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**Venture Capital  
Investment in Minority Business**

By

Timothy Bates  
Professor of Economics  
Wayne State University  
Detroit, MI 48202  
313-577-0769  
313-577-9564 (Fax)  
tbates44@charter.net

and

William D. Bradford  
Professor of Finance & Business Economics  
School of Business  
University of Washington  
Seattle, WA 98195  
206-543-4559  
206-543-7472 (Fax)  
bradford@u.washington.edu

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# Venture Capital Investment in Minority Business

## Abstract

This study analyzes the performance of mature investments made by venture-capital (VC) funds that specialize in financing minority business enterprises (MBEs). We explore the hypothesis that VCs focusing on investing in minority businesses earn attractive returns because this market niche is underserved. Minority VC funds collectively earned yields on their realized investments that were estimated to be broadly equivalent to those of the mainstream VC industry. However, these yields vary greatly from fund to fund. VC fund traits that predict high yields on individual investments are identified by estimating multivariate regressions explaining net investment returns.

## Venture Capital Investment in Minority Business

### I. Introduction

In 1992, the Roper Organization polled 472 black-owned business owners to gauge how they viewed their own firms, as well as black businesses generally. Asked why there were so few black-owned firms in the nation, 84% responded that “Black-owned businesses are impeded by a lack of access to financing” (Carlson 1992 R16).

The notion that minority business enterprises (MBEs) have less access to financing than otherwise comparable majority-owned firms is supported in the scholarly literature. Applicable studies have focused, most often, upon black-business access to debt capital (Cavalluzzo et al. 2002; Blanchflower et al. 2003; Bates 1991). Extending the analysis to Hispanic, Asian and black-owned firms seeking both debt (Cavalluzzo and Wolken 2005) and equity capital (Bates and Bradford 1992), MBEs were found to have less access to capital than similarly situated white-owned firms. If MBEs indeed experience such restricted access to capital markets, then this market segment is being underserved and attractive returns may be available to funds choosing to specialize in financing this client group.

This study analyzes venture-capital funds that specialize in financing minority business enterprises. Three interrelated issues are investigated: 1. What are the sources of funds and operating characteristics of minority-focused VC funds? 2. When investments in MBEs are sold off or liquidated, what yields are earned on those investments and how do they compare to the returns earned by the mainstream VC industry? 3. What fund traits and practices predict higher yields?

Empirical analysis reveals a diverse group of minority VC funds producing investment returns varying widely from fund to fund. The minority-oriented funds are typically small relative to the VC industry mainstream, starting out with a median capitalization of under \$30 million. Portfolios reveal equity investments in a diverse range of industries and widespread participation in syndicated investments. Utilizing regression analyses to identify fund traits and practices that were associated with higher/lower returns on individual portfolio investments, we found that minority-focused VC funds generating above-average returns, relative to their peers, can be described as 1) making investments of \$1 million or more per firm (well above the sector's overall average of \$747,517 per investment), 2) not being chartered by the U. S. Small Business Administration (SBA), 3) investing in a range of different industries, and 4) taking a highly active role in the affairs of their portfolio companies.

Overall, the measured investment returns generated by the minority-focused VC funds were broadly consistent with those of mainstream funds. However, our evidence describing investment returns do not prove the presence or absence of discrimination in business financing. The reality of small sample sizes and underlying databases – minority and mainstream funds – that are not perfectly comparable complicates possible interpretations of rate-of-return differentials as evidence of discrimination.

The issue of financial capital access is timely in view of the shifting demographics of business ownership in the U.S. Minority-owned firms have been growing at a rate at least three times that of all firms, and the higher growth rate is expected to continue (U.S. Department of Commerce 1999; Yago and Pankratz 2000).<sup>1</sup> The degree to which venture capital becomes available to new and expanding MBEs will depend in part on a greater understanding of how such funding support works -- or does not work -- in reality.

The remainder of this study is organized as follows. Part II describes the financing patterns and operating characteristics of the minority-focused VC funds. Part III examines the investment performance of the minority funds, compares that performance to returns generated by mainstream VC funds, and reports the results of regressions that predict yields on investments in portfolio companies. Part IV summarizes empirical findings and discusses implications of the research.

## **II. The Minority-Oriented Venture Capital Funds**

Unlike other parts of the financial sector, the venture-capital industry lacks a precise legal or regulatory definition (Brander, Amit & Antweiler 2002). Venture capital funds normally have four characteristics, three of which are emphasized by Shilit (1991 p. 34): They serve as intermediaries between investors and entrepreneurs; they provide financing to privately held companies; their investment is typically in the form of equity and/or convertible debt. The fourth characteristic is highlighted by Kunze (1990): “The combination of equity participation plus active involvement in the development of the company [emphasis added] is what distinguishes venture capital from all other investment vehicles.” The venture capitalist obtains money from investors — often pension funds and other institutional investors — pools this money, and makes equity-dominated investments in young private companies.

