The Viability of the Minority-Oriented Venture Capital Industry

Implications of Diversifying Investment Strategies

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Executive Summary

Since the 1990s, minority-oriented equity-capital funds, popularly known as venture capital (VC) funds, have substantially increased the size and scope of their small-business equity investments, particularly in firms owned by African Americans and Hispanics. Flush with capital raised from institutional investors in the 1990s, these venture-capital funds collectively have invested increasingly in new-economy high-tech lines of business in recent years. As high-tech investing has grown in popularity, the minority-oriented funds' investment practices have begun to resemble those of their mainstream (not minority oriented) VC-industry counterparts. This changing emphasis, along with a growing propensity to invest in white-owned firms, has coincided with substantial declines in the average returns generated by the minority-oriented VC funds in recent years. Why would these funds in the 21st century increasingly invest outside of their traditional minority-market niche? What are the ramifications of these investment trends for black- and Hispanic-owned ventures seeking venture capital financing? Why, finally, have the realized returns earned by the minority-oriented VC funds declined in the 21st century? Answers to these and closely related questions are developed and explained in this report.

Past studies have consistently demonstrated that minority-owned business enterprises (MBEs), particularly those owned by African Americans and Hispanics, have less access to debt and equity capital than similarly situated white-owned firms. When MBEs experience restricted access to capital markets, this market segment is being underserved and attractive returns may be available to funds choosing to specialize in financing this minority-business client group. This situation, which we call the "underserved market" hypothesis, indeed, constitutes the traditional rationale for the existence of minority-oriented VC funds.

We proceed by investigating the financial returns minority-oriented VC funds have earned on their realized equity investments initiated during the 1989 through 2004 time period. In cooperation with the National Association of Investment Companies (NAIC) and the E.M. Kauffman Foundation, extensive data describing the characteristics and strategies of VC funds serving the MBE market segment, along with detailed information on the equity investments in small businesses these funds have initiated since 1989, are now available to researchers. These data have been analyzed in this study. Our analysis sought to explain the financial returns generated by the investments of minority-oriented VC funds, and this was accomplished by analyzing detailed annual cash flow information through year end 2006 for each individual investment.

To understand the investment choices made by minority VC funds, it is necessary to situate those choices in the context of the strategies these funds employ to manage successfully the considerable risks inherent in making equity investments in their portfolio firms. Widespread syndication is symptomatic of the extensive networking that typifies the minority-oriented venture-capital funds. Through membership in the NAIC and their frequent cooperation in developing syndicated business investments, these funds are able to finance large deals while enhancing diversification of their investment portfolios. Second, nearly all of the VC fund general partners (GPs) actively participate in the affairs of their portfolio companies – sitting on boards of directors and involving the GPs in such managerial functions as assistance with hiring,

engaging in active day-by-day managerial decision making, and participating in long-run planning. Finally, the minority-oriented VC funds, instead of focusing narrowly on a single industry, often rely on a diverse industry mix of portfolio companies; they are typically more broadly diversified than the mainstream venture-capital industry.

We have identified, using generalized least squares random effects regression analysis techniques, the fund traits and strategies that predict high investment returns on the realized equity investments of the minority-focused VC funds. We conducted these tests to determine the fund characteristics and strategies that are correlated with internal rates of return (IRR) values of individual VC investments in firms. Our analysis introduced control variables expected to impact investment returns, including equity investment dollar amounts, investment timing, portfolio company industry of operation, and VC fund vintage.

What profiles and strategies typify the more successful, as opposed to the less successful minority VC funds? Higher IRR values are associated with 1) investing in MBEs, 2) activism in assisting portfolio companies on the part of the VC fund general partners, and 3) a larger number of VC investments per fund general partner. It is noteworthy that all of these traits linked to higher returns on VC investments represent investing strategies employed at the discretion of the individual VC funds. Lower IRR values are associated with 1) making investments in white-owned firms, 2) being an older VC fund, 3) participating in syndicated investments, and 4) top-of-the-cycle investing (making investments initially funded in either 1999 or 2000). Investing in high-tech companies, finally, has not been a productive strategy for minority-oriented VC funds seeking to generate high financial returns on their equity investments.

These findings validate the underserved minority market hypothesis: investing in MBEs, other factors being the same, generates higher returns for the minority VC funds than investments in nonminority-owned ventures. In English, this means that investments of the same dollar amount, initiated in the same time period, by minority-oriented VC funds using identical strategies regarding such factors as syndication, investment by industry, GP activism with portfolio companies, and the like, produced higher IRR values if the portfolio company was minority owned and lower values if the company was white owned.

Utilizing our regression analysis results and related findings, we attribute the generally declining financial returns typifying the minority-oriented VC funds in recent years to five factors, three of which reflect the tendency of these funds to emulate mainstream VC industry investing practices. First, cooperation among funds in the form of syndicated investing has declined, a trend mirroring mainstream investing practices. We attribute declining returns to the fact that minority VC funds are increasingly keeping their most promising investments entirely for themselves, while syndicating the less promising deals in order to spread the risk of a poor ultimate outcome for these deals. Second, the increasing frequency of investments in white-owned portfolio companies—rather than MBEs – has clearly depressed realized investment returns. Major institutional investors tend to prefer to provide investment capital to minority-oriented VC funds that emulate mainstream VC industry investing practices. Our analysis suggests that public pension funds and funds of funds – the two dominant sources of institutional investor funding for minority VC funds—collectively prefer to provide investment capital to minority VC funds investing in portfolio firms having racially diverse owners – white-owned as

well as minority-owned ventures. Investing in hi-tech companies, third, is another factor tending to lower returns on realized equity investments in portfolio companies.

Investments initially funded in the years 1999 or 2000 by minority-oriented funds — investing at the very top of the VC industry's boom/bust cycle – were the fourth cause of low realized returns on VC investments; in comparison, investments initiated before or after 1999 and 2000 were much more successful. Investing heavily at the top of a boom/bust cycle, while certainly a negative, is most likely a transitory phenomenon rather than a strategic choice likely to indicate enduring poor returns on the equity investments made by the minority-oriented VC funds. Fund vintage, finally, shaped investing returns, a finding that suggests, on balance, a brighter future for the minority-oriented VC fund sector. The older funds were the ones most often producing low returns on realized equity investments, holding other factors constant, while the newer-generation funds – those most directly shaping the future trajectory – were the better performers. These newer VC funds are typically run by GPs possessing work experience in investment banking prior to launching their venture capital funds, while GPs of older funds rarely possessed such mainstream work experience. Our findings suggest that having prior work experience in investment banking conveyed investing advantages.

The question "why would these VC funds in the 21st century increasingly invest outside of their traditional minority market niche?" is closely linked to the investing preferences of the institutional investors that provide the funding for the venture capital industry. Major institutional investors like pension funds seek high financial returns when they invest in VC funds. When they contemplate investing into minority-oriented VC funds, they seek to cherry-pick the winners, investing only in the subset of minority funds poised to generate above-average returns for their institutional investors. In the process of picking and choosing those funds potentially offering the highest investment returns, the institutional investors effectively shape the trajectory of the minority VC industry subsector. The winners—flush with funding —rapidly achieve growing prominence in the MBE equity investing realm; the losers—smaller in resources available for investing—lose relative position within the minority VC fund universe.

Our findings and those of other researchers indicate that the dominant institutional investors providing funding to the minority-oriented VC funds have systematically tended to invest in the less profitable VC funds, including those investing most actively in hi-tech and white-owned portfolio companies. Importantly, however, the investing practices of these institutional capital sources are self-correcting over time precisely because their funding decisions are driven largely by their search for above-average returns. We therefore see this institutional investor set of preferences as a short-term phenomenon, with future funding flowing increasingly to the minority-oriented VC funds pursuing the equity investing strategies most clearly identified with generating high returns on their VC investments. Investing in minority-owned business ventures will remain dominant because they offer higher returns, on balance, than investments in firms owned by nonminority whites.

I. Overview and Background

A. Overview of the Minority-Oriented Venture Capital Industry

Since the 1990s, minority-oriented equity-capital funds, popularly known as venture capital (VC) funds, have substantially increased the size and scope of their small business equity investments, particularly in firms owned by African Americans and Hispanics (Bates and Bradford, 2008a). Flush with capital raised from institutional investors in the mid- to-late 1990s, these venture capital funds collectively have invested heavily in new-economy high-tech lines of business in recent years. As high-tech investing has grown in popularity, the minority-oriented funds' investment practices increasingly resemble those of their mainstream VC-industry counterparts. This changing emphasis, along with a growing propensity to invest in white nonminority-owned firms, has coincided with substantial declines in the average returns generated by equity investments of minority-oriented funds in recent years.

Why would these minority-oriented VC funds in the 21st century increasingly invest outside of their traditional minority market niche? Why would funds choose to focus increasingly upon financing high-tech firms, emulating the investment patterns of mainstream equity capital funds, if indeed their traditional minority-business-enterprise (MBE) clientele provided an underserved market segment offering attractive returns to equity capital funds targeting this client group (Bates and Bradford, 2008a)? What are the ramifications of these investment trends for black- and Hispanic-owned ventures seeking venture capital financing? Why, finally, have the realized returns earned by the minority-oriented VC funds declined in the 21st century? Has their increased orientation toward the investing practices of mainstream VC funds reduced returns for the minority-oriented VC funds? If so, is it the growth of investing in nonminority-owned business ventures, the increase in high-tech investing, or other factors that have reduced the returns generated by realized equity investments of the minority-oriented VC funds? Investing trends shaped by the preferences of large institutional investors possibly encourage the growth of minority-oriented equity-capital-investing funds that generate below-average returns and invest less equity capital in minority-owned small businesses. Perhaps it is some combination of these factors. Answers to these questions are derived and explained in this report.

Scholarly studies have consistently demonstrated that minority-owned business enterprises (MBEs), particularly those owned by African Americans and Hispanics, have less access to debt and equity capital than similarly situated white-owned firms (see, for example, Cavalluzzo and Wolken, 2005; Bates and Bradford, 1992; Blanchflower, et al., 2003). When MBEs experience restricted access to capital markets, this market segment is being underserved and attractive returns may be available to funds choosing to specialize in financing this minority-business client group. This reasoning is the crux of the "underserved market" hypothesis, and available evidence is consistent with this hypothesis (Bates and Bradford, 2008a; Bates and

Bradford, 2003)[1]. The underserved market hypothesis, indeed, constitutes the traditional rationale for the existence of minority-oriented equity-investing venture capital funds.

Venture capital funds specializing in making equity investments in minority-owned business enterprises have become important sources of equity capital for MBEs. Their growth has been driven primarily by the willingness of major institutional investors – particularly public pension funds – to commit financial capital to this traditionally neglected niche. In the process, the investment practices of VC funds targeting equity investments in MBEs have been shaped by the preferences of institutional investors (Bates and Bradford, 2009). Institutional investors have directed their investments increasingly toward minority-oriented VC funds investing in "new-economy" lines of business. While high-tech investing has grown, high returns have flowed more often to the funds investing most actively in "old-economy" fields (Bates and Bradford, 2008b).

Does diversifying outside the underserved minority market niche increase or decrease the availability of management support services and/or the amount of equity capital that minority-oriented VC funds provide when investing in minority-owned small businesses? The issues we explore are whether diversification into nonminority investments by minority-oriented VC funds has helped or hurt the access of minority-owned small businesses to equity capital and related management assistance services. We recognize that equity capital markets are not "zero-sum-games" and that investing a portion of VC-fund equity capital in nonminority owned firms does not necessarily equate to investing less equity capital in minority-owned small businesses. If, for example, diversification into nonminority investing allows minority-oriented VC funds to grow relatively more rapidly, then diversification may actually increase the absolute size of the potential pool of investable funds available to VC funds to invest in MBEs. Fortunately, our extensive data set describing minority-oriented VC funds and their investments developed in previous studies provides insights into these issues.

