IDENTIFYING SUCCESSFUL CORPORATE VENTURE CAPITAL INVESTMENTS

by

Ian C. Yates

B.S., University of Pennsylvania, 1986
Ph.D. in Chemical Engineering, Massachusetts Institute of Technology, 1990

Submitted to the Sloan School of Management
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Signature of Author

Sloan School of Management
January 18, 1991

Certified by

Edward B. Roberts
David Sarnoff Professor of Management
Thesis Supervisor

Accepted by

Jeffrey A. Barks
Associate Dean, Master's and Bachelor's Programs
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Abstract

The strategies of 49 large corporations using corporate venture capital (CVC) for new business development were studied and evaluated. The strategies of more successful firms were compared with those of less successful firms to provide insights into effective CVC strategies.

Venture capital firms were found to be the key deal source for CVCs making strategically successful investments in small ventures. CVCs should first invest in venture capital funds as a venture capital limited partner, then take a more proactive long-run approach by investing side-by-side with private venture capitalists directly in start-ups.

Corporate familiarity with the venture’s market was found to be more important in determining strategic success than familiarity with the venture’s technology. CVCs must therefore evaluate the venture’s market as carefully as the venture’s technology and seek to add value to ventures through marketing.

Strategically successful CVCs make more investments in later rounds, foster supplementary business relationships between their corporation and venture firms, and exercise less control over their portfolio firms, as compared with less successful firms. The financial performance of CVC programs was found to be positively correlated with strategic success; however, CVC managers reported that strategic success results from a focussed strategy.

Thesis Advisor: Edward B. Roberts
David Sarnoff Professor of Management
Sloan School of Management, MIT
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I dedicate this thesis to the four people I love the most
and who love and support me the most,
my family, Eileen, Barrie, and David,
and my best friend, Diana.
CHAPTER I

INTRODUCTION

All companies committed to growth must develop new businesses. To develop new businesses, a company may either develop new products for markets it already participates in, take existing products to new markets, or deliver new products to markets it has not traditionally served.

Many firms have discovered the value of corporate venture capital (CVC) as an integral or supplemental part of their strategic new business development program. Throughout the history of U.S. business, corporate venturers have participated in some extremely successful start-ups, including DuPont’s backing of GM, GE and AT&T’s funding of RCA, Xerox’s financing of Carlson/Battelle (Rind, 1981), and, more recently, Corning’s investment in Genentech, and Compaq’s funding of Conner Peripherals.

These extremely successful corporate venture capital investments highlight the potential of CVC as a strategic development tool; however, while CVC offers significant benefits, many corporations have become frustrated with CVC and have discontinued their corporate venturing programs. The complexity of the processes that CVC entails and the sophistication required to execute them effectively has caused many corporations to eliminate CVC programs. In addition, many corporations lack the patience to give CVC programs the long time necessary to grow to a point where they develop significant new businesses. Figure I.1 schematically illustrates the various processes of CVC from inception to execution. In approximate chronological order, the tasks of a strategic CVC program are developing the venture program, identifying investment opportunities, managing the investment portfolio, and assimilating investments into the corporation’s businesses. Each of these tasks must be executed successfully for the corporation to derive significant strategic benefit from its CVC program.
<table>
<thead>
<tr>
<th>TASKS</th>
<th>ACTIVITIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Developing the venture program</td>
<td>Establish venture goals and focus</td>
</tr>
<tr>
<td></td>
<td>Formulate venture group structure and strategy</td>
</tr>
<tr>
<td>Identifying investment opportunities</td>
<td>Uncover investment opportunities</td>
</tr>
<tr>
<td></td>
<td>Establish investment selection criteria</td>
</tr>
<tr>
<td></td>
<td>Structure and make investments</td>
</tr>
<tr>
<td>Managing the investment portfolio</td>
<td>Manage individual firms</td>
</tr>
<tr>
<td></td>
<td>Foster synergies among portfolio firms</td>
</tr>
<tr>
<td></td>
<td>Help determine each portfolio firm's strategy</td>
</tr>
<tr>
<td>Assimilating investments into business</td>
<td>Establish common strategies among firms</td>
</tr>
<tr>
<td></td>
<td>Develop significant new business group</td>
</tr>
<tr>
<td></td>
<td>Transfer venture expertise into core businesses</td>
</tr>
</tbody>
</table>

Figure I.1. The complex processes of a corporate venture capital program.
The successes of one task influences the success criteria for another, complicating CVC program execution further. For example, start-ups which do not meet the original CVC goals and focus may become desirable investments if they provide products or services used by a number of different portfolio firms and thus can foster portfolio synergies.

This research attempts to establish the critical strategies employed by successful corporate venturers by analyzing the performance of CVC programs in a quantitative framework. Much of the previous literature on corporate venturing provides anecdotal case studies of a specific firm’s or industry’s experiences. Only a few studies exist which have attempted to quantitatively determine the causes of success of CVC programs as this study has. Analyses of success drivers of other firms’ CVC programs provide new business developers with practical strategies which can be readily implemented as part of their corporate venturing program.

Chapter II reviews the literature relevant to corporate venturing, with particular focus on previous researchers’ attempts to identify factors which are critical to the success of CVC programs. Chapter III presents the objectives and methodology of this research. The results of this work are presented, analyzed, and discussed in Chapter IV. Finally, Chapter V summarizes the findings of this research and suggests some directions for future work.
CHAPTER II

BACKGROUND

II.A. Summary

First, some of the studies relating to different strategies of new business development are reviewed, giving the reader an idea of where corporate venturing can fit into a new business development program; this is not intended to be a complete review of this extensive body of research, but rather it serves as a foundation for the discussion of literature relating to corporate venturing for new business development. In the review of literature relating to CVC, particular attention is focused on presenting and discussing results of studies which describe factors causing the success and failure of CVC programs.

II.B. Literature Review

New business development is one of the most complicated undertakings of a corporation. To understand the role CVC can play in new business development, a brief review of possible strategies of new business development is presented. Having placed CVC in the context of the firm's overall new business development program, the results of studies of CVC can be more easily interpreted.