### **A. Data**

We initially surveyed all funds operated by active members of the National Association of Investment Companies (NAIC) in March 2001. The underlying basis for NAIC membership is a shared interest in financing MBEs. Based upon our discussions with both minority-focused and mainstream VC funds, we believe that nearly all of the profit-oriented VC funds serving black and Hispanic (but not Asian) firms are NAIC members. Our initial survey identified NAIC

member funds as of December 2000 that were 1) actively investing venture capital in small firms, 2) targeting their investments largely to MBEs, and 3) investing with a predominant focus upon generating attractive monetary returns. The requirement that the VCs have a goal of generating monetary returns is essential, since we compare the investment performance of minority-focused funds to that of mainstream funds.<sup>2</sup>

Of the surveyed NAIC-member funds, 36 met our criteria for inclusion in our broader analysis, i.e. 36 were profit-seeking venture-capital funds investing in MBEs. Excluded funds (12 funds) most often were debt (as opposed to equity) oriented or were investing for social returns. Of the eligible funds, 24 responded to our detailed questionnaire (a response rate of 66.7%) regarding fund characteristics and monetary returns on their individual small-business investments. The non-respondents were largely newer funds that had not completed or recently completed fundraising and had not yet made VC investments. Newness, furthermore, disqualified some responding funds from inclusion in rate-of-return analyses reported in tables 2 and 3 because young funds lacked the mature VC investments required for analysis of investment returns. Other than newness, the observable characteristics of the non-respondents did not appear to differ from those of the respondents (Bates and Bradford, 2003). The respondents were resurveyed in 2004 to update their performance on realized VC investments through yearend 2003. While the surveyed funds financed small firms owned by blacks, Hispanics, and Asian Americans, venture-capital investments flowed most often to black-owned firms and least often to Asians.

### **B. Funding Sources for Minority-Focused VCs**

The funds responding to our survey raised over \$2.1 billion from institutional investors, the largest of which were public-pension funds, commercial banks and insurance companies.

The pension-fund sector was the major source of financing for minority-focused funds, accounting for 64% of total funding. The surveyed funds attached to the older, more established VC firms typically had access to a wider variety of financial-capital sources than the industry newcomers. Banks and insurance companies were accessible funding sources for both the minority VC industry veterans and newcomers: 13 of the 24 funds tapped this capital source. Pension funds — public as well as corporate — and funds of funds most commonly provided capital to minority-oriented VCs that had established track records.

The minority-focused venture-capital industry emerged from the (predecessor to the) Specialized Small Business Investment Company (SSBIC) program, under which government funding was provided. Government funding sources serve a heterogeneous mix of VC firms, yet they rank toward the bottom of the list of capital sources (Bates and Bradford 2003). Among the six surveyed VC funds that began operations prior to 1990, all were chartered by the Small Business Administration and operated as SSBICs. Among the 13 funds started since 1995, in contrast, only two were SBA-chartered. The federal government as a VC funder is fading into insignificance, as neither the newer funds nor the older SSBICs are currently raising capital from this source. Despite the declining role played by government funding programs, minority-focused funds still obtained more of their funds from government bodies (5%), than did mainstream funds (less than 1%). The expanding capital sources were typically the biggest providers — pension funds, banks, and funds of funds.

In terms of portfolio investment decisions, funding patterns shape investment decisions because minority-focused VC funds have a mandate from their institutional investors to focus upon MBEs. Among funds operating as SBA-chartered SSBICs, the terms of their charters restrict their business investments to MBEs or firms operating in narrowly defined depressed

geographic areas. The SSBICs responding to our survey were strictly MBE oriented. Public-pension funds and banks that provide capital to minority VC funds are attracted by their strategic focus on financing MBEs. The minority VC fund investments made by banks typically qualify for Community Reinvestment Act (CRA) credit. State pension funds that invest in minority VCs have high proportions of minority residents in their respective states: MBE-targeted investing is politically popular. A self-proclaimed minority-oriented VC that deviated from minority business investing would alienate its funding sources.

### **C. Fund Traits and Operations**

Our survey of minority-oriented VCs informed us of aspects of funds' operating characteristics that enabled us to develop hypotheses about best practices. Three traits are noteworthy: minority-focused funds commonly invest in a diverse range of industries, unlike the broader VC industry, which heavily concentrates its investments in several high-tech fields (Gompers and Lerner 2001). The median minority-focused fund was small relative to the VC industry mainstream, beginning operations with under \$30 million in capitalization. In order to gain diversification, a common strategy has been to participate in syndicated MBE investments. The funds, finally, vary in their involvement with portfolio companies: some participate actively in the management of their client firms and some do not.