B. Minority Business Enterprise Access to Venture Capital: The Relevance of Capital Constraints

Minority-oriented venture-capital funds have been able to attract capital from such major institutional investors as pension funds because these investors anticipate that yields forthcoming from their VC fund investments will be competitive with the yields available from alternative investments. Of course, venture capital generally is regarded as substantially riskier and less liquid than most other assets that institutional investors might choose to hold, such as corporate bonds or common stock traded on major exchanges. A venture-capital investment has an investment horizon of from three to ten or more years, and the VC fund will often take a portfolio company through one or more business downturns. Individual equity investments in

[1] A racially defined group of small businesses is most often defined as "underserved" in cases where they have less ability to obtain financing – whether debt or equity – than businesses possessing identical characteristics and traits in all respects but one – race of owner. Being underserved can also describe situations where the terms on which one obtains financing are unfavorable for minority-owned ventures in cases where identical traits other than owner race prevail.

small firms often yield negative returns (Cochrane, 2005). For those institutional investors capable of bearing such risk and illiquidity, high expected returns are a major attraction.

Minority-oriented venture-capital funds have a mandate to invest largely in minority-owned businesses (Bates and Bradford, 2008a). Conceptually, the expected financial results for these VC funds depend significantly on whether or not minority-owned firms have full access to venture-capital funding; that is, whether majority venture-capital investors provide sufficient capital to minority-owned ventures. If minority-owned firms are treated less favorably in financial markets and have less access to venture capital than similarly situated majority businesses, then above-average returns/below average risks may be available to VC funds focused on financing minority-owned firms. Available evidence describing access to equity-capital financing, in fact, does indicate that minority owners experience less access to venture capital than nonminority owners having similar human-capital traits (Bates and Bradford, 1992). If this is indeed true, then minority-oriented venture-capital firms should achieve favorable returns in the MBE market niche because there are unmet opportunities available.

If, alternatively, minority firms have access to venture capital to the same degree as otherwise identical nonminority-owned businesses, then minority-oriented VC funds are possibly redundant because they do not have an advantageous risk/return niche in which to invest. However, the restriction to invest in minority firms can still be a successful investment strategy if the minority-oriented funds are better than other funds at identifying and screening the more successful from the less promising minority ventures. On the other hand, if minority firms have equal access to financing in mainstream financial markets and the minority funds lack greater ability to screen successful from unsuccessful ventures, then focusing on minority firms places a burden on these funds. Here the minority-oriented funds would have to invest more than an optimal portion of their portfolios in minority firms, and the funds would therefore be accepting a lower return for a given level of risk, or a higher risk for any given level of return that they achieve.

It is important to note that if a fund is restricted to invest more than an optimal portion of its assets in a given asset category, the restriction imposes an implicit tax on the institution. In the case of Specialized Small Business Investment Companies (SSBICs), the U.S. Government historically attempted to reduce the cost of this investment restriction by compensating SSBICs with subsidies. However, the SBA also imposed regulatory burdens, including frequently changing regulations, that tended to nullify these subsidy benefits (Bates, Bradford, and Rubin, 2006).

In summary, the success of minority-oriented venture-capital funds is an empirical question, because it depends on several opposing influences that are difficult to measure. If minority-owned firms are fully able to obtain financing from existing venture-capital funds, then the creation of minority-oriented venture-capital firms may not increase the amount of venture capital flowing into investment-grade minority business projects. In addition, minority-oriented venture-capital funds will not generate attractive financial returns on their investments in MBEs unless they have a greater ability than other VCs to select and invest in successful minority ventures. Fully equal access to venture capital for MBEs (in comparison to equivalent nonminority ventures) would indicate that the underserved market hypothesis is invalid simply

because the minority market is not being underserved. Restricting their investments to minority-owned firms can be a cost to the minority-oriented VC funds if full and equal access to venture capital indeed describes MBEs, since the funds would be less able to take advantage of opportunities in the nonminority business sector. Absent a better ability to identify and analyze investment prospects among MBEs seeking equity capital, the minority-oriented venture-capital funds would be expected to yield lower returns and/or higher risks on investments, relative to mainstream VC funds (i.e. those not specifically targeting MBEs).

Another possibility is that minority firms do not enjoy equal access to venture-capital funds, thus allowing minority-oriented funds to earn attractive investment returns while increasing the dollar amount of equity investments received by investment-grade minority businesses. In this case, the MBE market is being underserved and the returns available to minority-oriented venture-capital funds are expected to be at least comparable to and quite possibly higher than returns generated by other venture-capital funds.

There are two direct empirical tests for the presence or absence of restricted MBE access to equity capital, the first of which entails comparing the financial performance of VC funds specializing in investing in MBEs, to the outcomes of mainstream VC funds of the same vintage (started in the same year) that do not target their investments to MBEs. The public-market-equivalent-vintage (PME-vintage) measure of VC fund investment performance is useful because it provides a direct basis for comparing the investment returns generated by minority-oriented VC funds to those produced by the mainstream VC industry. Bates and Bradford (2008a) calculated the PME-vintage measure of returns for minority-oriented VC fund investments initiated between 1989 and 1995 that had been fully realized by year end 2003, thus comparing their performance to mainstream funds of the same vintage. The PME-vintage measure was calculated by dividing the present value of minority fund cash inflows (returns) on individual equity investments by the present value of its cash outflows (investments). The discount rate used in this calculation was the equally weighted average lifetime IRRs of all private equity funds (in the Venture Economics database) of the same vintage year. This measure of investment performance is further explained in Kaplan and Schoar (2005).

This specific measure of investment returns was calculated two ways – first as an equally weighted average of individual minority-oriented VC funds' PME-vintage values (this PME-vintage value = 1.13), and secondly, as an overall PME vintage value treating all MBE-oriented funds as though they were one giant VC fund (PME-vintage value = 1.16). Either way, the minority funds outperformed mainstream funds of the same vintage. Note that a reported PME value of one would indicate that cash invested by the minority-oriented VC funds earned exactly the same returns (using IRR as the measure of returns) as equivalent cash invested into mainstream funds. A PME of less than one indicates that investing in mainstream VC funds yielded higher returns, while a PME greater than one shows that investing in the minority VC funds was the more profitable alternative. The higher returns of the minority-oriented funds are consistent with the underserved market hypothesis (Bates and Bradford, 2008a) but this conclusion must be tempered by the reality of databases that are not perfectly compatible (Venture Economics data was used to describe mainstream VC funds; survey data collected from minority-oriented VCs described these funds). Thus, the finding of higher returns for minority-oriented funds is provocative but not definitive.

An alternative test of the underserved market hypothesis requires collecting data on all realized VC investments made by a group of funds over a specific time period, all of which invested equity capital actively in MBEs, and some of which actively made VC investments in both MBE- and nonminority-owned small businesses. The underserved market hypothesis would be supported if the observed investment returns forthcoming from realized VC investments in MBEs exceeded – to a statistically significant degree—returns from investments in the non-MBE ventures. This alternative test is presented and analyzed in this report.

C. The Nature of our Database Describing Minority-Oriented VC Funds and their Equity Investments in Small Businesses

All of the private equity funds in our database were active members of the National Association of Investment Companies (NAIC) in 2000 and/or 2003. These VCs were NAIC members because all shared an active interest in investing in MBEs. The approach used by Bates and Bradford (2003; 2008b) to generate comprehensive survey data on the minority-oriented venture-capital industry has been to work closely with this industry's dominant association, the NAIC. NAIC officials and minority VC-industry leaders aided their efforts to collect survey responses, which often involved considerable arm-twisting. Survey responses were collected from the individual minority-oriented VC funds under the sponsorship of the NAIC and a series of Kauffman Foundation-funded research projects undertaken by Timothy Bates and William Bradford over the 2001 – 2008 time period.

This database was constructed by surveying member funds at three points in time – 2001, 2004 and 2007. Not all member funds were included in our survey. A brief pre-survey of the 50 funds as of December 2000 revealed that 36 were (i) actively investing equity capital in small firms, (ii) targeting their investments largely to MBEs, and (iii) investing with a predominant focus upon generating attractive monetary returns.[2] Two funds did not respond to the pre-survey. All funds not meeting the above three conditions were dropped from further consideration. Excluded funds (12) most often were debt (as opposed to equity) oriented or were investing for social returns. All of the surveyed funds described in this study are therefore profit-oriented funds actively investing equity capital in small businesses, the majority of which are minority business enterprises (Bates and Bradford, 2003).

Based upon our pre-surveying and eligibility screening, 38 member funds were asked to complete the full survey questionnaire in 2001. Responding firms were re-surveyed in 2004 and 2007 to update investment performance information. Of the eligible funds, 24 responded to the detailed 2001 survey questionnaire (63.2 percent response rate) regarding fund traits, general partner (GP) characteristics, and monetary returns on their individual small-business investments. Further details describing the construction of this database are spelled out in the attached Appendix A: Database describing MBE-oriented VC funds and their equity investments in small businesses.

[2] "Minority" refers to persons other than non-Hispanic whites, including people of black, Asian, and Hispanic origin.

Although surveying venture-capital funds has been common since the 1980s, generating accurate, comprehensive data describing the venture-capital industry has been a huge challenge for researchers and scholars. The value of the collected data, of course, depends on the cooperation of the surveyed VC funds. Low survey response rates have been the norm. The 1995 National Census of Early-Stage Capital Financing, for example, was created by surveying 180 venture-capital firms: only 36 responded (Meyer, et al., 1995). Many academic researchers have directly surveyed venture-capital firms, notes Brophy, "but overall results were spotty, as firm partners became unwilling to disclose details for uncontrolled publication…" (1997, p.9).

The fact that NAIC member funds are united by their shared interest in investing equity capital into minority-owned businesses suggests a fundamental difference between the surveyed VC funds analyzed in this report and the rest of the U.S. venture capital industry. A demographic profile of the 41 VC fund general partners (GPs) associated with the 24 surveyed applicable funds further indicates distinctiveness, relative to the broad VC industry mainstream. Among the 41 GPs, 28 are African American, five are Asian American, three are Hispanic, and five are nonminority white. An examination of GP educational backgrounds reveals similarities with the mainstream: for the 39 GPs reporting their educational credentials, 37 held a graduate or professional degree, and 33 of those were MBA degrees. Among the institutions awarding the MBA degrees to these fund general partners, most were the nation's leading business schools, and Harvard MBA degrees were the most numerous (Bates and Bradford, 2008b). Among the 400 portfolio firms financed by the VCs described in our database, finally, owners of these ventures were most often African Americans; Hispanic-owned firms were the second most numerous; nonminority white owners were in third place and Asian owners were fourth.

D. The Demand for Venture Capital

A driving force behind rapid growth of the minority business community lies in the expanding pool of college educated, professionally trained, managerially experienced minorities seeking to start and expand large-scale businesses (Greene and Owen, 2004). Boston and Ross, observing this process in Atlanta, noted that a new African American entrepreneur has emerged. "This new entrepreneur is young, well educated, operating increasingly in non-traditional industries…" (1997, p. 339). Serving the financing needs of this new generation of high-end MBEs, minority VC funds have expanded rapidly in size and scope in recent decades (Bates & Bradford, 2003).

Gains in higher education illustrate how wider opportunities translated into significant progress in the minority business realm, permitting the "new" minority entrepreneur to emerge and become commonplace. Between 1965 and 1980, for example, minority enrollment in colleges and universities generally, and enrollment among African-Americans specifically, more than tripled (Bates, 1997a). Yet it was the qualitative change in student areas of concentration during this time period – preparing for careers in business and technical fields – that gave rise to the new African American entrepreneur (table 1). Career options widened and minority students shifted their fields of concentration dramatically to take advantage of opportunities in the business world (Bates, 1997a; Carter and Wilson, 1992; Harvey, 2003). Thus, bachelor's degrees earned by minorities since the 1970s grew most rapidly in business and engineering fields, while

master's degrees saw their most rapid growth in business-related fields. By 2005, for example, over 100,000 African Americans had received MBA degrees.

