The Performance of Small Business Investment Companies *

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June 19, 2024

Abstract

We utilize results of a survey of Small Business Investment Companies (SBICs), along with data from MSCI-Burgiss, to perform a novel analysis of SBIC performance. Overall, we find via the survey that SBIC funds outperform comparable non-SBIC peers by an average of around 4% (median of 2.6%) in terms of IRR and an average of about 0.7x (median of 0.3x) in terms of multiple on invested capital (MOIC). We also examine SBICs in the MSCI-Burgiss data which is available for a smaller sample but should be free of selection bias (e.g., from self-reporting). The MSCI-Burgiss sample also shows outperformance of SBICs relative to comparable non-SBIC peers but the magnitude is smaller. The MSCI-Burgiss funds also have complete cash flow data, so we are able to calculate Kaplan-Schoar public market equivalents (PMEs). We find that both the average and median PMEs of SBICs are greater than 1.0 indicating that they outperformed public benchmarks as a group. Funds with a leverage ratio between 1.00-1.75x appear to yield the highest excess IRR though these results depend on strategy. In a regression analysis we find that larger funds tend to generate higher IRR and MOIC when controlling for other factors such as vintage year and strategy.

*The authors thank the Small Business Investor Alliance for assisting with the survey of their membership. We also thank MSCI and the Private Equity Research Consortium for access to the MSCI-Burgiss fund data. Helpful comments have been provided by Alex Arnsberger, David Demeter, Brett Palmer and session participants at the SBIA 2024 West Coast Capital Summit. Conflict of Interest Disclosure: the SBIA is a donor to the Institute for Private Capital, however, none of the authors have received compensation from the SBIA or its members for work on this or any other research project. Brown is a limited partner investor in SBICs.

1 Introduction

The Small Business Investment Company (SBIC) program was created in 1958 to facilitate access of American small businesses to private equity and private debt capital.[1] The Small Business Administration (SBA), an independent agency of the federal U.S. government, effectively provides guaranteed loans to licensed SBIC funds that can match privately raised capital.[2] The primary extant instrument of the SBIC program are its *Standard Debenture* loans, issued at face value with a 10-year term at typically no more than 2 times a fund's committed capital with semi-annual interest payments.[3] Some SBICs do not borrow from the SBA but obtain the license for other benefits (e.g. eligibility for Community Reinvestment Act credit). The standards for qualifying as a "small" business are mostly based on the number of employees and annual receipts, varying by industry.

Brown et al. (2020) demonstrate that there is a funding gap for small businesses outside of metropolitan centers, and furthermore that the gap is present for women-owned and minority owned-firms regardless location or size, concluding that the SBIC program has indeed been effective at channeling capital to these overlooked areas. But despite being around for the better part of 60 years, there has been little analysis of the performance or effects of SBIC funds, especially during the last 20 years. Paglia and Robinson (2016) examine total value to paid-in capital (TVPI) for SBICs from 1999-2015 and find that "granting SBIC licenses to well-qualified gender-diverse and racially diverse funds increases the rates of investment into other women-led, women-owned, minority-led, and minority-owned companies while also producing returns that are comparable to their non-diverse counterparts." Using the same data, Paglia and Robinson (2017) find that SBIC-funded small businesses are a robust sources of job creation, estimating that one new job is created or sustained with roughly every 4,500 USD of SBIC funding and a corresponding administrative cost of about 35 USD.

However, we are unaware of any rigorous analysis of SBIC fund performance relative to public benchmarks, by strategy, by vintage, or by fund size. To fill this knowledge gap, we collaborated with the Small Business Investor Alliance (SBIA) to conduct a survey of SBICs asking for various characteristics and fund performance of debenture, non-leveraged, or bank-owned SBIC funds. We examine fund vintage years from 2000-2023, though focus our analysis on vintage years 2000-2020 since funds from vintages 2021-2023 are typically still in their investment period during the time of our analysis. Overall, the survey yielded a 65% response rate and data from 127 firms and 269 funds. We compare the performance results reported in the survey to comparable funds

[1] A more detailed overview of the SBIC program can be found on the official SBIC website found at https://www.sba.gov/partners/sbics/apply-be-sbic.

[2] Technically, the SBA is guaranteeing debt in the capital markets, which is then loaned to SBICs

[3] Other types of loans offered have added benefits for low and moderate income (LMI) investments and Energy Saving Qualified Investments, but have seldom been used due to misalignments between interest payments and cash-flow patterns. In August 2023 a new Accural Debenture was introduced, aimed at equity-oriented strategies. More information can be found in the SBA rule found at https://www.federalregister.gov/documents/2023/07/18/2023-13981/small-business-investment-company-investment-diversification-and-growth.

observed in MSCI-Burgiss Manager Universe (BMU).[4]

We find that SBICs have an average internal rate of return (IRR) of 16.9%, which is about 4% higher than for a comparable set of non-SBIC peer funds. Similarly, SBICs have an average multiple on invested capital (MOIC) of 2.3x, which is about 0.7 of a multiple higher than for the peer funds. Given the range of investment strategies for SBICs we also examine performance by fund type (e.g., equity, junior debt, senior debt) and by the level of leverage utilized by the SBIC. On average, all SBIC strategy types and levels of leverage are associated with superior performance relative to the non-SBIC peer group. On an absolute basis, SBIC equity funds are the best performing. However, SBIC junior debt funds have the largest outperformance relative to their peer group. We also find that more leverage is not always associated with higher returns. For all funds together, those with a leverage ratio between 1.00x and 1.75x have the best performance relative to their peer group. For funds with less equity exposure (e.g., senior debt funds), the best performance relative to their peer group is leverage between 0.50x and 1.00x.