Although the funds invested across a wide range of industries, 20 of the 24 surveyed funds invested in communications firms (table 1). Their orientation was more toward radio stations than broadband.<sup>3</sup> A stronger high-tech orientation appeared among the 12 funds that invested in electronics manufacturing firms, including computer-related firms. Most of the companies in which the minority VCs had invested, however, could not be characterized as high tech. Manufacturing firms operating in areas outside electronics were a popular investment

choice: 15 funds invested in a diverse group of manufacturers. A wide array of service industries has been a common investment target.

Second, the minority-oriented funds under consideration varied enormously in size, and this size heterogeneity has increased in recent years as some established firms in the industry have raised large funds. Ranked by initial capital raised, seven of the 24 surveyed funds started with total capital of under \$10 million. At the other extreme, five began operations with over \$50 million: The initial capitalization range was from \$2 million to over \$500 million.

Involvement in syndicated transactions appears to provide better investment decisions (Sah and Stiglitz 1986), diversification (Wilson 1968) and a means of signaling value (Admati and Pfleiderer 1994). Our survey results indicate that the minority-focused funds actively seek these gains through syndicated deals. Investing in MBEs operating in a variety of industries requires considerable depth in managerial expertise. The small funds, however, often struggle with limited managerial staff. Being very small, in addition, makes it difficult to achieve diversification in portfolio investments in an industry where such diversification is important for spreading risks. A pragmatic and popular strategy in such circumstances is to invest in MBEs by being a participant in syndicated business investments.

Widespread syndication, furthermore, is symptomatic of the extensive networking that typifies the minority-oriented venture-capital funds. Sorenson and Stuart (2001) show that social networks in the venture-capital community -- built up through the industry's extensive use of syndicated investing -- facilitate the diffusion of information across geographic and industry boundaries, therefore expanding the spatial radius of exchange. Among the 24 surveyed VC funds, 23 respondents — 96% — had participated in syndicated business investments. This compares to 63% reported for the mainstream VC industry as a whole (Wright and Lockett

2003). Through membership in the NAIC and their frequent interaction on business investments, the minority-focused funds have developed considerable expertise in working together effectively. An important outcome has been the ability of the funds to finance larger deals while enhancing diversification of their investment portfolios.

Third, when VC funds purchase equity in MBEs that are privately held, they commonly buy into firms that are small and young, and large differences exist between what the entrepreneurs and investors know about the underlying condition of the firm. A successful venture-capital fund must alleviate this information gap (Gompers and Lerner 1999). Tools to achieve this involve scrutinizing firms intensely before providing equity capital and monitoring them closely, and appropriately interacting with the portfolio firms afterwards. We collected data on general partner (GP) involvement in the management of portfolio firms. The activities examined were: 1) serve as a member of the board of directors 2) advise on long-term planning, 3) assist with hiring, 4) assist in day-to-day operations, and 5) assist in execution of exit strategy. The minority-focused funds were involved with their portfolio firms to varying degrees in these areas. Later we utilize a measure of intensity in the involvement as a predictor of investment performance.

### **III. Investment Performance**

Each surveyed minority VC fund provided year-by-year cash flow details for all of the investments initially funded between January 1, 1989 and December 31, 1995; these cash flows were tracked through yearend 2003. We used this information to calculate various measures of investment performance. The primary measure of return in this industry is the internal rate of return (IRR). It is well-known (Ross et al. 2000, chapter nine) that the IRR is an imperfect measure of returns. For the minority-oriented funds specifically, the problem of aggregating

individual investments' IRRs to the IRRs of individual funds was noteworthy. The IRR does not quantify negative and positive returns symmetrically; thus, a weighted average of the individual investments' IRRs in the portfolio may not accurately measure the portfolio's return.

These problems limit one's ability to aggregate the IRRs of individual investments accurately when calculating the IRR of a fund. For example, one of the minority-focused funds achieved a value-weighted IRR of 25.9% on investments, but the equally-weighted average IRR of the fund's individual investments was -2.8%. The investment managers of the funds, typically general partners, are evaluated on overall fund performance. But GPs seek high returns on individual investments in managing the fund's performance, and thus are concerned as well with returns of individual investments. We report IRRs measuring both the overall fund performance and individual investment performance in table 2.