II.B.1 New Business Development Strategies

This study is one of several relating to new ventures performed under the supervision of Professor Roberts. Roberts (1980) reviews some of the earlier work. He reports that corporate new business development is a difficult process, requiring skill, patience, and entrepreneurial flair and presents a number of venturing strategies including venture capital, venture nurturing, venture spinoff, new-style joint ventures, venture merging and melding, and internal ventures. Figure II.1 shows how the recommended strategies relate to the required level of corporate involvement.
Figure II.1  Spectrum of corporate venture strategies (Roberts, 1980).
As Figure II.1 indicates, the level of corporate involvement determines the best strategy; thus, no single strategy can work for all corporations, as matching corporate development needs with corporate strengths is vital.

Roberts and Berry (1985) studied the performance of 14 different new business development projects undertaken by a single firm over a six-year period. Berry (1983) describes these projects in detail. Roberts and Berry identified critical factors which determine the success of new business development episodes and presented a framework for selecting a new business development strategy based on the position of the proposed new business in the marketing-technology familiarity matrix. Figure II.2 shows these recommended entry strategies in the market-technology matrix. As a number of related new business development tasks are undertaken in a given technology-market space, corporate familiarity increases and development projects move from top-right to bottom-left in the matrix.

Meyer and Roberts (1988) extended some of the concepts presented by Roberts (1980), examining the difficulties associated with diversification in technology-based industries. They showed that developing a distinctive competence in a core technology is essential for the long-term growth of technology-based firms. Thus, companies grow and prosper if they are "excellent at something". High technology focus was shown to yield high financial performance and vice-versa. These findings agree with a number of publications, most notably Salter and Weinhold (1978), Weiss (1981), Rumelt (1982) and Peters and Waterman (1982), all of which espouse the benefits of "sticking-to-the-knitting" versus diversification.

II.B.2. Corporate Venture Capital Strategies

CVC is a primary new business development tool for corporations moving away from markets and technologies with which they are familiar. Further, CVC can be used to supplement other new business development strategies, providing firms with a "window on technology".
<table>
<thead>
<tr>
<th>MARKET FACTORS</th>
<th>Venture Capital or Venture Nurturing or Educational Acquisitions</th>
<th>Venture Capital or Venture Nurturing or Educational Acquisitions</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>New Unfamiliar</strong></td>
<td>Joint Ventures</td>
<td>Internal Market Development or Acquisitions or JVs</td>
</tr>
<tr>
<td><strong>New Familiar</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Base</strong></td>
<td>Internal Base Developments or Acquisitions</td>
<td>Internal Product Developments or Acquisitions or Licensing</td>
</tr>
</tbody>
</table>

Technologies or Services Embodied in the Product

Figure II.2 Recommended new business development entry strategies in the technology-market familiarity matrix (Roberts and Berry, 1985).
Because CVC is such a difficult new business development tool to use, many articles have been written to explore the processes involved in CVC. These articles are written by corporate strategic planners, consultants, and private venture capitalists (VCs), all of whom have a different focus when examining the performance of CVC programs; many articles have even appeared in the "popular" press, including Slutsker (1984), Barns (1984), Posner (1984), Gibson (1986), White (1989), Selz (1990), and Buder (1990).

This review summarizes some of the significant work relating exclusively to CVC and reports factors which authors indicate are critical to the success of CVC development efforts. Literature written by strategic planners involved in CVC is presented first, followed by the additional, diverse perspectives provided by private VCs, consultants, and academicians.

In one of the earliest articles describing CVC for new business development, Peterson (1967) discusses DuPont's corporate venturing activities. At that time, DuPont probably had had more experience in this type of new business development than any other corporation. Peterson highlights the need for good investment opportunities. DuPont's "deal flow" is reported to have come from four sources: central R&D, other R&D throughout firm, universities, government and other research-based agencies, and strategic planning and analysis of future needs. DuPont's appraisal and selection process included answers to three critical questions: is the potential business large enough? will its ROI be high enough? will the proprietary position of the venture offset its risk? These questions seem to have market, financial, and technology dimensions, but lack any evaluation of venture management capabilities, which violates the saying that "it's the jockey, not the horse, that is important in winning the [venture] race" (see MacMillan et al., 1985). Other than the financial return achieved in the long-run, Peterson reported that a corporation derives the additional benefits of fostering an innovative culture in the organization and developing management expertise.
Hardymon et al. (1983) criticize some of the oversimplifications of Peterson's article, pointing out that, whatever their other merits, CVC programs are not a successful means of promoting diversification, as Peterson implied. They say that CVC programs fail for at least four reasons. First, corporations face a restricted universe of investment opportunities and often find themselves "left out" of the venture capital deal syndication network. Bygrave (1988) provides a detailed study of the importance of "networking" in the venture capital community. Second, corporations using CVC for new business development encounter problems acquiring companies from portfolio, sometimes called investment stalemate. Third, many corporations see "opaque" technology windows and have difficulty transferring technology from their small company portfolio to their firms' core businesses. Finally, Hardymon et al. point out that a conflict exists between running a focused diversification program and building a healthy portfolio. This problem is exacerbated when corporations base venture managers' compensation on the portfolio's financial performance.

While DuPont was the largest CVC of the 1960s and before, Exxon was probably the largest in the 1970s. A top manager in Exxon Enterprises, Ben Sykes (Sykes, 1986) relates his views on the causes of the rise and fall of Exxon's CVC program. According to Sykes, Exxon's experience shows that if internal venturing is to work, it must be an important mainstream operation. Sykes reports that the level of the venture manager's technical experience is not related to start-up success, while the level of the venture manager's management experience is highly correlated to start-up success. The three primary lessons from Exxon Enterprises CVCs were: acquire a large company in the target field, start few R&D-oriented ventures, and use CVC investments as primarily a "probe" strategy.

Winters and Murfin (1988) analyze Lubrizol's CVC program, drawing some general conclusions about CVC. They state that the objective of most corporations is the strategic benefits resulting from venture capital investing, such as acquisitions,
technology licenses, product marketing rights, international opportunities, and windows on technology. These objectives are frequently mixed with a financial return objective. They report that the most important factors for success of a corporate program are the creation of a high-quality deal flow and the use of outstanding people to interface between the corporation and the private VC world.

Creation of a formal CVC subsidiary, like Lubrizol Enterprises, is reported to be the best way to achieve corporate strategic objectives. Even with a venturing subsidiary, the corporation has assets of value to a venture such as "deep pockets", reputation, and marketing and distribution capabilities. Lubrizol's formal subsidiary facilitates improved dealings with entrepreneurs, acceptance by the private VC community, and improved internal relations. The success or failure of the CVC subsidiary is determined by maximum exposure to high-quality deals, management of the CVC operation, active involvement in the VC community, and long-term commitment. Winters and Murfin noted numerous potential pitfalls encountered by CVC business developers. First, corporations can have inadequate definition of strategic versus financial objectives. Second, corporations tend to be arrogant, particularly those corporations which have been successful at other methods of business development. Third, corporations are slow to respond to prospective deals, which they see too few of anyway. They observe that this lack of quality deal flow is exacerbated when firms seek to make early stage investments in start-ups.