One potential drawback to a survey of funds is a selection bias from self-reporting. It is possible that poor-performing funds may not want to report or have general partners (GPs) that are no longer in business and thus unavailable to participate (and, in fact, we know this to be the case for some GPs). On the other hand, we are also aware of some top-performing SBICs that chose not to participate in the survey. Overall, the effect of selection bias on the results using the survey data are ambiguous. To mitigate the concern of selection bias, we also identify a set of SBICs in the MSCI-Burgiss data. Since these data are sourced directly from limited partners (LPs), they are widely believed to be free of significant selection biases.[5] We are able to identify 86 SBICs with complete cash flows for vintages 2000 through 2020. We find quite similar results for the MSCI-Burgiss sample in so far as all fund types tend to outperform comparable non-SBIC peers. However, the magnitude of SBIC outperformance is somewhat smaller with an average IRR that is 2.7% higher and an average MOIC that is 0.43x higher than non-SBIC peers. An additional benefit of the MSCI-Burgiss data is that the complete record of fund cash flows allows us to calculate Kaplan and Schoar (2005) public market equivalents (PMEs) which are essentially market-adjusted MOICs. We use public market benchmarks that adjust for the mix of debt and equity in SBICs based on the BMU classification and find that SBICs generate average PMEs greater than 1.0 indicating outperformance relative to the public market benchmark. We also find that the PMEs of SBICs are on average greater than those of their peer non-SBIC funds. These results hold for equity, junior debt, senior debt, and generalist funds.

Overall, our analysis suggests that SBIC performance from the perspective of LPs is, on average, superior to both comparable peer funds and public-market benchmarks.

[4]For more information on the MSCI-Burgiss manager universe see https://www.msci.com/our-solutions/private-capital/private-i/universe-data-analytics.

[5]See Harris et al. (2014) for more details on the MSCI-Burgiss data.

2 Survey Data

We collaborated with the Small Business Investor Alliance (SBIA) to conduct a survey of SBICs with the goal of getting fund-level performance data along with a limited set of other fund attributes. The SBIA was formed in 1958 as a trade organization to represent private funds. Its members include conventional private equity and debt funds, Business Development Companies (BDCs), Rural Business Investment Companies (RBICs), Small Business Investment Companies (SBICs) as well as intermediaries, investment banks, independent sponsors and institutional investors such as banks, university endowments, and pension funds.[6]

At the fund level, the SBIA survey asked general partners (GPs) to provide net IRR (henceforth referred so as simply IRR) and net MOIC (henceforth referred to simply as MOIC) as well as basic fund information such as vintage year, committed capital, fund size, SBA leverage ratio, accounting method (GAAP or SBA), aggregate limited partner (LP) contributions, aggregate LP distributions, aggregate LP net asset value (NAV), the number of small businesses receiving investment along with how many of those were in LMI areas and how many constitute smaller enterprises[7], approximate percent of equity investment, and if there was an ESG policy in place at the fund's first close. Respondents also selected each fund's primary investment strategy. Available strategies were provided in a dropdown menu on the survey with the following choices: buyout/control equity, growth equity, mezzanine debt and minority equity, mezzanine debt, other, senior debt, unitranche, venture debt, and venture equity. We note that the SBA leverage ratio (asked for in the survey) is the maximum allowed under the SBA license, but not necessarily the amount of leverage actually taken on. To approximate actual leverage, we take the ratio of total fund size (inclusive of SBA leverage) to private committed capital. For funds with a selected strategy of "other", we use classifications as found in Pitchbook. Vintages from 2000 and later were targeted.

Surveys were sent to SBIA members, which included debenture, non-leveraged, bank-owned, and business development companies (BDCs). Non-SBIA members were also asked, but excluding BDC-owned debenture and bank-owned funds, and also excluding non-leveraged funds. Some SBICs were also not queried because it was known beforehand that they would not respond or because contact information could not be found.

Of the 217 GPs with SBIC fund vintages from 2000 through 2023, surveys were sent to 194. Respondents for 127 firms submitted a survey, yielding a 65% response rate. In terms of SBIC funds, we know of 438, the 194 firms surveyed have a known total of 412, the 127 firms that participated

[6] Additional information on the SBIA and their members is available on their website at https://sbia.org/what-is-sbia/.

[7] At a high level, a *smaller enterprise* is any small business that satisfies codified size standards for its industry and also has net worth not exceeding 6 million USD and average net income after Federal income taxes (excluding carry-over losses) for the preceding two years not exceeding 2 million USD. A more detailed definition can be found at https://www.ecfr.gov/current/title-13/chapter-I/part-107/subpart-G/subject-group-ECFR17d135b9cef64e5/section-107.710.

have a known total of 297 funds, and we received data on 279 funds. This represents a 68% fund response rate that covers 93% of funds among the firms that participated. In practice we will focus primarily on funds from 2000 through 2020, and the breakdown of funds and respondent rates by vintage and by type are shown in Table A1.

