Venture Capital
Investment in Minority Business

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Abstract

This study analyzes the performance of investments made by venture capital (VC) funds that specialize in financing in minority-owned businesses (MBEs). We explore the hypothesis that financing MBEs offers attractive returns to VC funds because this market niche is underserved. Traits of the VC funds – including their sources of capital and the firms they invest in – are selectively used to explain returns generated by their investments in MBEs.

Minority VC funds collectively earn yields on their realized investments that are higher than those of the broader VC industry, but these yields vary greatly from fund to fund. VC fund traits that predict high yields on individual investments are identified by estimating OLS and median regressions explaining net investment returns.

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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 percent responded that "Black-owned businesses are impeded by a lack of access to financing" (Carlson, 1992, R16). An impressive assortment of econometric studies has documented that minority -- particularly African American-owned -- small businesses have restricted access to sources of financial capital, relative to similarly situated nonminorities (see, for example, Cavalluzzo, et al., 2002; Cavalluzzo and Wolken, forthcoming; Blanchflower, et al., 2003; Bates, 1991; Berkowitz and White, 2002; Bates and Bradford, 1992).

This study analyzes the investment and financing experiences of venture-capital funds that focus on investing in minority-owned businesses (MBEs). Two opposing effects predict the financial returns generated by VC investments in MBEs. First, if MBEs have less access to financial capital than otherwise identical white-owned firms, then attractive returns may be available to funds choosing to specialize in financing this underserved clientele. The opposing effect is that portfolios restricted to MBEs forfeit gains from investment opportunities in the non-minority business sector.

What sorts of returns on their realized investments are being generated by the minority-focused venture-capital funds, in light of these opposing effects? This question 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 and Yago, 2000).[1] 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.

This study analyzes three interrelated issues: 1. Where do minority-focused VC funds raise their financial capital? 2. How do the minority-focused VCs invest their financial capital and how do the funds interact with their MBE clients? 3. When investments in MBEs are sold off or liquidated (realized), what yields are earned by these realized venture-capital investments, and what fund traits and practices predict higher yields? We surveyed VC funds that actively invest venture capital in small firms, targeting their investments largely in MBEs. We report our findings in reference to these issues:

1. What are the sources of funds for minority-focused venture capital? The funds responding to our survey raised over $1.3 billion through yearend 2000. The largest institutional sources of funds in dollars were public-pension funds and commercial banks and insurance companies. Public-pension funds, in particular, have been important because of their relatively large investments: their median investment in minority VC funds was $55 million. Most industry newcomers were not able to tap pension funds and relied, most often, on the bank/insurance company group. Smaller sources of capital also fund young VCs that have not established a track record in the industry. Prominent among these sources are 1) government, 2) corporations, and 3) foundations and endowments.

2. What kinds of MBEs attract minority-focused VC investments and how do the funds interact with their portfolio firms? Unlike the broader VC industry, which heavily concentrated its investments in several high-tech fields (Gompers and Lerner, 2001), MBE-oriented funds

[1] Minority refers to persons other than non-Hispanic whites, and would include people who are black, Asian, and Hispanic origin.

commonly invested in a diverse range of industries. 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 of the funds has been to participate in syndicated MBE investments. The funds vary in their involvement with portfolio companies: some participate actively in the management of their client firms and some do not.

3. What yields are earned by the minority-focused VC investments, and what are the fund traits and practices that explain variations in yields on investments? What are the financial returns accruing to the funds? Eleven of the 24 surveyed funds made 118 investments in 1989-95 that had been realized by yearend 2000. These funds provided us the year-by-year cash flow details for each of these investments. Treating the fund as our unit of observation, we calculated internal rates of return (IRRs) on realized investments of 31.1 percent (mean) and 19.5 percent (median). We estimated a beta of 1.8 for the 118 investments using cash flow data, the market model, and the S&P 500; the estimated beta is in the broad range of betas found in previous studies of mainstream individual investments.

The standard measure of return used by the VC industry is the IRR. The IRR does not adjust for differences between investments in dollar size and length of life, and the IRR function is asymmetric around investment gains and losses. Thus we find that the (weighted and unweighted) mean and median IRR of the funds' individual investments do not accurately reflect the IRR of the funds, both individually and collectively. We therefore report measures of return on both individual investments and on the funds' portfolios (results cited above), the latter in both IRR and present-value measures. Yields on minority-focused VC funds' portfolios were somewhat higher than the yields found in previous studies of mainstream VC funds (Kaplan & Schoar, 2003; Chen, Baierl & Kaplan, 2002; Ljungqvist & Richardson, 2003). Our analysis of

returns, finally, utilized regression analyses to identify fund traits and practices that were associated with higher/lower IRRs on individual portfolio investments. Our findings indicate that minority VCs interacting actively with their portfolio firms add value that is reflected as higher IRRs in their realized investments in MBEs.

