety-five percent hold at least a baccalaureate degree and over half (51%) hold post-graduate degrees. The distribution of undergraduate and graduate degrees by broad subject areas is presented in Table 2.

<table>
<thead>
<tr>
<th>Field</th>
<th>Graduate</th>
<th>Undergraduate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Responses</td>
<td>43</td>
<td>93</td>
</tr>
<tr>
<td>Business and Economics</td>
<td>35%</td>
<td>29%</td>
</tr>
<tr>
<td>Technical Field</td>
<td>44%</td>
<td>48%</td>
</tr>
<tr>
<td>Non-technical Field</td>
<td>23%</td>
<td>21%</td>
</tr>
<tr>
<td></td>
<td>100%</td>
<td>100%</td>
</tr>
</tbody>
</table>
d) **Start-up Management Experience**

Three quarters of respondents (76%) have been involved at the top management level in the start-up of a new venture. Early-stage risk capital coupled with previous start-up experience places these informal investors in a position to make unique contributions to the success of ventures they support. Of those respondents reporting start-up management experience, 40% had been employed in a similar business prior to start-up and 60% had not.

2. **RISK CAPITAL INVESTMENT HISTORY**

Section I of the survey questionnaire was designed to assess respondents' risk capital investment experience. One hundred and eight respondents (79%) had made at least one risk capital investment within the previous five years.

a) **Frequency of Past Investments**

Within the past five years, respondents participated in a total of 320 risk capital financings, an average investment of approximately one every twenty months. Average rate of investment expectations are approximately one every nine to ten months.

b) **Age of Firm**

The age distribution of ventures in which respondents invested is presented in Figure 2.

Age categories were defined in the questionnaire as follows:

- **Start-up**: Business ventures in the idea stage or in the process of being organized.
- **Infant**: Firms about one year old, losing money, but approaching break-even operations and with the potential for attractive profits in one to three years.
Young: Firms less than five years old, with proven track records, expecting to enter a period of rapid profitable growth.

Established: Established, profitable firms growing too fast to finance from retained earnings but not fast enough to attract conventional venture investors. Attractive but troublesome growth rates tend to fall between 10% and 30% per year.

One Boston-area venture capital firm defines a start-up as any venture that has not yet reached break-even operations. On the basis of this broader definition, sixty-three percent of respondents' past risk capital investments were in start-up ventures. By whatever definition, it is clear that informal investors are a significant source of very high risk, early stage seed capital for new ventures.

c) Size Range of Past Investments

Respondents were asked to report the size of their past risk capital investments according to the size ranges indicated in Figure 3. Compared to venture capital firms and SBIC's, informal investors tend to commit relatively small amounts of capital to any individual investment. Sixty-two percent of the number of past investments were under $25,000
and eighty-five percent were under $100,000. Based on investments of $100,000 or less and using the mid-point of each range as representative of the typical investment within the range, the average investment size was $21,000. Including all size categories and using $250,000 as representative of the largest category, the average individual investment size was $51,000. Of equal interest is the dispersion of the investment size distribution. Clearly, informal investors have been a source of risk capital in amounts in all size categories below the typical interest threshold of professional venture capital firms, i.e., below $500,000+. In addition to the range of investment sizes available from informal investors, their tendency to participate with other individuals enhances the flexibility of the total risk capital financing available to an individual firm. Figure 3 displays the size distribution of past investments by "Number of Investments". Figure 4 displays the distribution by "Indicated Total Investment" in dollars, using the mid-point of all but the largest category as typical and using $250,000 for the largest category.

**FIGURE 3**

**SIZE OF PAST INVESTMENTS**
d) Informal Investors and SBIC's Contrasted

A sense of perspective can be gained through comparisons of informal investor characteristics with the characteristics of other sources of risk capital. The nature of the research data does not allow precise comparisons. The following observations are intended as suggestive of underlying differences. SBIC data are drawn from the February 1980 Annual Financing Summary of the SBIC Digest.

Table 3 contrasts informal investors and SBIC's by age of portfolio companies.

Table 3

<table>
<thead>
<tr>
<th>Age of Portfolio Company</th>
<th>At Time Of Financing</th>
<th>Percent of Number of Financings</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>SBIC</td>
<td>Informal Investors</td>
</tr>
<tr>
<td>&quot;Start-up&quot;</td>
<td>38%</td>
<td>44%</td>
</tr>
<tr>
<td>&quot;Infant&quot;</td>
<td>19</td>
<td>18</td>
</tr>
<tr>
<td>&quot;Young&quot;</td>
<td>15</td>
<td>18</td>
</tr>
<tr>
<td>&quot;Established&quot;</td>
<td>27</td>
<td>20</td>
</tr>
<tr>
<td>&quot;Unclassified&quot;</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>100%</td>
<td>100%</td>
</tr>
</tbody>
</table>
Comparisons based on the percent of dollars committed to each category are not possible due to limitations of the informal investor data.

For firms under three years old the SBIC distribution based on percentage of dollars invested is identical to the percentage of number of financings 56.7%, in each case. SBIC's and informal investors appear remarkably alike in their propensity to invest in start-up and barely emerging companies, and both appear inclined to invest at earlier stages than professional venture capitalists. A National Venture Capital Association study conducted in the mid-1970's reported that in the 1974-75 period the venture capital industry was placing less than 15% of its new investment in "start-up" situations compared to about 35% for SBIC's in the mid 70's (37% in 1976).

Differences between SBIC's and informal investors are more striking in terms of the median size of individual investments. Within the limitations of the data, it is clear that informal investors tend to invest in substantially smaller amounts than SBIC's. Median investment size for informal investors was between $10,000 and $25,000 (See Figure 3) while median SBIC's investments in 1979 averaged $167,000 for "debt with equity" investments and $306,000 for "equity" investments.

During 1979 SBIC's made 254 investments in small firms in New England for a total of approximately $28 million. Applying 1979 national SBIC percentages to the New England totals suggests the following approximate distribution of SBIC investments by number and dollar amount in New England:

<table>
<thead>
<tr>
<th></th>
<th>National % of #</th>
<th>Implied Dist. # in N.E.</th>
<th>National % of $</th>
<th>Implied Dist. $ in N.E. (000)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Straight Debt</td>
<td>70.6</td>
<td>179</td>
<td>48.0</td>
<td>$13,345</td>
</tr>
<tr>
<td>Debt With Equity</td>
<td>18.1</td>
<td>46</td>
<td>24.2</td>
<td>6,728</td>
</tr>
<tr>
<td>Equity</td>
<td>11.3</td>
<td>29</td>
<td>27.8</td>
<td>7,729</td>
</tr>
<tr>
<td>Actual Totals</td>
<td>100.0%</td>
<td>254</td>
<td>100.0%</td>
<td>$27,802</td>
</tr>
</tbody>
</table>
During 1979, SBIC's invested in New England firms at an annual rate of approximately $7 million in the form of "debt with equity" and $8 million in straight "equity". Research respondents, on the other hand, invested an estimated minimum total of $16.4 million over five years for an indicated average of $3.28 million per year, roughly half the average SBIC "equity" rate and roughly one fourth the average SBIC combined "debt with equity" and "equity" rate. It should be noted that SBIC data represent the entire SBIC population while informal investor data represent a sample from an unknown total population. If the research sample represents one informal investor in four (impressions suggest the actual fraction is considerably smaller), the indicated annual volume of risk capital provider by informal investors is comparable to the volume of risk capital invested by SBIC's. While the dollar volume appears comparable, based on the above assumptions, informal investors appear to finance between three and four times as many small firms as SBIC's. The significant difference between informal investors and equity-type SBIC's appears to lie in the size of the average risk capital investment made by the two groups. The data also suggests that informal investors have a tendency to invest at an earlier stage in the life of an enterprise than is the case with SBIC's.

e) Industry Distribution of Financing

Informal investors display a clear preference for manufacturing enterprises in general and for "high technology" manufacturing in particular. The industry distribution of financing by informal investors over the previous five years is displayed in Table 5. For comparative purposes, the 1979 industry distribution of SBIC financings is also presented.
Table 5
Industry Distribution of Financing

<table>
<thead>
<tr>
<th>Industry Distribution</th>
<th>Informal Investors</th>
<th>SBIC's - 1979</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manufacturing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>High Technology Products</td>
<td>28%</td>
<td>24%</td>
</tr>
<tr>
<td>Industrial Products</td>
<td>20%</td>
<td></td>
</tr>
<tr>
<td>Consumer Products</td>
<td>9%</td>
<td></td>
</tr>
<tr>
<td>Total Manufacturing</td>
<td>57%</td>
<td>24%</td>
</tr>
<tr>
<td>Services</td>
<td>12%</td>
<td>16%</td>
</tr>
<tr>
<td>Retail Trade</td>
<td>4%</td>
<td>23%</td>
</tr>
<tr>
<td>Wholesale Trade</td>
<td>2%</td>
<td></td>
</tr>
<tr>
<td>All Other</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Natural Resources</td>
<td>9%</td>
<td></td>
</tr>
<tr>
<td>Construction/Real Estate</td>
<td>7%</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>7%</td>
<td></td>
</tr>
<tr>
<td>Finance/Banking/Insurance</td>
<td>2%</td>
<td></td>
</tr>
<tr>
<td>Transportation</td>
<td>1%</td>
<td></td>
</tr>
<tr>
<td>Total All Other</td>
<td>25%</td>
<td>33%</td>
</tr>
</tbody>
</table>

100% 100%

f) Geographic Distribution of Financing
Informal investors tend to invest "close to home". Figure 5 displays
the geographic distribution of 320 investments. Three quarters were within
300 miles of the investor's home or office (roughly one day's drive).

Figure 5
Geographic Distribution of
Past Investments

<table>
<thead>
<tr>
<th>Distance from Home or Office</th>
<th>Number of Financings</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 10 miles</td>
<td>90 (28%)</td>
</tr>
<tr>
<td>10-50 miles</td>
<td>95 (30%)</td>
</tr>
<tr>
<td>50-300 miles</td>
<td>63 (20%)</td>
</tr>
<tr>
<td>&gt; 300 miles</td>
<td>72 (22%)</td>
</tr>
</tbody>
</table>
g) Participation with Other Investors

The wording of the survey question dealing with participation makes interpretation somewhat troublesome as the nature of the participation was unspecified. Specification of participation on a "pro rata basis with respect to risk and return" would have focused the question upon the extent to which informal investors participate with others as equal partners in risk capital investments. Nevertheless, it is clear from the data that informal investors participate with other individuals in 50% or more of their risk capital investments. Informal investors are apparently accustomed to sharing investment opportunities with a close but informal group of friends and business associates. During the course of research, identification of one informal investor frequently led to contacts with several more investors. Table 6 displays the range of responses to the participation question.

Table 6
Number of Financings Involving Participation
With Other Investors

<table>
<thead>
<tr>
<th>Participants</th>
<th>Number of Investments</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Other Individuals</td>
<td>192</td>
<td>57%</td>
</tr>
<tr>
<td>Banks</td>
<td>59</td>
<td>17%</td>
</tr>
<tr>
<td>Venture Capital Firms</td>
<td>43</td>
<td>13%</td>
</tr>
<tr>
<td>Other Financial Institutions</td>
<td>17</td>
<td>5%</td>
</tr>
<tr>
<td>Economic Development Agencies</td>
<td>10</td>
<td>3%</td>
</tr>
<tr>
<td>SBIC's</td>
<td>10</td>
<td>3%</td>
</tr>
<tr>
<td>Other</td>
<td>6</td>
<td>2%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>337</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

h) Personal Involvement

Respondents were asked about the nature of their relationship with ventures in which they invested. The question was designed to determine the extent to which informal investors support their portfolio ventures through the provision of professional services as well as risk capital. Respondents fall into two groups, passive investors and active investors. Passive investors are defined as those whose relationship with their
portfolio companies is limited to the receipt of periodic reports and attendance at stockholder meetings. Active investors are defined as those whose relationship with portfolio companies includes one or more of the following roles: representation on the board of directors, provision of consulting help, part-time employment, full-time employment, and "other". The distribution of responses is displayed in Table 7.

<table>
<thead>
<tr>
<th>Involvement</th>
<th>Number of Investments</th>
<th>% of Number of Investments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Passive</td>
<td>86</td>
<td>25%</td>
</tr>
<tr>
<td>Active</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a) other than full-time employment</td>
<td>228</td>
<td>65%</td>
</tr>
<tr>
<td>b) full-time employment</td>
<td>37</td>
<td>10</td>
</tr>
</tbody>
</table>

Respondents played an "active" role in three quarters of the ventures in which they invested during the past five years. Thirty-three investors (25% of respondents) reported their investment was associated with full-time employment. In other words, one respondent in four is managing a venture in which he has invested.

i) Voting Control

The question of "voting control" is one of the major concerns of entrepreneurs seeking risk capital. The frequency distribution of "immediate or potential voting control" is displayed in Figure 6. Voting control is a function of many variables, including the size of an investment, required returns, estimated future profits and equity values, and so on. Voting control must also be distinguished from effective control which is a function of variables ranging from general management competence to the specific terms of loan agreements and other contracts. Therefore, the data in Figure 6 should be interpreted as merely suggestive of the overall pattern of control acquired by respondents.
Out of a total of 287 financings reported, voting control was less than 50% in three quarters of the financings and less than 10% in over half the financings. The limited voting control acquired by individual respondents reflects, in part, their relatively small investments. Informal investors tend to join with other individuals in providing risk capital. Therefore, aggregate voting control acquired by investors in connection with a round of risk capital financing for any given firm would typically be larger than the pattern displayed in Figure 6.

j) Portfolio Performance

Respondents were asked to describe the performance of their total portfolio of risk capital investments in terms of their own expectations. Evaluations were almost equally divided, as indicated in Figure 7.
k) Asset Commitment

To gain insight into the extent of risk capital investments relative to an informal investor's total personal assets, respondents were asked what percent of their total personal assets was represented by risk capital investments. Responses reveal the pattern of total wealth of respondents as well as attitudes toward risk and liquidity in personal asset management. Figure 8 displays the pattern of 106 responses.
1) Rejected Opportunities

The "typical" informal investor seriously considers and rejects approximately one investment opportunity per year. Of 89 investors responding, over half seriously considered and rejected five or fewer opportunities over the previous five years; forty percent rejected three or less. Figure 9 displays the five-year rejection rate of 89 respondents.