2.1 Summary Statistics

124 respondents provided data on 277 funds, with vintages ranging from 2000 to 2023 as shown in Figure 1. The majority of funds lie within vintage 2010 through 2023.

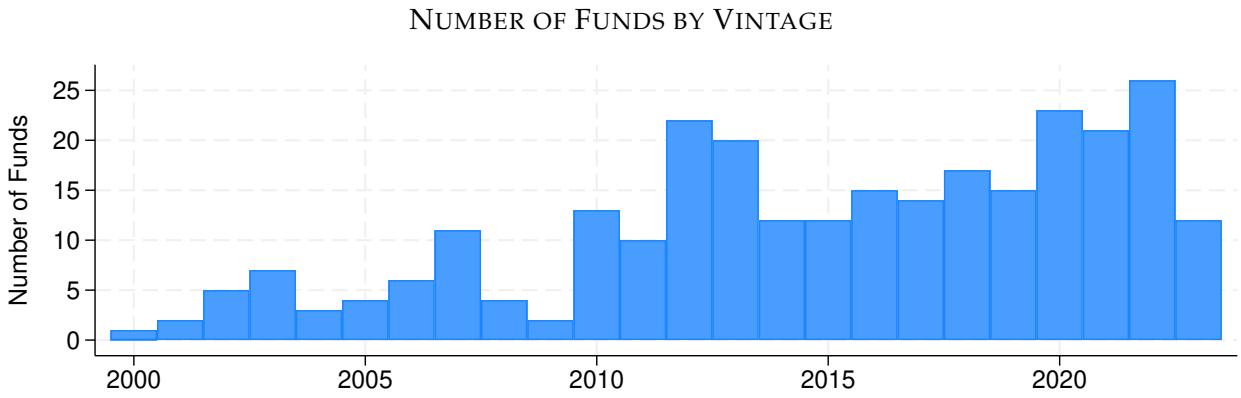

FIGURE 1: This figure reports the number of funds covered by the survey by vintage year. Vintage years are self-reported by GPs. Most of the analysis exclude the most recent vintages of 2021-2023 because these funds are likely still in their investment period and have few realized investments.

Our sample includes 115 mezzanine debt and minority equity funds, 39 buyout/control equity funds, 21 mezzanine debt funds, 16 senior debt funds, 11 growth equity funds, 10 venture equity funds, 5 venture debt funds, and 1 unitranche debt fund. To simplify our analysis, we combine funds into broader buckets. Specifically, we combine mezzanine and minority, mezzanine debt, unitranch, and venture debt into a group we call *junior debt* (142 funds); we combine buyout/control equity, growth equity, and venture equity in a group we call *equity* (50 funds) and we keep *senior debt* funds as a single group (16 funds).

The analysis reported here was conducted in the first half of 2024 and so we exclude from our primary analysis funds with vintage years 2021 and later because these funds are likely still in their investment period. Specifically, we are concerned that performance metrics for recent vintages would be based almost entirely on unrealized investments and also subject to significant J-curve effects. Indeed, we see evidence of J-curve effects in the distribution of IRR shown in Figure 2. Funds with low IRRs tends to come from newer vintages which are likely still in the down-swing of a J-curve. Likewise, newer vintage MOICs tend to be concentrated around 1. The average IRR of the full sample is 15.4% with a median of 14.2%. The average MOIC of the full sample is 2.1x with a median of 1.8x. If we look only at post-2020 funds, we find an average and

median IRR of 4.8% and 6.5%, respectively, and for MOIC an average and median of 1.0x.

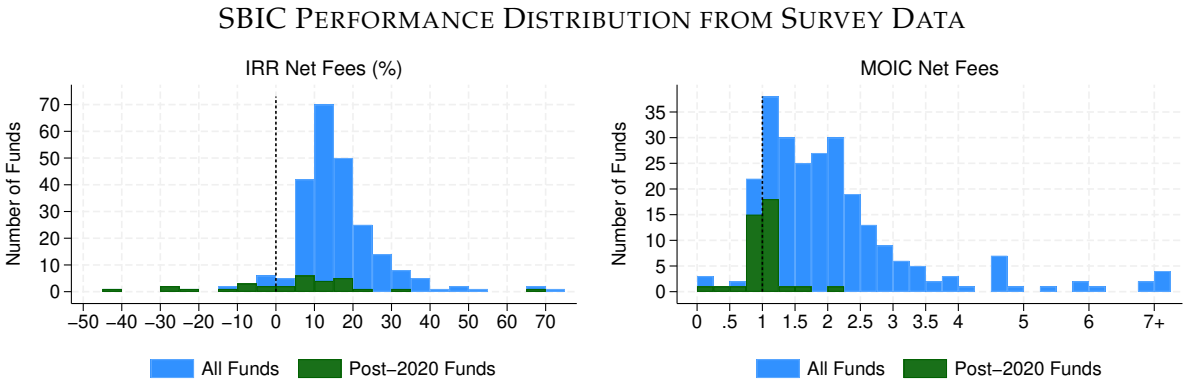

FIGURE 2: This figure plots the histogram of performance for all funds as measured by net IRR and MOIC. The green bars denote funds with vintage years of 2021 and later. We note that low IRR values tend to be associated with newer vintages which are likely still in the down-swing of the J-curve. Likewise, newer vintage MOIC tends to be more concentrated around 1.