We conclude that the minority-focused VC funds analyzed in this study earned attractive yields despite their common restriction of investing in minority businesses. This finding supports the hypothesis that bias against minorities in accessing financing produces an underserved market that creates arbitrage opportunities for minority-focused VC funds.

II. The Capital Raised by Minority-Focused Venture Capital Funds

This study began in 2001 by surveying 50 funds operated by active members of the National Association of Investment Companies (NAIC). NAIC member firms are investment companies bound together by their shared interest in financing MBEs. Nearly all of the profit-oriented VC funds serving black and Hispanic (but not Asian) firms were NAIC members in the 1990s. Few of the nonprofit investors financing MBEs were NAIC members. Our initial survey was brief, seeking to identify NAIC member funds 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. Of the 50 surveyed funds, 48 responded; 36 were found to meet our criteria for inclusion in our broader analysis, i.e. 36 were profit-seeking venture-capital funds investing in MBEs. Excluded funds most often specialized in debt rather than equity financing. Of these 36 funds, 24 responded to our detailed questionnaire (a response rate of 66.7 percent) regarding fund characteristics and monetary returns on their individual small-business investments. Non-respondents tended to be the newer funds. While these 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.

Of the 24 responding funds that were both MBE and venture capital oriented, the funds attached to the older, more established investment 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 (table one). Pension funds—public as well as corporate—and the fund of funds most commonly provided capital to minority-oriented VCs that had an established track record of successful investing in MBEs.

Government funding sources serve a heterogeneous mix of VC firms, and they rank toward the bottom of the list of major capital sources. Among the six surveyed VC funds that began operations prior to 1990, all were chartered by the U.S. Small Business Administration (SBA) and operated as specialized small business investment companies (SSBICs). Among the 13 funds started since 1995, in contrast, only two were SBA-chartered SSBICs. The federal government as a VC funder is fading into insignificance, as neither the newer funds nor the older SSBICs are raising capital from this source. The expanding capital sources are typically the biggest providers—banks, pension funds, and funds of funds. Through yearend 2000, the surveyed 24 funds had raised capital amounting to $1,326.9 million.

[Table one about here]

Minority-oriented VC funds have a mandate from their institutional investors to focus upon MBEs. Among funds operating as SSBICs, 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 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 in these states. A self-proclaimed minority-oriented VC that deviated from minority business investing would alienate its funding sources.

If MBEs enjoy the same access to venture capital as similarly situated majority-owned firms, then the minority-oriented VCs may be redundant in the sense of not having an advantageous risk/return niche in which to invest. The MBE investment restriction, in this case, imposes an implicit tax by denying minority VC funds the right to pursue all investment alternatives available to mainstream VC funds. In this vein, the SBA has historically subsidized SSBICs by providing low-cost financing. However, the SBA imposes regulatory burdens, including ever-changing rules and procedures, that may nullify SBA's subsidies. In seeking SBA funding, according to Donald Lawhorne, CEO of the nation's largest SSBIC, we "reinvent the wheel each time" (quoted in Bates, 1997, p. 43).

The success of minority-oriented VCs is an empirical question influenced by opposing influences that are hard to measure. Being restricted to MBE investments narrows fund options and may penalize financial performance. If minority firms face restricted access to venture capital, on the other hand, then minority-oriented VCs may profit handsomely by financing an underserved market niche.

The notion that MBEs have less access to financing than otherwise identical majority-owned firms is well established 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; Ando, 1988). Reviewing these studies, Holzer and Neumark note that unobserved variables (as in the mortgage discrimination literature) may explain the racial differences in credit access: perhaps "lenders know something that researchers do not…and act rationally on the basis of this" (2000, p. 503). Yet they reject this explanation, concluding, "We think it fair to say … that the evidence is most consistent with continuing discrimination against blacks in business borrowing" (Holzer and Neumark, 2000, p. 503).

Extending the capital market access analysis to Hispanic, Asian and black-owned firms, Cavalluzzo and Wolken (2004) and Bates and Bradford (1992) essentially replicated the findings -- for bank borrowings as well as venture-capital access -- discussed above: controlling for firm, owner, and business environment traits, MBEs, other things equal, had less access to capital than white-owned firms. The conclusions of individual studies of capital access disparities are not decisive because each has its own peculiarities, rooted in differing methodologies and databases. The findings regarding black-owned firm financing gain credibility because 1) they were conducted at different points in time; 2) they utilized data from widely varying sources; 3) despite their methodological differences, highly consistent findings demonstrated large black/white gaps in access to financial capital.