Private VCs provide an additional perspective on the behavior of CVCs. These VCs invest side-by-side with CVCs and often have CVCs as limited partners in their funds. In addition, some of the VCs which have written articles also draw from prior career experiences as CVC managers.

Fast (1981) recommends that CVCs closely emulate the strategies of VCs, because the financial performance of VCs is superior (see Weiss, 1981). He says CVCs should invest first VC funds, then, as they learn VC, take a more proactive role. Fast outlines a number of factors which he believes can ensure the success of
Identifying Successful Corporate Venture Capital Investments

Yates

a CVC program. Like Winters and Murfin (1988), he suggests that CVCs be organized as limited partnerships because this structure "forces" patience as corporations cannot divest, investments are staged in a manner consistent with ventures's development life-cycle, and an easy-to-implement incentive-based compensation system is provided. Further, Fast asserts that CVCs should follow the same intervention and management guidelines as VCs, being hands-off and big-picture, avoiding "micromanagement", and planning for the venture's financing needs.

Ken Rind, who worked as a corporate venture capitalist before becoming a venture capitalist, has written a number of articles on CVC (Rind, 1981; Golden and Rind, 1984; Rind, 1989). He concludes that CVC is a useful tool for corporate development, but it is difficult to do internally; thus, outside partnership investment can serve as a useful alternative first step or as a supplement. CVC is reportedly difficult because of a lack of appropriately skilled people, contradictory rationales, legal problems between fiduciary responsibility and corporate opportunity, and inadequate corporate time horizons. However, Rind (1989) does point out a number of advantages that accrue to small firms which have a corporate investor such as: assistance in all corporate endeavors, credibility with customers, banks, etc., relief from all aspects of business (i.e. international marketing), immediate income from R&D contracts, deep pockets through a more flexible, lower cost financing package, and, finally, a potential merger partner. Ford and Ryan (1981) discuss some of these benefits of having a corporate partner to aid in marketing efforts in greater detail.

Because CVC has been used as a significant new business development tool for several decades, a significant amount of theoretical research has been devoted to addressing various aspects of CVC. One of the largest collections of this work has been done at the Snider Entrepreneurial Center of the Wharton School by Siegel, MacMillan, and co-workers (MacMillan et al., 1985; MacMillan et al., 1987; DeSarbo et al., 1987; Siegel et al., 1988). These works all emphasize the importance of corporate venture managers in determining the success of a given CVC program.
These key managers must be high-quality, well-compensated, and should be given the flexibility to operate independently, possibly being established in a group separate from the corporation. These studies indicate that successful CVCs should focus on achieving financial objectives; thus, CVCs should behave in many respects, such as investment selection and company management, like a private venture capitalist. Their conclusion regarding the similarities between the behavior of successful CVCs and successful private VCs matches the opinions of Fast (1981).

Hlavacek et al. (1977) provide some motivation for looking at CVC, stating that studies indicate that over 74% of technological innovations originate in small firms. Divestment and acquisition too frequently remove the advantages that a small company can bring to the venture. Successful CVC partnering is reported to result from a threelfold strategy. First, corporations should locate a company which has strengths where it has weaknesses. Second, the large firm should have an entrenched and extensive marketing organization that is capable of fully exploiting the venture’s proposed technology. Finally, and perhaps most importantly, the large firm must be "hungry" and willing to do everything it takes to ensure the venture’s success.

McKinsey and Company’s Greenthal and Larson (1982) pull together some information on CVC and caution venturing corporations that they must have realistic goals. Corporations should seek to either acquire new businesses, gain access to new technology, or, most simply, generate a sizeable return on investment. Greenthal and Larson believe that organizing CVC with these realistic goals in mind is key. If the corporation is focussed solely on ROI, then becoming a limited partner of a private venture capital (VCLP) fund is appropriate, otherwise the CVC group must be more proactive. The success of CVC groups is affected primarily by their position in the organization, the management systems controlling the CVC managers, the quality of the CVC managers, and the compensation of these managers.
Levine (1983) expands on Greenthal and Levine's work, concluding that the "inside track" on new technologies should be more important to corporations than ROI. CVCs have problems because they feel that they have to dictate the small firm's product and technology decisions. In addition, CVCs are treated differently by private VCs because they assume that CVCs are not under the gun to liquidate, as private VCs are.

Sykes, Block, and co-workers at NYU have produced some of the more pertinent recent academic studies (Block, 1983; Block and Ornati, 1987; Sykes and Block, 1989; Sykes, 1990). Block and Ornati (1987) found that performance incentives for CVC managers are not essential, perhaps because they often lack sufficient time horizons. Sykes and Block (1989) indicate that the two major obstacles to CVC success are conflicts between the formal policies of the large firm and the needs of the small firm and misdirection of small firm because of irrelevant and damaging corporate management practices.

Sykes' recent article (Sykes, 1990) outlines many drivers of success for CVC programs. Sykes surveyed CVCs and determined that the strategic success of CVCs depends on mutually beneficial strategic objectives between small and large firms, frequent and open communications between the corporation and the venture, and financial returns on investment. Direct, proactive investment was seen to be better if only one strategy chosen, but being a VCLP was identified by Sykes as providing "deal flow" for direct investment possibilities. He remarked that effective relationships between CVCs and VCs are built over extended time periods, usually by co-investing and serving on the board of directors of start-ups together. Factors found not to influence the success of CVC programs were CVC manager experience and compensation, organizational position of corporate contact, source of direct investment, and number of corporate investors in a VCLP.
CHAPTER III

OBJECTIVES AND METHODOLOGY

III.A. Objectives

The process of new business development through CVC is illustrated schematically in Figure I.1. This study is directed at understanding how to improve the process of identifying investment opportunities, an area in which little previous research has been done. The process of identifying investments has been subdivided into three separate, but related, activities: uncovering good investment opportunities, selecting which investments to make, and structuring and managing the investments. Specifically, this thesis will attempt to:

- determine the best methods for CVCs to uncover investment opportunities
- find the determinants of success in the investment identification process
- establish guidelines for structuring and managing CVC investments

III.B. Methodology

According to Sykes (1990), approximately 80 corporations currently have CVC programs for new business development based in the United States. To identify successful strategies, the behavior of successful and unsuccessful CVCs was compared and contrasted; as many of the 80 firms as possible were studied in an attempt to identify current best-practice in CVC.