On a related note, some funds are missing data for some fields. Most important for the purposes of this paper, several funds are missing IRR and MOIC data, primarily for newer funds: the average vintage of funds without a reported IRR is 2021 and 2022 for MOIC. We suspect that managers are hesitant to share performance data for newer funds that have not yet had the opportunity to exit the down-slope of the J-curve or have not had enough time to generate value in portfolio investments.

Because of the increased challenges that more recent vintages pose, we restrict subsequent analysis to vintages 2000 through 2020.[8] Basic summary statistics are shown in Table 1 including the number of observations for each variable.

We also analyze the data based on reported percentage of equity investments: 2 funds report having 0% equity, 107 funds with 0-20% equity, 67 funds with 20-50% equity, and 30 funds in excess of 50% equity. The maximum allowed ratio of SBA leverage tends to be higher for funds with less equity: funds with 0-20% equity (including 0%) have an average ratio of 1.81x with the most common (86%) value of 2x; funds with 20-50% equity have an average ratio of 1.71x with the most common (76%) value of 2x; and funds with at least 50% equity have an average ratio of 0.98x with the most common (33%) value of 0x.

94% of senior debt funds have positive allowable SBA leverage with an average of 1.84x, the most common (88%) value being 2x; 92% of junior debt funds have positive allowable SBA leverage with average of 1.74x, the most common (90%) value being 2x; and 80% of equity funds have positive allowable SBA leverage with an average of 1.36x, with the most common (54%) value being 2x. In other words, most SBICs seek to be authorized for the highest available level of SBA leverage (2x).

[8]Results for the full sample including 2021-2023 vintages are available from the authors on request.

TABLE 1: SURVEY SUMMARY STATISTICS, VINTAGES 2000-2020

Variable	Obs	Average	Std. dev.	Min	Max
Fund IRR Net of Fees (%)	211	16.9	10.4	-13.4	73.3
Fund MOIC Net of Fees	215	2.3	1.4	0.0	10.3
Aggregate Limited Partner Contributions ($Millions)	218	62.2	45.2	8.4	363.7
Aggregate Limited Partner Distributions ($Millions)	218	91.1	163.7	0.0	1723.7
Aggregate Limited Partner NAV ($Millions)	211	60.5	68.5	0.0	386.2
Total Private Committed Capital ($Millions)	218	75.7	47.8	8.7	350.0
Total Fund Size ($Millions)	218	173.1	89.6	12.8	525.0
SBA Max Leverage Ratio	218	1.6	0.7	0.0	2.0
Leverage Ratio	218	1.4	0.7	0.0	2.0
Number of Small Businesses Receiving Investment	216	23.7	13.0	5.0	91.0
LMI Areas	218	4.9	5.1	0.0	27.0
Smaller Enterprises	218	16.6	10.6	0.0	78.0

This table shows summary statistics for the SBIC survey jointly done with the SBIA. Performance data are through 2023. The vintage years 2000 through 2020 have 218 funds reporting. Some funds did not report data for all variables.

3 Performance based on Equity Share

We utilize MSCI-Burgiss Manager Universe data for benchmarking, and we do two benchmarking methods. The first benchmarking method is based on funds' self-reported level of equity investment. We use the Burgiss-MSCI data to generate a custom benchmark for each self-reported level of equity investment. For example, a fund classified as having 10-20% equity is evaluated against a benchmark that is a weighted-average of performance of pooled equity funds (with a 15% weight) and pooled debt funds (with an 85% weight). For the benchmark funds we exclude distressed debt funds and limit the peer funds to those with under 500 million USD in committed capital and in the same vintage year.

Benchmarked performance for a fund, i.e. excess performance, is defined as

$$\text{Excess Performance} \equiv \text{Raw SBIC Performance} - \text{Benchmark Performance}.$$

For example, consider a hypothetical 2011 vintage SBIC fund with 15% equity and an IRR of 9%. Using only 2011 vintage funds we calculate a benchmark that is 15% of the return of the comparable equity funds benchmark and 85% of the return of the comparable debt funds benchmark. Assume the IRR of this benchmark is 7%, then the *excess IRR* of the SBIC fund is 2% ($9\% - 7\%$); an identical calculation is used for MOICs. Any number above zero indicates a fund that outperformed its benchmark, and vice versa.

Results for equity percentage benchmarking are shown in Table 2, simplified to three buckets: low equity from 0% to 20%, medium equity between 20% and 50% equity, and high equity in excess of 50%. A more detailed breakdown of equity percentage by percentiles can be found in Table A2 in the appendix. The overall benchmarked performance is an excess IRR of 3.98% and excess MOIC of 0.68x. Funds with 20-50% equity appear to have the best average benchmarked performance in IRR by a considerable 6.73 percentage points. On average, funds with medium equity (20–50%) and high equity (>50%) have similar excess MOICs (0.84x and 0.88x, respectively).