Most common reasons cited for rejection were lack of confidence in management, unsatisfactory risk/reward ratios, absence of a well-defined business plan, the investor's unfamiliarity with products, processes or markets, or the venture was not a business the investor "wanted to be in". The following comments are illustrative of the reasons cited by respondents for rejecting investment proposals:

- "Risk/return ratio was not adequate"
- "In most cases management did not seem to be adequate for task at hand"
"Simply not interested in the proposed businesses. Saw no socio/economic value in them"

"Unable to agree on price"

"Too much wishful thinking"

"One of two key principals not sufficiently committed - too involved with another activity"

"Assorted reasons - generally asking more than was worth, or not a business I wanted to be in"

"Unfamiliarity with business"

"In several cases management did not appear adequate. In several the financial terms were not satisfactory"

"Too risky"

"1) Out of my area of interest
   2) Geographically difficult
   3) The people"

"Frequently, the total market opportunity being pursued by the founders was too small to be exciting."

"No real management in the company, price too high (entrepreneurs had unrealistic view of what their company is worth, the risks it faced, etc.)"

"Wife refused!"

3. **INVESTMENT OBJECTIVES**

Sections II and III of the survey questionnaire were directed at the primary research goal - identification of the investment objectives informal investors and how they differ, if at all, from the objectives of venture capital firms, SBIC's, and other institutional sources of risk capital. Section II covered investment objectives other than risk/return criteria. Section III of the questionnaire dealt with financial and non-financial reward criteria and risk/reward tradeoffs.
a) Investment Rate Expectations

Respondents anticipate adding to their portfolios at the rate of about one new risk capital investment per year over the next two years. Eighty-nine percent of respondents expected to add between one and three new investments to their portfolios over two years. Figure 10 displays the range of expectations reported by 120 respondents.

![Figure 10: Investment Rate Expectations](image)

b) Venture Life-Cycle Preferences

In view of the perceived shortage of very early, very high risk seed capital for technology-based inventors the new enterprises, identification of the tastes of informal investors for situations at the earliest stages of venture life cycles was an important research objective. Life-cycle preferences are displayed in Figure 11.

Conclusions suggested by the data include the following:

1) Start-up ventures and emerging growth companies ("infant" and "young" firms) attracted the strongest investment interest. Between 40% and 50% of respondents reported a "strong" interest in such situations, with start-ups equally as attractive as emerging firms.
2) Financing established growing firms attracted the least interest among respondents, receiving the fewest "strong interest" responses. Nevertheless, one respondent in five reported a strong interest in financing "established firms".

3) Financing technology-based inventors, the earliest stage, highest-risk investment opportunities, was cited as strong interest by 33% of respondents. One informal investor in three apparently is prepared to consider financing technology-based inventors. In view of the high risk and relatively small investments involved, informal investors may be the most appropriate source of outside risk capital for inventors, especially in cases where the investor is experienced with the technology and with the management of venture start-ups. Investors expressing a strong interest in technology-based inventors were asked whether their interest was limited to any specific field of technology. The specific fields cited most frequently were electronics, computers, energy and health care. However, the principal criterion cited by these investors was the technology be in a field that they understand and can evaluate. The following representative comments illustrate this point:

- "One I can understand or get independent advice on."
- "An area that I can understand or relate to."
- "A field in which I have some technical competence."
- "Fields with which I am sufficiently experienced to permit evaluation."
- "Related to my background Ph.D. in Organic Chemistry; Pharmaceutical and chemical background."
- "Those I know: Electronics, physics, mechanics."
- "It is limited to what I know and understand myself - especially about the marketplace or can get trustworthy opinions on."
- "Previous knowledge in area of work/research."

4. The strong interest in start-up and emerging firms and the limited interest in established firms is confirmed by the investor history reported in Section 2.b) above.
c) Investment Size Preferences

The "typical" (median) respondent normally considers investing between $10,000 and $25,000 in any particular situation. Eighty-eight percent of respondents normally consider investments under $100,000, seventy-eight percent normally consider investments under $50,000 and sixty-one percent of respondents normally consider investments under $25,000. Put another way, only one respondent in five would normally consider investing in excess of $50,000 in any particular situation. Informal investors report interests in substantially smaller investments than those that typically attract the attention of venture capital firms and SBIC's.
While the number of investors interested in investments over $25,000 declines sharply, the total risk capital available in larger amounts rises in the larger size categories. Figures 12 and 13 display these patterns. To compute the total capital available in each category, the number of investors was multiplied by the mid-point of the size range, except for the largest category where the lower limit of the range was used.

Investment size objectives are consistent with the pattern of past investments reported in Section 2.c). If respondents achieved an average investment rate of one per year, the aggregate risk capital financing represented by respondents would exceed $5 million per year - roughly comparable to the indicated straight equity financing provided New England firms by SBIC's in 1979. However, the number of ventures financed by respondents would be well in excess of the number financed by SBIC's.

**Figure 12**

**INVESTMENT SIZE PREFERENCES**

<table>
<thead>
<tr>
<th>Preferred Size ($ Thousands)</th>
<th>Number of Investors</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 10</td>
<td>27 (23%)</td>
</tr>
<tr>
<td>10-25</td>
<td>21 (17%)</td>
</tr>
<tr>
<td>25-50</td>
<td>12 (10%)</td>
</tr>
<tr>
<td>50-100</td>
<td>9 (6%)</td>
</tr>
<tr>
<td>100-250</td>
<td>5 (4%)</td>
</tr>
<tr>
<td>&gt; 250</td>
<td></td>
</tr>
</tbody>
</table>

PREFERRED SIZE ($ THOUSANDS)
d) **Industry Preferences**

Respondents exhibit a dominant interest in high-technology manufacturing ventures with industrial product manufacturing ventures a distant second. Sixty-four percent of respondents report a strong interest in the former category and thirty-four percent a strong interest in the latter. Wholesale trade, retail trade and transportation ventures are a strong interest for less than ten percent of respondents. Table 8 lists business and industry categories in rank order of preference.

---

### Table 8
**Business and Industry Preferences**

<table>
<thead>
<tr>
<th>Industry Category</th>
<th>Strong Interest</th>
<th>No Interest</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manufacturing - High Technology Products</td>
<td>64%</td>
<td>15%</td>
</tr>
<tr>
<td>Manufacturing - Industrial Products</td>
<td>33</td>
<td>20</td>
</tr>
<tr>
<td>Service</td>
<td>30</td>
<td>30</td>
</tr>
<tr>
<td>Natural Resources</td>
<td>27</td>
<td>35</td>
</tr>
<tr>
<td>Construction/Real Estate</td>
<td>25</td>
<td>33</td>
</tr>
<tr>
<td>Manufacturing - Consumer Products</td>
<td>20</td>
<td>31</td>
</tr>
<tr>
<td>Finance/Banking/Insurance</td>
<td>13</td>
<td>50</td>
</tr>
<tr>
<td>Other</td>
<td>8</td>
<td>33</td>
</tr>
<tr>
<td>Wholesale Trade</td>
<td>5</td>
<td>58</td>
</tr>
<tr>
<td>Retail Trade</td>
<td>3</td>
<td>64</td>
</tr>
<tr>
<td>Transportation</td>
<td>1</td>
<td>61</td>
</tr>
</tbody>
</table>

---
Although the dominant interest is in high technology manufacturing, respondents clearly display a broad range of other interests. Even in the least attractive categories (retail trade, wholesale trade and transportation), one respondent in three reported a "moderate" or "strong" investment interest.

e) Geographic Preferences
When asked about geographical constraints on risk capital investments, thirty-six percent of respondents report that normally they invest within 50 miles of home or office, and fifty-three percent within 300 miles. Forty percent reported no geographic limitation and seven percent cited "other" limitations, e.g., within the United States. The geographical pattern of past investments, reported in Section 2.f) is more restrictive than reported constraints on future investments. The difference may be due to the fact that investment opportunities are more likely to come to an investor's attention the closer they are located, or it may be due to a stronger underlying predilection to invest nearby than reported by investors. In any event, the propensity to invest clearly behaves inversely with the distance between investors and investment opportunities.

f) Personal Involvement
A "passive" relationship with portfolio ventures is anticipated by 21 respondents (16%). Eighty-four percent of respondents anticipate an "active" relationship, typically a consulting role or service on a board of directors. These expectations are consistent with the pattern of past relationships reported in Section 2.h) and support the contention that informal investors typically contribute more than capital to the situations in which they invest.

g) Form of Investment and Income
The sample of informal investors represented by respondents exhibits a dominant preference for straight equity investment and for capital gains income. Five times as many respondents (61) cited common stock as their typical investment vehicle as cited notes with warrants (12), or
convertible preferred stock (5), convertible debentures (2) or "other" types of instruments (8). Thirty-two percent of respondents prefer their income (cash flow) as "all" long term capital gains, fifty percent seek "mostly" long term capital gains, two percent prefer "mostly" current dividends or interest, none prefer "all" dividends or interest, thirteen percent are "indifferent" as to the form of income, and three percent prefer some "other" form of income. Figure 14 displays the pattern of income (cash flow) preferences.

**FIGURE 14**

**INCOME (CASH FLOW) PREFERENCE**

- 58 respondents (33%) prefer all long-term capital gains.
- 38 respondents (33%) prefer mostly long-term capital gains.
- 14 respondents (13%) are indifferent.
- 3 respondents prefer mostly current dividends or interest.
- 3 respondents prefer all current dividends or interest.
- 0 respondents prefer other.

**h) Participation with Other Investors**

The tendency of informal investors to participate with other investors in risk capital situations, exhibited in Section 2.g), is consistent with responses to questions about their willingness to participate. Preferred partners are "financially sophisticated individuals". Figure 15 displays the range of responses to the question: "Are you willing to participate with other investors in risk capital investment opportunities?" Table 9 lists potential partners in rank order of their acceptability as partners. The data clearly indicate that participation is the rule rather than the exception, and that other individuals are the dominant type of partner.
Table 9
Partner Preferences

<table>
<thead>
<tr>
<th>Partner Type</th>
<th>Yes</th>
<th>Indifferent</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Financially Sophisticated Individuals</td>
<td>110</td>
<td>15</td>
<td>4</td>
</tr>
<tr>
<td>Venture Capital Firms, incl. SBIC's</td>
<td>64</td>
<td>36</td>
<td>25</td>
</tr>
<tr>
<td>Banks</td>
<td>61</td>
<td>41</td>
<td>23</td>
</tr>
<tr>
<td>Government Economic Development Agencies</td>
<td>29</td>
<td>49</td>
<td>49</td>
</tr>
<tr>
<td>Financially Unsophisticated Individuals</td>
<td>23</td>
<td>32</td>
<td>70</td>
</tr>
</tbody>
</table>

i) Voting Control

The extent to which informal investors normally seek voting control as an explicit investment objective was examined. Questions of control in any form, including voting control, are among the major concerns of entrepreneurs seeking risk capital. Therefore, the propensity of informal investors to seek voting control is of particular interest. Respondents are evenly divided on the question of voting control. Thirty-nine percent report that they "definitely" or "probably" would seek control and forty-one percent say they "definitely" or "probably" would not seek control. Twenty percent are "indifferent". Reported preference for voting control contrasts sharply with the frequency of actual voting control in past investments. While thirty-nine percent normally seek control, immediate or potential voting control was acquired in only twenty percent of past investments. Figure 16 displays responses to the voting control question.
The following comments are illustrative of respondents' attitudes toward control:

- "Best to select founders who are knowledgeable enough to manage and control properly."
- "No individual control necessary but rather as part of a syndicate or investor group."
- "Investment (money) group should be able to block liquidation or merger."
- "I think equity should carry voting rights, but not necessary for me to have control of company."
- "Depends on business type and my total investment "."
- "For a defined period of time."
- "Voting control should be vested in group who are sufficiently disinterested to recognize mistakes."
- "Depends on expertise of management."
- "Until positive management goals are achieved - then 'indifferent'."
- "Depends on amount of participation."
- "Founder's team needs control to maintain entrepreneurial motivation."
j) Diversification and Tax-Sheltered Income

Both diversification and tax sheltered income are reported as "preferred, but not necessary" characteristics of risk capital portfolios by fifty percent of respondents. Twenty-five percent of respondents "definitely" seek diversification but only fifteen percent of respondents "definitely" seek tax sheltered income. Twenty-six percent report diversification as "not important" and thirty-four percent report tax-sheltered income as "not important". Neither objective appears to be compelling in the investment decisions of informal investors. Figures 17 and 18 present the responses to the diversification and tax sheltered income questions.

**FIGURE 17**

**DIVERSIFICATION OBJECTIVE**

<table>
<thead>
<tr>
<th>NUMBER OF RESPONDENTS</th>
<th>Definitely yes</th>
<th>Preferred but not necessary</th>
<th>Not important</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>32</td>
<td>63 (49%)</td>
<td>34 (26%)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>NUMBER OF RESPONDENTS</th>
<th>Definitely yes</th>
<th>Preferred but not necessary</th>
<th>Not important</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>19 (15%)</td>
<td>63 (51%)</td>
<td>42 (34%)</td>
</tr>
</tbody>
</table>

**FIGURE 18**

**TAX-SHELTERED INCOME OBJECTIVE**
The following comments are illustrative of the attitudes of respondents toward tax-sheltered income and portfolio diversification:

**Tax Sheltered Income -**
- "Might make the difference between investing or not in a particular situation - but normally not important."
- "Most tax sheltered deals are not good."
- "Tax considerations cause investment decisions to become clouded."
- "If the income is sheltered usually there will not be as much as there would if it were not sheltered."

**Diversification -**
- "Return is important."
- "Financial risk spreading important; I follow my own changing enthusiasms."
- "A well managed company is more important than diversification in several mediocre companies."
- "Some diversification, but not spread too thin."

**k) Liquidation Expectations**

Risk capital is "patient money". Returns typically take the form of long term capital gains realized only after an extended period during which an investment possesses little or no liquidity or marketability. Liquidation expectations with respect to timing and method are variables that influence risk capital investment decisions. When liquidation expectations are not explicit, or not shared by investors and entrepreneurs, the potential for ultimate disruptive conflict is established at the outset of a venture. Forty-seven percent of respondents reported that provisions for liquidating their investments were "definitely" or "generally" included in their initial investment agreements (Definitely yes - 14%, Generally yes - 33%). Fifty-one percent of respondents reported that provisions for liquidation "generally" would not be included in their initial investment agreement and two percent reported "definitely" not.
The "patience level" of informal investors was tested in terms of expected holding periods. The median expected holding period of respondents is 5-7 years. Seventy-six percent of respondents expect liquidation within ten years, sixty-five percent within seven years, thirty-eight percent within five years, and eight percent within three years. Of particular interest is the fact that twenty-four percent of respondents either consider the holding period unimportant or expect to hold their risk capital investments longer than ten years, a "patience level" well in excess of the typical expectations of venture capital firms and SBIC's. The range of liquidation expectations is displayed in Figure 19.