A complementary approach to measuring discrimination in firm financing is to observe the behavior and performance of capital providers that fund MBEs. Our hypothesis is that capital-constrained minority-owned businesses constitute an underserved market. Thus, we expect that firms serving their financial needs operate in a risk/return niche in which they can earn high returns. The surveyed minority-oriented VC funds serving this market, finally, most often finance black-owned businesses, the niche in which "the evidence is most consistent with continuing discrimination…" (Holzer and Neumark, 2000, p. 503).

III. Investing in Minority Businesses

How do the minority-oriented VCs cope pragmatically with the risks of investing equity capital into MBEs? In terms of industry distribution, what types of MBEs are the funds financing? The 2001 survey data reveal widespread, consistent industry practices that moderate the risk of venture-capital investing, while working to build value in the portfolio companies. Twenty of the 24 surveyed minority-oriented venture-capital funds invested in communications firms (table two). Their orientation was more toward radio stations than broadband, although investments were sometimes made in high-tech areas of communications.[2] A stronger high-tech orientation appeared among the 12 funds that invested in electronics manufacturing firms, including computer-related firms. The majority of the companies in which the minority VCs have invested, however, cannot be characterized as high tech. Manufacturing firms operating in areas outside electronics were a popular investment choice: 15 of the funds invested in a diverse group of manufacturers (table two). A wide array of service industries has been a common investment target. Excluding medical services, 15 of the surveyed funds invested in service firms. The specific line of services that was most popular was medical services.

[Table two about here]

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.

[2] 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.

Investing in MBEs operating in a variety of industries and offering a range of equity and hybrid financial products requires considerable depth in managerial expertise. The small funds have often struggled 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 vitally 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. In fact, an outstanding feature of the minority-oriented venture-capital industry is the near-universal participation of funds in syndicated investments.

Among the 24 surveyed venture-capital funds, 23 respondents had participated in syndicated business investments. Remarkably, 19 of the funds had acted as the lead firm (or co-lead) in syndicating an investment. Nonetheless, several large funds were the dominant originators of syndicated investments. For large venture-capital investments, syndication is routinely used by most of the funds. An opportunity to invest $10 million in equity in a promising minority business venture—absent syndication—would be overly risky for a small minority-oriented fund. Rather than losing the deal, the fund may choose to syndicate it, investing, perhaps, $2 million of its own funds and parceling out $8 million to other minority-oriented VCs. This type of syndication is the norm in the minority VC sector it is not restricted by the regional location of funds; syndication is truly nationwide.

Widespread syndication 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. Through membership in the NAIC and their

frequent interaction on business investments, the general partners in this sector 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.

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. This information asymmetry regarding the true condition of the small business receiving equity capital causes venture capital investing to be risky. 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 afterwards. Monitoring and information tools of the venture capitalists include taking seats on the firm's board of directors, participating in long-range planning undertaken by client firms, and, when necessary, participating in the management of day-to-day operations.

By serving on a firm's board of directors, venture fund general partners not only learn more about a firm's operations; they also position themselves to provide advice and support for client firms. This study surveyed the 24 minority-oriented venture-capital funds to learn more about their interactions with client firms. Indeed, all but one of the 24 responding funds indicated that general partners sit on the board of directors of client firms, and 21 responded that they often do this (two funds sit on boards sometimes).

Sitting on the board of directors, of course, facilitates participating in other aspects of client firm operations. We collected data from the 24 survey respondents on four kinds of general partner involvement in management of their portfolio firms (table three). The four were:

1) Advise on long-term planning.

2) Assist with hiring.

3) Assist in day-to-day operations.

4) Active involvement in execution of exit strategy.

All of the 24 surveyed minority venture funds responded that they advised on long-term planning and were actively involved in execution of exit strategy.

[Table three about here]

The venture funds varied regarding assisting client firms with hiring. Although this type of interaction with their clients was nearly universal (23 of 24) among the surveyed venture funds, only seven provided such assistance often. More frequently, the funds' general partners responded that they sometimes assisted with hiring (16 funds). Assisting in the day-to-day operations of portfolio companies was something none of the surveyed minority venture funds did frequently. Yet, such intense involvement was undertaken sometimes by 17 of the 24 funds. An important finding — discussed below — is that the minority funds having the highest levels of involvement with their portfolio companies earned higher rates of return on their realized equity investments than the less active funds. Thus, the evidence suggests that highly active general partner involvement with client firms adds value to the portfolio companies.

The minority funds, by way of summary, invest in MBEs that exhibit broad industry diversity. In addition to an industrially diverse of portfolio companies, many of the funds hold a mix of financial investments in MBEs, including hybrid debt/equity products as well as straight equity. In these ways, they appear to be more diversified than the overall venture-capital industry. To cope with the risks inherent in venture-capital investing, the surveyed minority funds participated actively in syndication of their investments in MBEs. Finally, the funds

actively participated in their portfolio companies to varying degrees—sitting on boards of directors and involving the VC general partners in such managerial functions as assistance with hiring and participation in long-term planning.