TABLE 2: SBIC PERFORMANCE RELATIVE TO BENCHMARK BY FUND EQUITY PERCENTAGE

	AVERAGE IRR				AVERAGE MOIC			
Equity %	**Obs**	**SBIC**	**Benchmark**	**Difference**	**Obs**	**SBIC**	**Benchmark**	**Difference**
0-20%	104	14.12%	10.95%	3.17%	107	1.97x	1.46x	0.52x
>20-50%	67	20.16%	13.43%	6.73%	67	2.42x	1.58x	0.84x
>50%	38	18.24%	16.88%	1.35%	39	2.85x	1.98x	0.88x
All	209	16.80%	12.82%	3.98%	213	2.27x	1.59x	0.68x

This table shows average IRR and average MOIC from the SBIC survey, MSCI-Burgiss benchmarks, and the difference between the two, based on percent of reported equity for each fund. Data are for fund vintages 2000 through 2020. A positive difference means the SBIC funds outperformed the benchmark.

The box-and-whisker plots of Figure 3 illustrate the distribution of performance relative to fund-specific benchmarks. The purple diamonds show that the average excess returns are above zero, that is, SBIC performance on average being higher than the benchmarks (as shown in the preceding table). The thick black line in each box indicates the median performance relative to the benchmark and also indicate that all equity groups outperformed.

In Figure 3, the box itself represents the interquartile range, that is, where the middle 50% of the data resides. All percent equity buckets have averages and medians above zero for both excess IRR and excess MOIC. In fact, interquartile range boxes for low and medium equity buckets are almost entirely above zero. Medium equity appears to have the largest skew in IRR insofar as its average is pulled noticeably above the median by its very high-performers; the same can be said for medium and high equity excess MOICs. While positive skewness suggests that averages might not be the best indicators for typical performance, we can examine the proportion of funds with excess performance. For excess IRR, 71% of low equity funds, 67% of medium equity funds, and 58% of high equity funds outperform their comparable non-SBIC fund benchmark. For excess MOIC, 78% of low equity funds, 73% of medium equity funds, and 59% of high equity funds outperform the their comparable non-SBIC fund benchmark. Overall, 67% of SBIC funds have positive excess IRR and 73% have positive excess MOIC under this benchmarking standard.

We also analyze performance as measured by IRR for each equity bucket by the fund's leverage ratio and report the results in Figure 4. The funds that perform best relative to their benchmarks tend to fall somewhere in between the minimum of 0x and the maximum of 2x leverage.

DISTRIBUTION OF PERFORMANCE RELATIVE TO BENCHMARK BY EQUITY PERCENTAGE

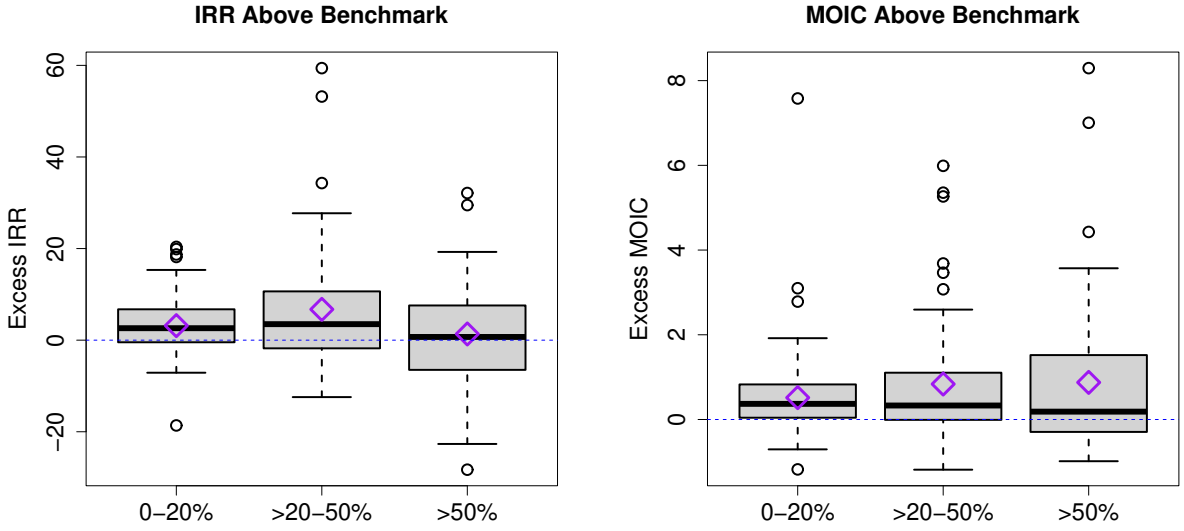

FIGURE 3: This figure plots the distribution of reported SBIC fund *excess* performance which is defined as performance relative to a custom benchmark for each fund that matches on equity percentage and vintage. The left panel reports excess IRRs and the right panel reports excess MOICs. The purple triangles represent the sample averages (means). The horizontal bars in the boxes represent the sample medians. The boxes represents the interquartile (25-75%) range. The "whiskers" show ±1.5X the interquartile range and hollow circles represent outliers outside of this range. Data are for fund vintages 2000-2020.