The target market served by minority-oriented VC funds constitutes a small subset of the nation's minority business community. Those VC funds seeking to invest in MBEs commonly target firms whose owners have strong educational credentials and considerable managerial expertise, often acquired while working for major U.S. corporations. It is the college graduate – often the MBA recipient—who has at least ten years of work experience in corporate America who most often seeks venture capital financing for his or her growing young firm. In addition, firms receiving investments from the minority-oriented VC funds commonly have annual sales in the $1 million plus category, as well as excellent prospects for future growth in profits and sales revenues (Bates and Bradford, 2003).

Table 1: Degrees Awarded Nationwide to African Americans

A. Bachelor's degrees	**1976**	**2000**	**Percent change, 1976-2000**
Education	14,209	7,723	-45.9%
Business	9,489	23,645	+149.2%
Engineering	1,370	4,557	+232.6%
B. MBA degrees	1,549	8,630	+457.1%

Sources: Carter and Wilson (1992); Harvey (2003).

It is the MBEs generating annual sales of $1.0 million or more, furthermore, that create most of the employment opportunities forthcoming from the nation's steadily expanding universe of minority-owned ventures utilizing paid employees. Among black- and Hispanic-owned businesses, for example, Census Bureau data indicate that only 38,324 of the 294,000+ employer firms identified by the 2002 economic census generated annual revenues exceeding $1 million (U.S. Bureau of the Census, 2006). Yet this subset—less than one percent of all black- and Latino-owned businesses—employed 1,384,000 of the 2,291,000 workers on the payrolls of all black and Hispanic businesses in 2002 (table 2). These 38,000+ firms not only accounted for over 60 percent of all jobs generated by the nation's black and Latino business community in 2002; they also were expanding at over twice the rate of black and Hispanic firms generating under $1 million in annual sales. Helping to finance this high rate of firm growth (and job creation) is the task of the minority-oriented VC industry.

Table 2: Number of Workers Employed by Large Black- and Latino-Owned Firms in 2002 (those reporting annual sales of $1 million or more)

Race/ethnicity of firm owners:	**# firms:**	**Total # of paid employees:**
1. Large black-owned firms	10,190	446,601
2. Large Hispanic-owned firms	28,134	937,637
3. Sum of 1 and 2	38,324	1,384,238
All black/Hispanic firms with sales under $1 million	255,736	906,535

Source: U.S. Bureau of the Census Survey of Business Owners, 2006.

E. The Supply of Venture Capital

The amount and timing of investments in portfolio companies by NAIC funds is heavily shaped by the size and timing of capital investments these funds attract from institutional investors. Historically, NAIC member VC funds differed from the industry mainstream in that many were chartered by the Small Business Administration (SBA) and relied upon government as a primary funding source. Initiation of the Minority Enterprise Small Business Investment Company (MESBIC) program, administered by the SBA, in the early 1970s marked the initial creation of the minority-oriented VC fund industry (Bates, 1997b). Yet, this heritage has faded into insignificance over the past 20 years: few of the VC funds responding to our surveys were SBA chartered and fewer than 3 percent of their aggregate capitalization came from government sources other than pension funds. Dominant sources were state and local government and corporate pension funds, funds of funds, and private corporations, including banks and insurance companies (table 3). The surveyed NAIC member funds described in the VC -fund database analyzed in this report are thus properly viewed as profit-motivated investors operating on the frontiers of industry practice, drawing their funding from institutional investors expecting competitive returns.

NAIC member firms between 1989 and 1998 had, as of year end 1998, collectively raised $1.242 billion from various institutional investors. In fact, over 89 percent of that reported industry investment capital was raised from five sources (in order of importance): 1) public pension funds, 2) banks and insurance companies, 3) corporate pension funds, 4) fund of funds, and 5) the federal government (Bates and Bradford, 2003). Growth in capital resources since year end 1998 has come largely from public pension funds and funds of funds. Fund of fund financing accrued to ten of the surveyed NAIC member VC funds through year end 2004, versus four reporting such funding through year end 1998. The number of minority-oriented funds raising capital from public pension funds (table 3) more than doubled by 2004, increasing from four in 1998 to nine. Other major sources—banks, insurance companies, corporations, and corporate pension funds—have been growing slowly, relative to the two dominant institutional investors providing capital to minority-oriented private equity funds.

Growth of funds that specialize in investing equity capital in small businesses owned by minorities is driven primarily by the willingness of major institutional investors – particularly public pension funds – to commit financial capital to this traditionally neglected niche. Noteworthy in terms of timing is the inflow of capital from both public pension funds and funds of funds in the 1996-2000 period, a time period coinciding with the cyclical peak of mainstream VC industry fund raising (Bates and Bradford, 2008b). Because the minority-oriented VCs rely largely upon mainstream institutional investors seeking to earn competitive returns on their investments, the long-term viability of this sector is dependent upon the VC funds' generating investment returns sufficiently high to insure access to these funding sources in the future.

Table 3: Sources of Funding for Minority-Oriented VC Funds through Year end 2003

A. Major Sources	**# funds tapping this source**	**Approximate range of capital raised**
1. Banks, insurance cos.	15	$1 million to $45+ million
2. Fund of funds	10	$6 million to $24+ million
3.Corporations	8	$1 million to $150+ million
4.Public pension funds	9	$6 million to $100+ million
5. Misc. sources	7	$0.1 million to $25 million
6. Corporate pension funds	6	$7 million to $80 million
B. Other Sources	**# of funds tapping this source**	**Approximate range of capital raised**
1. Federal government	6	$3 million to over $17 million
2. State, local, government	2	$4 million to $5 million
3. Individuals, families	5	Under $100,000 to under $1 million

C. Median $ Amount of Capital Raised, by Selected Sources (to the nearest million)	
1. Public pension funds	$49 million
2. Fund of funds	$18 million
3. Banks, insurance cos.	$12 million
4. Corporate pension funds	$25 million
5. State, local government	$4 million
6. Federal government	$5 million
7. Corporations	$3 million
D. Total raised through year end 2003: all sources	$1,760.3 million

Source: Surveyed NAIC member funds (Bates and Bradford, 2008b)

We have investigated impacts of the two dominant institutional investors – public pension-fund and funds of funds—upon the nature of the investing practices of the minority-oriented VC sector. In their role of providing well over half of all funding utilized by minority VCs to finance small businesses, these dominant institutional investors have invested in VC funds selectively. They seek to cherry-pick the winners, investing only in the subset of minority-oriented funds poised to generate above-average financial returns for their institutional investors. In the process of picking and choosing those minority-oriented VC funds potentially offering the highest investment returns, the pension funds effectively shape the trajectory of this VC industry subsector. The winners—flush with funding —rapidly achieved growing prominence in the MBE equity investing realm; the losers—smaller in resources available for investing—lost relative position within the minority VC universe.

Thus shaped, minority VC funds have moved collectively toward mainstream strategies of equity investing, focusing increasingly upon financing high-tech small firms. Although still predominantly minority oriented, portfolio firms receiving these equity investments are less likely to be owned by minorities, relative to past investing patterns. We utilized logistic regression techniques to test the hypothesis that public pension funds and funds-of-funds prefer to provide funding to the minority-oriented VCs that most closely resemble the mainstream VC industry. If this hypothesis is supported by the evidence, then we have a factual basis for concluding that the mainstream investing patterns noted above that increasingly typify the MBE VC funds are being driven directly by the institutional investors' decisions to provide funding to those funds resembling mainstream VC funds.

Traits for which we have proxy variables of mainstream fund characteristics and investing practices (in our database describing minority-oriented VC funds) include the following. First, mainstream funds invest most often in hi-tech lines of business and they tend to avoid "old-economy" industries (retail, wholesale, manufacture other than hi-tech) generally (Gompers and Lerner, 1999). MBE-oriented VC funds, in contrast, have traditionally invested actively in portfolio firms operating in old-economy industries. We have industry-identifier variables for nearly 400 VC investments made by minority-oriented VC funds, allowing us to delineate VC investments in hi-tech firms from their portfolio companies operating in old-economy industries. Second, mainstream funds are largely formed by general partners possessing mainstream investment-banking work experience, often in major Wall Street institutions – Goldman Sachs, Morgan Stanley, and the like. The minority-oriented funds, in contrast, are most often formed by general partners who lack mainstream investment-banking work experience (Bates and Bradford, 2008b). We have specific measures of the types of work experience general partners of minority-oriented VC funds possessed before they became owners of their funds; thus we can identify whether or not the general partners of individual MBE VC funds had mainstream investment-banking experience prior to setting up their fund. Finally, mainstream VC funds rarely invest in MBEs; our data allow us to identify racial ownership patterns for over 300 portfolio firms in which MBE-oriented VC funds have invested.

We proceed to delineate minority-oriented VC funds tapping public pension funds and funds of funds as sources of their financial capital from those not raising institutional funding from these sources. We find that these dominant institutional funding sources indeed were more likely to provide financial capital to MBE VC funds that invested actively in white-owned business ventures (in addition to MBEs), as opposed to VC funds investing solely in MBEs. Finally, we did not detect a clear bias toward public-pension-fund investing in the VCs most oriented to investing equity capital in high-tech firms (although funds of funds do favor the hi-tech-oriented minority VCs), but we did find that they tended to avoid providing capital to the VC funds most actively investing in old-economy lines of business. On balance, our analysis suggests that public pension funds and funds of funds collectively do prefer to provide capital to minority VC funds investing in portfolio firms having racially diverse owners – white-owned as well as minority-owned ventures. They may indirectly encourage hi-tech investing in the sense of tending not to fund minority VCs that invest actively in old-economy lines of business.

II. Analysis: Evaluating the Viability of the Minority-Oriented Venture Capital Funds

A. Overview

Minority-oriented venture capital funds focusing upon investing in ventures owned by African Americans and Hispanics have been increasingly investing actively in new-economy high-tech lines of business in recent years. This changing emphasis, along with a growing propensity to invest in white nonminority-owned firms, has coincided with substantial declines in the average returns generated by equity investments of minority-oriented funds. Our research has focused on understanding why minority-oriented VC funds in the 21st century increasingly invest outside of their traditional minority market niche. What are the ramifications of these investment trends for black-and Hispanic-owned ventures seeking venture capital financing? Why, finally, have the realized returns earned by the minority-oriented VC funds declined in the 21st century?

It is noteworthy that the returns on investments initiated by the minority-oriented VC funds from 1989 through year end 1995 generated by the NAIC member funds slightly exceeded those reported by the broader VC industry. Examination of the combined cash flows for realized equity investments initiated by the minority-oriented VC funds between 1989 and 1995 yielded an IRR of 17.7 percent to the institutional investors providing financial capital to these funds, while the average of the equally weighted fund IRRs was 15.4 percent (Bates and Bradford, 2008a). These 17.7 percent and 15.4 percent return figures reflect net returns to investors, after the deduction of fees charged by the VC funds and the share of profits claimed by those same funds.

Chen, Bairl, and Kaplan (2002) found an average equally weighted IRR of 13.4 percent for 148 VC funds in the Venture Economics data that had liquidated as of 1999. Ljungqvist and Richardson (2004) reported an average equally weighted IRR of 18.5 percent for 36 VC funds started in the 1989 -1993 period. Applying the public market equivalent-vintage (PME-vintage) measure to Venture Economics data, as we previously noted, Bates and Bradford (2008a) estimated that the NAIC minority-focused funds collectively earned slightly higher returns on their realized VC investments than mainstream funds of the same vintage.

The high investment returns being generated by minority-oriented VC funds through the mid 1990s produced the unprecedented large inflow of new money raised by these funds from institutional investors – particularly pension funds – in the late 1990s. This same phenomenon of unprecedented inflows of new money, however, also characterized the mainstream venture-capital industry. There is really no such thing as a "typical year" regarding new capital resources raised by the venture-capital industry: institutional investors tend to gravitate between extremes of either pouring large amounts of new capital into VC funds or investing only small amounts, creating a feast or famine environment for the funds seeking new financial-capital resources. A comparison of the aggregate amounts of capital raised by the overall venture-capital industry in the U.S. in 1991 as opposed to 1999 is revealing. The former was a slow year: 34 new VC funds

were launched nationwide with $1.69 billion in capital resources, while in 1999, over 200 funds were launched with aggregate capitalization exceeding $37 billion (Bates and Bradford, 2003).