IV. Returns on Harvested Equity Investments

A. Measuring Performance: Issues

The success of a VC fund is measured by its investment performance. The surveyed minority-focused venture-capital funds were asked to report the annual cash flows -- inflows and outflows separately -- for each realized equity investment that they initiated in 1989-2000. We used this cash-flow information to calculate various measures of investment returns. Several recent studies have examined the returns of venture capital firms, including Kaplan & Schoar (2003), Chen, Baierl & Kaplan (2002), Cochrane (2003) and Ljungqvist & Richardson (2003). In addition, Venture Capital and Venture One provide industry wide data on the returns to private equity. The standard measure of return is the internal rate of return, which is the rate, R, at which the following relationship holds:

$$(1)\ C_0 = \frac{C_1}{(1+R)} + \frac{C_2}{(1+R)^2} + \ldots + \frac{C_N}{(1+R)^N}$$

Where C_i is the cash flow in period i, and N = the number of periods. It is well-known that the IRR is an imperfect measure: 1) If the sign of the C_i's change more than once, more than one IRR can result; 2) For some combinations of cash flows, the IRR is not defined; 3) When comparing the performance of alternate investments, the IRR does not reflect differences in the scale, nor the length of life of the investments. For a basic discussion, see Ross, Westerfield, and Jordan (2000), ch. nine.

We found a less-discussed problem in aggregating individual investments' IRRs to the IRRs of individual funds. 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. An example is shown below.

	0	1	2	3	4	5	IRR(%)
A	-1,000	0	0	0	0	10	-60.2
B	-2,000	0	0	0	0	4,000	14.9
A + B	-3,000	0	0	0	0	4,010	6.0

Consider a VC fund which has invested in two firms, A and B, and each investment has a five-year life. The investments in firm A and firm B are $1,000 and $2,000, respectively. The investment in firm A pays $10 at the end of year five, which translates into an IRR of –60.2 percent over the five years. Investment B pays $4,000 at the end of five years, yielding an IRR of 14.9 percent. The average IRR for the two investments is (–60.2 + 14.9)/2 = -22.6 percent. The weighted average IRR is (⅓)(-60.2) + (⅔)(14.9) = -10.1 percent. However, neither of these yields is correct for the fund. The fund earned a positive yield on its *portfolio*, investing $3,000 ($1000 in A and $2000 in B) and receiving $4,010 ($10 for A and $4000 for B). The IRR of the portfolio (A + B) is 6.0 percent. This relationship holds because the IRR function is not symmetric for investment gains and losses.

Other problems regarding performance measures are rooted in inconsistent accounting practices used by venture funds to record costs of their investments. Among the surveyed minority venture funds, for example, a common type of investment was a loan agreement that had equity features, such as stock warrants. Consider a $200,000 investment in subordinated debt that includes warrants which can be exercised to purchase 10,000 shares of common stock in the borrowing company. Assume a five-year loan term, which is paid off in five equal $60,000 installments. After the loan is repaid, the investing VC sells the warrants -- perhaps executing them, perhaps selling them back to the borrower -- for $100,000. The investment was $200,000; the payback totaled $400,000. Yet this might have been booked as two transactions -- one debt

and one equity. Assume that the warrants were booked at a nominal cost of $10 when the loan was funded. This hypothetical fund now calculates returns on its equity investments. Depending upon how the transaction was initially recorded, it may be reported as an equity investment of $10, which yielded $100,000. That is a nice rate of return -- a yield of $10,000 per dollar invested. Alternatively, the loan and warrants may be treated as one hybrid transaction: $200,000 was invested and $400,000 was returned. In fact, such transactions are treated both ways in the 2001 survey data describing investment returns of the minority venture funds. We corrected the cases in which the incorrect format was used (i.e., treating a hybrid debt/equity investment as separate transactions), and point out this as another issue in measuring returns for a fund.

B. Measuring Performance: Findings

The minority-oriented venture-capital funds reported cash outflows to and inflows from investments that were initiated in the 1989-2000 period. Table four shows the cash flows associated with those realized investments initiated in 1989-1995. The point of observation of the results is yearend 2000; therefore the investments in the table were at least five years old by yearend 2000. Eleven of the surveyed minority-oriented funds made realized venture-capital investments that were at least five years old by yearend 2000, and a total of 118 firms received these investments. Note that multiple investments by a fund in one firm are treated as one investment. For the 118 investments, we report in table four the total investment dollar outflows, investment inflows and net cash flows by year for the funds. All of the investments described in table four have been "harvested" (sold or otherwise liquidated). The cash outflows associated with these investments totaled $66.1 million, averaging $560,200 over the 118 firms that

received venture capital.[3] Cash inflows from these investments totaled $210.1 million, averaging $1.780 million per investment. The venture-capital funds netted $143.9 million from the 118 investments, an average of $1.219 (table four).