The attitudes of several respondents toward liquidation are reflected in the following illustrative comments:

- "It is ridiculous to worry about liquidation in a start-up. Survival is issue one. Prosperity is next. Cashing in is a decision primarily based on the needs of the principles."

- "Will require registration rights (usually both demand and piggy back rights)."

- "Usually some sort of buyout and/or earn out agreement."

- "The more liquid the better."

- "Need to know options of liquidating and who decides how it will happen."
"Very dependent on the details of the situation."

"Not written but understood between investors as to objectives."

"It's too hard to structure a definite exit route in most seed deals."

"I find buy-back provisions annoying and short-sighted (few growing companies have extra cash)."

1) Pooled Risk Capital Investment Funds

Questions 31, 32, and 33 in the survey questionnaire examined the interest of informal investors in participating in a variety of professionally managed, pooled investment funds. Interest in the following types of pooled funds was tested:

1) An investment fund (perhaps an SBIC) designed to provide capital for inventors, start-up ventures, and other very high risk opportunities.

2) An investment fund established to invest in selected high risk/high potential Phase III situations under the National Science Foundation's Small Business Innovation Research Program.

3) Unit investments (approximately $50,000 per unit) in an energy conservation and solar SBIC developed and managed by Northern Energy Corporation, manager of the Northeast Solar Energy Center.

Responses to all three questions suggest that informal investors in general do not have a strong interest in participating as passive investors in professionally managed, pooled risk capital investment funds. An NSF/SBIR fund attracted the most interest and unit investments in an energy related fund the least interest. The limited interest in an energy fund may be due in part to the size of the proposed unit investments. The range of responses to all three proposals is displayed in Figures 20, 21, and 22.
4. RATES OF RETURN OBJECTIVES

Questions and perceptions of risk and expected returns are central to risk capital investment decisions. Risks, and consequently required rewards, vary substantially over the spectrum of risk capital investment opportunities. With the exception of a number of well known and highly visible success stories, very little is known about the past performance or future expectations of risk capital investors, particularly informal investors. The problem of describing risk/return characteristics is further compounded by the absence of generally accepted risk measurement criteria.

Section III of the survey questionnaire was designed to detect the risk perceptions and rate of return expectations of informal investors. Respondents were asked to answer only those questions that related to the types of investments in which they had reported either a moderate or strong interest.

Four characteristics of the questions in Section III should be noted. First, risk and return questions were asked for each of five types of investment situations: 1) technology-based inventors, 2) start-up firms, 3) infant firms, 4) young firms, and 5) established firms. The definitions of these categories can be found in the questionnaire. The distinctions reflect differences in risk, as well as in the age, or "track record", of a venture, ranging from extreme risk in the case of inventors, to moderate risk (more predictable outcomes) in the case of established firms. By measuring risk and return for the five types of investments, it is possible to identify investors' risk/return trade-offs, i.e., not only how expensive informal risk capital is in general, but also how much more expensive it is for inventors than for start-ups, established firms, etc.

Second, the question of risk was addressed by hypothesizing a portfolio of ten investments of each type and asking respondents to specify how many of the ten would probably turn out to be "losers", when losers were defined as investments in which eventual losses exceed 50% of the original investment. The term "probably" was left undefined. This imperfect definition of risk was selected primarily because of it is representative of the way investors think about "downside risk".
Third, two questions dealing with rate of return expectations were asked. The first dealt with the "upside potential" of the most successful venture in a portfolio of ten. It was an attempt to identify the a priori expectations of returns on individual investments. Presumably, all investments of a given type possess the upside potential of a winner at the time an investment decision is made. Therefore, expected returns on winners reflect the cost of risk capital to individual inventors and firms. The cost is substantially higher than the average cost of risk capital for a given type of investment. Investors recognize, as revealed in the risk questions, that many risk investments turn into losers. Substantial returns on winners are necessary to offset losers as well as to provide an adequate overall return on a portfolio of risk capital investments. Portfolio rate of return expectations reflect the average cost of risk capital. Respondents were asked to estimate minimum acceptable portfolio returns, as well as returns on winners, in terms of a compound annual percentage rate and in terms of a five-year capital gains multiple. The rate of return measure is preferred. The capital gains multiple was employed in recognition of the fact that investors frequently think of risk capital returns in terms of capital gains multiples over a period of time. Capital gains multiples over specified periods contain implicit compound rates of return.

Fourth, previous research suggested that individual investors often look for non-financial rewards from their risk capital portfolios. These non-financial rewards fall into several categories, some of which seem to reflect a sense of social responsibility on the part of many informal investors and some of which seem to reflect non-financial "satisfactions" or so-called "hot buttons" that motivate individuals. The breadth and depth of these motivations was explored through seven questions that hypothesized a form of non-financial reward and asked investors which ones, if any, represented substitutes for financial returns. Investors responding affirmatively were then asked how large a reduction in their rate of return expectations would be accepted in return for the non-financial reward. Note that the question was phrased in terms of rate of return reductions. It is recognized that the trade-offs frequently may involve undertaking higher risks in situations exhibiting non-financial benefits rather than accepting lower returns. Difficulties in quantifying risk precluded asking the question in this perhaps more appropriate form.
a) Risk Perceptions

The concept of risk poses troublesome problems of definition and measurement. For example, should risk be defined to include the uncertainty of all potential outcomes, gains as well as losses; when potential outcomes range from -100% to +infinity, what measurement units should be used; should utility theory be applied to the consequences of monetary gains and losses; do investors think of investment outcomes in terms of probabilities, measures of central tendency and measures of dispersion; in risk capital investment decisions is individual investment risk the relevant variable for investors or do investors think in terms of portfolio risk and differences between unsystematic and systematic risk i.e., risks that can and cannot be diversified away? In lieu of intensive qualitative probing of individual investors on these topics, it was decided to pose one risk question designed to be easily understood and still provide insights to risk perceptions. The same question was posed for the five types of investment opportunities cited above and respondents were instructed to answer only for investment types in which they had expressed a moderate or strong interest.

The question hypothesized a portfolio of ten investments of a given type, all of which met the investor's criteria regarding investment size, industry, location, and management qualifications at the time of the investment. Respondents were asked to specify the number of investments that would probably turn out to be "losers", as defined above. The question attempted to assess perceptions of "downside risk" inherent in individual risk capital investments. As expected, respondents perceive noticeable risk differences among the five types of investments. Table 10 presents the median expectations of losers by investment type.

| Technology-Based Inventors | 7 |
| Start-up Firms              | 6 |
| Infant Firms                | 5 |
| Young Firms                 | 4 |
| Established Firms           | 2 |
In addition to the behavior of the median expectation, the dispersion of expectations is of considerable interest. The full range of expectations is displayed in Figure 23. Clearly informal investors are not of one mind in their perceptions of risk. Substantial variations in expectations appear to be characteristic of informal investors.

**Figure 23**

RISK PERCEPTIONS

---

![Histograms showing risk perceptions for inventors, start-ups, infant firms, young firms, and established firms.](image-url)
b) Rate of Return Expectations

As indicated above, two rate of return questions were asked of respondents. The first asked for the expected rate of return on the single most successful investment in a portfolio of ten investments of each type. Since all investments are expected to be "winners" at the time of an investment decision, the winner rate of return presumably reflects the cost of risk capital to an individual enterprise (inventor or firm), in other words, it reflects the "upside potential" of each type of investment. The second rate of return question asked for the minimum acceptable return on portfolio of ten investments of each type, and thus measured the average cost of risk capital for all enterprises (winners, losers and the mediocrity). Table II summarizes responses to the rate of return questions.

| Table II |
| Rate of Return Expectations |
| Compound Annual Rate |

<table>
<thead>
<tr>
<th>Winner</th>
<th>Portfolio Minimum</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number of Responses</td>
</tr>
<tr>
<td>Technology-based Inventors</td>
<td>79</td>
</tr>
<tr>
<td>Start-up Firms</td>
<td>82</td>
</tr>
<tr>
<td>Infant Firms</td>
<td>84</td>
</tr>
<tr>
<td>Young Firms</td>
<td>77</td>
</tr>
<tr>
<td>Established Firms</td>
<td>66</td>
</tr>
</tbody>
</table>

The data suggest several observations. First, despite differences in perceived risk between investments in inventors and start-up firms, respondents look for comparable payoffs from winners in each type of portfolio. No reason is apparent.

Second, given the extraordinary risks inherent in risk capital investments, the overall level of "winner" expectations seems low. For example, in the case of inventors, only if 70% of investments turn out to be "losers" involving the minimum 50% loss and only if all three non-losers were "winners" with a 50% annual return, would the implied five-year portfolio rate of return of 21% per year equal the minimum acceptable
portfolio return of 20%. Anything less than these "ideal" outcomes would lead to unacceptable portfolio returns. In general, rate of return expectations of informal investors appear to be relatively low.

Third, the common 20% minimum portfolio return for all investment types other than investments in established firms suggests that investors perceive much of the risk in risk capital investing as "unsystematic" risk, i.e., risk that can be diversified away in a portfolio of ten investments. This implication, if correct, is surprising in view of the limited attention paid to diversification as an explicit investment decision criterion, as indicated in Section 3.j).

Investors were also asked to state their rate of return expectations in terms of five-year capital gain multiples, a common frame of reference for risk capital decisions. Table 12 summarizes capital gain expectations for winners and portfolio minimums.

<table>
<thead>
<tr>
<th>Table 12</th>
<th>RATE OF RETURN EXPECTATIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Five-Year Capital Gain</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Winner</th>
<th></th>
<th></th>
<th></th>
<th>Portfolio Minimum</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Responses</td>
<td>Median Multiple</td>
<td>Implied Rate</td>
<td>Number of Responses</td>
<td>Median Multiple</td>
<td>Implied Rate</td>
</tr>
<tr>
<td>Technology-based Inventors</td>
<td>87</td>
<td>10</td>
<td>58%</td>
<td>78</td>
<td>3</td>
</tr>
<tr>
<td>Start-up Firms</td>
<td>90</td>
<td>10</td>
<td>58%</td>
<td>83</td>
<td>3</td>
</tr>
<tr>
<td>Infant Firms</td>
<td>88</td>
<td>6.5</td>
<td>45%</td>
<td>79</td>
<td>3</td>
</tr>
<tr>
<td>Young Firms</td>
<td>77</td>
<td>5</td>
<td>36%</td>
<td>75</td>
<td>3</td>
</tr>
<tr>
<td>Established Firms</td>
<td>67</td>
<td>3</td>
<td>25%</td>
<td>62</td>
<td>2</td>
</tr>
</tbody>
</table>

The capital gains data is roughly comparable to the explicit rate of return data, though somewhat less precise. It is interesting to note that in the case of winners, more respondents replied with capital gain multiples than with rates of return, while in the case of portfolios more respondents replied with rates of return than with capital gains. The differences are small but suggest that investors may be more accustomed to thinking in terms of capital gains multiples for individual investments but more accustomed to thinking in terms of rates of return for portfolios.
The full range of responses to the rate of return questions is displayed in Tables 13-16.

**Table 13**

**EXPECTED RETURN - WINNER**

<table>
<thead>
<tr>
<th>Rate - %</th>
<th>Inventors</th>
<th>Start-up</th>
<th>Infant</th>
<th>Young</th>
<th>Established</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-25</td>
<td>29%</td>
<td>29%</td>
<td>33%</td>
<td>39%</td>
<td>60%</td>
</tr>
<tr>
<td>26-50</td>
<td>29%</td>
<td>31%</td>
<td>33%</td>
<td>36%</td>
<td>27%</td>
</tr>
<tr>
<td>51-75</td>
<td>10%</td>
<td>9%</td>
<td>15%</td>
<td>8%</td>
<td>5%</td>
</tr>
<tr>
<td>76-100</td>
<td>17%</td>
<td>17%</td>
<td>12%</td>
<td>9%</td>
<td>3%</td>
</tr>
<tr>
<td>101-125</td>
<td>1%</td>
<td>0%</td>
<td>0%</td>
<td>1%</td>
<td>0%</td>
</tr>
<tr>
<td>126-150</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>151-175</td>
<td>1%</td>
<td>1%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>176-200</td>
<td>4%</td>
<td>6%</td>
<td>5%</td>
<td>3%</td>
<td>2%</td>
</tr>
<tr>
<td>&gt; 200</td>
<td>9%</td>
<td>7%</td>
<td>2%</td>
<td>4%</td>
<td>3%</td>
</tr>
<tr>
<td>Median Rate</td>
<td>50%</td>
<td>50%</td>
<td>37.5%</td>
<td>30%</td>
<td>22.5%</td>
</tr>
</tbody>
</table>

**Compound Annual Rate**

Median Rate
### Table 14

**EXPECTED RETURN - WINNER**

Five-Year Capital Gain Multiple

<table>
<thead>
<tr>
<th>Number of Responses</th>
<th>Inventors</th>
<th>Start-up</th>
<th>Infant</th>
<th>Young</th>
<th>Established</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multiple</td>
<td>87</td>
<td>90</td>
<td>88</td>
<td>77</td>
<td>67</td>
</tr>
<tr>
<td>1-5</td>
<td>37%</td>
<td>37%</td>
<td>45%</td>
<td>57%</td>
<td>81%</td>
</tr>
<tr>
<td>6-10</td>
<td>30</td>
<td>33</td>
<td>32</td>
<td>29</td>
<td>14</td>
</tr>
<tr>
<td>11-15</td>
<td>2</td>
<td>6</td>
<td>6</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>16-20</td>
<td>15</td>
<td>13</td>
<td>9</td>
<td>8</td>
<td>4</td>
</tr>
<tr>
<td>21-30</td>
<td>1</td>
<td>2</td>
<td>4</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>31-40</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>41-50</td>
<td>4</td>
<td>5</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>&gt; 50</td>
<td>9</td>
<td>3</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Median Multiple</td>
<td>10</td>
<td>10</td>
<td>6.5</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td>Implied Rate</td>
<td>58%</td>
<td>58%</td>
<td>45%</td>
<td>36%</td>
<td>25%</td>
</tr>
</tbody>
</table>
### Table 15
MINIMUM ACCEPTABLE PORTFOLIO RETURN