To study these CVC programs of large corporations, a questionnaire on direct investment in small companies was sent to over 150 growth-oriented large firms; it was hoped that this approach would ensure that all 80 corporations using CVC would be contacted. To increase the significance of the questionnaire's results, great care was taken to ensure that the surveys were sent directly to someone involved on a day-to-day basis with new business development. The questionnaire is shown in Appendix B. 54 firms responded to this survey; however, only 49 provided complete,
quantitative responses, as the other five had programs which were not "оль" enough according to the respondents. These complete, quantitative responses are necessary for the types of statistically-based analyses performed in Chapter IV. Because there are according to Sykes (1990) only 80 firms which have CVC programs, we feel that 49 firms are a representative group of corporate venturers. 75% of the respondents were large multinational corporations, with 60% being in the Fortune 500 and 15% in the Forbes International 500. Thus, the responding firms represent a wide range of industries and these 49 respondents are believed to be representative of the spectrum of corporate venturers. 25 of the 49 firms were contacted in follow-up phone conversations; these 25 firms were selected based on the fact that they were pursuing a particular strategy of interest to us. These conversations qualitatively confirmed the conclusions drawn from statistical analyses and explored some of the more unique approaches to CVC in greater detail. 22 of the 49 firms responded to a follow-up survey focussed on investment structure and venture management which was sent to all 49 respondents; these 22 are a reasonably representative subset of the original group, as is discussed further when these data are analyzed. Appendix C shows this survey.

Data analysis was performed by testing hypotheses that statistical differences existed between strategically successful and unsuccessful firms; thus, the data on CVCs had to be arbitrarily divided into "successful" and "unsuccessful" firms. A firm was classified as "strategically successful" if the respondent from that firm indicated that the firm's CVC program was producing a rate of new business development that was superior to that from internal development efforts, given the same level of resources, i.e. they had a response greater than 3 to the question relating to strategic new business development (see Appendix B). Although a "success" score on this question could result from poor internal development efforts, it was felt that this would not typically be the case, as firms tend to be either good or poor at all methods of new business development.
This definition of success can be justified for theoretical and practical reasons. First, from a theoretical standpoint, this definition normalizes for firms which are situated in high growth industries and may experience high rates of new business development from all their new business development activities. In addition, from a theoretical standpoint, normalizing for equivalent resource commitment removes biases introduced by top management decisions to emphasize one mode of new business development over another. From a practical standpoint, the definition divided the responding corporations almost in half and, most importantly, provided two groups which exhibit markedly different behaviors and are clearly pursuing dramatically different strategies.
CHAPTER IV

STRATEGIES FOR SUCCESSFUL CORPORATE VENTURING

IV.A. Summary

First, the data are analyzed and conclusions on uncovering good investment opportunities are presented. Findings regarding successfully selecting which investments to make are then reported. Subsequently, the effect of the structure and timing of investments on strategic success is analyzed. In the last section, the relationship between financial and strategic success is discussed.

IV.B. Uncovering Good Investment Opportunities

Uncovering good investment opportunities which are worth pursuing is extremely difficult; it's like "searching for a needle in a hay stack". A number of studies (Peterson, 1967; Hardymon et al., 1983; Winters and Murfin, 1988; Siegel et al., 1988; Sykes, 1990) identify establishing and maintaining a high quality "deal flow" as critical to the success of CVC programs.

To determine which deal sources were best, the deal sources of firms classified as successful at corporate venturing were compared with those firms that were classified as less successful. As discussed in the Chapter III, the measure of "success" was taken from the survey question relating to the rate of strategic new business development; more successful firms were taken to have a rate of new business development from corporate venturing which exceeded that from internal development efforts (i.e. response >3). While any definition of "success" is subjective, this definition gives approximately a "50/50" split in the data and provides us with two groups of corporate venturers that have distinctly different behavior, as will be shown below.
Identifying Successful Corporate Venture Capital Investments

In this section, a comparison of the deal sources for successful and unsuccessful CVCs is presented first. Then, I will discuss networking with venture capitalists, the most important deal source for successful corporate venturers.

IV.B.1. Comparison of Successful and Unsuccessful CVCs

To evaluate the deal sources of corporations, their primary sources of investment opportunities as well as the distribution of all sources of investment opportunities were examined. Table IV.1 shows the average distribution of all deal sources for all 49 firms in the study. In-house people are the largest source of deals (32%), followed closely by venture capital firms (28.2%); together these top two deal sources represent over 60% of all investment opportunities. In his study of CVC strategies, Sykes (1990) also found these two to be the predominant deal sources, although venture capital firms were identified as being more important in his study (27% for VCs versus 20% for In-house); Sykes’ study focused more on VCLPs, which may account for the quantitative differences.

Figures IV.1 and IV.2 show the differences between successful and less successful firms, on the basis of the average of all sources and primary sources of investment opportunities. Firms which are more successful use venture capital firms as a deal source to a much greater extent than do less successful firms. Table IV.2 presents a statistical comparison of successful and unsuccessful CVCs, verifying that a statistically significant difference exists between the sources of investments opportunities of successful and unsuccessful firms. The venture capital community is simply the best source of a high quantity of high quality deals, perhaps because venture capitalists add value to their portfolio firms, thereby reducing the probability of venture failure.
**Identifying Successful Corporate Venture Capital Investments**

**TABLE IV.1**

<table>
<thead>
<tr>
<th>Source</th>
<th>% of All Investments from Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>In-house People</td>
<td>32.0</td>
</tr>
<tr>
<td>Venture Capital Firms</td>
<td>28.2</td>
</tr>
<tr>
<td>Unsolicited Business Plans</td>
<td>17.0</td>
</tr>
<tr>
<td>Investment Bankers</td>
<td>7.6</td>
</tr>
<tr>
<td>University Research Programs</td>
<td>5.8</td>
</tr>
<tr>
<td>Consultants</td>
<td>4.9</td>
</tr>
<tr>
<td>Miscellaneous Networking†</td>
<td>4.5</td>
</tr>
</tbody>
</table>