[Table four about here]

The performance for individual minority-oriented VC funds, however, varied widely. The second and third rows of table five report, by fund, the mean IRRs of the realized investments made in 1989-95 and the dollar amounts of total undiscounted cumulative net cash flows (CNCFs) generated by these investments. Fund names are withheld for privacy purposes. The table five investments are the 118 realized investments that were made by the 11 surveyed funds in 1989-95, with results reported as of yearend 2000. Note that this table reports the returns on individual investments of funds as well as the overall financial results of each fund. The mean of the funds' individual investment IRRs ranges from 15.6 percent to –28.7 percent; the median IRR for the funds' individual investments (which is not reported in table five) ranges from 30.4 percent to –64.5 percent. The overall mean IRR for the 118 investments observed was 0.4 percent.

[Table five about here]

We have discussed the weaknesses of the IRR as a performance measure for individual investments. Cochrane's (2003) extensive study focuses on the outcomes of individual investments by VC funds, using the Venture One data. Unfortunately, Cochrane's Venture One data do not provide 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 makes certain assumptions and estimates that the average IRR is 15 percent; this compares to the 0.4 percent from the 118

[3] The VC industry average investment in a portfolio company in 1990-95 is $3.65 million. See PricewaterhouseCoopers (2002).

investments for which actual annual cash flow data are available. We mention his study because it does evaluate 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.

Another dimension of performance is risk. Relatively few of the realized investments of minority-focused VC funds resulted in market price data. In order to calculate parameters that measure risk, we recorded the initial year and the terminal year of each of the 118 investments, and calculated the IRR for the S&P 500 over the same period as the investment's life. We then used the IRR for each investment and the IRR for the S&P 500 over the same period to estimate a beta for the 118 investments. We estimated this beta using the Market Model; that is, we estimated β in ordinary least squares regression of the expression

$$R = \alpha + \beta R_m + \varepsilon$$

where R is the yield to the minority VC investments, α is the constant (alpha), R_m is the return to the S&P 500, and ε is the error term. Our results of this regression are

$$R = \underset{(-1.21)}{-0.269} + \underset{(1.83)}{1.81}(R_m)$$

The numbers in parentheses are the t-ratios of the regression coefficients. The regression provides an estimated beta of 1.8 for minority venture-capital investments. The negative alpha is not statistically significant. The R^2 is 0.03, indicating that 97 percent of the risk is firm specific. Cochrane (2003) and Peng (2001) also calculated the betas of VC investments using the S&P 500 as R_m. Cochrane estimated a beta of 2.0 with an alpha of -.071. Peng calculated the beta for venture capital investments: for annual returns, the beta was 2.4; the alpha was - .2034 and not statistically significant. Our calculation of beta is only suggestive, given the underlying differences in these databases, and our estimated value of 1.8 is broadly in the range of betas found by Cochrane and Chen.

Of the 118 investments made by the 11 minority-oriented VC funds described in table five, 65 (55.1 percent) of the investments had positive CNCFs. Three of these VC funds had negative mean IRRs on individual investments, coexisting with positive CNCFs; one fund with a positive mean IRR on individual investments had a negative CNCF (table five).[4] These conflicting results stem from the problems associated with the IRR, as discussed above.

In the top row of table five, we reduce the problems just described by making the entire fund the unit of observation and measuring the performance of each fund. It shows the IRR for each fund after combining the cash inflows and outflows for the fund over 1989-2000 for realized investments made in 1989-95. Thus, there is one IRR for each fund. This IRR reflects the size of the investments, the timing of the combined annual cash flows, and the actual yield on the investments. In essence, the top row of table five reports the IRR from the perspective of investors in the funds. Nine of the 11 funds earned positive overall IRRs. These IRRs ranged from –32 percent to 67 percent, with a mean of 31.1 percent and median of 19.5 percent.

How do these returns compare against some relevant benchmarks? The typical compensation scheme for the industry provides that general partners receive fees of 1.5 - 2.5 percent of the amount invested, and also receive 20 percent carried interest or share of the profits. After subtracting fees of 2.0 percent from the 31.1 percent and also 20 percent of the difference, we estimate net yields going to limited partners of 23.3 percent. Kaplan & Schoar (2003) report a mean IRR of 17 percent for general partners in 776 largely liquidated private equity funds in the Venture Economics database. Chen, Baierl & Kaplan (2002) find a mean IRR of 13.4 percent for 148 venture capital funds in the Venture Economics data that had

[4] The use of weighted means for the IRRs created more distortion.

liquidated as of 1999. Ljungqvist & Richardson (2003) report a mean IRR of 18.5 percent 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 mean IRRs paid to general partners of the minority-focused funds as higher than the yields found in these studies.