<table>
<thead>
<tr>
<th>Rate - %</th>
<th>Inventors</th>
<th>Start-up</th>
<th>Infant</th>
<th>Young</th>
<th>Established</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-10</td>
<td>14%</td>
<td>13%</td>
<td>11%</td>
<td>15%</td>
<td>24%</td>
</tr>
<tr>
<td>11-15</td>
<td>16%</td>
<td>17%</td>
<td>17%</td>
<td>21%</td>
<td>28%</td>
</tr>
<tr>
<td>16-20</td>
<td>29%</td>
<td>25%</td>
<td>29%</td>
<td>24%</td>
<td>25%</td>
</tr>
<tr>
<td>21-25</td>
<td>10%</td>
<td>13%</td>
<td>11%</td>
<td>14%</td>
<td>10%</td>
</tr>
<tr>
<td>26-30</td>
<td>14%</td>
<td>13%</td>
<td>15%</td>
<td>15%</td>
<td>9%</td>
</tr>
<tr>
<td>31-40</td>
<td>7%</td>
<td>8%</td>
<td>4%</td>
<td>5%</td>
<td>2%</td>
</tr>
<tr>
<td>41-50</td>
<td>7%</td>
<td>9%</td>
<td>7%</td>
<td>3%</td>
<td>0%</td>
</tr>
<tr>
<td>&gt; 50</td>
<td>3%</td>
<td>2%</td>
<td>6%</td>
<td>3%</td>
<td>2%</td>
</tr>
<tr>
<td></td>
<td><strong>100%</strong></td>
<td><strong>100%</strong></td>
<td><strong>100%</strong></td>
<td><strong>100%</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

Median Rate

|         | 20% | 20% | 20% | 20% | 15% |
### Table 16
MINIMUM ACCEPTABLE PORTFOLIO RETURN

**FIVE-YEAR CAPITAL GAIN MULTIPLE**

<table>
<thead>
<tr>
<th>Number of Responses</th>
<th>Inventors</th>
<th>Start-up</th>
<th>Infant</th>
<th>Young</th>
<th>Established</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>15%</td>
<td>18%</td>
<td>20%</td>
<td>25%</td>
<td>31%</td>
</tr>
<tr>
<td>2-2.9</td>
<td>23</td>
<td>24</td>
<td>19</td>
<td>17</td>
<td>24</td>
</tr>
<tr>
<td>3-3.9</td>
<td>21</td>
<td>17</td>
<td>15</td>
<td>23</td>
<td>24</td>
</tr>
<tr>
<td>4-4.9</td>
<td>12</td>
<td>13</td>
<td>18</td>
<td>11</td>
<td>8</td>
</tr>
<tr>
<td>5-5.9</td>
<td>14</td>
<td>12</td>
<td>13</td>
<td>13</td>
<td>10</td>
</tr>
<tr>
<td>6-10.9</td>
<td>10</td>
<td>11</td>
<td>10</td>
<td>11</td>
<td>3</td>
</tr>
<tr>
<td>11-20</td>
<td>4</td>
<td>4</td>
<td>5</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>&gt; 20</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Median Multiple</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Implied Rate</td>
<td>25%</td>
<td>25%</td>
<td>25%</td>
<td>25%</td>
<td>15%</td>
</tr>
</tbody>
</table>
Figure 24 is an attempt to capture graphically the risk/return trade-off relationships of informal investors using a simple least squares linear regression technique. Risk is measured by the median expectation of the number of "losers" in a ten-security portfolio and return is measured by the median expected return on a "winner". The algebraic equation for the line is $Y = 8.6 + 6.1X$. The equation implies an expected return composed of a "risk-free" rate of 8.6% plus a risk premium of 6.1% for every expected loser in a ten-security portfolio. Correlation coefficient for the five observations is .97.

![Figure 24: Risk/Return Trade-Off](image)

c) Non-Financial Rewards

In addition to assessing the financial return expectations of respondents, the survey questionnaire was designed to determine whether risk capital investment decisions are influenced by non-financial characteristics. Earlier research had suggested the presence of such incentives among the decision criteria of a significant number of investors. A series of seven potential non-financial incentives was postulated (six specific and one "other"). Investors were asked to indicate whether any of the seven represented a substitute for financial returns and, if so, how large a reduction in their financial returns would be acceptable.
See questions 39 through 42 of the survey questionnaire for descriptions of the potential non-financial returns. Table 17 displays the responses to questions 39 through 42. Non-financial considerations affect the decisions of a significant number of respondents (45% in the case of "supporting entrepreneurs"). Over one third of respondents would accept lower returns (or perhaps assume higher risks) when risk capital investments create employment in their region, contribute to the development of socially useful technology, or provide an opportunity to assist and be associated with an entrepreneur. Median rate of return reductions up to 20% would be acceptable. It is interesting to note that the largest rate reductions are associated with creating employment and assisting minority entrepreneurs while the most broadly appealing non-financial incentive is the opportunity to assist and be associated with entrepreneurs.

Table 17

<table>
<thead>
<tr>
<th>Employment</th>
<th>Technology</th>
<th>Entreps.</th>
<th>Urban</th>
<th>Minority</th>
<th>Female</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number Yes</td>
<td>% Yes</td>
<td>% Yes</td>
<td>% Yes</td>
<td>% Reduction</td>
<td></td>
<td></td>
</tr>
<tr>
<td>52</td>
<td>37%</td>
<td>39%</td>
<td>45%</td>
<td>0-5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>54</td>
<td>39%</td>
<td>45%</td>
<td>19%</td>
<td>6-10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>63</td>
<td>45%</td>
<td>19%</td>
<td>14%</td>
<td>11-15</td>
<td></td>
<td></td>
</tr>
<tr>
<td>26</td>
<td>19%</td>
<td>14%</td>
<td>17%</td>
<td>16-20</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>14%</td>
<td>17%</td>
<td>9%</td>
<td>21-30</td>
<td></td>
<td></td>
</tr>
<tr>
<td>23</td>
<td>17%</td>
<td>9%</td>
<td>3%</td>
<td>21-40</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>9%</td>
<td>3%</td>
<td>0%</td>
<td>41-50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>&gt; 50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>43</td>
<td>20%</td>
<td>10%</td>
<td>10%</td>
<td>Median</td>
<td></td>
<td></td>
</tr>
<tr>
<td>46</td>
<td>10%</td>
<td>10%</td>
<td>20%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>52</td>
<td>10%</td>
<td>10%</td>
<td>10%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>22</td>
<td>20%</td>
<td>10%</td>
<td>10%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>10%</td>
<td>10%</td>
<td>20%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>10%</td>
<td>10%</td>
<td>10%</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Two of the top fifteen recommendations emerging from the January 1980 White House Conference on Small Business would make risk capital investment in small firms more attractive to individual investors. The survey questionnaire was designed to assess the potential impact of these recommendations upon the investment decisions of respondents.

a) Investment Tax Credits

Legislation before the Ninety-sixth Congress, H.R 3975, would have provided a tax credit of up to 15% or $750 ($1,500 for a joint return) for investments in small corporations. Respondents were asked to estimate the additional risk capital they would consider committing to small firms if the legislation were enacted. Seventy-one respondents (53%) either did not answer or indicated the tax credit would have no effect. Of the sixty-two investors who responded, the median additional commitment was $10,000, or just enough to take advantage of the maximum 15% tax credit. For unknown reasons, sixteen investors responded with additional commitments in excess of $10,000. The limited and somewhat puzzling response to this question suggests that a 15% tax credit with a $1,500 cap would have relatively little impact on the flow of risk capital to small firms.

To assess the impact of a 15% tax credit without a $1,500 cap, investors were asked to indicate the effect of an unlimited 15% credit on the size of their total portfolio of investments in small firms. One hundred fifteen investors responded as reflected in Figure 25.

**FIGURE 25**

PORTFOLIO EFFECT OF 15% INVESTMENT TAX CREDIT

<table>
<thead>
<tr>
<th>Increase 100%</th>
<th>Increase 50-100%</th>
<th>Increase Up to 50%</th>
<th>No Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>15</td>
<td>18</td>
<td>46</td>
<td>36</td>
</tr>
<tr>
<td>(13%)</td>
<td>(16%)</td>
<td>(40%)</td>
<td>(31%)</td>
</tr>
</tbody>
</table>

Number of Respondents
If the eighteen investors who did not respond to the question are assumed to fall into the "no effect" category, for a subtotal of 51, then thirty-eight percent of respondents apparently would be uninfluenced by a 15% tax credit. Even an unlimited 15% investment tax credit would appear to have modest impact upon the risk capital investment decisions of informal investors.

The following representative comments reflect the attitudes of respondents toward tax credit proposals:

- "The proposed rate would understandably increase the flow of capital from individuals into ventures, and away from tax shelters."
- "$750 credit is too small to be meaningful."
- "What funds I don't pay out in taxes, I can reinvest."
- "This would be very beneficial to the whole economy, and would probably change my thinking somewhat."
- "Dollar limitations in question 43 make it not really meaningful."
- "The tax break would make the investment more attractive, but the primary issue in one of taxable income, not taxes."
- "Without the dollar limitation, substantial additional funds would be committed to risk capital."
- "Both recommendations are too modest to influence my business decisions although acceptable and modestly helpful."

b. Capital Gains Tax Deferral

Several bills introduced in the Ninety-sixth Congress would allow a deferral of capital gains taxes if the proceeds from the sale of a capital asset were reinvested in a small business within a specified time period, e.g., eighteen months. In its broadest form, the deferral would apply to proceeds from the sale of any capital asset, i.e., not limited to previous investments in small firms, if the proceeds were reinvested in a small business. Respondents were asked to estimate the value of the capital assets they would consider liquidating in order to undertake new investment opportunities in small firms if rollover
legislation were enacted. Sixty-five investors (49%) reported amounts aggregating $6 1/4 million. The median response was $25,000 and $50,000 was the mode (13 respondents). Though the data do not permit direct comparison, the potential impact on the supply of risk capital of a capital gains rollover provision for funds reinvested in small firms appears to be more substantial than the potential impact of a 15% investment tax credit.

The following comments are representative of the attitudes of respondents toward a capital gains tax deferral:

- "Liquidating and reinvesting decisions would be made on basic facts and conditions relating to the businesses, probably very little influence from this tax legislation."

- "I would invest every extra "buck" I had. I support the legislation."

- "Probably double my annual risk investment."

- "I'm not sure about this, it would be an exciting opportunity; perhaps we would find that we could invest much more."

- "No dollar value but 30% to 50% of holdings."

- "It would depend on whether there are investments ready for liquidation, and the relative attractiveness of the new opportunity."

- "This makes more sense. The dollar amount would depend upon the specifics of the investment, however."

- "Current stock holdings could then be used, whereas now there is a reluctance to sell due to heavy capital gains tax."

- "This would be a good program and it would work."

- "Very attractive way to develop capital which helps offset the risk factors."

- "Excellent. A form of tax shelter for a socially worthwhile cause should be limited, however, to start-up innovation situations."

- "Good deal!"
c) Small Business Participating Debentures - SBPD's

Senate Bill 1481, introduced in the Ninety-sixth Congress, would have provided tax advantages for funds invested in small businesses in the form of Small Business Participating Debentures (SBPD's). (See question #46 of the survey questionnaire for a summary of the tax advantages of SBPD's). Investors were asked to indicate the potential impact of SBPD legislation upon the size of their total portfolio of investments in small firms. Figure 26 displays the range of responses from 110 investors (83% of respondents).

![Figure 26: Portfolio Effect of SBPD Legislation](image)

As reflected in Figures 25 and 26, the data suggest that SBPD legislation is less attractive than an unlimited 15% investment tax credit in terms of its potential impact on risk capital for small firms.

The following comments are representative of the attitudes of respondents to SBPD proposals:

- " Might be really interesting with an equity kicker."
- "Have to think about this one!"
- "I don't like this. An owner who can't let go of equity is unrealistic and would turn me off. Besides, it limits upside potential."
- "Also a good program."
To test the hypothesis that Small Business Participating Debentures are likely to be most useful in financing established, growing ventures, rather than in start-up and other early stage investments, those respondents whose portfolios would be influenced by passage of S1481 were examined to determine whether they exhibited a stronger interest in established firms than respondents whose portfolios would be unaffected by S1481. The results, displayed in Table 18, are inconclusive. Expressions of "strong" interest contradict the hypothesis while expressions of "moderate" interest appear to confirm it.

Table 18
S-1481/Established Firm Financing

<table>
<thead>
<tr>
<th>Interest in Established Firms:</th>
<th>Influenced</th>
<th>Uninfluenced</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Respondents</td>
<td>62</td>
<td>71</td>
</tr>
<tr>
<td>Strong</td>
<td>15%</td>
<td>28%</td>
</tr>
<tr>
<td>Moderate</td>
<td>48</td>
<td>29</td>
</tr>
<tr>
<td>No Interest</td>
<td>37</td>
<td>43</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100%</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

6. INVESTMENT REFERRAL SOURCES

Section V of the survey questionnaire was designed to determine the nature and effectiveness of existing channels of communication between informal investors and entrepreneurs seeking risk capital and to assess interest in an experimental effort to broaden the range of bonafide investment opportunities available for their consideration.
a) Referral Sources

Respondents were provided with an illustrative list of sources of investment opportunities and asked to classify each as a "frequent source", "occasional source", or "not a source" of risk capital investment opportunities which they seriously considered during the last five years. The pattern of "frequent source" responses reveals the informal network of friends and business associates through whom informal investors typically learn of investment opportunities. Table 19 displays the complete set of responses in descending order as a frequent source of investment opportunities.