**(100.0%)**

† Primarily at conferences
Figure IV.1 Examination of difference in average deal sources of successful and unsuccessful firms indicates that successful firms use venture capitalists as a deal source to a greater extent.
Figure IV.2 Examination of difference in primary deal sources of successful and unsuccessful firms indicates that successful firms use venture capitalists as a deal source to a greater extent.
### TABLE IV.2

<table>
<thead>
<tr>
<th></th>
<th>Venture Capitalists (not VCLPs)</th>
<th>Venture Capitalists**</th>
</tr>
</thead>
<tbody>
<tr>
<td>Critical t-value†</td>
<td>2.06</td>
<td>1.48</td>
</tr>
<tr>
<td>(Successful-Unsuccessful)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>p†</td>
<td>0.025</td>
<td>0.10</td>
</tr>
<tr>
<td></td>
<td>Universities (Research not sponsored)</td>
<td>Primary Source Distribution (see Figure IV.2)</td>
</tr>
<tr>
<td>Critical t-value</td>
<td>1.41</td>
<td>1.12</td>
</tr>
<tr>
<td>(Successful-Unsuccessful)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>p</td>
<td>0.10</td>
<td>0.15</td>
</tr>
</tbody>
</table>

† t-value calculated as (mean of successful - mean of unsuccessful)/pooled standard deviation. Therefore, positive numbers indicate that successful firms use this strategy to a greater extent, negative values indicate that successful firms use this strategy less.

‡ Probability that we are mistaken in believing that a difference between successful and unsuccessful firms exists, based on a one-sided t-test. Lower values indicate greater statistical significance.

* Not VCLPs are VC funds which the corporation is in contact with, but in which the corporation has not invested money, i.e. is not an LP of the VC.

** This category of VCs includes all deals from VCs.
IV.B.2. Deal Sourcing from Venture Capitalists

These analyses clearly indicate that a venture capital deal sourcing network plays an integral role in a successful CVC program. To determine how large corporations cultivate such a network, CVCs which were classified as successful that had sourced more than 33% of their deals from the venture capital (VC) community were contacted. In addition, a number of venture capitalists with experience in or with corporate venture capital were interviewed. These VCs were selected based simply on the fact that they were willing to talk candidly; therefore, the views of these VCs may not be completely representative of all VCs. The findings from these interviews were compared to some of the literature which related to the issues raised by both CVCs and VCs.

On the basis of discussions with these successful CVCs, the following methods of cultivating deal flow from the venture capital community are recommended:

- investing directly in VC portfolio firms (sometimes called co-investing);
- networking with VCs without investing (see Bygrave (1988));
- contacting the VCs which hold some of the corporation's pension assets.

According to VCs (see also Golden and Rind, 1984), the factors which give CVCs credibility in the co-investing process include: reputations of corporate people involved in venturing, demonstrated ability to both generate and share leads, resources to constructively evaluate ventures on a timely basis, and commitment to be in venturing for the long-run. In addition to these qualities, successful CVCs added the following pointers which they said could help corporate venturers become part of the VC community: ability to co-exist with VCs, flexibility with respect to deal structure and ultimate acquisition, and willingness to provide VCs with a "way out" or liquidity in later rounds (see also Slutsker (1984) and Buder (1990)).

Based on the interviews, investing in VC funds, i.e. becoming a venture capital limited partner (VCLP), appears to be useful primarily as an entry strategy, to be used in the early stages of the CVC program. Being a VCLP does not appear to be
critical in the long-run, as corporations have to move into a more proactive role in the venturing process, making and managing direct investments in small companies themselves (see also Fast, 1981).

Although some VCs recommend being a VCLP to learn about "how the VC game is played" and to develop credibility within the VC community (see Golden and Rind, 1984), successful CVCs criticized being a VCLP as a long-run strategy for a number of reasons. First, for corporations with a fixed pool of venturing funds, being a VCLP in the long-run is reportedly an "expensive" method of generating deal flow. Second, as a VCLP, some corporations see "opaque" windows on technology, getting deals only after the fund has rejected them; these "opaque" windows may result from corporate venturers expecting that they will be "spoon fed" by the VC. Third, becoming a VCLP signals that a corporation is unwilling or unable to participate in the high value-adding activities of venture capital, such as deal evaluation and portfolio firm management; thus, VCs see corporate VCLPs as "dumb money". The conclusion that being a VCLP is not a long-run strategy may not apply to dedicated, single-corporation VC funds, which can be strategically similar to CVC subsidiaries.

IV.C. Investment Selection and Strategy

Selecting which investments to make is challenging because, even after an exhaustive search, many investment opportunities are not worth pursuing; thus, separating the "wheat from the chaff" is a vital part of a successful venture process. Even private venture capitalists, who are not "restricted" by strategic objectives as corporations are, report that they invest in only about 1-2% of all deals they see (Rind, 1982).

In this section, I will first discuss the effect of strategy on the success of CVC programs, paying particular attention to strategies of diversification with respect to both market and technology. These analyses lead naturally into a brief discussion of selection criteria for successful CVCs.
IV.C.1. The Effect of Diversification

Many studies (see Rumelt, 1982; Peters and Waterman, 1982; Roberts and Berry, 1985) report that new business development through diversification is harder than "sticking-to-the-knitting". Figure IV.3 also shows that new business development in diversified areas through CVC is more difficult.

Although a significant difference exists between the average success of diversifying firms and stick-to-the-knitting firms as shown in Figure IV.3, diversification seems more feasible than is implied by the authors of the studies detailing the difficulties associated with diversification. This finding that CVC is a reasonable method of new business development for diversifying firms is consistent with Roberts' and Berry's conclusion that CVC is a viable method of new business development for firms seeking to diversify (see Figure II.2).

Because diversification has technology and market dimensions, the effect of market and technology familiarity on the success of CVC programs was examined separately. Figures IV.4a and IV.4b show the average success rating for those following market and technology diversification and stick-to-the-knitting strategies. Corporate familiarity with the venture’s market is as important in determining strategic success as familiarity with the venture’s technology; however, examining the differences between strategically "successful" and "unsuccessful" firms, market familiarity is shown to be more important in Table IV.3. This effect of marketing being more important than technology has been noted previously by Sykes (1986), MacMillan et al. (1987), and Meyer and Roberts (1988). Table IV.3 shows that the market familiarity of successful firms differs significantly, at the 92% confidence level, from that of unsuccessful firms. For technology familiarity, the level of confidence that a difference exists between successful and unsuccessful firms is less than 50%.