In light of the limitations inherent in the IRR measure, we calculated net present value returns generated by the surveyed minority VCs. Applying a ten percent discount rate to the $143.9 million in CNCFs reduces their overall value to $49.1 million. At a 20 percent discount rate, the net cash flows total $14.4 million (table five). At 20 percent, six of the minority-oriented VC funds show negative total net cash flows. Thus, net returns for five of the funds exceed a 20 percent threshold; the funds also collectively surpass this threshold. Note that the sum of the net present values of the individual VCs is slightly higher than the net present value of the combined cash flows from the VCs. This anomaly reflects the timing of investments and does not alter our conclusions.

C. Models Predicting Performance

It is worthwhile to 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 have predictive content for the IRR of individual VC investments in firms. What traits are associated with higher IRRs? Our predictive model is specified as IRR = $f(T_1, T_2 \ldots T_n)$, where the T_i represents trait i of the fund. Thus we observed the characteristics of the funds that made each of the 118 investments, and conducted regression analyses. Based upon the data provided by the funds, we tested the following model:

(3) IRR = a + β_1(Log of the size of the investment ($)) + β_2 (SSBIC = Yes)

$+ \beta_3$(Communications-Focused Fund = Yes) + β_4 (Proportion of Investments as Lead Fund) + β_5 (Highly Active with Portfolio Firms = Yes) + β_6 (Log of Total Fund Assets).

The surveyed VC funds were asked the dollar amount of their investments in each industry, the dollars invested as lead in syndicated transactions, and their relationships with portfolio firms. Also available was information on whether the fund was a SSBIC. A fund was considered as focused in the communications line of business if at least 40 percent of its assets were invested in that industry. The fund managers, as we discussed previously, were surveyed concerning whether they (1) sit on the boards of portfolio companies, (2) assist with hiring of portfolio companies, (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 each answer (1, 2 and 3, respectively for never, sometimes and often), and those funds scoring relatively high were considered "highly active" with portfolio firms.

Discussions with fund managers indicate that their preferred investment size is in the one-to two-million dollar range, considerably more than the $560,170 average typifying the 118 investments being analyzed. Larger investments, therefore, may be associated with higher IRRs, other things equal. Fund status as an SSBIC requires adherence to restrictive and changing SBA regulations, which, we hypothesize, will lower IRRs, other factors constant. The bigger funds, finally, may benefit from the greater diversification opportunities achievable through their larger scale of operations.

Several fund traits used as regression analysis explanatory variables have potentially conflicting impacts upon portfolio firm IRRs. The big 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. Minority-oriented VCs invest most often in communications: there may be advantages in specialization; alternatively, broader industry diversification may be a preferable strategy. High levels of involvement in the affairs of their portfolio companies, finally, may reflect either the need to work out problem investments or the positive value of general partner expertise (or both).

Table six provides an overview of the characteristics of the 118 investments and the funds that made those investments. The mean IRR, as noted above, was 0.4 percent; and the IRRs ranged from -99.8 percent to 487.9 percent. The mean firm investment made by minority-oriented VCs also ranged widely, from $1,300 to $6.2 million, with an average size of $560,170. The mean total-asset size of the fund was $18.4 million at startup. Note that this was not the mean size of the 11 funds under consideration since some funds made a higher fraction of the 118 investments than others. Investments of communications-focused funds made up 33 percent of the investments. Fifty-two percent of the investments were made by SSBICs, and 73 percent of the investments were made by funds highly active with portfolio firms.

[Table six about here]

In order to determine the traits associated with higher IRRs, we conducted both OLS and median regressions. Median regressions are of interest if one is concerned about the median IRR on investments given a set of fund characteristics. The skewness and fat tails characterizing the IRR distribution, in addition, may produce median IRR regression outcomes that contrast with OLS regression findings. Regression results for the 118 VC investments are reported in table seven.

[Table seven about here]

Findings produced by the OLS and median regressions are highly consistent (table seven). First, larger investments earn higher yields. This is implied by the results in table five, which showed that some funds with negative mean IRRs on individual investments had positive cash flows and IRRs overall. Second, SSBIC status is associated with lower IRRs when we control for the other predictor variables. Third, investments of communications-focused funds have lower IRRs than investments of diversified funds. Fourth, investments by funds that are highly active with portfolio firms have 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 have lower IRRs, when the other predictor variables are controlled for. Ljungqvist & Richardson (2003) find this relationship in their study, but Kaplan and Schoar (2003) find the opposite relationship.