<table>
<thead>
<tr>
<th>Referral Sources</th>
<th>Frequent Source</th>
<th>Occasional Source</th>
<th>Not a Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Business Associates</td>
<td>62</td>
<td>37</td>
<td>18</td>
</tr>
<tr>
<td>Friends</td>
<td>59</td>
<td>44</td>
<td>15</td>
</tr>
<tr>
<td>Active Personal Search</td>
<td>46</td>
<td>29</td>
<td>36</td>
</tr>
<tr>
<td>Investment Bankers</td>
<td>17</td>
<td>28</td>
<td>66</td>
</tr>
<tr>
<td>Business Brokers</td>
<td>12</td>
<td>36</td>
<td>62</td>
</tr>
<tr>
<td>Commercial Bankers</td>
<td>9</td>
<td>30</td>
<td>68</td>
</tr>
<tr>
<td>Other</td>
<td>7</td>
<td>5</td>
<td>46</td>
</tr>
<tr>
<td>Attorneys</td>
<td>3</td>
<td>50</td>
<td>55</td>
</tr>
<tr>
<td>Accountants</td>
<td>2</td>
<td>41</td>
<td>66</td>
</tr>
</tbody>
</table>

Business associates were identified as the single most useful referral source by thirty-three respondents. Twenty-six respondents cited friends as most useful, and twenty-four respondents cited personal search. No other source was cited as most useful by more than six respondents.
b) Effectiveness of Referral Sources

Respondents were asked if they were satisfied with the effectiveness of existing channels of communication between bone fide entrepreneurs seeking risk capital and investors like themselves. Half of the respondents (51%) reported varying degrees of dissatisfaction. Twenty-eight percent were more or less satisfied with twenty-one percent expressing no opinion. Figure 27 displays the responses to the satisfaction question. "Totally dissatisfied" respondents outnumber "definitely satisfied" respondents by over four-to-one.

![Figure 27: Satisfaction with Referral Sources](image)

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c) Regional Referral Service

Respondents were asked to indicate their interest in three types of regional referral services that would direct investment opportunities to their attention. The first type would refer opportunities that had been evaluated and supported by a public or quasi-public organization providing financial, technical or managerial assistance to entrepreneurs and technology-based inventors. See question #50 of the survey questionnaire for an illustrative list of such organizations. The second type of referral service would direct an investor's attention to firms looking
for risk capital and whose credit requirements had been evaluated and
supported by a commercial bank. The third type of service would refer
to investors all investment opportunities that appeared to meet their
investment criteria regardless of the source of an opportunity.

Referral service types one and two were designed to determine
whether investors attach any value to the fact that an investment
opportunity has been screened and supported by a professional third
party, i.e., does the support of an entrepreneurial assistance
organization or commercial bank add any credibility to an investment
proposal. The answer is clearly "no" as far as survey respondents
are concerned. Commercial bank referrals were preferred to entrepreneurial
assistance organizations referrals, but referrals from any source were
preferred to both. Sixty-three respondents (49%) expressed a "strong
interest" in such a service.

The most striking result of the regional referral service question
is the fact that over eighty percent of respondents reported a "moderate"
or "strong" interest in the concept of such a service. A carefully
designed experimental effort at linking informal investors with bonafide
entrepreneurs and technology-based inventors would apparently be attractive
to informal investors. Such a service would obviously be useful to
entrepreneurs and inventors who typically find fund-raising a frustrating
and inefficient process. The essential role of risk capital in the
innovative, entrepreneurial process, the limited efficiency of existing
informal risk capital market mechanisms, and the indicated interest of
investors in an experimental referral service suggest that an appropriately
designed program could make a major contribution to the risk capital
financing of new and growing enterprises.

Figure 28 displays the pattern of responses to each of the three
types of hypothetical referral services.
Confirming the expressed interest in referral services, one hundred sixteen respondents asked to be advised of investment opportunities encountered during the course of this research. Fourteen respondents preferred not to be advised. Several investment opportunities have been referred to appropriate respondents on an informal basis.

7. **PROFILES OF "STRONG INTEREST" INVESTORS**

Risk capital investment opportunities vary along a number of dimensions of significance to investors, e.g., age of the venture (risk), industry category, investment size, etc. In addition to examining respondents as a single set of investors, efforts were made to detect potentially significant differences within the set according to investment objectives. The nature of the data does not lend itself to rigorous statistical tests of differences. However, there appear to be a number of potentially distinctive characteristics of subsets of investors. Larger samples with more definitive data would permit the
application of traditional statistical tests of observed differences. The following observations are intended as suggestive of underlying differences in investor profiles, and may be of use to inventors and entrepreneurs seeking risk capital.

When respondents were classified according to "strong interests" in inventors, start-up firms, infant firms, young firms and established firms, (i.e., by age of venture), several potentially significant differences in investor profiles were observed. See questionnaire for definitions of terms. First, it appears that respondents are primarily interested in new companies i.e., start-up firms, infant firms and young firms. Approximately 42% of respondents expressed a "strong" investment interest in each of these new-company categories. Technology-based inventors attracted the strong interest of 32% of respondents and established firms 20%.

Investment size preference appears to vary directly with the age of the venture, ranging from a weighted mid-point average of $36,000 for inventors to $75,000 for established firms. There appears to be a tendency for large investors to prefer more seasoned, less risky opportunities while smaller investors are more likely to back inventors and start-up situations. The observed patterns suggest that informal investors are a likely source of relatively small amounts of seed capital for inventors and new companies and that a smaller subset of informal investors are an appropriate source of larger amounts of risk capital for established firms. Given the tendency of informal investors to participate with other individuals, it appears that, as a group, informal investors are a significant source of risk capital in all amounts below the typical $500,000 interest threshold of venture capital firms.

Informal investors typically expect to liquidate their risk capital investments within 5 to 7 years. Investors with a "strong" interest in established firms seem to have slightly longer exit horizons than other investors. Forty-one percent either do not consider liquidation expectations important or expect to hold their investment for 10 years or longer compared to twenty-four percent for all respondents.

The level of education of investors and the frequency of venture start-up experience appears to vary inversely with the age of the
ventures in which they are interested. For example, 62% of investors with a strong interest in inventors hold graduate degrees and 77% have had top management experience with start-up firms. Comparable figures for investors with a strong interest in established firms are 47% with graduate degrees and 53% with start-up experience. The data suggest that informal investors generally have had advanced academic training, frequently technical, and prior start-up experience, and that they typically make these skills available to ventures in which they invest. Three quarters of respondents' past investments involved an "active" investment role, e.g., service on a board of directors, consulting service, part-time or full-time employment.

Table 20 displays data for investors classified according to expressed "strong interests".

Table 20
Characteristics of "Strong Interest" Inventors

<table>
<thead>
<tr>
<th>Investment Interest</th>
<th>All Inventors</th>
<th>Start-up</th>
<th>Infant</th>
<th>Young</th>
<th>Established</th>
<th>Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Responses</td>
<td>43</td>
<td>57</td>
<td>54</td>
<td>55</td>
<td>27</td>
<td>133</td>
</tr>
<tr>
<td>% of Total Responses</td>
<td>32%</td>
<td>43%</td>
<td>41%</td>
<td>41%</td>
<td>20%</td>
<td>100%</td>
</tr>
<tr>
<td>Investment Size</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Median (000)</td>
<td>$10-25</td>
<td>$10-25</td>
<td>$10-25</td>
<td>$10-25</td>
<td>$25-50</td>
<td>$10-25</td>
</tr>
<tr>
<td>Midpoint Aver. (000)</td>
<td>$35.92</td>
<td>$39.29</td>
<td>$57.55</td>
<td>$56.63</td>
<td>$75.20</td>
<td>$45.43</td>
</tr>
<tr>
<td>% ≤ $25,000</td>
<td>74%</td>
<td>64%</td>
<td>55%</td>
<td>51%</td>
<td>44%</td>
<td>61%</td>
</tr>
<tr>
<td>% ≥ $100,000</td>
<td>8%</td>
<td>8%</td>
<td>15%</td>
<td>16%</td>
<td>28%</td>
<td>12%</td>
</tr>
<tr>
<td>Liquidation Expectation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Median years</td>
<td>5-7</td>
<td>5-7</td>
<td>5-7</td>
<td>5-7</td>
<td>6-8</td>
<td>5-7</td>
</tr>
<tr>
<td>% ≤ 5 years</td>
<td>29%</td>
<td>37%</td>
<td>33%</td>
<td>35%</td>
<td>32%</td>
<td>39%</td>
</tr>
<tr>
<td>% Unimportant or &gt; 10 years</td>
<td>29%</td>
<td>27%</td>
<td>23%</td>
<td>24%</td>
<td>41%</td>
<td>24%</td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>45.82</td>
<td>43.73</td>
<td>44.16</td>
<td>44.45</td>
<td>44.69</td>
<td>46.08</td>
</tr>
<tr>
<td>Education</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Graduate Degree</td>
<td>63%</td>
<td>60%</td>
<td>60%</td>
<td>50%</td>
<td>48%</td>
<td>51%</td>
</tr>
<tr>
<td>Start-up Experience</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Yes</td>
<td>76%</td>
<td>79%</td>
<td>77%</td>
<td>78%</td>
<td>60%</td>
<td>78%</td>
</tr>
</tbody>
</table>
IV. SUMMARY

The results of this research document and confirm generally held impressions that informal investors are a significant and appropriate source of risk capital for technology-based inventors, and for both emerging and established firms without access to traditional venture capital sources or the public equity markets. Informal investors are difficult to reach -- geographically dispersed and tough to identify. Nine months and the assistance of several professional organizations were required to find and collect data from one hundred thirty-three informal investors in New England. Useful generalizations about the characteristics of informal investors can be drawn from the sample data. Of equal significance, however, is the degree of variation in characteristics represented by individual investors. They are a diverse as well as a dispersed group.

The total population of informal investors in New England is unknown. The research sample represents approximately 10 investors per million population, or about 1/10% of the 1,000 per million incidence rate of millionaires, based on 1972 IRS data. The comparison suggests that the total informal investor population in New England may be substantially greater than the research sample, by a factor of ten or more if one millionaire in one hundred is an informal risk capital investor.

Respondents reported risk capital investments totaling about $16 million in about 350 ventures over the previous five years, an investment rate of about $3 million per year in 70 ventures per year. By way of contrast SBIC's invested about $8 million in equity and $7 million in debt-with-equity securities of approximately 75 New England firms in 1979. The dollar volume risk of capital financing by respondents represents about 20% of SBIC financing in New England and the number of ventures financed is about equal. Investment goals of respondents over the next two years reveal an expected investment rate of about $5 million in over 100 ventures per year. The data suggest that total risk capital financing by informal investors is at least equal in dollar volume to the funds available from SBICs and that, by investing in smaller amounts, informal investors finance perhaps four times as many ventures.
APPENDIX A

EXTRACT - INFORMAL RISK CAPITAL
IV. RESEARCH RESULTS

The proposed research is expected to yield the following results:

1) Biographic profiles of informal investors
2) Profiles of the investment criteria employed by informal investors
3) Analysis of the most efficient methods of accessing informal investors
4) An estimate of the volume of risk capital potentially available from informal investors
5) Analysis of successful venture founders (subset of informal investors) as a source of risk capital and management expertise for inventors and new foundation firms
6) Recommendations for public policy initiatives designed to increase the availability of informal risk capital
7) Analysis of the potential role of Small Business Development Centers in facilitating the flow of risk capital from informal investors to inventors, entrepreneurs and established foundation firms
8) Analysis of entrepreneurial assistance organizations as a source of investment opportunities, including analysis of their ability to facilitate the flow of informal risk capital by providing services that enhance the probability of successful enterprise development. Examples of entrepreneurial support groups in New England include:

CENTER FOR INDUSTRIAL AND INSTITUTIONAL DEVELOPMENT
Analysis of the potential contribution of informal risk capital to the objectives of Federal programs designed to facilitate the commercialization of innovative technologies. Examples of Federal Technology development programs include:

a) Department of Energy
   1) Northeast Solar Energy Center
   2) Small-Scale Appropriate Technology Grants Program

b) National Science Foundation
   1) Innovation Centers Experiment
   2) Small Scale Business Innovation Research Program

c) Department of Commerce - Experimental Technology Incentives Program

d) National Bureau of Standards - Energy Related Inventions Program
10) Assessment of the feasibility of creating a pooled investment fund, e.g. SBIC, designed to meet the investment objectives of informal investors and, at the same time, affording the opportunity to participate in a diversified, professionally managed portfolio of venture investments.

11) Provide the data base for designing and testing a market intervention project to increase the efficiency of the informal risk capital markets in New England. This application of the data could be the single most important outcome of the proposed research.
V. CONTRIBUTION TO PUBLIC POLICY

The proposed research is expected to yield results which will be useful in developing public policy initiatives to improve the small business environment, and to accelerate the commercial application of innovative technology.

1) The research is designed to identify the investment criteria employed by informal investors. Once these criteria are understood, appropriate incentives can be designed to meet these criteria, and thereby stimulate the flow of informal risk capital to inventors, entrepreneurs, and established foundation firms.

2) The survey questionnaire can be designed to include questions dealing with investor attitudes toward current public policy proposals, e.g. capital gains tax modifications, SEC regulations, IRS Sub-Chapter S provisions etc.

3) The research will explore questions concerning the feasibility of creating an SBIC, publicly held by informal investors, designed to provide the type of risk capital now provided directly by individual investors. Such an SBIC could develop working relationships with organizations established to assist entrepreneurs and inventors, and would offer informal investors the opportunity to place part of their funds in a diversified portfolio under professional management. Potential public benefits may justify the development of special incentives to stimulate the formation of SBIC's serving informal investors on the one hand, and inventors, entrepreneurs and growing foundations firms on the other hand.
4) The data provided by the research will permit an assessment of the feasibility of creating a mechanism to increase the efficiency of the informal risk capital markets and thereby increase the flow of risk capital from informal investors to inventors and entrepreneurs. Such an activity could form part of the services provided by SBA-sponsored Small Business Development Centers, and could be the single most significant outcome of the research. By providing access to the risk capital essential to the commercialization of new technology, such a program would complement public programs established to stimulate technology development and its transfer to the market place.
VI. RESEARCH METHODOLOGY

The proposed research faces two major challenges: identifying informal investors, and collecting and analyzing useful data.

1. Identifying Informal Investors

Informal investors are defined to include sources of risk capital other than professionally managed venture capital firms and SBIC's. Wealthy individuals constitute the primary component of the group. Also included are local investment clubs and smaller corporations pursuing expansion or diversification strategies. Wealthy individuals include practicing and retired executives and other professionals, successful entrepreneurs, and representatives of families with inherited wealth. In view of the diversity of the group and their preference for anonymity, creative techniques will be required to identify and reach these investors. Lessons learned in the search process alone will be useful in providing guidelines for inventors and entrepreneurs seeking informal risk capital. Currently inventors and entrepreneurs must find their own way through the maze of channels leading to informal risk capital with few guidelines or sources of assistance to call upon. The problems involved in bringing a new invention or innovation to commercial reality have been summarized by James R. Bright, Associate Dean, Graduate School of Business, University of Texas, in a series of ten propositions and accompanying conclusions. The financial problems facing an invention were summarized in Proposition 10:
"Proposition 10. A major weakness in our national support of the innovative process is the financing of innovations during progress after Stage 3 -- Verification of Theory, up through Stage 5 -- Full Scale or Field Trial.