30
Figure IV.3  Diversification is harder than sticking-to-the-knitting.
Figure IV.4a Diversifying in the market dimension is at least as difficult as diversifying in the technology dimension (see Figure IV.4b).
Identifying Successful Corporate Venture Capital Investments

Figure IV.4b Diversifying in the market dimension is at least as difficult as diversifying in the technology dimension (see Figure IV.4a).
### TABLE IV.3

<table>
<thead>
<tr>
<th>Market Familiarity†</th>
<th>Technology Familiarity</th>
</tr>
</thead>
<tbody>
<tr>
<td>25 Successful</td>
<td></td>
</tr>
<tr>
<td>Average: 2.90</td>
<td>3.40</td>
</tr>
<tr>
<td>Std. Dev.: 0.80</td>
<td>0.79</td>
</tr>
<tr>
<td>24 Unsuccessful</td>
<td></td>
</tr>
<tr>
<td>Average: 3.33</td>
<td>3.44</td>
</tr>
<tr>
<td>Std. Dev.: 1.06</td>
<td>1.10</td>
</tr>
<tr>
<td>Critical t-value‡</td>
<td></td>
</tr>
<tr>
<td>(Successful-Unsuccessful)</td>
<td>-1.59</td>
</tr>
<tr>
<td>p‡</td>
<td></td>
</tr>
<tr>
<td>0.08</td>
<td>0.50</td>
</tr>
</tbody>
</table>

† See Figures IV.4a-IV.4b for definition of market and technology familiarity.

‡ t-value calculated as (mean of successful-mean of unsuccessful)/pooled standard deviation. Therefore, positive numbers indicate that successful firms use this strategy to a greater extent, negative values indicate that successful firms use this strategy less.

‡ Probability that we are mistaken in believing that a difference between successful and unsuccessful firms exists, based on a one-sided t-test. Lower values indicate greater statistical significance.
IV.C.2. Selection Criteria of Successful CVCs

From the above analyses, market familiarity can be seen to be more important than technology familiarity. Thus, the selection criteria and due diligence should be at least as heavily, if not more heavily, weighted towards the venture’s proposed market as they are to its technology.

There have been at least four significant studies on the investment selection criteria of CVCs (MacMillan et al., 1987; DeSarbo et al., 1987; Siegel et al., 1988; MacMillan et al., 1985). Table IV.4 shows the difference in selection criteria of CVCs and VCs. Some natural differences exist, such as the three "strategic" criteria which are used only by CVC; however, neglecting the two criteria "articulate in discussing venture" and "track record relevant to venture" could be serious oversights by CVCs. According to Siegel et al. (1988), these two criteria are statistically significant determinants of success. Table IV.4 also presents a wealth of information that could be useful in designing selection criteria for corporations considering launching a CVC program.

From conversations with a number of CVCs, it appears that many CVCs seem to have a "blind spot" when it comes to some aspects of investment evaluation (see also Peterson (1967)). CVCs should make sure their selection criteria are "balanced" with respect to evaluating of the venture’s market and management team and not too focussed on evaluating the venture’s technology. CVCs with technical backgrounds or who are affiliated with the corporation’s R&D may have a greater tendency to overemphasize technology in their selection criteria.
**TABLE IV.4**

<table>
<thead>
<tr>
<th>Most Frequently Rated Essential</th>
<th>% CVC</th>
<th>% VC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capable of sustained effort</td>
<td>67</td>
<td>64</td>
</tr>
<tr>
<td>Familiar with market</td>
<td>67</td>
<td>62</td>
</tr>
<tr>
<td>Able to evaluate and react well to risk</td>
<td>48</td>
<td>NA^t</td>
</tr>
<tr>
<td>Market/Industry attractive to corp.</td>
<td>39</td>
<td>NA</td>
</tr>
<tr>
<td>Product fits with corp.'s strategy</td>
<td>37</td>
<td>NA</td>
</tr>
<tr>
<td>Target market enjoys high growth rate</td>
<td>35</td>
<td>43</td>
</tr>
<tr>
<td>Product can be protected</td>
<td>31</td>
<td>29</td>
</tr>
<tr>
<td>Entrepreneur demonstrated leadership</td>
<td>31</td>
<td>50</td>
</tr>
<tr>
<td>Return 10X investment in 5-10 years</td>
<td>28</td>
<td>50</td>
</tr>
</tbody>
</table>

**Criteria in top ten for VC, but not CVC**

| Articulate in discussing venture                | 18    | 31   |
| Track record relevant to venture                | 15    | 37   |
| Investment can be easily made liquid           | 10    | 44   |

^t NA = not applicable.

Source: Siegel et al. (1988).
IV.D. Investment Timing and Structure

Having found and selected a market-technology focus, the timing, structure and management of the initial investment in a venture defines the investment’s ultimate strategic potential for the corporation. Incorrectly timed and poorly structured corporate alliances can be as fatal to a start-up as misunderstood markets or infeasible technologies. This section first discussed the optimal time during the growth of a venture that successful firms invest and then discusses some of the issues relating to investment structure and management of venture by the corporation.

IV.D.1. The Effect of Venture Age

Investing early in a venture’s life is riskier, but a corporation can place more "bets" for its investment dollar; however, in an early round investment, not only do corporations not know if the venture will be a success, they do not know exactly in what market it will be a success. Figures IV.5a and IV.5b contrast the investment timing of more successful and less successful firms. Figure IV.5a shows that strategically successful CVCs make more investments in later rounds, as compared with less successful firms. Figure IV.5b highlights that this later round investment strategy is even favored by successful diversifying firms, indicating that this effect is not a stick-to-the-knitting-versus-diversification effect. Analyses presented in Table IV.5 show that the differences in investment timing between more successful and less successful CVCs are statistically significant.
Figure IV.5a Investing in later rounds increases the likelihood of strategic success.
Figure IV.5b The effect of investing in later rounds increasing the likelihood of strategic success is independent of diversification strategies. See Figure IV.3 for definition of "diversification".
### TABLE IV.5

<table>
<thead>
<tr>
<th></th>
<th>Zero/Seed Stage</th>
<th>First Round Investments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Critical t-value†</td>
<td>-2.88</td>
<td>-2.17</td>
</tr>
<tr>
<td>(Successful-Unsuccessful)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>p‡</td>
<td>0.005</td>
<td>0.02</td>
</tr>
<tr>
<td>Second Stage</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Critical t-value</td>
<td>2.45</td>
<td>1.84</td>
</tr>
<tr>
<td>(Successful-Unsuccessful)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>p</td>
<td>0.01</td>
<td>0.05</td>
</tr>
<tr>
<td>After Initial Public Offering</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

† $t$-value calculated as (mean of successful-mean of unsuccessful)/pooled standard deviation. Therefore, positive numbers indicate that successful firms use this strategy to a greater extent, negative values indicate that successful firms use this strategy less.