The finding that larger funds generated lower IRRs than smaller funds, other things equal, was surprising. Yet our results suggest that potential disadvantages of being a small fund may be overcome through active investment in syndicated deals. Finally, the proportion of investments in which the fund was the syndicate leader was not found to be statistically significant in predicting IRRs.

A minority-oriented VC fund generating above average IRRs, relative to its peers, can be broadly described as 1) investing in a range of different industries, 2) making investments of $1 million or more per firm (well above the average of $560,170 per investment), 3) not being chartered by the SBA, and 4) taking a highly active role in the affairs of its portfolio companies.

The weaker performance typifying SBA-chartered SSBICs may explain why few of the minority-oriented VCs established since 1995 have chosen to become SBA licensees. The popular alternative limited partnership form of fund organization and its associated reliance upon

funding sources other than the federal government is now the norm in the minority-oriented VC sector.

V. Concluding Remarks

The minority-oriented venture-capital firms are a growing part of the infrastructure that finances larger-scale MBEs. This study is pioneering in the sense that no previous research has successfully identified the minority-oriented investment firms that really do make equity investments in MBEs. We have identified 36 funds run by such firms, and we have successfully surveyed 24 of those funds. Resultant survey data are rich: 1) sources of funding are identified; 2) uses of those funds to finance MBEs are tracked; 3) detailed rate of return information are collected describing the performance of realized investments.

Among the 24 funds responding to our 2001 survey, $1.327 billion had been raised through year-end 2000. Realized investments made by these funds generated a 31.1 percent IRR mean and a corresponding beta of 1.8. Our search for broadly comparable mainstream VC industry analyses produced IRR estimates ranging from 13.4 percent (Chen, et al., 2002) to 19.1 percent (Kaplan and Schoar, 2003). For applicable betas, the low estimate was 2.0 (Cochrane, 2003) and the high end of the range was 2.4 (Peng, 2001). The higher mean IRRs and lower beta that describe the minority-oriented VC funds provide support for the hypothesis that they are investing in an underserved market niche which, by virtue of being underserved, offers attractive returns. This finding is tempered by the reality of underlying databases that are not directly comparable. We conclude that the realized investments of the minority-oriented VC funds, regarding return measures, are higher than those estimated to exist in the mainstream venture-capital industry. This finding is tempered by the reality of underlying databases that are not directly comparable.

Results of our analyses, finally, suggest certain positive future prospects for the minority-oriented VCs. The trend away from SBA affiliation may improve minority-oriented VC fund performance through time as SSBICs make up a declining share of the active funds and limited partnership funds become more prevalent. The fact that minority-focused funds with industrially diverse portfolios did well in the 1989-2000 period may convey an advantage in the early years of the 21st century, a period in which funds heavily concentrated in high-tech fields have experienced depressed returns. The minority VC funds, finally, appear to be small relative to the demand for such funding, suggesting that this niche market is not saturated. The evidence to date reflects positively on the performance of the venture-capital funds that specialize in financing minority-owned businesses.

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Table one: Funding Sources Most Often Utilized by Minority-Oriented VCs.

MAJOR SOURCES	# OF FUNDS TAPPING THIS SOURCE	CAPITAL RAISED, MEDIAN VALUE	RANGE OF CAPITAL RAISED
1. Banks, insurance co.s	13	$14 million	$1 million to over $50 million
2. Corporations	10	$ 3 million	$ 1 million to over $7 million
3. Fund of funds	7	$15 million	$8 million to over $25 million
4. Public pension funds	5	$55 million	$20 million to over $400 million
5. Corporate pension funds	7	$11 million	$4 million to $25 million
6. Federal government	5	$ 4 million	$3 million to $9 million
7. State, local government	5	$ 5 million	$1 million to $20 million
8. All other sources	17	$ 1 million	Under $100,000 to over $12 million

Source: 2001 survey of 24 VC funds

Table two: Investing in MBEs: Number of Funds Investing in Select Industry Groups*

Communications	20 funds
Manufacturing other than electronics and computer-related	15 funds
Manufacturing: electronics and computer-related fields	12 funds
Trade: wholesale and retail	13 funds
Services, except medical	15 funds
Medical	9 funds

*Source: 2001 survey of 24 minority-oriented VC funds

Table three: Venture-Capital Fund Interaction with their Portfolio Companies

INVOLVEMENT OF THE GENERAL PARTNERS	**NEVER**	**SOMETIMES**	**OFTEN**
1. Sit on board of directors			
# of funds	1	2	21
% of funds	4.2%	8.3%	87.5%
2. Assist with hiring			
# of funds	1	17	6
% of funds	4.2%	70.8%	25.0%
3. Advise on long-term planning			
# of funds	0	3	21
% of funds	-	12.5%	87.5%
4. Assist in day-to-day operations			
# of funds	7	17	0
% of funds	29.2%	70.1%	-
5. Activity involved in executing exit strategy			
# of funds	0	4	20
% of funds	-	16.7%	83.3%