#### **A. Measuring Performance: Findings**

Our analysis of minority VC fund performance is based on the cash flows from mature investments initially funded in the 1989-1995 period, appropriately tracked through yearend 2003. The vast majority (131 of 140) of those investments had been realized. For the 9 not exited, the cash flows consisted of actual intermittent cash flows and the estimated market value of the investment at yearend 2003.<sup>4</sup> Utilizing the investments' cash flows, we compared the resulting IRR of each minority-focused fund to that of mainstream private equity funds that started investing in the same year as that of the minority-focused fund ("vintage funds"). Returns generated by the minority-focused funds, finally, were compared to investment returns measured by general stock market indices.

In reporting the funds' IRRs, we adjusted the cash flows for the minority funds to reflect payment of 2% of the fund's assets for management fees, plus 20% of the net cash flow return on

investment (carried interest) to the fund's managers. The fees and carried interest are standard for both the minority-focused funds and the mainstream industry. Eleven of the 24 surveyed minority-oriented funds made venture-capital investments during the applicable 1989 - 1995 period. The other 13 began investing after yearend 1995 and were therefore excluded from our analysis of investment returns. Multiple investments by a fund in one firm were common; these were treated as one investment. As a group, the investment cash outflows of the minority VC funds totaled \$104.7 million for the 140 investments that were undertaken, while corresponding cash inflows totaled \$251.2 million.

We report in table 2 the performance of the minority-focused funds using 4 measures of investment returns: Row 1 reports, by fund, the overall IRR of each fund's investments, effectively treating the portfolio cash flows as one big investment. Rows 2 and 3 report the Public Market Equivalent-Vintage (PME-Vintage) and the PME-NASDAQ performance measures for each fund, respectively, and row 4 shows the fund's equally-weighted average IRR for its individual investments. Fund names are withheld for purposes of confidentiality.

A fund's overall IRR is found by calculating one IRR based upon the combined cash flows of the investments in its portfolio. The overall IRR for the combined portfolios of the 11 minority VC funds under consideration, in contrast, is derived by combining the cash flows generated by all 140 of the underlying equity investments. For the 140 venture-capital investments that were initially funded by these minority VC funds between 1989 and 1995, their combined cash flows (treated as one big investment) yielded an IRR of 17.7% through yearend 2003. This overall IRR of 17.7% provides a performance measure for the entire group of mature minority-oriented VC funds.

The performance of individual minority-oriented funds, however, varied widely: corresponding overall IRRs for 4 of the funds were less than 10%, while 4 funds earned IRRs exceeding 25% (table 2, row 1). The bigger funds (measured by fund total assets) tended to exhibit both higher average overall IRRs and more numerous investments, relative to the smaller minority VC funds. This is reflected in the fact that the average overall IRRs for each of the 11 minority funds under consideration, when equally weighted on a fund-by-fund basis, produced an average IRR of 15.4% (table 2, row 1): The average of the 11 equally-weighted fund IRRs (15.4%), in other words, was less than the overall IRR derived from the combined cash flows of all 140 investments made by the minority-oriented VC funds (17.7%).

The PME-Vintage (PME<sub>V</sub>) performance measure is useful because it provides a basis for comparing the returns generated by minority-oriented VC funds to those produced by the mainstream venture-capital industry. It is calculated by dividing the present value of the minority fund's cash inflows (returns) by the present value of its cash outflows (investments). The discount rate used in this calculation is the equally-weighted average lifetime IRR of all private equity funds of the same vintage year in the Venture Economics database.<sup>5</sup> For example, if a minority fund made its first investment in 1990, the discount rate used to calculate a PME<sub>V</sub> for that fund is the equally-weighted average IRR (22%) of the 45 private equity funds in the Venture Economics database that started investing in 1990. Define  $R_t$  as the average lifetime IRR for all private equity funds of the same vintage year as the minority-focused fund (i.e., the same year 0). We can express the PME-Vintage for a fund as

$$1) \text{ PME}_V = \frac{\sum_{i=0}^N CR_i(1+R_t)^{-i}}{\sum_{i=0}^N CI_i(1+R_t)^{-i}},$$

where  $CR_i$  is the cash return (inflow) in period  $i$  for the minority fund,  $CI_i$  is the cash investment (outflow) in year  $i$  made by the minority fund, and  $N$  is the year of the minority fund's last cash flow.  $PME_V$  is a ratio whose numerator is the present value of the cash returns:  $\sum_{i=0}^N CR_i(1 + R_t)^{-i}$ ; its denominator is the present value of the cash outflows:  $\sum_{i=0}^N CI_i(1 + R_t)^{-i}$ .<sup>6</sup> This is the form of  $PME$  used by Kaplan and Schoar (2005).