PERFORMANCE RELATIVE TO BENCHMARK BY LEVERAGE RATIO AND FUND EQUITY PERCENTAGE

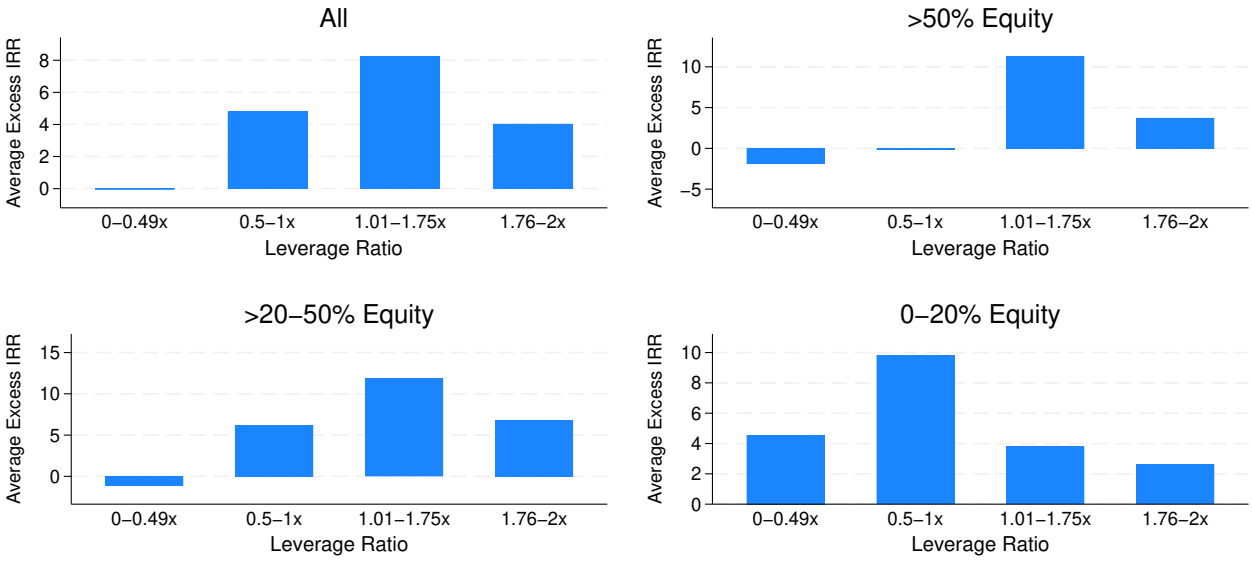

FIGURE 4: This figure plots IRRs in excess of the benchmark IRR by leverage ratio. Results are plotted for all funds (top left) as well as separately for each equity bucket. Data are for fund vintages 2000-2020.

Overall, funds with a leverage ratio between 1-1.75x appear to perform the best and this is true for both high and medium equity funds. The best performing low equity funds have leverage of 0.5-1x. These results indicate that outperformance is common for all funds which have more than a modest amount of leverage, but that more leverage is not always associated with more outperformance. Subsequent research could examine the reason(s) for this non-linearity.

4 Performance based on Fund Type

The second benchmarking method is based on self-reported fund type. SBIC funds tend to be mixtures of equity and debt that do not always fall neatly into traditional strategy categories. However, a benefit of classifying them by strategy is that the results can be compared to analogous strategies in the MSCI-Burgiss database. This may provide some insight into potential survey reporting bias.

For junior debt, we benchmark performance metrics by vintage against U.S. mezzanine debt funds of all sizes in the MSCI-Burgiss data. For senior debt, we use U.S. generalist, senior, not elsewhere classified, and unknown debt funds in the MSCI-Burgiss data. For equity, we look at U.S. equity funds no larger than 500 million USD in committed capital.[9]

4.1 SBIA Survey Data

The benchmarks using the SBIA survey are shown in Table 3. The overall excess IRR is 4.13% and excess MOIC is 0.74x, not too dissimilar to the equity percent benchmarks, suggesting that the strategy approach is generally robust despite concerns about the messiness of discrete classification.

TABLE 3: PERFORMANCE RELATIVE TO BENCHMARK BY FUND STRATEGY

	AVERAGE IRR				AVERAGE MOIC			
Strategy	**Obs**	**SBIC**	**Benchmark**	**Difference**	**Obs**	**SBIC**	**Benchmark**	**Difference**
Equity	58	21.97%	19.68%	2.29%	59	3.18x	2.21x	0.97x
Junior Debt	137	15.17%	9.94%	5.23%	140	2.00x	1.31x	0.70x
Senior Debt	16	13.18%	11.65%	1.53%	16	1.63x	1.31x	0.32x
All	211	16.89%	12.75%	4.13%	215	2.30x	1.56x	0.74x

This table shows average IRR and average MOIC from the SBIC survey, MSCI-Burgiss benchmarks, and the difference between the two, based on strategy of each fund. Data are for fund vintages 2000 through 2020. A positive difference means the SBIC funds outperformed the benchmark.

[9]The benchmark includes U.S. buyout, expansion capital, venture capital (VC), and generalist equity funds in the MSCI-Burgiss database. Because the benchmark has a higher proportion of VC funds than the SBIC survey data, and VC funds performed better than other equity funds, the benchmark is most likely a conservative measure of comparable fund performance.