‡ Probability that we are mistaken in believing that a difference between successful and unsuccessful firms exists, based on a one-sided $t$-test. Lower values indicate greater statistical significance.
At least five possible explanations for this effect of investment timing are plausible. First, the effect could simply represent the risk-return tradeoff that changes through the growth of a start-up. Second, in later investments, the match between the venture's strategy and the corporation's strategy can be more easily ensured. Third, in early investments, the corporation may structure the investment so that the incentive for innovation within the venture is removed. Fourth, in forcing start-up companies to have synergies with the corporate portfolio, corporations may "misguide" the venture, as is discussed by Levine (1983). Finally, corporations that are investing early may unfortunately be too "conservative" and therefore do not make enough investments to make this strategy work correctly.

IV.D.2. The Corporation-Venture Interface

The low strategic yield from early round investments could potentially be mitigated by well-structured and correctly-managed investments. A second survey was sent to the respondents of the first survey. While only 22 of the 49 firms responded to this survey, analysis of these results provides at least qualitative information regarding the critical behaviors of CVCs. 14 of these 22 were successful by our definition, so this is a reasonably representative group.

Figure IV.6 shows that on average strategically successful and unsuccessful CVCs use a similar spectrum of investment structures, with both groups using equity or convertible debt over 60% of the time. This similarity in investments may be due to the fact that CVCs must negotiate these investments with the start-up and other investors, all of whom probably prefer corporations to use "straight" equity. Successful firms do form partnerships in which they are the limited partner (LP) approximately twice as often as do unsuccessful firms. These types of investments are not used frequently, but can be a useful way for corporations to exploit a start-up's technology in a market which is defined by user-type or geography.
Figure IV.6  Similarity in types of investment structures used by both successful and unsuccessful CVCs.
Figure IV.7 shows the average initial equity ownership percent, extent of supplementary relationships, and magnitude of control of CVCs. The magnitude of CVC control is measured by four different parameters: % of investments in which CVCs manage the operations on a day-to-day basis, % of investments in which CVCs have a board member, % of investments in which CVCs control the board, and % of investments in which CVCs can replace the start-up's CEO. Successful CVCs have a lower average initial equity position than unsuccessful CVCs, which may indicate that successful CVCs place more "bets" by not "putting all their [investment] eggs in one basket". In addition, successful CVCs seem more capable than unsuccessful CVCs of requiring or fostering supplementary business relationships between their corporation and investment portfolio firms. By exploiting these synergies, successful CVCs are able to add more than money to their venture investments. Although fostering extensive business relationships appears vital to effective CVC performance, exercising excessive control is not, as is indicated by the fact that successful CVCs have a lower fraction of investments in which they either manage day-to-day operations, have a board member, exercise board control, or have the ability of replacing the venture's CEO.

IV.E. Financial Success of CVC Programs

Much of the previous literature has pointed to the relationship between financial success of venture programs and strategic success (Peterson, 1967; Fast, 1981; MacMillan et al., 1985; MacMillan et al., 1987; DeSarbo et al., 1987; Siegel et al., 1988; Sykes, 1990). This relationship is complicated here because our data are subjective, self-reported "facts". Managers may convince themselves that financially successful ventures were, in retrospect, strategic. Conversely, corporations will rarely benefit from synergies so large that they offset the poor financial performance of a venture program. Figure IV.8 shows the expected positive correlation between financial and strategic success of CVC programs.
Figure IV.7  Successful CVCs take lower initial equity positions, develop and foster supplementary business relationships more effectively, and exercise less control over ventures than do unsuccessful CVCs.
Figure IV.8  Financial and strategic success are positively correlated, particularly for strategically successful CVC programs.
Figure IV.8 shows that the positive relationship between financial and strategic success is particularly strong for strategically successful firms. This strong positive relationship for strategically successful firms is partly due to the fact that managers convince themselves that any venture that makes money is strategic. CVC programs which are well positioned strategically are also successful financially which is comforting to top managers considering launching a CVC program.

Inferring that imposing financial objectives on a CVC program will yield strategic results as previous papers have suggested ignores the cause-and-effect relationships. Managing a CVC program for financial success will probably produce a diversified portfolio of ventures scattered all over the market-technology familiarity matrix (see Hardymon et al., 1988) with few of the intra-venture or venture-corporation synergies that are necessary for effective corporate growth according to Roberts and Berry (1985) and Meyer and Roberts (1988).

IV.F. Qualitative Attributes Important to CVC Success

Asking CVC managers to provide qualitative factors critical to their CVC program success would probably have brought forth a list of their own CVC attributes. To remove this bias of self-reported data, CVCs were asked which three firms they considered good at making direct investments in small companies and why they consider them successful. Table IV.6 shows the top eight corporations regarded by respondents as "good" at corporate venturing. Over half of the respondents indicated they thought these firms were successful because of one or more of the following factors: these successful firms had a well-defined strategy, with focus, clarity, and constancy of purpose, and were well-organized, with independence and support from top management. Because strategic focus is reported to be a driver of success, financial performance objectives may not produce strategically successful CVC investments, as discussed above.
<table>
<thead>
<tr>
<th>Corporation</th>
<th>% of Respondents Mentioning Firm as &quot;Good&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>3M</td>
<td>44</td>
</tr>
<tr>
<td>DuPont</td>
<td>15</td>
</tr>
<tr>
<td>Eli Lily</td>
<td>13</td>
</tr>
<tr>
<td>GE</td>
<td>13</td>
</tr>
<tr>
<td>Corning</td>
<td>10</td>
</tr>
<tr>
<td>Hoffman-La Roche</td>
<td>10</td>
</tr>
<tr>
<td>IBM</td>
<td>10</td>
</tr>
<tr>
<td>Monsanto</td>
<td>10</td>
</tr>
</tbody>
</table>
CHAPTER V

SUMMARY

IV.A. Conclusions

The strategies of 49 large corporations that are using corporate venture capital (CVC) for new business development were studied and evaluated. These corporations were from a wide range of industries and are thought to represent the broader spectrum of CVCs. The strategies of more successful firms were quantitatively and qualitatively compared with those of less successful firms to provide insights into effective CVC strategies.