Thus the  $PME_V$  figures reported in table 2 (row 2) compares returns derived from investing in minority-focused funds to investing in their vintage private equity funds. The overall  $PME_V$  for the group of 11 minority-focused funds was 1.16; this value was derived by combining all of the cash flows of the funds' 140 portfolio investments into one big investment. This specific measure of relative returns, therefore, suggests that minority-focused funds collectively earned higher returns than the mainstream funds of the same vintage. The corresponding equally-weighted average of the 11 individual funds'  $PME_V$  values was 1.13 (table 2, row 2).

Yet, conclusions of superior fund performance cannot rely solely upon these findings. First of all, fund data drawn from the Venture Economics database lacked detailed annual cash-flow data on investments; Venture Economics data were inadequate to support tests of the statistical significance of the 1.16 and 1.13  $PME_V$  values, relative to vintage-fund investment returns. Comparing the individual minority-focused funds to their vintage PE funds, furthermore, we find that 6 of the 11 fund-specific  $PME_V$  values were less than 1 (table 2). Some minority-focused funds thus appear to have higher measured returns than their vintage counterparts and some do not. Absent tests of the statistical significance of these differences, the apparent strong performance of some of the minority-focused VC funds, as measured by  $PME_V$  values, does not,

by itself, provide an adequate basis for deriving conclusions about the relative overall performance of minority- and mainstream venture-capital funds.

The PME-NASDAQ compares investing in the NASDAQ index to investing in minority-focused funds. For example, if a minority fund made its first investment in 1989 and received its last cash flow in 2000, the discount rate used for the PME-NASDAQ for that fund is the IRR (17%) of the NASDAQ index over that 11 year period. In comparison to the return to the NASDAQ index, 7 of the 11 minority-focused funds' PME-NASDAQ values were greater than 1, indicating that they outperformed compared to the NASDAQ index (table 2, row 3). The overall PME-NASDAQ was 1.63, again indicating a favorable performance in the sense that equivalent dollars invested in the group of minority funds outperformed investments in the NASDAQ index. The equally-weighted average for the 11 individual funds' PME-NASDAQ values was 1.60. For the Wilshire 5000—a broad-based index of the stock market—we also calculated PME ratios for each of the 11 minority VC funds (results are not reported in table 2). The results resembled those of the PME-NASDAQ index. These findings of strong minority-fund performance, relative to broad measures of stock-market alternatives, are suggestive, but they are subject to the restrictions discussed above – small number of funds, absence of formal tests of statistical significance, and the like.

We next calculated our 4<sup>th</sup> return measure – the IRRs for each of the individual investments made by minority-focused funds, utilizing cash-flow data for all of the 140 VC investments initiated by the funds in 1989-95, with results reported as of yearend 2003. Resulting equally-weighted average values of fund individual investment IRRs ranged from -18.2% to 21.7% (table 2, row 4); the equally-weighted average for all of the 140 investment IRRs was 15.5%. The differential between the equally-weighted IRR average for 140 investments (15.5%)

and the overall average (17.7%) – reported in row 1 of table 2 – reflects the fact that larger individual investments tended to have higher IRRs than smaller ones.

We can selectively compare our findings to those of other studies examining the IRRs of private equity funds. Chen, Baierl & Kaplan (2002) found an average equally-weighted IRR of 13.4% for 148 venture-capital funds in the Venture Economics data that had liquidated as of 1999. Ljungqvist & Richardson (2004) reported an average equally-weighted IRR of 18.5% for 36 venture-capital funds that started in 1989-93, and had either been liquidated or were likely to have earned most of their returns. We view the average IRRs of the minority-focused funds as roughly equivalent to these yields.

Cochrane's (2005) extensive study focused on the outcomes of individual investments by VC funds, using the Venture One data. Unfortunately, these data provided neither the timing of the cash flows to and from portfolio companies, nor the actual dollar realization of these investments when taken public or sold. He made certain assumptions and estimated an equally-weighted average IRR of 15%; the proportion of negative IRR financings was 42%, and the proportion of total loss investments was 30% (see Cochrane 2005; Weidig and Mathonet 2004). For the corresponding 140 investments among the minority-oriented funds, the equally-weighted average yield was 15.5%; the proportion of negative IRRs was 43% and total losses, 19%. We mention Cochrane's study because it examines individual investments, but the limitations of his data and the assumptions used to overcome those limitations leave us cautious about comparing his results to ours.<sup>7</sup>