The rapid growth of the financial resources available to the minority VC funds in the late 1990s predictably generated very large increases in their equity investments in small businesses. Bates and Bradford (2008b) estimated that the minority-oriented VC funds described in their survey (the same data source described and analyzed in this report) made new small-firm equity investments exceeding $220 million during calendar year 2000. While this dollar figure may sound low relative to the investing activities of mainstream VC funds, it is put in perspective by comparing this dollar amount to all equity investments made by these same surveyed VC funds during the entire ten-year period, 1989 to 1998: about $150 million. This large volume of top-of-the-cycle investing produced devastating consequences, particularly for the minority VC funds just getting started in 2000: realized returns for all realized investments initiated in 2000 were 2.2 percent overall through year end 2006. Returns for the year 2000 industry newcomers were even lower. Investing heavily at the VC industry's cyclical peak in 2000 is, in fact, an important factor responsible for the declining investment returns generated by minority-oriented VC funds in the 21st century.

Funds in the mainstream VC industry experienced financial returns on their equity investments initiated in 2000 quite similar to the very low returns generated by the minority-oriented funds. A near-record number of mainstream funds – 180 of them, according to Venture Economics – began investing in 2000: average realized returns on the investments initiated by these funds in 2000 were 0.5 percent through March, 2007. They outperformed the class of 1999 – the 164 equity capital funds starting to invest that year had generated a minus 2.4 percent average IRR on their VC investments through March of 2007. Venture capital investing has been a boom/bust industry for decades, complicating the efforts of funds striving to raise new capital from institutional investors in the 21st century. The minority-oriented VC funds in recent years have been heavily impacted by the same cyclical forces shaping the overall venture capital industry in the U.S. (Bates and Bradford, 2008b).

The high returns generated by VC funds in the 1990s have declined in the 21st century—both for minority funds and the broader overall mainstream U.S. venture capital industry—due, in part, to the fact that the 1990s boom years gave way to a hi-tech bubble that popped in 2000. The vibrant initial public offering (IPO) market of the 1990s – a key source of high returns for mainstream VC funds generally and minority-oriented funds specifically – subsequently stagnated. Despite the cyclical gyrations impacting the minority VC funds in recent years, the underserved market hypothesis still appears to be valid.

B. Managing the Risks Inherent in Venture Capital Investing: Strategies Employed by the Minority-Oriented Funds

To understand the investment choices made by minority VC funds, it is necessary to situate those choices in the context of the strategies these funds employ to manage successfully the considerable risks inherent in making equity investments in their portfolio firms. Investing equity capital in MBEs and other small businesses operating in a variety of industries and

offering a range of equity and hybrid equity/debt financial products requires considerable depth in managerial expertise. This is less of a problem for the larger VC funds, where various general partners and staff possess a range of complementary skills. It is more of a problem for small minority-oriented funds, some of which have only one full-time manager. Indeed, several of the minority VC funds under consideration are very small by industry standards, possessing less than $10 million in total assets.

These small funds often have to struggle with lack of depth in managerial resources. Being very small, in addition, makes it difficult to achieve diversification in their portfolio of investments in small firms in an industry where such diversification is vitally important for spreading risks. A pragmatic and popular strategy in such circumstances is to invest in portfolio firms 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. As a participant in syndicated deals, smaller funds can piggyback upon the expertise of the lead firm that put together the syndicated business investment. Buying a piece of a multi-million dollar venture-capital investment is a pragmatic strategy, as well, for achieving risk reduction via portfolio diversification.

Among the surveyed venture-capital funds, nearly all respondents had participated actively in syndicated business investments. An attractive opportunity, for example, to invest $ six million in equity in a promising minority business venture—absent syndication—would be overly risky for most of the minority-oriented funds. Most are simply too small to invest that amount into one firm, because an investment of that size would leave the fund under-diversified and prone to serious damage in the event of weak investment performance. Rather than losing the deal, however, the fund may choose to syndicate it, investing, perhaps, $1 million of its own funds and parceling out $ 5 million to other minority-oriented VCs. This type of syndication is widespread in the minority VC sector.

Widespread syndication is symptomatic of the extensive networking that typifies the minority-oriented venture-capital funds. 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. Although the minority-oriented venture-capital industry is diverse, important practices, such as syndication of investments, are quite widespread. Fund interactions with their client firms are also broadly similar among the surveyed funds. Venture-capital investing is risky. When funds purchase equity in firms that are privately held, they commonly buy into firms that are small and often 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 these information gaps. Tools used 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. Syndication, in fact, should be included in this list of risk management tools used to lessen

information gaps. Involving other venture funds provides a second (and third and so forth) opinion on the investment opportunity, lessening the risk that bad deals will be funded. Gompers and Lerner (1999) have shown that syndication for the purpose of getting informed opinions of investment quality is a practice often used by venture firms.

By serving on a firm's board of directors, venture-fund general partners not only learn more about the firm's operations. They also position themselves to provide advice and support for client firms. This study relied on a survey 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 their general partners sit on the board of directors of client firms. Sitting on the board of directors, of course, facilitates participating in other aspects of client firm operations. We examined data collected from the 24 VC fund survey respondents on four kinds of general partner involvement in management of their portfolio firms: 1) advise on long-term planning, 2) assist with hiring, 3) assist in day-to-day operations, and 4) engage in active involvement in execution of exit strategy. All of the minority-oriented funds responded that they advised client firms on long-term planning and were actively involved in execution of an exit strategy.

Regarding assisting client firms with hiring, this type of general partner (GP) interaction with their clients was nearly universal; 23 of the surveyed venture funds assisted their portfolio firms thusly. Assisting in the day-to-day operations of their portfolio companies is something that many of the surveyed minority venture fund GPs did, but such assistance was the least common type of interaction between the funds and their client firms. The GPs indicate consistently that they prefer to avoid day-to-day involvement in managing their portfolio companies, ideally leaving such operations decision-making in the hands of company managers. Indeed, not all GPs have the necessary expertise to benefit portfolio companies by being actively involved in portfolio company operating decisions. Being an effective GP in this context commonly requires a degree of both experience and expertise that is time-consuming, expensive, and generally difficult to obtain, which is why a key constraint on the ability of VC funds to invest profitably is a constrained supply of appropriately skilled and talented GPs (Gompers and Lerner, 1999). An important finding – discussed later in this report – is that minority fund GP involvement in day-to-day operational decision-making with their portfolio companies is associated positively with earning higher rates of return on their realized equity investments, in comparison with funds not active in such day-to-day operations.

Because endogeneity is potentially present in the relationship between GP activism and the realized value of portfolio firm investments, survey questions on activism were designed to mitigate such problems. Our concern is that if fund GPs adjust their behavior when individual portfolio companies do well, paying more attention to the strong performers, a positive association between GP activism and investment performance may be observed, but such activism does not necessarily enhance performance. Thus, the activism survey questions were designed to conform to an ex ante, systematic treatment of portfolio companies. The questions were asked to elicit responses about the average level of activism across all of the firms in the VC's portfolio. This helps to mitigate the problem of endogeneity of activism as an explanatory variable in regression models explaining IRRs values. Our measure of activism is fund specific

instead of project specific. Effectively, our VC-specific measure of activism becomes an instrument for activism at the project level (Jackson, Bates and Bradford, forthcoming).

One of the most fundamental strategic questions that venture-capital fund managers must face, finally, is whether to diversify across a range of different industries and markets or to specialize in particular markets. Proponents of diversification argue that there are substantial gains from leveraging managerial skills and abilities across industries and geographic markets. These gains may originate from the spreading of fixed costs over additional investments through economies of scale. On the other hand, proponents of a focused strategy for VC funds argue that diversification will dilute the current competitive advantage of management by pushing managers beyond their existing expertise and capabilities. Thus, the question of whether diversification improves the performance of VC funds in general, and minority-oriented VC funds in particular, may be answered only through empirical analysis. Norton and Tenenbaum (1993) report evidence that is more supportive of a focused strategy for VC funds. Sah and Stiglitz (1986) and Admati and Pfleider (1994) suggest that involvement in syndicated transactions can spread portfolio risks and provide other benefits of diversification by providing better information for investment decision-making, and a means of signaling value.

The minority funds, by way of summary, seek to minimize the risks associated with investing equity capital in their portfolio of business ventures by participating actively in syndication of their small firm investments. Second, nearly all of the fund general partners actively participate in the affairs of their portfolio companies – sitting on boards of directors and involving the VC general partners in such managerial functions as assistance with hiring, engaging in active day-by-day managerial decision making, and participating in long-run planning. Regarding types of GP interaction with their client firms, importantly, substantial variation across funds was present only in the “assist in day-to-day operations” category. Finally, the minority-oriented VC funds, instead of focusing narrowly on a single industry, often rely on a diverse industry mix of portfolio companies; they are typically are more broadly diversified than the majority venture-capital industry.

C. Understanding the Minority-Oriented VC Funds and their Equity Investments in Small-Business Ventures: Descriptive Statistics

We present summary statistics in table 4 describing characteristics of the minority-oriented VC funds under consideration, the types of firms in which they invest, and the strategies they use in their quest for generating high returns on their equity investments in portfolio firms. Table 4 statistics also describe certain traits of the 303 realized small-business equity investments made by the surveyed minority-oriented VC funds. Information about the characteristics of our variables is provided in Appendix B, Variable definitions.

Table 4. Summary Statistics, Investments Realized through Year end 2006

Variable:	**Mean**	**Median**	**Standard Deviation**	**Minimum**	**Maximum**
IRR-all investments (equally weighted)	-0.20	-0.01	0.69	-1.00	3.21
Old-generation fund	0.88	1.00	0.33	0.00	1.00
Log of investment	12.86	12.79	1.54	8.39	17.22
Total investment $ amount ($000)	1,581.4	616.5	3,028.5	10.0	30,000.00
Initial Year Investment ($000)	1,248.8	360.00	3,028.4	4.41	30,000.00
High tech	0.21	0.18	0.16	0.00	0.58
Communications	0.45	0.42	0.31	0.00	1.00
Medical services	0.03	0.00	0.05	0.00	0.17
Old economy	0.18	0.16	0.16	0.00	1.00
Year of investment, 1999 or 2000	0.27	0.00	0.44	0.00	1.00
Investments Per GP	10.09	7.67	6.41	1.00	21.67
Activism	0.84	1.00	0.37	0.00	1.00
Minority Firm	0.90	1.00	0.30	0.00	1.00
N= 303					

The "old-generation fund" variable (table 4) captures an important phenomenon that requires clarification. Discussions with leaders in the minority VC sector, including past board chairmen of the NAIC, point toward an old generation, new generation dichotomy among the general partners of minority-oriented VC funds. General partners organizing and operating newer second-generation equity funds tend to be graduates of the nation's top MBA programs who began their careers working for major Wall Street investment banks. Reflecting their training and work experience at those large institutions and their professional networks in the world of finance, they created private-equity-investing funds that often resembled those formed by whites.

When general partners of these second-generation funds search for opportunities to invest equity capital in small businesses, they typically tap professional networks that are racially diverse and their deal flow is similarly diverse. Work experience acquired prior to creating their own funds typically exposed them to clients and colleagues as racially diverse as clients and colleagues at leading giant investment banks generally. Predictably, they create funds that often invest in high-tech companies, many of which are not minority owned. Second-generation funds, finally, have enjoyed greater access to public pension fund capital than older first generation veterans.