Venture capital firms (VCs) are the key deal source for CVCs making strategically successful direct investments in small ventures.

To interact effectively with VCs, CVCs should:
- directly investing in VC portfolio firms
- networking with VCs without investing
- contacting VCs holding some of the corporation's pension assets

As an entry strategy, CVCs should invest in VC funds, becoming a VCLP; however, being an investor in VC funds is not recommended as a long-run approach to generating deal flow.

Corporate familiarity with the venture's market is more important in determining strategic success than familiarity with the venture's technology.

CVCs must therefore evaluate a venture's market with greater due diligence than they evaluate its technology, which may not represent current common practice. Further, corporations should seek to add value to their ventures through marketing expertise.
Strategically successful CVCs make more investments in later rounds, as compared with less successful firms.

CVCs should either make more later round investments or structure early round investments to increase the probability of strategic success. In particular, CVCs should not exercise excessive control over their portfolio firms.

The financial performance of CVC programs was found to be positively correlated with strategic success, but CVC managers reported that strategic success results from a focused strategy.

Therefore, corporations using CVC for new business development do not pay a financial price for the program; however, if the corporation is seeking to develop new businesses from its CVC program, CVC managers should not have their compensation based solely on their CVC portfolio's financial performance.

IV.B. Recommendations for Future Work

This thesis has shown how successful corporate venturers identify prospective investments and structure and manage individual venture investments. Other processes of corporate venturing, such as fostering synergies among portfolio firms and assimilating the different ventures into current business, are clearly of interest to corporate developers and should be studied.

The results of this work indicate that generic strategies for success in CVC do exist across a wide range of industries and therefore surveying firms is one recommended tool; however, since little information exists on how CVC managers assimilate ventures, a few specific case studies might be appropriate first. In any future work, the market-technology focus of the CVC program should be factored into the analyses.
APPENDIX A

REFERENCES


APPENDIX B

QUESTIONNAIRE TO STUDY CVC STRATEGIES FOR SUCCESS
Questionnaire to Study Direct Investment in Small Companies

Purpose of questionnaire:
As part of my Master's thesis at the Sloan School of Management, MIT, I am surveying large firms which make direct investments, such as equity investments or joint ventures, in small companies. I am trying to develop an understanding of what current "best practice" is in the area of new business development through these direct investments. Specifically, I am interested in learning good methods of finding and screening venture opportunities. This phase of my research is being sponsored by Exxon Chemical Company, but the results of the survey will be sent to all firms which participate.

Company name: __________________________
Your name: ____________________________ Your phone number: ______________

Does your firm make direct investments in small companies?

Yes  No

For how long has your firm made these direct investments? ____ years

Which three firms (other than your own) would you characterize as good at making these types of direct investments in small companies? ... Why?

What % of small company investments come to you versus % which you seek out or create?

Of small company investments:

_____ % come to you

_____ % you seek out or create

What is your single most important source of small company investments?

If you seek out or create direct investment opportunities, how do you do it?
How do you find good small company investment opportunities?

*Please indicate what % of small companies which you have invested in have come from the following sources:*

___%  A. Private venture capital funds in which you are invested

___%  B. Other private venture capital funds in which you are not invested

___%  C. People at parent company (i.e. from R&D, purchasing, etc.)

___%  D. University research programs which your parent company sponsored

___%  E. Other university research programs which you did not sponsor

___%  F. Companies specializing in technology transfer and licensing

___%  G. Business plans received directly from entrepreneur

___%  H. Other (please specify)

How well are your small company investments performing financially?

*Please circle the appropriate number.*

"Average" represents rates of return which are close to your parent company’s cost of capital.

<table>
<thead>
<tr>
<th>Poor</th>
<th>Average</th>
<th>Excellent</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

How do you evaluate the strategic fit of a prospective small company investment?
How would you characterize your small company investment strategy?

Please pick a location or area on the following market-technology matrix.

How well are your small company investments performing strategically?

Please circle the appropriate number.

"Average" represents a rate of strategic new business development through direct investment that would be approximately equivalent to that which would come from within your organization, given the same level of resources that you devote to direct investment.

<table>
<thead>
<tr>
<th>Poor</th>
<th>Average</th>
<th>Excellent</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 - - - - -</td>
<td>2 - - - - -</td>
<td>3 - - - - -</td>
</tr>
<tr>
<td>4 - - - - -</td>
<td>5 - - - - -</td>
<td>6 - - - - -</td>
</tr>
</tbody>
</table>

At what stage of a small firm's growth do you invest?

Please indicate what % of your direct investments were made at the following stages:

___ % A. Seed capital, zero-stage, or developmental R&D.

___ % B. First round financing.

___ % C. Later round financing.

___ % D. After the small firm has publicly-traded shares.

Do you want to remain anonymous in any published materials that may result from this survey?

Yes   No

Do you want your firm to remain anonymous in any published materials that may result from this survey?

Yes   No
APPENDIX C

QUESTIONNAIRE TO STUDY INVESTMENT STRUCTURE AND MANAGEMENT
QUESTIONNAIRE TO STUDY DIRECT INVESTMENTS IN SMALL COMPANIES

Purpose
As a follow-up to my study of big company-small company strategic alliances, I am interested in determining the extent to which the structure of the investment in the small company influences the success of the investment. As with the first part of my work, the results will be shared with those people who respond. This questionnaire is part of my Master's thesis at MIT and the current phase of my work is being sponsored by Exxon Chemical.

All names and company names will be held confidential.

Your Name ________________ Telephone Number ________________
Company ________________

Please indicate what % of your firm's investments in small companies are structured as described below:

_____% Takeovers
_____% Equity or convertible debt
_____% Debt
_____% Joint ventures
_____% Partnerships in which your firm is the limited partner
_____% Partnerships in which your firm is the general partner
_____% Other (please specify)

On average, your firm's initial equity position is _____%.

In _____% of your firm's investments, your firm has an supplementary business relationship, e.g. marketing contract, licensing agreement, etc., in addition to an equity investment.

In _____% of your firm's investments, your firm controls the day-to-day operations of the company in which your firm invested.

In _____% of your firm's investments, your firm has a member on the board of directors.

In _____% of your firm's investments, your firm has control of the board of directors.

In _____% of your firm's investments, your firm can replace the CEO.