## **B. Predicting Investment Returns**

We next explore the implications of the survey data for best practices among minority-focused VC funds, in light of the wide variance in returns across funds. Thus, we conducted tests to determine the fund characteristics that are correlated with the IRR of individual VC investments in firms. What traits are associated with higher investment yields? Based upon the data provided by the funds, we tested the following model:

$$\begin{aligned} (3) \text{ Return} = & a + \beta_1(\text{Log of the size of the investment (\$)}) + \beta_2(\text{SSBIC} = \text{Yes}) \\ & + \beta_3(\text{Communications-Focused Fund} = \text{Yes}) + \beta_4(\text{Proportion of Investments} \\ & \text{as Lead Fund}) + \beta_5(\text{Highly Active with Portfolio Firms} = \text{Yes}) \\ & + \beta_6(\text{Log of Total Fund Assets}). \end{aligned}$$

Return is measured in two ways. First we use the IRR as the dependent variable. The second is a measure of “abnormal return”: the investment’s IRR less the VCE Vintage IRR, where the latter is the equally weighted average IRR of the private equity firms in the Venture Economics database with the same vintage year as the investment. We report the results of models that exclude and then include the returns on the S&P 500 over the life of the investment as a predictor variable.

The surveyed VC funds reported the dollar amount of their individual investments, the dollars invested as lead in syndicated transactions, and their relationships with portfolio firms. Also available was information on industry distribution of investments as well as whether the fund was chartered by the SBA. A fund was considered as focused in the communications line of business if at least 40% of its assets were invested in that industry. Hypothesized relationships between the above factors and observed returns are drawn from our discussions with fund managers and the scholarly literature.

Managers of the minority-oriented VC funds indicate that their preferred investment size is the one-to-two-million dollar range, considerably more than the \$747,517 mean of the 140 VC investments being analyzed. We hypothesize that size of the investment is positively associated with the investment's IRR, other things equal. Fund status as a SSBIC requires adherence to restrictive and changing SBA regulations, which is costly to SSBICs (Bates and Bradford, 2003). Although the U.S. government provides a subsidy to SSBICs in the form of low-cost financing, the vast majority of groups forming minority-oriented funds after 1989 opted for non-SSBIC organizational forms. We hypothesize that the net disadvantage being a SSBIC results in lower IRRs, other factors constant. Kaplan & Schoar (2005) and Ljungqvist & Richardson (2004) find a positive relationship between fund size and investment yield for funds in the size range examined in this study. Consistent with their results, we hypothesize a positive relationship between fund size and investment return: the investments of larger funds may benefit from the greater efficiency and expertise achievable through a larger scale of operations.

Several fund traits used as regression analysis explanatory variables have potentially conflicting impacts upon portfolio firm IRRs. We include the proportion of investments as syndicate lead. The funds that originate most of the syndicated investments may keep the best deals for themselves or, alternatively, syndicate large deals without respect to quality in order to diversify their portfolios broadly (Brander, Amit & Antweiler 2002). Minority-oriented VCs invest most often in communications, perhaps reflecting advantages in specialization; alternatively, broader industry diversification may be a preferable strategy (Norton & Tenenbaum 1993; Manigart et al 2002).

The fund managers, as previously noted, were surveyed concerning whether they (1) sit on the boards of portfolio companies, (2) assist with hiring, (3) advise in long-term planning, (4)

assist in day-to-day operations, and (5) involve themselves in executing exit strategy. They could express for each activity “never”, “sometimes” or “often”. We scored their answers, and funds scoring relatively high were considered “highly active” with portfolio firms. High levels of involvement in the affairs of their portfolio companies may reflect either the need to work out problem investments or the positive value of general partner expertise (Sapienza et al.1996).

An overview of the characteristics of the 140 investments and the funds that made those investments reveals an equally weighted mean IRR, as noted above, of 15.5%, with the IRRs ranging from -100% to 3200%. The size of the investments made by minority-oriented VCs also ranged widely, from \$1,000 to \$10.2 million, averaging \$747,517. The equally weighted mean total-asset fund size was \$18.8 million at startup. Investments of communications-focused funds made up 35% of the investments. Fifty-five % of the investments were made by SSBICs, and 76% of the investments were made by funds highly active with portfolio firms.

Table 3 reports results of regression analyses that predict IRRs of individual investments. We used GLS random effects (instead of OLS) regressions. The GLS random effects process adjusts the regression coefficients and standard errors for the interrelationships among investments of the same fund (11 funds made the 140 investments). We also explored utilizing median regressions, which are of interest if one is concerned about median IRRs, given a set of fund characteristics. The skewness and fat tails characterizing the IRR distribution may produce median IRR regression outcomes that contrast with GLS regression results, which predict the mean.