General partners of the first-generation funds were often founding members of the NAIC; they are the pioneers who created the minority-oriented venture-capital industry back in the 1970s and 1980s. Many of these industry veterans feel a sense of commitment to alleviate the restricted access to investment capital that has traditionally handicapped MBEs. Indeed, some express little interest in funding the equity-capital needs of the nonminority-owned firms. Their objective is to generate high financial returns for their funds by investing in MBEs having limited access to mainstream sources of equity capital. Their work experience prior to becoming partners in private equity funds rarely included stints in large investment banks. Their deal flows

originate mostly in their professional networks, which produce potential clients who are typically MBEs, often operating in old-economy lines of business.

The above discussion suggests that no single minority-oriented private equity fund group exists but, rather, two branches pursue distinct investing strategies. While their strategies do differ, it is nonetheless important to recognize that both the old and the new generation are devoted to generating high financial returns on their equity investments in small businesses. The second-generation funds thus invest actively in MBEs running old-economy businesses when they encounter profitable deals and the first-generation funds have increased their investment diversity in response to opportunities.

Table 4's old-generation fund mean value indicates that 88 percent (by number) of the 303 realized equity investments made by the VC funds were undertaken by old-generation funds. The newer funds – those formed since 1998—have been active investors as well but many of their outstanding equity investments have not yet been fully realized and are therefore excluded from consideration; note that the unrealized and partially realized equity investments are, however, included in the table 7 summary statistics reported below.

Table 4 summary statistics describing types of industries in which VC investments have been made indicate that communications firm investments (mean value of .45) were the most common type of equity investment made by the minority-oriented VC funds over the applicable 1989 through 2006 period; investments in high-tech (variable mean of .21) ventures ranked second. Note that the .21 mean value refers not simply to the frequency of hi-tech investments by the VC funds under consideration but, more accurately, the proportion of their total equity investments (dollar amounts) in portfolio companies the VC funds have invested in hi-tech deals. Beyond these two industry groups, means describing other industry groups – medical services, old-economy fields (including manufacturing unrelated to hi-tech, wholesale, and retail) – suggest that minority-oriented VC funds are widely diversified regarding industry distribution of their investments.

Average sizes of the realized VC investments made by the minority-oriented funds are described in table 4 in several ways. The "total investment" summary statistics indicate that the average dollar amount among the applicable 303 realized equity investments was $1.581 million and the median amount was $616.5 thousand. These are large investments being made in portfolio firms, most of which are multi-million dollar enterprises in terms of their annual sales revenues. The smaller median – as opposed to mean – investment size reflects both the wide variance in dollar amounts among these equity investments and the fact that some of them are quite large, sometimes exceeding $5 million, a substantial amount of equity to be investing in a single small business venture. The trend in recent years among the minority VCs has been towards funding larger and larger equity investments in their portfolio companies. Corresponding mean values among the equity investments initially made by these VC funds during the 1989 through 1995 period were under $600,000 (Bates and Bradford, 2008a). Some equity investments are made in stages, which explains why the average "initial year investment" amount was $1.249 million, and the corresponding median was $360.0 thousand (table 4). Particularly when investments are made in younger portfolio firms, follow-up investments in the

same company are sometimes added in later years, depending upon the progress the applicable portfolio firm is making toward goals acceptable to the investing VC fund.

"Activism" in table 4's statistics is defined as a measure of GP involvement in the day-to-day operations of their portfolio companies. An activism mean value of .84 indicates that 84 percent of the 303 realized equity investments were made by VC funds that actively involve themselves from time to time in the daily operational management of their portfolio companies. Three common rationales exist for a venture capitalist to become active in the day-to-day operations of a portfolio company. First, the company may experience unforeseen major operating problems. Second, the company may experience unforeseen major opportunities. Finally, in the inevitable event of such unforeseen problems and/or opportunities arising periodically, this particular venture capitalist may have more ability to assist portfolio companies than other VC general partners not choosing to involve themselves in the day-to-day operations of their portfolio companies. Rationales one and two are project specific and generally relate to *ex post* investment circumstances. However, rationale three entails a systematic difference across venture capital firms, and often relates to *ex ante* investment circumstances, or investment strategies. The type of activism we are measuring here is concerned with the third rationale, varying levels of GP ability across funds.

The .27 mean value of the "year of investment, 1999 or 2000" variable (table 4) indicates that 27 percent (82 actual investments) of the 303 realized investments made by the minority-oriented VC funds under consideration were initially funded in either 1999 or 2000). Prior to 1996, these same VC funds rarely made as many as 20 new equity investments in small businesses in any single given year. The 1999, 2000 period was by far the most active time period regarding new VC investments being initiated during the entire 1989 to 2006 investing period analyzed in this report.

Making equity investments and then monitoring portfolio companies after funding has been disbursed are time-consuming activities for the general partners of the minority-oriented VC funds. The mean value of 10.09 for "investments per GP" indicates that, on average, there are ten-plus realized equity investments for each VC fund general partner. Finally, the "minority firm" mean value of .90 reported in table 4 indicates that 90 percent of the 303 equity investments described were made to portfolio firms owned by minorities.

A correlations matrix is presented (table 5) depicting interrelationships among variables describing both VC fund traits and the fully realized equity investments under consideration. Particularly noteworthy is the fact that the "minority firm" variable is positively correlated to old-generation fund, syndicated, and communications variables, but negatively correlated to investment dollar amount, in comparison to VC investments in ventures owned by whites. One clear implication is that portfolio firms owned by minorities typically receive smaller equity investments (than white-owned ventures), and these investments are relatively more frequently made by old-generation VC funds. Second, VC investments in minority-owned portfolio firms are more often syndicated than the investments the VC funds make in white-owned businesses. Last, equity investments in communications firms are disproportionately made to MBE-owned (as opposed to white-owned) communications companies. Stated differently, VC-fund investments in white-owned portfolio firms are positively correlated to new-generation VC

funds, larger investment dollar amounts, and non-syndicated investments; VC investments in white-owned ventures, furthermore, are negatively correlated to the communications company variable.

Table 5. Correlations Matrix (Select Variables) N=303

Variable	IRR	Old-generation fund	Log of invest-ment	Syndi-cated	High tech	Commu-nications	Year of invest-ment 1999 or 2000	Invest-ments Per GP	Activism	Minority Firm
IRR	1.00									
Old-generation fund	-0.04	1.00								
Log of investment	0.03	-0.45**	1.00							
Syndicated	-0.06	0.32**	-0.09	1.00						
High tech	0.03	0.01	-0.05	0.07	1.00					
Communications	-0.10	0.15*	-0.04	0.21**	-0.64**	1.00				
Year of investment, 1999 or 2000	-0.30**	-0.23**	0.14*	-0.01	-0.05	-0.05	1.00			
Investments Per GP	0.18**	0.36**	-0.39**	0.03	0.46**	-0.41**	-0.20**	1.00		
Activism	0.11	0.22**	-0.09	0.31**	-0.17**	0.19**	0.06	0.13*	1.00	
Minority Firm	0.05	0.28**	-0.34**	0.19**	0.07	0.22**	-0.10	0.08	-0.02	1.00

D. Regression Analysis of the Financial Returns Generated by VC-Fund Realized Investments

We next investigate the question, what characteristics and actions of the minority-oriented VC funds, and what portfolio company traits predict IRR values for individual realized venture-capital investments in specific portfolio firms. By way of summary, multiple major changes swept through the minority-oriented equity-capital-investing funds since the mid-1990s, and the task of regression analysis is to differentiate the more from the less important of these changes. A number of new VC funds were started up and had begun investing during the1999 through 2001 period. Large-scale investment of public pension fund resources helped to fuel rapid growth of private equity investing among the minority-oriented funds. Average sizes of the equity investments being made in portfolio companies have increased substantially. A new generation of general partners entered into this industry segment in the late 1990s, bringing with them investment strategies that produced expanded equity investment into high-tech lines of business. Along with this growth of high-tech investing was the growth of equity investments by minority-oriented funds into firms owned by white nonminorities. Thus, growth of number of VC funds, fund resources, and new types of investment emphasis all became major new developments shaping this sector since the late 1990s. One task of regression analysis is to differentiate the more from the less important of these changes.

We use a generalized least squares (GLS) random effects regression model to predict IRR values for the 303 realized investments in portfolio companies initially funded by the minority-oriented VCs during the 1989 – 2004 period. The GLS random effects regressions adjust the estimated coefficients and standard errors for the interrelationships among investments of the same fund (22 funds made 303 investments). This particular GLS process also adjusts for the

response rate associated with our sample, allowing for better predictions about the population from which the sample was drawn.

Based on the findings of Bates and Bradford (2008a) and other studies, our regression analyses include various explanatory variables recognized in the scholarly literature as factors shaping financial returns on the realized venture-capital investments of portfolio companies, including: 1) old-generation fund dummy, 2) log of investment size, 3) proportion of investments syndicated, 4) proportion of VC fund investments in high-tech portfolio companies and other common industry groups appearing in VC-fund investment portfolios, including communications, medical services, and old-economy fields; 5) year of investment, 1999 or 2000 dummy, 6) investments per GP, 7) GP activism in the affairs of portfolio companies, and 8) an MBE portfolio firm indicator variable.

1. Hypothesized Relationships between Explanatory Variables and IRR Values

a. Minority firm:

We expect that equity investments in minority-owned portfolio firms are likely to yield higher returns, other factors being constant, than investments in ventures owned by nonminority-whites. We hypothesize, in other words, that MBEs seeking equity capital from VC funds do so in an underserved market environment, and the reality of this market being underserved is the reason why VC funds can earn higher returns in this market segment. Findings of Bates and Bradford (2008a) that minority-oriented VCs earned high returns on their equity investments in MBEs initiated during the 1989 through 1995 time period is consistent with the existence of an underserved VC market.

b. Proportion of VC Fund Investments in High-Tech Portfolio Companies and other Select Industries

We have no a priori expectations of likely returns available from investing in communications, medical services, or old-economy lines of business (retail, wholesale, manufacturing other than hi-tech) or miscellaneous industry groups, as opposed to high-tech lines of business. We define high-tech as software, information technology, and computer-related electronics manufacturing.

c. Old-Generation Fund Dummy

Several minority VC funds were started in the late 1990s and thereafter by newcomers possessing different human-capital characteristics than minority-oriented fund GPs have possessed traditionally. The general partners of these new funds may have an advantage over those in older funds as the latter entered the VC industry lacking prior experience in investment banking, while many of the former worked in mainstream investment banking institutions prior to their entry into this VC industry sector. On one hand, their work experience in investment banking and resulting professional networks may convey investing advantages. Conversely, this new generation of fund managers is less familiar with investing in the underserved markets that have been the traditional deal source for minority-oriented funds. This variable is equal to one if the VC fund began operations before 1998, zero otherwise. We do not have priors about whether this factor impacts realized investment returns positively or negatively.

d. Log of Investment Size

Bates and Bradford (2008a) found that larger investment size predicted higher returns, other factors being equal. Consistent with these results, we hypothesize a positive relationship between individual investment size and realized returns. Our specific measure of investment size utilized in regression analyses is the natural log of total first-year cash flow invested by the VC into the portfolio company; note that this is a portfolio-company-specific trait (as opposed to a fund-specific trait).

e. Year of Investment, 1999 or 2000 Dummy

We hypothesize that investments initiated in the peak years in the VC funding boom of the late 1990s – 1999 and 2000 – produce lower returns than investments initiated before or after the peak, other things being equal. Intense competition among equity-investing funds bid up the prices of portfolio companies, and our discussions with NAIC fund general partners indicate that these rich prices peaked in 2000 and then broke in 2001 (Bates and Bradford, 2008b). This variable, which is portfolio-company specific, is calculated as an indicator variable equal to one if the investment was initiated in either the years 1999 or 2000, zero otherwise.

f. Proportion of Investments Syndicated

Our next explanatory variable measures the degree of fund participation in syndication of investments. Involvement in syndicated transactions can provide better investment decisions, diversification, and a means of signaling value (Admati and Pfleider, 1994). Nonetheless, the funds originating most of the syndicated investments may keep the best investments entirely for themselves, or, alternatively, syndicate large investments without respect to quality to diversify their portfolios broadly (Brander, Amit, and Antweiler, 2002). Thus, we do not have priors about whether this factor impacts realized investment returns positively or negatively.

g. Activism

VC general partners provide direct managerial services and support to their portfolio companies (Sapienza, 1992). Hellman and Puri (2002) suggest that these managerial services and support create value partly by “professionalizing” the portfolio firms of VCs. In these ways, VCs exert costly efforts to improve their investment outcomes (Kaplan and Stromberg, 2004). In our regression model, the activism variable (assist in day-to-day operations) is an indicator variable equal to one if the level of activity is reported as undertaken sometimes, and zero if the level of activity is reported as never. We therefore hypothesize that GP activism is associated with increased returns on realized investments. Note that this is a fund-specific trait.

h. Investments per GP

The concept of an optimal portfolio size for a VC fund is rooted in the notion that GPs create value when they assist their portfolio companies. Yet a tradeoff exists between the number of portfolio firms in which a VC fund invests and the advisory effort that can be allocated to these businesses. Too many portfolio companies may cause GP efforts to be stretched too thinly, thus diluting the value of their assistance and lessening VC fund financial returns on their venture capital investments (Jackson et al., forthcoming). Because we are unsure of the optimal number of portfolio fund investments per GP, we have no priors about how the number of investments per GP impact IRR values.