Table 3 also shows that for IRR, junior debt is the highest-performing strategy by a wide margin with an excess IRR of 5.23%, compared to the lowest-performing excess IRR of 1.53% for senior debt. MOIC tells a different story, however, in that equity funds have the highest excess MOIC by a wide margin with 0.97x, compared to senior debt at the bottom end with 0.32x. A more detailed breakdown of strategies by percentiles can be found in Table A3 in the appendix.

The box-and-whisker plots of Figure 5 illustrate the distribution of performance above benchmark peer group. Of particular note is junior debt, which has boxes both entirely exceeding zero indicating that more than 75% of funds had performance that exceeded their peer-group benchmark. Overall, 48% of equity funds, 75% of junior debt funds, and 69% of senior debt funds outperform their benchmarks in terms of IRR; whereas 56% of equity funds, 86% of junior debt funds, and 75% of senior debt funds outperform in terms of MOIC. Taken together, 67% of SBIC funds have IRRs and 68% have MOICs that exceed the peer-group benchmarks.

For IRR, the averages and medians are typically close, suggesting that outliers are not deeply skewing the average. The same cannot be said of MOIC, however, which has averages consistently and notably above the medians for equity and junior debt funds, suggesting that outliers pull up the average in a way that might not represent typical performance. We conclude that, as far as the survey data are concerned, the typical SBIC fund outperforms its non-SBIC peers when benchmarked by fund strategy (with the median equity excess IRR of -0.43% as the exception).

DISTRIBUTION OF PERFORMANCE RELATIVE TO BENCHMARK BY FUND STRATEGY

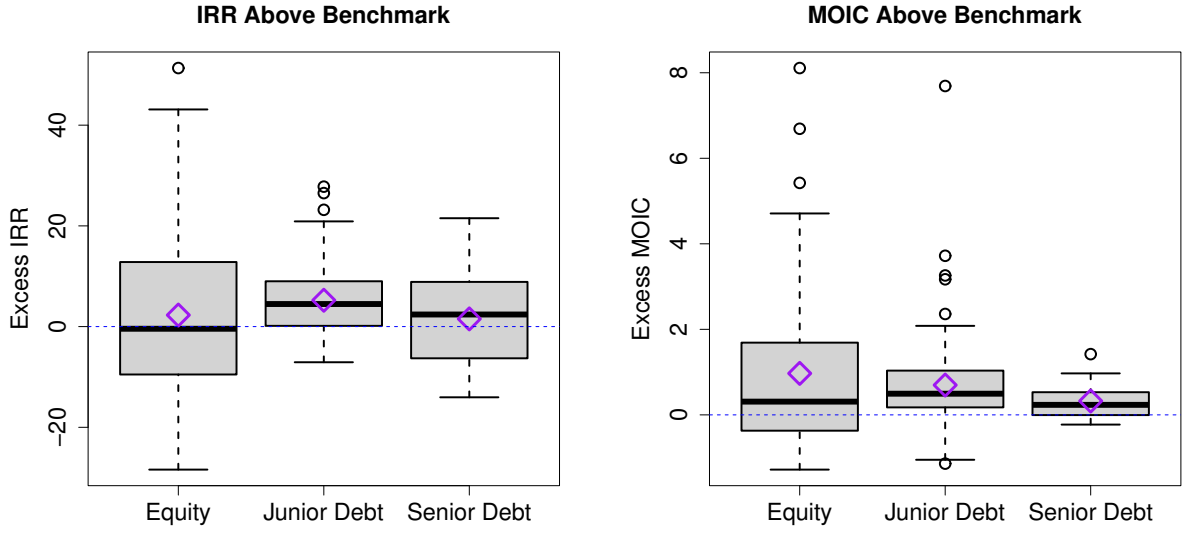

FIGURE 5: This figure plots the distribution of reported SBIC fund *excess* performance which is defined as performance relative to a custom benchmark for each fund that matches on fund strategy and vintage. The left panel reports excess IRRs and the right panel reports excess MOICs. The purple triangles represent the sample averages (means). The horizontal bars in the boxes represents the sample medians. The boxes represents the interquartile (25-75%) range. The "whiskers" show ± 1.5X the interquartile range and hollow circles represent outliers outside of this range. Data are for fund vintages 2000-2020.

Leverage ratios for strategies are shown in Figure 6. As before, there appears to be an interior

maximum for leverage, with debt performing best in the 0.5-1x range and equity performing the best in the 1.01-1.75x range.