Findings produced by the GLS (table 3) and median regressions (not reported) were highly consistent. First, larger investments earned higher yields. This is implied by the results in table 2, which showed that some funds with negative equally weighted mean IRRs on individual

investments had positive cash flows and overall IRRs. Second, SSBIC status was associated with lower IRRs when we controlled for the other predictor variables. Third, investments of communications-focused funds had lower IRRs than investments of diversified funds. Fourth, investments by funds that were highly active with portfolio firms had higher IRRs, other things equal. This finding was robust across alternative specifications of the activity level explanatory variable.

Fifth, the investments of funds with larger total assets had lower IRRs, when the other predictor variables were controlled for. This finding is surprising. We re-estimated the regressions using both the log of total assets and the square of the log of total assets as regressors (results not reported here). The coefficient of the log remained positive while the coefficient of the log squared was negative, but the coefficients were not statistically significant. Our results suggest that, for the size range and nature of the minority-focused venture-capital funds, the potential disadvantages of being a small fund may be overcome through active investment in syndicated deals. Sixth, the coefficients on the S&P 500 were positive and statistically insignificant in all of the results. The IRRs of the minority funds' investments moved insignificantly with the market, once the other variables in the regressions were considered. Seventh, the proportion of investments in which the fund was the syndicate leader was not statistically significant in predicting IRRs.

Finally, we re-estimated the regression models described in table 3, utilizing as the dependent variable the investment's IRR, minus the average IRR of the private equity firms (in the Venture Economics database) with the same vintage year as the investment. The findings (not reported here) closely replicated the results described above.

#### **IV. Concluding Remarks**

This study is novel in the sense that no previous research has successfully identified the minority-oriented investment firms that actually do make equity investments in MBEs. We have identified 36 funds run by such firms, and we have successfully surveyed 24 of those funds. Relative to mainstream venture-capital funds, the minority-focused funds are small-scale financial intermediaries investing in MBEs exhibiting broad industry diversity. Various measures of their returns on mature investments portray a group of venture-capital funds that appear to be operating successfully.

Yet the returns of individual minority VC funds, whether measured by overall IRR measures of portfolio returns, PME Vintage measures, comparative performance to stock-market indices, or other measures, reveal outcomes that vary widely from fund to fund. This inspired us to utilize GLS regression models to investigate the fund traits and practices that predict above-average performance. Traits associated with higher IRR values on individual investments made by minority-oriented funds included broad portfolio diversification across industry groups, making investments in the million-dollar-plus range, GPs taking a highly active role in the management of portfolio companies, and relying on sources of funding other than the SBA.

Most of the minority-oriented funds interacted with their portfolio companies to some degree — sitting on boards of directors and getting involved in functions such as participation in long-term planning. Yet it was the fund GPs interacting most aggressively – assisting with hiring, getting involved in day-to-day management when necessary – that were most likely to add value to their portfolio companies. Successful minority VCs thus appear to assist their portfolio companies by actively providing managerial guidance as well as funding. Our findings indicate that minority-focused VC funds have evolved to the point that certain practices for

greater success in investing in this sector can be identified; several of these practices are consistent with best practices among the mainstream funds.

Past studies comparing small business loan and equity-capital recipients to firms not utilizing these funding sources suggest that minority-owned firms are capital-constrained, in part, because of their differential treatment in financial markets. This study has tested for discrimination in firm financing by observing the behavior and performance of capital providers that actively fund MBEs, comparing their performance to mainstream capital providers. Pursuing this approach, we hypothesized that VC funds concentrating their investments upon serving MBE equity-capital needs operated in a risk/return niche in which attractive returns were obtainable (an underserved market). This hypothesis is most directly tested by calculating the PME-Vintage measures of minority-fund returns relative to investment returns generated by mainstream funds of the same vintage. Results suggest that discrimination may be present: the overall PME-Vintage value describing the minority funds' overall mature investments was 1.16. The combined factors of small sample sizes and our inability to test for the statistical significance of higher minority-fund returns, however, indicate that the evidence of discrimination in this market segment is suggestive but certainly not definitive.

Regarding returns, our analyses of the PMEs and results of the venture capital returns of previous studies support a more conservative position that the returns to the minority-focused funds are broadly consistent with those of mainstream funds. Conclusions about the relative returns generated by minority- and mainstream-focused VC funds must be tempered by the reality of underlying databases that are not perfectly comparable, a small number of minority VC funds and mature investment sample sizes that are small. Our ongoing research seeks to clarify

the nature of the comparative returns earned by minority-focused funds and their counterparts in the mainstream venture capital industry.

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**Table 1: Minority-Focused Fund Investments by Industry**

Industry	Number of Funds Investing In this industry
Communications	20
Manufacturing other than electronics and computer-related	15
Manufacturing: electronics and computer-related fields	12
Trade: wholesale and retail	13
Services, except medical	15
Medical	9

Source: 2001 Survey Responses (24 funds).