Conclusion. We do not fund this activity (invention) as an act of faith. Furthermore, we leave this search for financial support of the innovation in the hands of the inventor. During this crucial time, in effect, society expects the inventor to drop his real forte (invention) and to become promoter, entrepreneur and financier. Why should the inventor, dedicated to a technological struggle and probably already under financial stress, be expected to be an effective fund raiser? Psychologically and intellectually, he is not usually a good candidate for this job. Is it any wonder that social and economic progress is delayed?"(2)

In addition to the collection of descriptive data, a major benefit of a successful search for informal investors lies in the potential for creating a mechanism for maintaining channels of communication which will facilitate the flow of investment opportunities to informal investors and the flow of risk capital to inventors and entrepreneurs.

During the first three months of the project, a team of three MBA students, under the supervision of the assistant project director, will explore a range of techniques for reaching informal investors. An illustrative list of sources includes the following:

1) Files of regional organizations providing entrepreneurial support services, e.g. New England Industrial Resources Development Program, Smaller Business Association of New England, Massachusetts Technology Development Foundation, etc. This approach was used successfully in the 1978 pilot research.


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2) State files of plane, boat, and automobile registrations.

3) Cooperative arrangements with securities dealers, business brokers and venture capitalists.

4) Purchased mailing lists.

5) Professional society membership lists, e.g. bar associations, medical societies, state CPA societies, etc.

6) Cooperative arrangements with commercial banks and trust companies.

7) Fraternal and civic organizations, e.g. Rotary Clubs.

8) College and university alumni directories.

To efficiently screen large numbers of names, the project will develop an inexpensive return card mailer describing the research and soliciting responses from individuals who consider themselves risk investors and who are willing to complete a comprehensive questionnaire. Respondents completing questionnaires will receive a summary of research results and the opportunity to participate in any market facilitating mechanism that may emerge from the research.

The search for informal investors will pay particular attention to the identification of successful entrepreneurs. An informal network of social and professional contacts tends to link successful entrepreneurs. The research project will solicit the interest and cooperation of these individuals, many of whom financed their own ventures through informal sources of risk capital.
2. Questionnaire Development

An investment capital questionnaire was developed and tested, primarily in northern New England, during the fall of 1978. The questionnaire and a summary of the results of its use are attached as Exhibit C.

During the first three months of the proposed research project, the original questionnaire will be revised and expanded based on the results of the 1978 research and based on modifications and additions developed in cooperation with directors of the entrepreneurial assistance organizations and Federal programs listed in Part III, paragraphs 8 and 9. The project director will be responsible for assessing the relationship of informal risk capital availability to the objectives of these organizations, for reviewing the research methodology with the directors of these programs, adapting the methodology as appropriate, and for identifying opportunities to incorporate access to informal risk capital into existing programs to stimulate technology transfer and entrepreneurial development.

The project director will also review the research methodology with representatives of the National Association of Small Business Investment Companies, National Association of Securities Dealers, National Venture Capital Association and private venture capitalists to identify specific public policy proposals which might benefit from data reflecting the attitudes of informal risk investors. Depending upon level of interest and compatibility of objectives, the questionnaire will be designed...
to gather such data. Other potential sources of input to research methodology include the Small Business Administration's Investment Division, and the National Federation of Independent Businesses.

3. **Data Collection**

   Formal data collection will commence upon completion of a revised questionnaire and the specification of methodologies for reaching informal investors. Data collection will commence approximately three months after commencement of the project and continue for approximately six months.

   The assistant project director will assume primary responsibility for data collection and will direct the activities of three MBA project assistants. In addition to the primary data collection task, the project staff will implement experimental methodologies for reaching informal investors and will document and evaluate these methodologies. Mail techniques, telephone techniques, and public speaking engagements will be among the communication media explored, along with a variety of follow-up approaches.

4. **Data Analysis**

   The final three months of the project will be devoted to data analysis and the preparation of a final research report. The project director and the assistant project director will share the responsibility for data analysis and report preparation.
The research questionnaire will be designed to facilitate statistical analysis of responses. The level of sophistication of the statistical analysis will be dependent upon and tailored to the quality of the raw data. The absence of any known previous efforts to collect reliable data concerning informal investors creates uncertainties concerning appropriate analytical methodologies. Analytical techniques will be selected on the basis of both scientific validity and potential for contributing to applied methodologies for improving the efficiency of the informal risk capital market.

5. Final Report

The final project report will include a summary of analytical results and public policy recommendations in the following areas of interest to the Small Business Administration:

1. "participation of small businesses in science and technology"
2. "the effects of alternative taxes on small businesses"
3. "the capability of financial markets and institutions to supply small business capital".

CENTER FOR INDUSTRIAL AND INSTITUTIONAL DEVELOPMENT
36. **Infant Firms**

Suppose you hold a portfolio of ten investments in infant firms and that, at the time of your investment, each opportunity met your criteria regarding investment size, industry, location, management qualifications, etc.

a) How many of the ten would probably turn out to be "losers," where losers are defined as investments in which your eventual losses exceed 50% of your original investment? This question is a measure of your perception of the "downside risk" inherent in a portfolio of investments in infant firms.

Estimated number of "losers"

b) What is your best estimate of the total return on your investment in the single most successful infant firm in the portfolio? This question is a measure of your perception of the "upside potential" of an investment in an infant firm. Please estimate the potential total return in terms of a compound annual rate and a five-year capital gains multiple.

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<thead>
<tr>
<th>Compound Annual Rate</th>
<th>Five-year Capital Gains Multiple</th>
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c) Recognizing that there will be both winners and losers in any portfolio of investments in infant firms, what do you consider a minimum acceptable return on the total portfolio? This question measures your estimate of the average cost of risk capital for infant firms. Please estimate the minimum acceptable portfolio return in terms of a compound annual rate and a five-year capital gains multiple.

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<th>Compound Annual Rate</th>
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37. **Young Firms**

Suppose you hold a portfolio of ten investments in young firms, and that, at the time of your investment, each opportunity met your criteria regarding investment size, industry, location, management qualifications, etc.

a) How many of the ten would probably turn out to be "losers," where losers are defined as investments in which your eventual losses exceed 50% of your original investment? This question is a measure of your perception of the "downside risk" inherent in a portfolio of investments in young firms.

Estimated number of "losers"

b) What is your best estimate of the total return on your investment in the single most successful young firm in the portfolio? This question is a measure of your perception of the "upside potential" of an investment in a young firm. Please estimate the potential total return in terms of a compound annual rate and a five-year capital gains multiple.

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<th>Compound Annual Rate</th>
<th>Five-year Capital Gains Multiple</th>
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</table>

c) Recognizing that there will be both winners and losers in any portfolio of investments in young firms, what do you consider a minimum acceptable return on the total portfolio? This question measures your estimate of the average cost of risk capital for young firms. Please estimate the minimum acceptable portfolio return in terms of a compound annual rate and a five-year capital gains multiple.

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<th>Compound Annual Rate</th>
<th>Five-year Capital Gains Multiple</th>
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38. **Established Firms**

Suppose you hold a portfolio of ten investments in established firms and that, at the time of your investment, each opportunity met your criteria regarding investment size, industry, location, management qualifications, etc.

a) How many of the ten would probably turn out to be "losers," where losers are defined as investments in which your eventual losses exceed 50% of your original investment? This question is a measure of your perception of the "downside risk" inherent in a portfolio of investments in established firms.

Estimated number of "losers"

b) What is your best estimate of the total return on your investment in the single most successful established firm in the portfolio? This question is a measure of your perception of the "upside potential" of an investment in an established firm. Please estimate the potential total return in terms of a compound annual rate and a five-year capital gains multiple.

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<th>Compound Annual Rate</th>
<th>Five-year Capital Gains Multiple</th>
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</table>

c) Recognizing that there will be both winners and losers in any portfolio of investments in established firms, what do you consider a minimum acceptable return on the total portfolio? This question measures your estimate of the average cost of risk capital for established firms. Please estimate the minimum acceptable portfolio return in terms of a compound annual rate and a five-year capital gains multiple.

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<th>Compound Annual Rate</th>
<th>Five-year Capital Gains Multiple</th>
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Questions 39 through 42 are designed to measure the substitutability of non-financial returns for financial returns on your risk capital investments in foundation firms.

39. Suppose that your city or town is experiencing a continuing unemployment problem. Your investment opportunity is expected to create 10 jobs initially and, if successful, would create 100+ jobs within five years. Would you accept a lower rate of return on your investment?
   Yes ______ No ______
   If you answered yes, what reduction in your expected rate of return would you be willing to accept? __________

40. Would you accept a lower rate of return on an investment if the investment opportunity involved the commercial development of a new technology with significant social benefit, e.g., medical technology or energy-related technology?
   Yes ______ No ______
   If you answered yes, what reduction in your expected rate of return would you be willing to accept? __________

41. Would you accept a lower rate of return on an investment if the investment opportunity allowed you to maintain a close personal relationship with the entrepreneur, i.e., do you derive any satisfaction out of supporting entrepreneurs?
   Yes ______ No ______
   If you answered yes, what reduction in your expected rate of return would you be willing to accept? __________

42. Are there other types of non-financial rewards that you would accept as substitutes for financial return on your investment? Please indicate how large a reduction in your expected rate of return you would be willing to accept for each type you specify.
   a) Supporting an urban revitalization program.
      Yes ______ No ______ % reduction
   b) Supporting a minority entrepreneur.
      Yes ______ No ______ % reduction
   c) Supporting a female entrepreneur.
      Yes ______ No ______ % reduction
   d) Other (please specify)
      1. ____________________________ %
      2. ____________________________ %

IV. WHITE HOUSE CONFERENCE ON SMALL BUSINESS

Two of the top fifteen recommendations emerging from the January, 1980, White House Conference on Small Business would make risk capital investment in small firms more attractive to individual investors. Questions 43 through 46 are designed to assess the potential impact of these recommendations upon your investment decisions.

Recommendation #7
"Provide for a tax credit for initial investment in a small firm, and permit deferral of taxes for roll-overs of investments affecting small business."

Recommendation #9
"Provide tax incentives in the form of a new security called a Small Business Participating Debenture (SBPD) to provide a source of capital for small business."

43. With regard to Recommendation #7, legislation currently before Congress, H.R.3975, provides for a tax credit of up to 15% or $750 ($1,500 for a joint return) for investments in small corporations.
   If this legislation were enacted, what is your best estimate of the additional risk capital funds you would consider committing to small firms? $ __________

44. What would be the probable impact of a 15% tax credit, without the dollar limitations of H.R.3975, upon the size of your total portfolio of investments in small firms?
   A. Probably increase over 100% __________
   B. Probably increase 50-100% __________
   C. Probably increase up to 50% __________
   D. No effect __________

Comment:

45. Also with regard to Recommendation #7, several bills currently before Congress would allow a deferral of capital gains taxes if the proceeds from the sale of a capital asset were reinvested in a small business within a specified period of time, e.g., eighteen months.

(cont. on next page)
If this rollover legislation were enacted, what is your best estimate of the value of the capital assets you would consider liquidating in order to undertake new investment opportunities in small firms? $ ________________

Comment:

46. Legislation currently before Congress, S. 1481, would implement Recommendation #9. Key elements of Senate Bill 1481 include the following advantages of a Small Business Participating Debenture (SBPD) for an investor:

1. Funds invested earn a share of the profits, which is treated at the preferential capital gains tax rate.
2. The SBPD would be similar to "Section 1244 stock" in that investors would be entitled to ordinary deductions for losses on their investments.
3. An investment tax credit would be granted to a maximum of 5% of the amount invested.

This new form of security was conceived to meet the capital formation needs of small firms without the owner having to sell a permanent equity position in the business. Given the advantages outlined above and what you may already know of the SBPD proposal, what would be the probable impact of passage of S.1481 upon the size of your total portfolio of investments in small firms?

A. Probably increase over 100%
B. Probably increase 50-100%
C. Probably increase up to 50%
D. No effect

Comment:

V. INVESTMENT REFERRAL SOURCES

Section V is designed to assess the effectiveness of existing channels of communication between investors and investment opportunities and to assess investor interest in an experimental effort to broaden the range of bona fide investment opportunities available for their consideration.

47. How have you learned of the risk capital investment opportunities that you have seriously considered during the last five years?

<table>
<thead>
<tr>
<th>Frequent Source</th>
<th>Occasional Source</th>
<th>Not a Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Commercial bankers</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Accountants</td>
<td></td>
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<tr>
<td>Attorneys</td>
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<tr>
<td>Investment bankers</td>
<td></td>
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<tr>
<td>Business associates</td>
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<tr>
<td>Business brokers</td>
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<tr>
<td>Friends</td>
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<tr>
<td>Active personal search</td>
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<tr>
<td>Other (please specify)</td>
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</tbody>
</table>

48. Which one of the referral sources identified in question #41 has been the most useful to you?

49. Are you satisfied with the effectiveness of existing channels of communication between bona fide entrepreneurs seeking risk capital and investors like yourself?

A. Definitely satisfied
B. Basically but not totally satisfied
C. No opinion
D. Dissatisfied — moderate improvement needed
E. Totally dissatisfied — room for major improvements

50. Within New England several public and quasi-public organizations provide financial, technical and management assistance to entrepreneurs and technology-based inventors.


(cont. on next page)
Would you be interested in participating in a regional service that referred to you investment opportunities that have been evaluated and supported by these organizations and programs?
A. Strong interest
B. Moderate interest
C. No interest

51. Bank loan officers are among the first to learn of foundation firms requiring risk capital. Would you be interested in participating in a regional service that referred to you investment opportunities in foundation firms whose credit needs have been evaluated and supported by a commercial bank?
A. Strong interest
B. Moderate interest
C. No interest

52. Would you be interested in participating in a regional service that referred to you all investment opportunities that appeared to meet your investment criteria?
A. Strong interest
B. Moderate interest
C. No interest

53. Would you like to be advised of investment opportunities that come to our attention during the course of our current research?
YES _____ NO _____

VI. BIOGRAPHICAL INFORMATION

Section VI is designed to provide a brief biographical profile of respondents.