2) Regression Analysis Findings

We turn to identifying, with regression analysis techniques, the fund traits and strategies that predict high investment returns among the realized VC investments of the minority-focused VC funds, in light of the wide variance in returns across those funds. Thus, we conduct statistical tests to determine the fund characteristics that are correlated with the IRR values of individual VC investments in firms. What profiles and strategies typify the more successful, as opposed to the less successful funds? We use the IRR of individual realized equity investments as the dependent variable in our regression analysis, i.e., our measure of fund performance.

Table 6. GLS Random Effects Regression Models Explaining Relationships between IRR Values of Realized Investments and Traits of VC Funds and their Portfolio Firms

Model	**1**		**2**	
Variable	**Coefficient**	**T-ratio**	**Coefficient**	**T-ratio**
Constant	-0.04	-0.11	-0.16	-0.38
Old-generation fund	-0.42**	-5.57	-0.42**	-5.50
Log of investment	0.01	0.51	0.02	0.91
Syndicated	-0.13	-1.35	-0.20*	-2.00
High tech	-0.37	-1.45	-0.50	-1.89
Communications	-0.19	-1.01	-0.36	-1.74
Medical services	1.37**	2.77	1.00	1.92
Old economy	-0.16	-0.59	-0.35	-1.21
Year of investment, 1999 or 2000	-0.51**	-10.43	-0.51**	-10.33
Investments Per GP	0.02**	4.68	0.02**	4.50
Activism	0.26**	4.22	0.31**	4.82
Minority Firm	---		0.21**	3.12
N= 303				
Adj-R^2	**0.14**		**0.14**	
F-statistic	**25.68****		**24.26****	

** significant at the one percent level or better
* significant at the 5 percent level or better
Robust standard errors are utilized.

Turning to table 6's regression findings, the coefficient values identify VC fund and portfolio company traits associated with generating higher (or lower) investment returns, measured by IRR values for realized investments. Higher IRR values are associated (table 6, model two) with 1) investing in MBEs, 2) activism in assisting portfolio companies on the part of the VC fund general partners, and 3) a larger number of VC investments per fund general partner. It is noteworthy that all of these traits linked to higher returns on realized investments represent investing strategies employed at the discretion of the individual VC funds. Lower IRR values are associated with 1) making investments in white-owned firms, 2) being an old-generation fund, 3) participating in syndicated investments, and 4) top-of-the-cycle investing

(making investments initially funded in either 1999 or 2000). Investing in high-tech companies, according to the regression analysis findings, does not appear to be a productive strategy for minority-oriented VC funds seeking to generate high financial returns on their realized investments.

Table 6's regression findings clearly validate the underserved minority market hypothesis: investing in MBEs, other factors constant, generates higher returns for the minority VCs than investments in nonminority-owned ventures. In English, "other factors constant" means that investments of the exact same dollar amount, initiated in the same time period, by minority-oriented VC funds using identical strategies regarding such factors as syndication, investment by industry, GP activism with portfolio companies, and the like, produced higher IRR values if the company was minority owned and lower values if the company was white owned. Among two portfolio companies alike in terms of all factors under consideration, other that race of owners, the minority-owned portfolio company generated higher measured returns than the nonminority-owned company, and this difference is statistically significant among the 303 investments under consideration (table 6).

Additionally, regression analysis findings indicate that investing actively in hi-tech lines of business is associated with lower investment returns, but this relationship is only borderline statistically significant. Similarly, the traditional industry in which minority-oriented VCs have invested most heavily – communications – also generated lower returns on realized investments, but the lack of statistical significance prevents us from concluding that communications investments yield systematically lower returns, relative to realized investments in miscellaneous industries (the excluded comparison group). Investments in old-economy lines of business generated yields on realized investments broadly similar to those in communications fields. Medical services, in contrast, appear to offer attractive returns relative to the kinds of industries (communications, hi-tech) where VC investments are most often made; this relationship was borderline statistically significant.

The GLS regression analysis findings indicate as well that investing equity capital into portfolio firms in 1999 and 2000 – investing at the very top of the VC industry's boom/bust cycle – generated large drops in realized investment returns. The reality of sharply lower IRR values being explained by top-of-the-cycle investing (table 6) is quite important. Investments initially funded in the years 1999 or 2000 by the minority-oriented funds under consideration produced much lower IRRs, other factors constant, than investments initiated before or after 1999 and 2000; this difference in investment returns is statistically highly significant. Investing heavily at the top of a boom/bust cycle, while certainly a negative, is perhaps a transitory phenomenon rather than a strategy likely to indicate enduring returns on the investments realized by the minority-oriented VC funds.

Also quite noteworthy is the regression analysis finding that new-generation funds – those established by newcomers entering the industry between 1999 and 2001 – earned higher IRRs on realized investments, when other factors are controlled for (table 6). Yes, they often invested in portfolio companies at the top of the cycle and they often invested in nonminority-owned firms, but regression analysis controls for these other factors. Isolating the influence of the "new-generation" trait from year of investment initiation and the other table 6 explanatory variables, being a new-generation fund – holding other factors constant – is associated with higher IRR values, and this

difference in returns is statistically significant, suggesting that the specific human-capital traits of the newcomers to the minority-oriented segment of the VC industry – mainstream investment banking working experience – conveyed investing advantages.

It is noteworthy that non-syndicated investments outperformed syndicated ones (table 6), which suggests that VC funds are increasingly keeping their most promising investments entirely for themselves, while syndicating the less promising deals in order to spread the risk of a poor ultimate outcome for these deals. Not syndicating venture capital investments is a growing trend in the broader mainstream VC industry. Additionally, 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. VC funds having a larger number of investments per general partner also generated higher investment returns, but the positive impact of a higher number of investments per GP was small in magnitude. All of the factors discussed above – syndication, activism, and number of investments per GP – were correlated to realized investment returns in a statistically significant manner. In contrast, the relationship between investment size and investment IRR values was small and statistically insignificant.

Emerging from the regression analyses discussed above are traits associated with minority-oriented VC fund investing that produced high realized investment returns. In terms of strategy, higher returns are earned by funds 1) investing in minority-owned companies, and 2) involving general partners actively in assisting their portfolio companies. Strategy alone did not completely explain IRR variance patterns: minority-oriented funds unfortunate enough to be actively investing in portfolio companies in the peak years of 1999 and 2000 produced sharply lower IRRs, in comparison to their investments initiated in off-peak years.

New-generation funds, finally, emerged as particularly successful investors when other factors are controlled for. A profile of funds earning lower returns also emerges from the regression analyses: old-generation funds making syndicated investments in portfolio firms – especially nonminority white-owned ventures—are underperformers, especially if the GPs are not highly active in assisting their portfolio companies. Minority-oriented funds often possess a mix of these positive and negative traits, which is precisely why we have utilized regression analysis techniques to sort out the complex interactions between relevant traits and investment performance.

Portfolio company industry of operation did not emerge from the table 6 regression analysis as a major determinant of portfolio firm investment performance. The evidence points toward investments in hi-tech ventures as the least promising, in terms of portfolio firm industry orientation, for making equity investments in small business ventures. In terms of investing strategy, medical services stands out as the single industry group most strongly correlated to higher returns on realized investments.

iii. Adding unrealized and partially realized investments into the analysis of the viability of the minority-oriented VC industry.

The above discussion excludes from consideration all VC investments initiated by the MBE-oriented funds between 1989 and 2004 that had not been fully realized by year end 2006. In this section, the 85 investments initiated during these years which were either unrealized or only partially realized by year end 2006 are considered, in addition to the fully realized VC investments in portfolio companies. Table 7 provides summary statistics describing the

applicable 303 realized investments, combined with the 85 not fully realized VC investments. A comparison of the mean and median values of the various variables in this combined sample (reported in table 7) identifies – in conjunction with table 4's summary statistics describing the 303 realized investments, certain broad trends that appear to be gradually changing the nature of the minority-oriented VC industry. The old-generation funds, of course, are gradually losing their dominance in this industry subsector: table 4's statistics included only 36 VC investments initiated by new-generation VC funds; table 7, in contrast, includes 62 such investments.

As the investments initiated by new-generation funds become relatively more numerous, a comparison of the table 4 and 7 summary statistics for certain variables point toward emerging investing trends characterizing the minority-oriented funds. Relative to table 4 statistics, table 7 mean and median statistics highlight 1) the increasing size (measured by log of investment) of individual VC investments in portfolio companies. Further, high-tech investments are rising in relative frequency while VC investments in firms operating in communications and old-economy fields are declining. Further, GP activism is gradually increasing in relative frequency and numbers of investments per GP are declining. One noteworthy omission from table 7 is summary statistics describing the relative frequency of minority-owned portfolio firms; they are excluded because we have no information on the minority-ownership status of VC investments that are not fully realized.

Table 7. Summary Statistics, Realized, Partially Realized, and Unrealized Investments through Year end 2006

Variable:	Mean	Median	Std. Dev.	Minimum	Maximum
IRR-all investments (equally weighted)	-0.20	0.00	0.64	-1.00	3.21
Old-generation fund	0.84	1.00	0.37	0.00	1.00
Log of investment	13.04	13.12	1.55	8.39	17.22
Syndicated	0.92	1.00	0.23	0.00	1.00
High tech	0.22	0.25	0.17	0.00	0.62
Communications	0.43	0.42	0.31	0.00	1.00
Medical services	0.03	0.00	0.05	0.00	0.17
Old economy	0.17	0.16	0.16	0.00	1.00
Year of investment, 1999 or 2000	0.26	0.00	0.44	0.00	1.00
Investments Per GP	9.91	7.00	6.48	1.00	21.67
Activism	0.85	1.00	0.36	0.00	1.00
N= 388					

Table 8's regression analysis of IRR values attached to the 388 investments in portfolio companies (described in table 7) entailed adding the 85 unrealized investments and replicating the earlier table 6 regression analysis explaining the IRR dependent variable; this exercise provides a crude robustness check of our previous regression findings of IRR determinants. If the regression analysis outcomes were to change radically when unrealized investments are included, one would tend to doubt the validity of the whole table 6 regression exercise. The unrealized and partially realized equity investments are now included, causing the sample size to increase from

303 observations to 388, and the returns attached to these additions reflect not the judgment of the marketplace but the subjective judgment of the VC fund itself as to what each individual unrealized investment is actually worth. Given the extremely subjective nature of attaching dollar valuations to unrealized (and partially realized) VC investments, one must take the regression findings less seriously than their table 6 counterparts. Nonetheless, there should be more noise and less precision in table 8's regression findings, but no dramatic changes. Fortunately, that is exactly what these regression findings indicate.