**Table 2: Performance Through Yearend 2003 on Investments Made in 1989-1995. Minority-Oriented Venture Capital Funds**

<b>Fund</b>	<b>A</b>	<b>b</b>	<b>c</b>	<b>d</b>	<b>e</b>
IRR of the fund	46.6%	25.1%	3.2%	13.7%	-28.3%
PME-Vintage funds	2.93	1.17	0.46	1.01	0.16
PME-NASDAQ	6.15	1.85	0.25	1.10	0.24
Mean IRR-individual investments	19.8%	21.7%	6.3%	3.6%	-18.2%

<b>Fund</b>	<b>F</b>	<b>g</b>	<b>h</b>	<b>i</b>	<b>j</b>
IRR of the fund	5.6%	25.9%	13.0%	5.5%	46.8%
PME-Vintage funds	0.74	1.14	0.99	0.66	2.33
PME-NASDAQ	0.93	1.73	1.25	0.72	2.29
Mean IRR-individual investments	-13.3%	-2.8%	16.0%	6.9%	8.6%

<b>Fund</b>	<b>K</b>	<b>Overall Fund Return*</b>	<b>Equally Weighted Av. Return**</b>
IRR of the fund	12.1%	17.7%	15.4%
PME-Vintage funds	0.86	1.16	1.13
PME-NASDAQ	1.15	1.63	1.60
Mean IRR-individual investments	17.7%		15.5%

\*Overall column:

For the IRR of the fund, the PME-Vintage funds and the PME-NASDAQ, the number reported combines the cash flows of all of the funds and their 140 investments, treating the cash flows as one investment.

\*\*For the equally-weighted fund IRR, PME-Vintage and PME-NASDAQ measures, n = 11; the reported means effectively weight each of the 11 funds equally. For the mean IRRs of individual investments, n = 140; the 140 investments are weighted equally.

**Table 3: Regressions Predicting Internal rates of Return on Investments of Minority-Oriented Venture Capital Firms. Investments Initiated in 1989-95, Results through Yearend 2003**

Form of Regression	GLS, Random Effects			
Dependent Variable: IRR				
	Coef.	z-stat	Coef.	z-stat
<b>Independent Variables:</b>				
Log of investment dollar size	0.104	3.5 ***	0.111	3.7 ***
SSBIC = yes	-0.374	-2.1 **	-0.325	-1.8 *
Communications-focused fund	-0.339	-1.9 *	-0.296	-1.7 *
Prop. of investments as lead	-0.039	-0.2	-0.028	-0.2
High activity with portfolio firms	0.496	2.0 **	0.402	1.5
Log of fund assets	-0.183	-2.2 **	-0.158	-1.9 *
S&P 500			0.791	1.5
Constant	1.648	1.2	1.030	0.7
	Adj R <sup>2</sup>	0.150	Adj R <sup>2</sup>	0.167

N = 140

Statistical significance: \* = 0.10 \*\* = 0.05 \*\*\* = 0.01.

Source: Surveys of Minority-Focused Venture Capital Firms and the authors' calculations.

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<sup>1</sup> “Minority” refers to persons other than non-Hispanic whites, and includes people of black, Asian, and Hispanic origin.

<sup>2</sup> The performance of “social investment” funds is composed of both monetary performance and social performance. See Martinez (2000) for a discussion.

<sup>3</sup> In 1982, favorable tax benefits became available to venture-capital investors in transactions that involved a minority purchasing a broadcast property. The minority-focused funds participated in these transactions and learned the economics of the industry. Funds still participate actively in this industry, although Congress repealed the tax benefit in 1995.

<sup>4</sup> In each case the estimated market value was made using industry guidelines. Any errors caused by mismeasuring the market value of investments not exited should be negligible: the estimated market value of the investments not exited is only 1.8% of the investments’ total cash flows; and less than that if they are adjusted for time value.

<sup>5</sup> The IRRs of funds in a vintage year were calculated by Venture Economics. We thank Antoinette Schoar for allowing us to use those data.

<sup>6</sup> While by construction the minority focused fund and the comparison vintage funds began investing in the same year, the year of the last cash flows of the vintage funds may differ from the year of the minority fund’s last cash flow. For the PME-NASDAQ (discussed below), we use the NASDAQ yield over the same starting and ending year as the cash flows of the minority fund’s investments.

<sup>7</sup> For example, Cochrane utilizes a model in which return ratios are assumed to be log-normal. Woodward and Hall (2003) conclude that the actual distribution of returns of individual venture capital investments departs sufficiently from the lognormal distribution to result in nontrivial distortions in a returns index based upon lognormal returns.