54. Please describe your principle occupation.

55. How old are you?______

56. What was the highest level of formal education you completed?
A. Grammar school
B. High school
C. Junior college
D. College
E. Post-graduate degree (please specify)

57. Have you ever been involved at the top management level in the start up of a new venture?
YES _____ NO _____

58. If you answered “yes” to question 57, were you employed in a similar business prior to the start-up?
YES _____ NO _____

Comment:

Please fill in your name and address below. You can be assured that all information you provided will remain strictly confidential. If you prefer, this questionnaire may be returned anonymously. Identified respondents will receive a copy of the final research report and the opportunity to participate in any follow-on programs.

YOUR NAME ____________________________
ADDRESS ________________________________

In order to help us expand the scope of our research, we would appreciate receiving the names and addresses of other actual or potential investors known to you. If you prefer, we will be glad to provide you with copies of the questionnaire for distribution to acquaintances.

Please send me _____ additional copies of the questionnaire.

Names and addresses of other investors:

Thank you for your cooperation.

Please return completed questionnaires to:
Craig R. Seymour
Assistant Project Director
C.I.D.
McConnell Hall
University of New Hampshire
Durham, NH 03824

Please use the back page for any additional comments.
APPENDIX B

QUESTIONNAIRE
WSBE survey studies risk capital sources

William E. Wetzel, a professor at the Whittemore School of Business and Economics, hopes his research will close what he calls, "a capital gap in the economy," the limited availability of risk capital for new and developing companies.

"Such small firms with sales between $1 million and $20 million and with financing needs between $50,000 and $250,000 generally do not meet the investment criteria of professional venture capital organizations," Wetzel says.

"Small and developing companies often have to rely on informal investment sources, essentially individuals of means who have money to invest, to meet their equity capital needs."

But little is known about such investors as a source of capital, about how to reach them, their investment criteria or the actual volume of risk capital available.

Wetzel hopes that his research which is sponsored by the Office of Economic Research of the Small Business Administration will provide that information. He says it is of specific importance to New England because the region's wealth, technological expertise and highly skilled work force have been attracting an increasing number of small, innovative technology-oriented companies.

Based on responses to a comprehensive investment capital questionnaire, a "profile" of all informal investors, entrepreneurs, and small growing firms will be compiled. It will estimate the volume of informal risk capital available and analyze informal investors' investment and objective criteria.

The project has "generated a lot of enthusiastic support," according to Wetzel. The collection of data for the Profile is currently under way. The collection effort which started on April 1st will continue until August 30th. September and October will be devoted to analyzing the material and compiling statistics.

More information about the project may be obtained from Professor Wetzel at (603)862-2771 or Assistant Project Director Craig Seymour at (603)862-3556. All inquiries will remain confidential.
This questionnaire has been developed to investigate the cost and availability of risk capital for firms without access to traditional venture capital sources or the public equity markets. The investigation is sponsored by the Office of Economic Research of the U.S. Small Business Administration and is being conducted by the Center for Industrial and Institutional Development at the University of New Hampshire.

For purposes of this questionnaire, the following definitions are employed:

A. **Risk Capital** — equity and equity-type capital for new or growing small firms. Equity-type capital includes subordinated debt and preferred stock with equity participation provisions. Risk capital investments in small firms typically exhibit the following characteristics:
   1) Risks substantially higher than equity investments in large, established firms.
   2) Potential returns substantially greater than equity investments in large established firms.
   3) Marketability (liquidity) of investments limited or non-existent.

B. **Informal Investors** — includes sources of risk capital other than professionally managed venture capital funds, equity-oriented Small Business Investment Companies (SBIC's), other institutional investors, and the public equity markets. Informal risk capital investors tend to be financially sophisticated individuals of means, e.g., incomes in excess of $50,000 and net worths in excess of $250,000, often with previous investment or management experience with entrepreneurial ventures.

C. **Foundation Firms** — new or growing small firms requiring external equity financing but without access to traditional venture capital sources or the public equity markets. Foundation firms typically require risk capital in amounts ranging from $50,000 to $500,000, are expanding at rates between 10% and 30% per year, are unlikely to qualify for a public stock offering or merger with a larger firm within five to ten years, employ from 10/20 to 400/600 people, and generate annual sales under $20 million.

For purposes of this questionnaire, risk capital investment opportunities in foundation firms are assumed to fall in the following categories:

A. **Start-up Firms** — business ventures in the idea stage or in the process of being organized.
B. Infant Firms — firms about one year old, losing money, but approaching break-even operations and with the potential for attractive profits in one to three years.

C. Young Firms — firms less than five years old, with proven track records, expecting to enter a period of rapid, profitable growth.

D. Established Firms — established, profitable firms growing too fast to finance from retained earnings but not fast enough to attract conventional venture investors. Attractive but troublesome growth rates tend to fall between 10% and 30% per year.

Foundation firms create most of the nation's new employment opportunities and are a major source of technological innovation. Problems raising risk capital represent an obstacle to the formation and growth of foundation firms. Despite the fact that informal investors represent the principal source of external risk capital for foundation firms, little is known about the volume of informal risk capital available, about the investment criteria employed by informal investors, or about how to locate informal investors. This questionnaire is designed to help answer these questions.

Investors seriously interested in risk capital investment opportunities in foundation firms are invited to complete this questionnaire. Approximately one hour is required for a thoughtful response. The questionnaire may be returned anonymously; however, identified responses are requested. Individual responses will remain strictly confidential. Completed questionnaires must be returned no later than August 31, 1980. Summary results and public policy proposals designed to improve the availability of risk capital for foundation firms will be published in November, 1980. Identified respondents will receive a copy of the final research report and opportunity to participate in any follow-on programs.

Instructions

1) Kindly answer all questions, unless otherwise instructed.
2) Estimates may be used wherever precise figures are unavailable.
3) Additional comments are invited. Space for comments is provided at the end of the questionnaire.
4) Inquiries regarding the questionnaire may be directed to:
   William E. Wetzel, Jr., Associate Professor
   Whittemore School of Business and Economics
   University of New Hampshire
   Durham, New Hampshire 03824
   (603) 862-2771
5) Please return the completed questionnaire to:
   Craig R. Seymour, Assistant Project Director
   Center for Industrial and Institutional Development
   University of New Hampshire
   Durham, New Hampshire 03824
   (603) 862-3556
I. RISK CAPITAL INVESTMENT HISTORY

Section I is designed to measure the extent and nature of your past risk capital investments in foundation firms. If you have never invested in a foundation firm, please scan Section I and go on to Section II.

1. Within the past five years, how many risk capital investments have you made in each of the types of opportunities described in the Synopsis?
   A. Start-up Firms
   B. Infant Firms
   C. Young Firms
   D. Established Firms

2. Of the investments reported in question #1, how many fell in each of the following size categories?
   A. Under $10,000
   B. $10,000 - $25,000
   C. $25,000 - $50,000
   D. $50,000 - $100,000
   E. $100,000 - $250,000
   F. Over $250,000

3. Of the investments reported in question #1, how many fell in each of the following industrial categories?
   A. Retail Trade
   B. Wholesale Trade
   C. Manufacturing - High Technology Products
   D. Manufacturing - Industrial Products
   E. Manufacturing - Consumer Products
   F. Service
   G. Construction/Real Estate
   H. Finance/Banking/Insurance
   I. Transportation
   J. Natural Resources
   K. Other (please specify)

4. Of the investments reported in question #1, how many fell in each of the following geographic categories?
   A. Within 10 miles of your home/office
   B. Beyond 10 miles but within 50 miles
   C. Beyond 50 miles but within 300 miles
   D. Beyond 300 miles

5. Of the investments reported in question #1, in how many cases did the total risk capital financing involve your participation with the following types of investors?
   A. Other individuals
   B. Venture capital firms
   C. SBIC's
   D. Banks
   E. Other financial institutions
   F. Public economic development agencies
   G. Other (please specify)

6. Of the investments reported in question #1, in how many cases did your personal involvement with the firm fall in the following categories?
   A. None, other than reviewing periodic reports and attending stockholder meetings
   B. Representation on the Board of Directors
   C. Provide consulting help as needed
   D. Work part-time with the firm
   E. Work full-time with the firm
   F. Other (please specify)

7. Of the investments reported in question #1, in how many cases did your immediate or potential voting control fall in the following categories?
   A. Under 10%
   B. 10% - 25%
   C. 25% - 49%
   D. 50%
   E. Over 50%

8. In general, how would you describe the performance of your portfolio of risk capital investments in foundation firms?
   A. Substantially above expectations
   B. Moderately above expectations
   C. Approximately met expectations
   D. Moderately below expectations
   E. Substantially below expectations

Comment:
9. Considering your total personal assets, what percentage of these assets is represented by your risk capital investments in foundation firms?
   A. Under 5%  
   B. 5% - 10%  
   C. 10% - 25%  
   D. 25% - 50%  
   E. Over 50%

10. Considering your personal net worth (total assets minus liabilities), what percentage of your net worth is represented by your risk capital investments in foundation firms?
   A. Under 5%  
   B. 5% - 10%  
   C. 10% - 25%  
   D. 25% - 50%  
   E. Over 50%

11. How many risk capital investment opportunities did you seriously consider but reject during the past five years?

12. Of the rejected investment opportunities reported in question #11, what were the principal reasons you declined to invest? (Please comment in your own words).

II. CURRENT INVESTMENT OBJECTIVES

Section II is designed to measure the extent and nature of your objectives for future risk capital investments in foundation firms.

13. During the next two years, how many risk capital investments in foundation firms would you like to add to your portfolio?
   A. One  
   B. Two or three  
   C. Four to six  
   D. Six to ten  
   E. Over ten

14. Please indicate your preference for each of the types of investment opportunities described in the Synopsis.

<table>
<thead>
<tr>
<th>Type of Investment Opportunity</th>
<th>Strong Interest</th>
<th>Moderate Interest</th>
<th>No Interest</th>
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<tbody>
<tr>
<td>A. Start-up Firms</td>
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<tr>
<td>B. Infant Firms</td>
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<tr>
<td>C. Young Firms</td>
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<tr>
<td>D. Established Firms</td>
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15. In any particular situation, how much capital would you normally consider investing?

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<thead>
<tr>
<th>Capital Range</th>
<th>Strong Interest</th>
<th>Moderate Interest</th>
<th>No Interest</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Under $10,000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B. $ 10,000 - $ 25,000</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>C. $ 25,000 - $ 50,000</td>
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<tr>
<td>D. $ 50,000 - $100,000</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>E. $100,000 - $250,000</td>
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<td></td>
<td></td>
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<tr>
<td>F. Over $250,000</td>
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<td></td>
</tr>
</tbody>
</table>

16. Please indicate the level of your investment interest in the following business and industry categories.

<table>
<thead>
<tr>
<th>Industry Category</th>
<th>Strong Interest</th>
<th>Moderate Interest</th>
<th>No Interest</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Retail Trade</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B. Wholesale Trade</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C. Manufacturing - High Technology Products</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D. Manufacturing - Industrial Products</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>E. Manufacturing - Consumer Products</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>F. Service</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>G. Construction/Real Estate</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>H. Finance/Banking/Insurance</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I. Transportation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>J. Natural Resources</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>K. Other (please specify)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

17. If your investment interests are more specific than the categories used in question 16, please describe your interests in your own words.
18. Please indicate any geographical constraints on your future risk capital investment decisions.

Normally, investments will be limited to firms located...

A. Within 10 miles of home or office
B. Within 50 miles of home or office
C. Within 300 miles of home or office
D. No geographic limitation
E. Other geographic limitation (please specify)

19. To what extent do you normally expect to become involved with a risk capital investment?

A. No involvement, other than reviewing periodic reports and attending stockholder meetings
B. Representation on the Board of Directors
C. Provide consulting help as needed
D. Work part-time with the firm
E. Work full-time with the firm
F. Other (please specify)

20. Please indicate your preference for the form of income (cash flow) earned on your risk capital investment portfolio.

A. All long-term capital gains
B. Mostly long-term capital gains
C. Indifferent
D. Mostly current dividends or interest
E. All current dividends or interest
F. Other (please specify)

22. If you were to participate with other investors in providing risk capital to a foundation firm, are the following acceptable partners?

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>Indifferent</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Financially unsophisticated individuals</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B. Financially sophisticated individuals</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C. Venture capital firms including SBIC's</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D. Government economic development agencies</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>E. Banks</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>F. Other (please specify)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

23. In a risk capital investment in a foundation firm, would you normally seek voting control?

A. Definitely yes
B. Probably yes
C. Indifferent
D. Probably no
E. Definitely no

Comment:

24. Is tax sheltered income (cash flow) an objective in your risk capital investment decisions?

A. Definitely yes
B. Prefer, but not necessary
C. Not important

Comment:

25. Is diversification within your risk capital investment portfolio an objective in your investment decisions?

A. Definitely yes
B. Prefer, but not necessary
C. Not important

Comment:
26. Within what length of time would you normally expect to liquidate your risk capital investment in any particular company?
   A. Under one year
   B. One to three years
   C. Three to five years
   D. Five to seven years
   E. Seven to ten years
   F. Ten to fifteen years
   G. Over fifteen years
   H. Not important

27. Will provisions for liquidating your equity participation in a foundation firm typically be included in your initial investment agreement?
   A. Definitely yes
   B. Generally yes
   C. Generally no
   D. Definitely no

28. When you make a risk capital investment in a foundation firm, what form will your investment typically take?
   A. Common stock
   B. Convertible preferred stock
   C. Notes with warrants
   D. Convertible debentures
   E. Other (please specify)

29. Please indicate your level of interest in providing financial support for individual inventors attempting to develop and/or commercialize new technology.
   A. Strong interest
   B. Moderate interest
   C. No interest

30. If you have an interest in supporting technology-based inventors, is your interest limited to any specific field of technology?
    YES.______ NO.______
    If you answered yes, please explain.