Table 8. GLS Random Effects Regression Models Explaining Relationships between IRR Values of Realized, Partially Realized, and Unrealized Investments and Traits of VC Funds and their Portfolio Firms

Model	**1**		**2**	
Variable	Coefficient	T-ratio	Coefficient	T-ratio
Constant	-0.12	-0.36	-0.25	-0.73
Old-generation fund	-0.38**	-6.91	-0.38**	-6.88
Log of investment	0.00	0.15	0.01	0.42
Syndicated	-0.17*	-2.23	-0.20**	-2.67
High tech	-0.09	-0.44	-0.15	-0.79
Communications	0.07	0.51	0.00	0.01
Medical services	1.24**	2.81	1.06*	2.37
Old economy	0.12	0.68	0.07	0.38
Year of investment, 1999 or 2000	-0.47**	-11.33	-0.47**	-11.18
Investments Per GP	0.02**	3.81	0.02**	3.71
Activism	0.30**	5.75	0.32**	6.15
Minority Firm	---	---	0.16*	2.52
N= 388				
Adj-R^2	**0.12**		**0.12**	
F-statistic	**25.64****		**24.63****	

** significant at the one percent level or better
* significant at the 5 percent level or better
The Aldrich-Nelson goodness of fit measure is reported.

E. Is the Treatment of MBE Portfolio Funds Impacted by VC-Fund Equity Capital Investments in Nonminority-Owned Business Ventures?

Questions considered in this section are whether diversifying outside the underserved minority market niche increases or decreases the quality of the management support services and the amount of equity capital minority-oriented VC funds provide to their portfolio of minority-owned small businesses. The issue of interest is whether diversification into nonminority investments by minority-oriented VC funds has helped or hurt access of MBEs to equity capital and support from fund general partners. We recognize that investing a portion of VC-fund equity capital in nonminority-owned small business ventures does not necessarily equate to investing

less equity capital in minority-owned firms. If, for example, diversification into nonminority investing allows minority-oriented VC funds to grow relatively more rapidly, then diversification may actually increase the absolute size of the potential pool of investable funds available to these funds to invest in MBEs.

Additionally, diversification into nonminority investing may increase the number of syndication opportunities available to the minority-oriented VC funds. More syndication participation may strengthen the professional and social networks of the minority-oriented VC fund. And stronger professional and social networks may increase the overall quality of the managerial services that the minority-oriented VC fund may offer when investing in MBEs. In the final analysis, whether diversification into nonminority investments by minority-oriented VC funds improves the access of minority-owned small businesses to the equity capital market is an empirical question.

In table 9's regression analysis, the issue of interest is this: does greater VC fund investing in firms owned by nonminority whites impact activism on the part of fund general partners in ways that might harm minority-owned portfolio companies? The answer, according to our regression findings, is yes, possibly. The regression analysis dependent variable (table 9) is an activism measure, indicating whether the VC fund general partners become involved in the day-to-day management decisions of the companies in their portfolio of VC investments. This is important because, as the findings of table 6's regression analysis indicated, activism on the part of the VC fund's general partners is associated positively with increased returns on the fund's realized investments. Stated differently, activism on the part of the general partners adds value to the fund's investments in portfolio companies.

The minority-oriented VC funds that invest more frequently in white-owned companies engage in activist efforts to assist their portfolio companies more often than funds not investing in firms owned by non-Hispanic whites. Thus, they are adding value to their portfolio companies, which include a mix of MBEs and white-owned firms, more so than their counterparts not investing outside of the MBE client pool. These same findings hold up, as well, when unrealized investments are added into the regression analysis portfolio company sample (regression results not reported). We conclude that GP activist involvement in the management of its portfolio companies impacts MBEs in diverse ways. These more activist funds with GPs who are willing to participate in day-to-day management decision making with their portfolio companies would undoubtedly be benefitting more minority-owned portfolio companies if they chose to invest in fewer white-owned ventures, but the countervailing fact is that VC funds

Table 9. Logit Regression Models Explaining Relationships between Activism by VC Fund General Partners and Traits of VC Funds and their Portfolio Firms (Realized Investments Only)

Model	**1**		**2**	
Variable	Coefficient	T-ratio	Coefficient	T-ratio
Constant	-11.81**	-3.59	-11.61**	-3.26
Old-generation fund	-0.74	-1.03	0.05	0.07
Log of investment	0.25	1.60	0.15	0.87
Syndicated	4.39**	4.73	5.17**	5.51
High tech	2.98	1.34	6.48**	2.52
Communications	6.73**	3.81	10.47**	4.76
Medical services	16.54**	3.32	30.80**	3.77
Old economy	9.71**	3.04	12.99**	3.84
Year of investment, 1999 or 2000	0.64	1.30	0.78	1.45
Investments Per GP	0.14**	2.92	0.20**	3.66
Minority Firm	---	---	-4.49**	-3.61
N= 303				
Pseudo-R^2	**0.20**		**0.25**	

** significant at the one percent level or better
* significant at the 5 percent level or better
The Aldrich-Nelson goodness of fit measure is reported.

entirely oriented toward MBE investing are less likely than their counterparts to intervene as actively in day-to-day management decision making with their portfolio firms.

A related question concerns possible differences in the behavior among old-generation as opposed to new-generation VC funds regarding active general partner involvement in assisting their MBE portfolio companies. The old-generation funds have more consistently maintained their focus upon their traditional minority clientele, relative to the new-generation funds. We test in table 10's regression analysis whether GP involvement in day-to-day management of minority-owned portfolio companies differs across the groups of old- and new-generation funds, other factors being equal. This is done by re-estimating table 9's logistic regression exercise solely for the 273 realized VC investments in MBE portfolio companies. Formally, our hypothesis is that old-generation fund general partners, other factors being constant, are more likely than new-generation VC fund GPs to involve themselves in day-to-day management affairs of their MBE portfolio companies. The positive and statistically significant regression coefficient attached to the old-generation fund explanatory variable (table 10) is consistent with this hypothesis.

Table 10: Logit Regression Models Explaining Relationships between Activism by VC Fund General Partners and Traits of VC Funds and their Portfolio Firms Owned by Minorities (Realized Investments Only)

Variable	**Coefficient**	**T-ratio**
Constant	-22.62**	-4.14
Old-generation fund	1.78*	2.12
Log of investment	0.12	0.62
Syndicated	6.28**	5.92
High tech	14.51**	3.58
Communications	14.76**	4.51
Medical services	58.65**	4.05
Old economy	14.01**	3.67
Year of investment, 1999 or 2000	0.51	0.87
Investments Per GP	0.22**	4.33
N= 273		
Pseudo-R^2	**0.28**	

** significant at the one percent level or better
* significant at the 5 percent level or better
Robust standard errors are utilized.

A broadly related issue is whether MBE portfolio companies receive investments that are smaller in dollar amount, relative to the white-owned ventures in which minority-oriented VC funds invest. Here again our findings are mixed. While the MBEs do indeed receive smaller VC investments than white-owned portfolio firms, holding constant year of investment, industry, syndication and similar traits, it is also true that MBEs receive larger investments, on average, from new-generation funds than they do when funded by the old-generation VC funds. Recall, as well, our earlier finding that public pension funds and funds of funds prefer to invest in minority-oriented VC funds holding portfolios of firms of diverse racial ownership.

The clear implication of this fact is that funds actively investing in both white-owned and MBE portfolio firms are precisely the funds most responsible for increasing the total capital resources which minority-oriented VC funds have available to invest in their portfolio firms. The fact that the pie is expanding suggests that more – rather than less – funding is most likely available for MBEs in this era of expanding new-generation fund presence. The reality of MBEs receiving smaller average equity investments than their white-firm counterparts is consistent with the steadily rising average investment sizes MBEs have been receiving from their VC funders over the decade 1995 through year end 2004. Rising investment size, furthermore, is co-existing with growth in the average number of new equity investments in MBEs being made annually by minority-oriented VC funds.

This growth in VC funding availability and increasing investment size among MBE venture capital recipients is certainly not being helped by the declining incidence of syndication of investments funded by the minority-oriented VC funds. The new-generation funds in

particular are less actively involved in syndicating their VC investments, relative to the old generation of minority-oriented VC funds. Precise statistics are presented below to illuminate key differences in VC investing patterns in MBEs versus white-owned portfolio firms, as well as differences between old-and new-generation minority-oriented VC funds.

Tables 11 and 12 provide measures of central tendency first for MBE portfolio firms only and the funds investing in these firms, and then for white-owned portfolio firms and their MBE counterparts. Our objective is to highlight racial differences regarding 1) investment size, 2) industry distribution of portfolio firms, 3) patterns in syndication and other VC fund traits, and 4) investment timing, comparing how MBEs – as opposed to white-owned portfolio firms— differ regarding the above. Are VC-fund investments in MBEs somehow different than equity investments in white-owned firms and, if so, exactly how do they differ?

In fact, these two groups of firms and the traits of the minority-oriented funds providing them with venture capital are strikingly different. Regarding fund strategy, investments in MBEs, according to the group mean differences summarized in table 12, are more likely to be syndicated (relative to white-owned portfolio firms), smaller in terms of dollar amount invested, less likely to be recipients of activist GP intervention in their management decisions making, and larger numbers of MBEs have been funded (10.3) per fund general partner, in comparison to white-owned portfolio firms (8.6). These findings are broadly consistent with the results of regression analysis exercises discussed above.

Regarding other traits, MBEs are heavily concentrated in communications and under represented in hi-tech fields. Note, however, that white-owned firms are more likely than MBEs

Table 11. Minority Firm Summary Statistics, Investments Realized through Year end 2006

Variable:	**Mean**	**Median**
IRR-all investments (equally weighted)	-0.19	0.00
Old-generation fund	0.91	1.00
Log of investment	12.68	12.68
Syndicated	0.92	1.00
High tech	0.20	0.18
Communications	0.47	0.42
Medical services	0.03	0.00
Old economy	0.17	0.16
Year of investment, 1999 or 2000	0.25	0.00
Investments Per GP	10.26	7.67
Activism	0.84	1.00
N= 273		

to be found in the portfolios of VC funds investing actively in old-economy lines of business (table 12). The nonminority firms, as expected, are over represented among investments initiated by the VC funds during the peak investing years 1999 and 2000, and they are disproportionately

funded by new-generation funds. Finally, it is noteworthy that average realized IRR values for the white portfolio firms (-0.30) were lower than the corresponding IRRs of the MBEs. Note that the negative mean IRR values do not imply that the VC investing activities of the minority-oriented funds under consideration were unprofitable.

IRR values, although universally used to measure returns generated by VC funds on their realized investments, are quirky measures of returns. Median IRR values are flawed as well but, interestingly, a comparison of median IRRs for the firm groups described in table 12 indicates positive values overall for realized MBE investments, negative values for white-owned ventures, and an aggregate median value of -.01 for all 303 realized investments of the combined groups. Idiosyncratic traits of IRR return measures are further discussed in Bates and Bradford, 2003.

Table 12. MBE versus Nonminority Means Comparisons (Investments Realized through Year end 2006)

Variable:	**Mean: white-owned firms only**	**Mean: MBEs only**
IRR-all investments (equally weighted)	-0.30	-0.19
Old-generation fund	0.60	0.91
Log of investment	14.5	12.7
Syndicated	0.76	0.92
High tech	0.24	0.20
Communications	0.24	0.47
Medical services	0.03	0.03
Old economy	0.25	0.17
Year of investment, 1999 or 2000	0.40	0.25
Investments Per GP	8.6	10.3
Activism	0.87	.84
N	**30**	**273**

F. Robustness Tests

Our final task regarding our analysis of the viability of the minority-oriented venture-capital industry entails conducting several statistical tests to establish the robustness of our findings concerning VC-fund strategies and portfolio company traits associated with stronger (and weaker) financial performance, measured by IRR values of their realized investments. We have conducted a variety of these tests, which entail estimating variants of the table 6 regression analysis explaining variance in IRR values; (see, as well, Jackson et al. (forthcoming) for detailed discussion of the robustness of our regression model for explaining IRR values of realized investments made by minority-oriented VC funds.