Table four: Cash Flows Through Yearend 2000 On Realized Investments Initially Made in 1989-95 Minority-Focused Venture-Capital Funds* ($ Millions)

YEAR	(A) INVESTMENT OUTFLOWS	(B) INVESTMENT RETURNS	(B - A) NET CASH FLOWS
1989	4.3	0.4	-3.9
1990	3.9	0.5	-3.4
1991	2.7	0.6	-2.1
1992	11.6	0.7	-11.0
1993	8.5	13.6	5.2
1994	13.8	4.3	-9.5
1995	10.8	10.5	-0.3
1996	4.9	8.8	3.8
1997	4.0	25.8	21.8
1998	1.0	57.2	56.2
1999	0.5	61.2	60.7
2000	0.1	26.5	26.4
Total	66.1	210.1	143.9

*Includes data on 11 minority-oriented venture funds surveyed in 2001 that made equity investments in 1989 through 1995. The figures in (A – B) are rounded.
Source: 2001 survey of minority-oriented VC funds

Table five: Performance Through Yearend 2000 On 118 Venture-Capital Investments Made By 11 Funds in 1989-95; Minority-Oriented Venture-Capital Funds ($ thousands)

Fund	**a**	**b**	**c**	**d**
IRR for the fund	0.0%	16.4%	26.8%	27.2%
Mean IRR -individual investments	4.9%	-10.5%	2.9%	-18.3%
CNCFs	-0.5	6,977.4	5,168.3	54,928.9
NPV,10%	-106.3	1,616.3	2,301.7	20,958.4
NPV, 20%	-175.2	-594.9	693.3	5,667.6

Fund	**e**	**f**	**g***	**h**
IRR for the fund	8.9%	5.0%	-32.2%	52.0%
Mean IRR, individual investments	15.6%	5.0%	-28.7%	13.6%
CNCFs	1,047.7	85.0	-1,027.4	43,213.4
NPV,10%	-74.3	-60.9	-1,035.7	20,198.6
NPV, 20%	-471.2	-137.8	-1,021.3	9,523.8

Fund	**i**	**j**	**k**	**Totals**
IRR for the fund	67.4%	19.5%	66.8%	31.1%
Mean IRR, individual investments	14.3%	-24.0%	4.1%	0.4%
CNCFs	16,706.1	6,616.1	10,195.4	143,910.1
NPV,10%	8,539.4	1,933.2	6,393.6	49,081.5
NPV, 20%	4,496.6	-66.1	4,026.9	14,376.9

Median IRR (11 Funds)	19.5%
Mean IRR (11 Funds)	31.1%

*The NPV increases as the discount rate increases because of the pattern of the negative cash flows.
"CNCF" means cumulative net cash flows. "NPV" means net present value.
Source: 2001 Survey of Minority-Oriented VC Funds

Table six: Characteristics of the 118 Investments of Minority-Oriented Venture-Capital Funds

I. Summary of Descriptive Variables	Mean	Std. Dev
IRR	0.0035	0.717
Net Cash Flows ($)	1,219,576	4,576,857
Investment Size ($)	560,170	841,875
Traits of Fund Making the Investment:		
Total Assets of the Fund at startup ($)	18,206,036	10,323,600
$ Prop of Inv. As Lead	0.42	0.29

2. Discrete Classifications	Number	Prop
Positive IRR Investments	65	0.55
Investments of SSBICs	61	0.52
Investments of Communications-Focused Funds	39	0.33
Investments of Highly Active Funds	86	0.73

Source: 2001 Survey of Minority-Oriented Venture-Capital Funds and the authors' calculations.

Table seven: Regressions Predicting Internal Rates of Return on Investments of Minority-Oriented Venture-Capital Firms. Investments Initiated in 1989-95, Results Observed at Yearend 2000

Form of Analysis	OLS Regression		Median Regression	
Dependent Variable	IRR		IRR	
	Coefficient	t-stat	Coefficient	t-stat
Independent Variables:				
Log of investment dollar size	0.085	2.8**	0.113	2.7**
SSBIC = yes	-0.505	-2.7**	-0.505	-2.1*
Communications-focused fund	-0.411	-2.2*	-0.421	-2.0*
Prop of investments as lead	-0.079	-0.4	-0.308	-1.1
High activity with portfolio firms	0.707	2.7**	0.741	2.4**
Log of fund assets	-0.198	-2.3**	-0.234	-2.3*
Constant	2.144	1.5	2.438	1.5
	Adj. R^2	0.175	Pseudo R^2	0.086

N = 118
Statistical significance: * = 0.05 ** = 0.01.
Source: 2001 Survey of Minority-Focused Venture Capital Firms and the authors' calculations.