31. Would you be interested in participating in a professionally managed, pooled investment fund (perhaps an SBIC) designed to provide capital for inventors, start-up ventures and other very high-risk opportunities?
   A. Strong interest
   B. Moderate interest
   C. No interest
   D. Potential interest, but conditional on: (please specify)

32. The National Science Foundation's Small Business Innovation Research (SBIR) program was initiated in 1979 to fund high quality research proposals on scientific or technical problems or opportunities that could have significant public benefit if the research is successful. A second goal of the SBIR program is the conversion of funded research into technological innovation by private firms. The SBIR program is a three-phase program. Phase I provides up to $25,000 for feasibility research. Contingent on Phase I results and a Phase III funding commitment, Phase II provides up to $200,000 to carry out the principal research effort. Phase III is privately funded from a third party source through exercise of the Phase II follow-on funding commitment. Phase III is to pursue commercial objectives from the SBIR research base. Exercise of the Phase III commitment is contingent upon achievement of specified Phase II objectives.

The SBIR program is designed to increase the incentive and opportunity for small firms to undertake high risk research that has a high potential payoff if the research is successful and can effectively lower the risk for follow-on investors. As of February 1980, NSF's SBIR program had funded 96 Phase I proposals and 21 Phase II proposals. Firms with ten or less employees won 52% of the awards and firms with only one or two employees won 19% of the awards. Firms located in New England won over 30% of the awards.

Would you be interested in participating in a professionally managed, pooled fund established to invest in selected high risk/high potential Phase III situations under NSF's SBIR program?
   A. Strong interest
   B. Moderate interest
   C. No interest
   D. Potential interest, but conditional on: (please specify)
33. Northern Energy Corporation, manager of the Northeast Solar Energy Center (NESEC), sees most of the small business energy opportunities in the Northeast through the provision of general business assistance to firms with the potential for reducing the nation's dependence on foreign oil. Given the attractive potential for conservation and alternative-energy based small businesses perceived by Northern Energy Corporation, would you be interested in making unit investments (approximately $50,000 per unit) in a dedicated conservation and solar Small Business Investment Company? Northern Energy Corporation might undertake some of the development and management responsibilities.

A. Strong interest
B. Moderate interest
C. No interest
D. Potential interest, but conditional on (please specify)

III. RATE OF RETURN OBJECTIVES

Section III is designed to measure your perception of risk and your requirements for financial and non-financial returns on your risk capital investments in foundation firms. From the firm's point of view, Section III measures the cost of informal risk capital.

Questions 34 through 38 deal with inventors, start-ups, infant firms, young firms and established firms respectively. Answer only questions 34 through 38 that deal with investment situations in which you expressed an interest (moderate or strong) in questions 14 and 29.

34. Individual Technology-based Inventors

Suppose you hold a portfolio of ten investments in individual inventors and that, at the time of your investment, each opportunity met your criteria regarding investment size, industry, location, management qualifications, etc.

a) How many of the ten would probably turn out to be "losers," where losers are defined as investments in which your eventual losses exceed 50% of your original investment? This question is a measure of your perception of the "downside risk" inherent in a portfolio of investments in individual inventors.

Estimated number of "losers"

b) What is your best estimate of the total return on your investment in the single most successful individual inventor in the portfolio? This question is a measure of your perception of the "upside potential" of an investment in an individual inventor. Please estimate the potential total return in terms of a compound annual rate and a five-year capital gains multiple.

Potential return on a "winner"

<table>
<thead>
<tr>
<th>Compound Annual Rate</th>
<th>Five-year Capital Gains Multiple</th>
</tr>
</thead>
<tbody>
<tr>
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</table>

c) Recognizing that there will be both winners and losers in any portfolio of investments in individual inventors, what do you consider a minimum acceptable return on the total portfolio? This question measures your estimate of the average cost of risk capital for individual inventors. Please estimate the minimum acceptable portfolio return in terms of a compound annual rate and a five-year capital gains multiple.

Minimum acceptable portfolio return

<table>
<thead>
<tr>
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</tr>
</tbody>
</table>

35. Start-up Firms

Suppose you hold a portfolio of ten investments in start-up firms and that, at the time of your investment, each opportunity met your criteria regarding investment size, industry, location, management qualifications, etc.

a) How many of the ten would probably turn out to be "losers," where losers are defined as investments in which your eventual losses exceed 50% of your original investment? This question is a measure of your perception of the "downside risk" inherent in a portfolio of investments in start-up firms.

Estimated number of "losers"

b) What is your best estimate of the total return on your investment in the single most successful start-up firm in the portfolio? This question is a measure of your perception of the "upside potential" of an investment in a start-up firm. Please estimate the potential total return in terms of a compound annual rate and a five-year capital gains multiple.

Potential return on a "winner"

<table>
<thead>
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</thead>
<tbody>
<tr>
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</tr>
</tbody>
</table>

c) Recognizing that there will be both winners and losers in any portfolio of investments in start-up firms, what do you consider a minimum acceptable return on the total portfolio? This question measures your estimate of the average cost of risk capital for start-up firms. Please estimate the minimum acceptable portfolio return in terms of a compound annual rate and a five-year capital gains multiple.

Minimum acceptable portfolio return

<table>
<thead>
<tr>
<th>Compound Annual Rate</th>
<th>Five-year Capital Gains Multiple</th>
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<tbody>
<tr>
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</tbody>
</table>
APPENDIX C

PARTICIPANTS RESEARCH WORKSHOP
Appendix C

Participants Research Workshop
APPENDIX D

BROCHURE
APPENDIX E

EXAMPLES OF PUBLIC RELATIONS EFFORT
Mr. Richard Clarey  
Associate Director  
Education & Research  
New Enterprise Institute  
246 Deering Avenue  
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Hartford, CT 06106  
Tel. #203 566-2920

Mr. Roland Tibbetts, Program Manager  
Small Business Innovation Research  
ASRA  
National Science Foundation  
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Washington, DC 20550  
Tel. #202 634-6204

Ms. Dorothy Stephenson  
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Tel. #617 661-7733  
rep: Inventor's Association of New England

Mr. William E. Fletcher, President  
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Nashua, NH  
Tel. #603 889-3883  
rep: SBANE

Mr. Robert Lynch  
New England Innovation Group  
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Providence, RI 02903  
also: V.P., The Warren Co.  
Tel. #401 272-3437

Russell C. Orten  
England Industrial Resources Development Program  
Pettee Brook Offices  
Durham, NH 03824  
Tel. #603 868-5123

Mr. Stephen Capron  
Northern New England Center for Appropriate Technology  
New England Center for Continuing Education  
Durham, NH 03824  
Tel. #603 862-2764

Mr. Paul M. Kelley  
Massachusetts Technology Development Corporation  
131 State Street  
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Boston, MA 02109  
Tel. #617 723-4920

Mr. Richard B. Whitney  
Manager, Financial and Investment Services  
Northeast Solar Energy Center  
70 Memorial Drive  
Cambridge, MA 02142  
also: Charles Peabody  
Tel. #617 661-3500

Ms. Robin Chenarak  
Worcester Cooperation Council, Inc.  
791 Main Street  
Worcester, MA 01610  
Tel. #617 791-0941

Ms. Ann Eskesen  
Growing Concerns  
45 Beech Bluff Avenue  
Swampscott, MA 01907  
Tel. #617 593-3634  
#617 891-2959 (Bentley College)

Mr. Stuart Pompian  
Haverhill, NH 03755  
Tel. #603 989-5815

Mr. Thomas E. Higgins  
Special Assistant to the Regional Administrator for Venture Capital and Special Legislation  
Small Business Administration, Room 801  
60 Washington Street  
Hartford, CT 01606  
Tel. #203 244-2705
Informal Risk Capital

The Center for Industrial and Institutional Development of the University of New Hampshire is engaged in a New England-wide research effort to determine the cost and availability of informal risk capital for firms without access to traditional venture capital sources or the public equity markets. The research is funded by the Office of Economic Research of the U.S. Small Business Administration and is being carried out under the direction of Professor William E. Wetzel, Jr.

The success of this research effort is dependent upon the collection of comprehensive data describing the investment objectives of informal risk capital investors. Regardless of your personal investment objectives, you can help! Please read the following brief synopsis of this research.

Risk Capital

Equity and equity-type capital for new or growing small firms. Risk capital investments typically involve higher potential returns, higher risks and more limited marketability than equity investments in large, established firms.

Informal Investors

Sources of risk capital other than professionally managed venture capital funds, SBIC's, other institutional investors, and the public equity markets. Informal risk capital investors tend to be financially sophisticated individuals of means, often with previous investment or management experience with entrepreneurial ventures.

Foundation Firms

New or growing small firms requiring external equity financing but without access to traditional venture capital sources or the public equity markets. Foundation firms typically require capital in amounts ranging from $50,000 to $250,000, are expanding at rates between 10% and 30% per year, are unlikely to qualify for a public stock offering or merger with a larger firm within five to ten years, employ from 10/20 to 400/600 people, and generate annual sales under $20 million.

Foundation firms requiring risk capital are often:

A. Start-up Firms — business ventures in the idea stage or in the process of being organized.
B. Infant Firms — firms about one year old, approaching break-even operations and with the potential for attractive profits in one to three years.
C. Young Firms — firms less than five years old, with proven track records, expecting to enter a period of rapid, profitable growth.
D. Established Firms — established, profitable firms growing too fast to finance from retained earnings but not fast enough to attract conventional venture investors. Attractive but troublesome growth rates tend to fall between 10% and 30% per year.

Foundation firms create most of the nation's new employment opportunities and are a major source of technological innovation. Problems raising risk capital represent a serious obstacle to the formation and growth of foundation firms. Despite the fact that informal investors represent the principal source of external risk capital for foundation firms, little is known about the volume of risk capital available, about the investment criteria employed by informal investors, or about how to locate these investors. This research project is designed to help answer these questions.

Investors with a serious interest in risk capital investment opportunities in foundation firms are encouraged to send a questionnaire using the attached, postage-paid card. Simply fill in your name and address, tear off and mail. A questionnaire will be mailed to you immediately. Individual responses will remain strictly confidential.

Though you may not fit the description of an informal risk investor, you can still be of great help by using the attached card to send us the names of other individuals who may be interested in participating in this research.

Thank you for your help.

Yes, I'm interested in learning more about your research project and feel I can contribute by filling out your questionnaire. Please send me one.

Name ________________________________
Address ________________________________
City __________________________ Zip __________

Here are the names and addresses of other individuals who may be interested in your research.

Name ________________________________
Address ________________________________
City __________________________ Zip __________

Name ________________________________
Address ________________________________
City __________________________ Zip __________

Additional information can be obtained by calling Craig Seymour, Assistant Project Director at 603-862-3556.
INFORMAL RISK CAPITAL IN NEW ENGLAND

A research effort designed to:

- Help New England maintain its competitive advantage.
- Help firms with sound ideas and good management become tomorrow's R&D, Digital, Equipment, and Millenium firms.
- Increase the investment opportunities available to risk capital investors.
- Improve the availability of risk capital for entrepreneurs and dynamic small firms.

Your help is needed! Please read what's inside.
APPENDIX F

LETTERS FOR SUPPORT FOR RESEARCH EFFORT
CONTRACTS

The Whillemore School of Business and Economics of the University of New Hampshire, Durham, N.H., has received a $55,000 grant from the Small Business Administration to investigate the cost and availability of informal risk capital in New England and to examine the efficiency of the informal risk capital markets. Research results will profile informal investors and their investment criteria, analyze the most efficient means of accessing informal investors, estimate the volume of informal risk capital potentially available in New England, public policy proposals for stimulating the flow of informal capital and recommendations for a market intervention mechanism designed to improve the efficiency of the informal risk capital market.

December 16, 1979

New England Business
Research Seeks to Solve Venture Capital Problem

University of New Hampshire Professor William E. Wetzel has undertaken extensive research to close the "capital gap" which is "severely limiting economic growth in New England at a time when the setting would otherwise appear promising for expansion."

Wetzel, associate professor of business administration at the UNH Whittemore School of business and economics, says a regional policy is needed to stimulate interest by informal investors in promising inventors, entrepreneurs and small firms.

Funded by the SBA for his project, Wetzel is attempting to match up the informal investor—"an individual of means who represents a potential source of venture and equity funds for emerging businesses"—with firms and individuals having financing needs between $50,000 and $250,000.

Under Wetzel's plan, the investors could be presented with a screened and broad selection of investment opportunities. Anyone interested in learning more about the research, including investors who consider themselves potential sources of risk capital, may contact Wetzel at 603-862-2771 or Assistant Project Director Craig Seymour at 603-862-3556.
DURHAM, N.H. -- Although informal investors are important sources of capital for small and developing companies -- and, therefore, potential sources of new jobs -- little is known about them. A University of New Hampshire professor hopes to change that through research sponsored by the U.S. Small Business Administration.

William E. Wetzel, a professor at the Whittemore School of Business and Economics, hopes his research will help close what he calls "a capital gap in the economy," the limited availability of risk capital for new and developing companies.

"Such small firms, with sales between $1 million and $20 million and with financing needs between $50,000 and $250,000, generally do not meet the investment criteria of professional venture capital organizations," Westzel says. "Small and developing companies often have to rely on informal investment sources, essentially individuals of means who have money to invest, to meet their equity capital needs.

"But little is known about such investors as a source of capital, about how to reach them, their investment criteria or the actual volume of risk capital available."

Wetzel hopes to find that information in his research, which is being sponsored by the Office of Economic Research of the U.S. Small Business Administration.

(MORE)
That information is of particular importance for New England, Wetzel says, because the region's wealth, technological expertise and highly skilled work force have been attracting an increasing number of small, innovative, technology-oriented companies.

Specifically, the research is seeking to test three hypotheses:

--Informal investors represent a potentially significant source of risk capital for inventors and for new and growing firms;

--Informal investors employ investment criteria that differ in material ways from criteria employed by professional venture investors (for example, size of firm, size of investment, financial and non-financial rate of return requirements and exit expectations);

--Opportunities exist for facilitating the flow of risk capital from informal investors to inventors, entrepreneurs and small, growing firms.

Wetzel will use a comprehensive investment capital questionnaire, developed and tested in a 1978 pilot research. Project staff at the Whittemore School are exploring a range of techniques for reaching informal investors within the New England region and collecting data.

After that information has been collected, a "profile" of informal investors will be compiled, as well as an estimate of the volume of informal risk capital and an analysis of informal investors' investment criteria.

The research has been endorsed by regional development organizations and others, including the Smaller Business Association of New England and the National Association of Securities Dealers. Individuals interested in learning more about the research may contact Professor Wetzel at (603) 862-2771 or Assistant Project Director Craig Seymour at (603) 862-3556. Anonymity and confidentiality will be protected.