The regression exercise summarized in table 13 entails analyzing relationships between the IRR values of 273 realized investments in MBEs and fund and portfolio firm traits; white-owned portfolio firms are excluded. We are replicating the regression analysis summarized in table 6, but solely for MBE portfolio firms. Regression findings identify the firm traits and VC-fund strategies that predict high returns on investment in MBEs, and these include 1) GP activism, 2) not initiating new investments in the peak funding years of 1999 and 2000, 3) investments made by new-generation funds, 4) larger numbers of investments per GP, and 5) investments in portfolio firms operating in the medical services industry (table 13). Two findings particularly stand out: 1) new-generation funds clearly earn higher returns on their investments in MBEs than old-generation funds; 2) there is no penalty attached to syndicated investments (table 13). Earlier regression findings (table 6) revealed lower returns on syndicated investments, other factors being equal. Furthermore, previously reported regression findings had not established the positive relationship demonstrated in table 13 between new-generation-fund investments and higher IRRs on realized VC investments in MBE portfolio companies. Since future developments in the trajectory of the minority-oriented VC industry sector appear to be driven largely by new-generation funds, their demonstrated ability to invest successfully in MBEs is an important finding. We conclude that the table 13—and various other regression analyses – regression exercise is producing consistent outcomes, which is the defining characteristic of a robust statistical analysis.

Table 13. GLS Random Effects Regression Model Explaining Relationships between IRR Values of Realized Investments and Traits of VC Funds and their Minority-Owned Portfolio Firms

Variable	**Coefficient**	**T-ratio**
Constant	-0.42	-0.94
Old-generation fund	-0.33**	-4.12
Log of investment	0.02	0.93
Syndicated	-0.08	-0.79
High tech	-0.24	-0.77
Communications	-0.06	-0.27
Medical services	1.45*	2.52
Old economy	0.04	0.13
Year of investment, 1999 or 2000	-0.49**	-8.82
Investments Per GP	0.03**	4.54
Activism	0.24**	3.59
N= 273		
Adj-R^2	**0.13**	
F-statistic	**21.24****	

** significant at the one percent level or better
* significant at the 5 percent level or better
Robust standard errors are utilized.

III. Concluding Comments

Has high-tech investing been particularly profitable for the minority-oriented VC funds? The answer is no. Has investing in portfolio companies owned by whites been particularly profitable? Once again, the answer is no. What profiles and strategies typify the more successful, as opposed to the less successful minority VC funds? Higher IRR values are associated with 1) investing in MBEs, 2) activism in assisting portfolio companies on the part of the VC fund general partners, and 3) a larger number of VC investments per fund general partner. It is noteworthy that all of these traits linked to higher returns on VC investments represent investing strategies employed at the discretion of the individual VC funds. Lower IRR values are associated with 1) making investments in white-owned firms, 2) being an older VC fund, 3) participating in syndicated investments, and 4) top-of-the-cycle investing (making investments initially funded in either 1999 or 2000).

Our findings validate the underserved minority market hypothesis: investing in MBEs, other factors being the same, generates higher returns for the minority VC funds than investments in nonminority-owned ventures. In English, this means that investments of the same dollar amount, initiated in the same time period, by minority-oriented VC funds using identical strategies regarding such factors as syndication, investment by industry, GP activism with portfolio companies, and the like, produced higher IRR values if the portfolio company was minority owned and lower values if the company was white owned.

We attribute the generally declining financial returns typifying the minority-oriented VC funds in recent years to five factors, three of which reflect the tendency of these funds to emulate mainstream VC industry investing practices. First, cooperation among funds in the form of syndicated investing has declined, a trend mirroring mainstream investing practices. We credit subsequent declining returns to the fact that minority VC funds are increasingly keeping their most promising investments entirely for themselves, while syndicating the less promising deals in order to spread the risk of a poor ultimate outcome for these deals. Second, the increasing frequency of investments in white-owned portfolio companies—rather than MBEs – has clearly depressed realized investment returns. Investing in hi-tech companies, third, is another factor tending to lower returns on realized equity investments in portfolio companies.

Investments initially funded in the years 1999 or 2000 by minority-oriented funds—investing at the very top of the VC industry's boom/bust cycle – were the fourth cause of low realized returns on VC investments; in comparison, investments initiated before or after 1999 and 2000 were much more successful. Investing heavily at the top of a boom/bust cycle, while certainly a negative, is most likely a transitory phenomenon rather than a strategic choice likely to indicate enduring poor financial returns on the equity investments made by the minority-oriented VC funds. Fund vintage, finally, shaped investing returns, a finding that suggests a brighter future for the minority-oriented VC fund sector. The older funds were the ones most often producing low returns on realized equity investments, holding other factors constant, while the newer-generation funds – those most directly shaping the future trajectory – were the better performers. These newer VC funds are typically run by GPs possessing work experience in investment banking prior to launching their venture capital funds, while GPs of older funds rarely possessed such mainstream work experience. Our findings suggest that having prior work experience in investment banking conveyed investing advantages.

The question "why would these VC funds in the 21st century increasingly invest outside of their traditional minority market niche?" is closely linked to the investing preferences of the institutional investors that provide the funding for the venture capital industry. Major institutional investors like pension funds seek high financial returns when they invest in VC funds. When they contemplate investing into minority-oriented VC funds, they seek to cherry-pick the winners, investing only in the subset of minority funds poised to generate above-average returns for their institutional investors. In the process of picking and choosing those funds potentially offering the highest investment returns, the institutional investors effectively shape the trajectory of the minority VC industry subsector. The winners—flush with funding —rapidly achieve growing prominence in the MBE equity investing realm; the losers—smaller in resources available for investing—lose relative position within the minority VC fund universe.

Our findings and those of other researchers indicate that the dominant institutional investors providing funding to the minority-oriented VC funds have systematically tended to invest in the less profitable VC funds, including those investing most actively in hi-tech and white-owned portfolio companies. Importantly, however, the investing practices of these institutional capital sources are self-correcting over time precisely because their funding decisions are driven largely by their search for above-average returns. We therefore see this institutional investor set of preferences as a short-term phenomenon, with future funding flowing increasingly to the minority-oriented VC funds pursuing the equity investing strategies most clearly identified with generating high returns on their VC investments; minority-owned business ventures provide those higher returns.

One fact is clear: absent generating high competitive returns on their equity investments in small business ventures, minority-oriented VC funds will not retain their access in the future to major institutional sources of funding such as public pension funds. Further, those individual VC funds earning high competitive returns on their VC investments will enjoy continuing access to institutional capital sources in the future, and the funds producing uncompetitive low returns will be denied such access. The future of the minority-oriented VC funds is thus shaped largely by how successfully they generate high returns on their realized equity investments in small businesses.

Scholarly studies have repeatedly demonstrated that minority-owned business enterprises, particularly those owned by African Americans and Hispanics, have less access to debt and equity capital than similarly situated white-owned firms. When MBEs experience restricted access to equity capital markets, this market segment is being underserved. Indeed, minority-oriented equity-investing venture capital funds exist today largely due to the absence of mainstream VC-fund participation in this market segment. Two direct empirical tests for the presence or absence of restricted MBE access to equity capital have been discussed in this report, the first of which entails comparing the financial performance of VC funds specializing in investing in MBEs, to the outcomes of mainstream VC funds of the same vintage that do not target their investments to MBEs (Bates and Bradford, 2008a). An alternative test of the underserved market hypothesis requires collecting data on all realized VC investments made by a group of funds over a specific time period, where some of these funds actively made VC investments in both MBE- and nonminority-owned small businesses. The underserved market

hypothesis is supported if the observed investment returns forthcoming from realized VC investments in MBEs exceeded returns from investments in the non-MBE ventures. Results of this alternative test – documenting higher financial returns forthcoming from VC investments in MBEs—provide statistically significant support for the underserved market hypothesis. This suggests that minority-oriented VC funds are viable and serve as a important source of equity capital for MBEs. This is the major single finding of this research report.

Other major findings in this report related to the two following research questions. First, does diversifying outside the underserved minority market niche increase or decrease the quality of the management support services received by MBEs? And, second, does the amount of equity capital that minority-oriented VC funds provide to their portfolio of minority-owned small businesses decrease when they diversify outside the underserved minority market niche? Our findings suggest that the answers to both of these questions are nuanced. We conclude that general partner activist involvement in the management of its portfolio companies impacts MBEs in diverse ways. The more activist GPs would undoubtedly benefit more minority-owned portfolio companies if they chose to invest in fewer white-owned business ventures. However, the countervailing fact is that VC funds entirely oriented toward MBE investing are less likely than their counterparts to intervene as actively in day-to-day management decision making with their portfolio firms. Thus, increasing the number of minority-oriented VC funds that diversify into non-MBE investing may result in an overall increase of GP involvement with MBEs. Similarly, our findings indicate, on balance, that investing in nonminority ventures does not reduce the supply of venture capital funding available to minority-owned firms.

A. Additional Research Topics

Several areas for additional research are suggested by the findings of this report. First, are VC-fund investments in MBEs somehow different than equity investments in white-owned firms and, if so, exactly how do they differ? Our findings suggest that, in fact, these racially-defined groups of portfolio firms—and the traits of the minority-oriented funds providing them with venture capital—are strikingly different. Regarding fund strategy, for example investments in MBEs are more likely to be syndicated (relative to white-owned portfolio firms), smaller in terms of dollar amount invested, less likely to be recipients of activist GP intervention in their management decision making, and larger numbers of MBEs are funded per fund general partner, in comparison to white-owned portfolio firms. These findings suggest that a better understanding of these differences, especially the relative importance of syndicating and networking among MBEs, is a fruitful area for future research.

B. Public Policy

Our results provide additional documentation of the existence of underserved markets in the realm of MBE financing, indicating that access to equity capital among MBEs is still a challenge. Policies to support minority-oriented VC funds may be capable of alleviating this market failure, thus enhancing the competitiveness of MBEs specifically, while enhancing, as

well, the overall competitiveness of the nation's private sector. According to the Kauffman Index of Entrepreneurial Activity, a leading indicator of new business creation trends in the U.S. economy, minority owners made up 24 percent of all new entrepreneurs in the U.S. in 1996, but the minority share by 2010 had risen to 40 percent. A related relevant fact is that the majority of all children in the U.S. under the age of four in 2010 are minorities, which clarifies why the U.S. about three decades from now will be a nation where non-Hispanic whites make up under half of the total population. "Unless we unleash the potential of the minority population" note Greenhalgh and Lowrey, "the past success of the U.S….cannot be sustained in the coming decades" (2011, p. 16). Researchers to date have emphasized the importance of MBEs as creators of jobs in minority communities, an important point. Going forward, however, MBEs must be seen as vitally important creators of economic growth and new employment opportunities not simply for minority communities but for the nation as a whole.

Appendix A: Database describing MBE-oriented VC funds and their equity investments in small businesses

The VC fund database analyzed in this study was constructed by surveying NAIC member funds at three points in time – 2001, 2004, and 2007. In our 2004 and 2007 surveys, several funds responding to an earlier survey did not respond, while several not responding to an earlier survey did respond to later ones. To ensure adequate representation of young funds in our final sample, we permitted funds starting between 2001 and 2003 to be included in our 2004 survey of eligible NAIC member funds. Member firms were pre-surveyed again in 2004 to identify those oriented toward investing equity capital in minority business enterprises. Further descriptions of this VC-fund database are available in Jackson et al. (forthcoming).

Appendix B: Variable definitions

Dependent variables:

1. Tables 6, 8, 13 and 14:

IRR: The internal rate of return (IRR) for the project is the discount rate at which the present values of all of the investment's cash flows sum to zero.

2. Tables 9 and 10: *Activism* is an indicator variable equal to one if assistance is provided by the VC fund general partners in the day-to-day operations of its portfolio firms, and zero otherwise.

Explanatory variables:

Precise variable definitions are spelled out in Bates and Bradford (2008b).

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