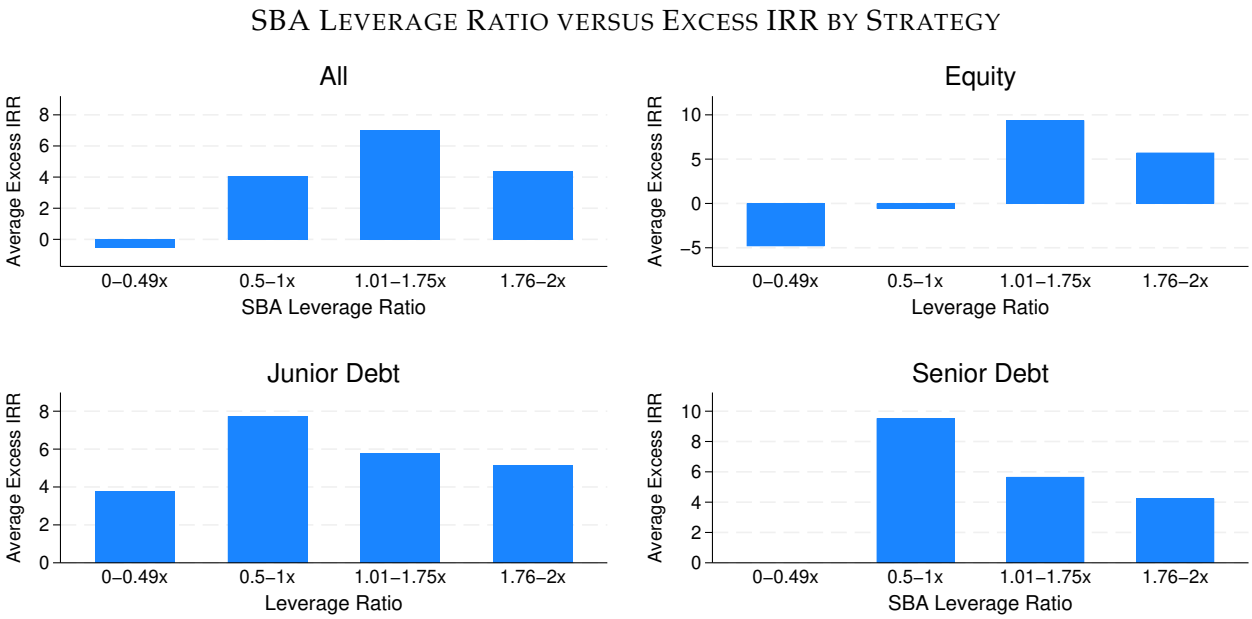

FIGURE 6: This figure plots IRRs in excess of the benchmark IRR by leverage ratio. Results are plotted separately for each fund strategy. Data are for fund vintages 2000-2020.

4.2 MSCI-Burgiss Data

As noted already, a major concern about surveys is self-reporting bias. To address this issue, we now turn to examining a set of SBICs that could be identified in the MSCI-Burgiss Manager Universe. To enter the BMU a fund must have at one time been in the portfolio of an MSCI-Burgiss LP client. Because the data are sourced exclusively from LPs there is no self-reporting bias (MSCI-Burgiss records data for all funds in a client's historical and current portfolio). Another significant advantage of the funds in the BMU is that complete fund-life cash flows and quarterly NAVs are available. The downside of using the MSCI-Burgiss data is that many SBICs are held primarily by banks which are less likely to be Burgiss clients than other types of institutional investors. Ultimately, we are able to identify 123 SBIC funds in the BMU of which 86 are of vintage 2002 through 2020. The funds are classified into four strategies: generalist, equity, junior debt, and senior debt. As above, we examine excess (peer-adjusted) performance measures for IRR and MOIC. However, we can also use the complete cash flow data to calculate Kaplan and Schoar (2005) public market equivalents (PMEs). These can be thought of as market-adjusted MOICs so that funds with a PME >1.0 perform better than the public market benchmark. More precisely, PMEs discount both fund capital calls and distributions using a discount rate equivalent to the public-market return. As public-market benchmarks we use the Russell 3000 total return index for equity funds, the Morningstar LSTA US Leveraged Loan 100 total return index for junior and

senior debt, and a 50-50 mix of Russell 3000 and LSTA for generalist funds. Vintages 2000 and 2001 are omitted because the LSTA index only begins in 2002.

Summary statistics are shown in Table 4. The average fund size in the MSCI-Burgiss data is 132 million USD compared to 179 million USD in the SBIA survey sample. Average IRR is 15.6% with a standard deviation of 15.1, compared to the survey numbers of 16.9% with a standard deviation of 10.5; average MOIC is 2.2x with a standard deviation of 1.4, compared to the survey numbers of 2.3x and 1.4. These data indicate that the funds in MSCI-Burgiss data have slightly lower performance than the funds in the SBIA survey.

TABLE 4: MSCI-BURGISS SUMMARY STATISTICS

Variable	Obs	Average	Std. dev.	Min	Median	Max
Fund IRR Net of Fees (%)	86	15.6	15.1	-28.6	14.0	84.5
Fund MOIC Net of Fees	86	2.2	1.4	0.2	1.8	8.6
Fund PME Net of Fees	86	1.5	0.8	0.1	1.2	4.8
Total Fund Size ($Millions)	86	132.0	130.9	21.21	95.48	991.8

This table shows average IRR and average MOIC from the BMU data, BMU benchmarks, and the difference between the two, based on strategy of each fund. A positive difference means the SBIC funds outperformed the benchmark. Data are through 2023:Q4 and for fund vintages 2002-2020.

Even though the sample average IRR and MOIC are higher in the SBIA survey, it is premature to conclude that the survey is biased upwards because the composition of the survey—that is, vintage, strategy, and fund size—are likely different. We provide a more exact comparison to the results from the SBIA survey by doing the same excess return benchmarking by vintage year and fund type.

The results for all funds are shown in the bottom row of Table 5. Overall, excess IRR is 2.67% which is about 1.5% less than the 4.13% excess IRR in the SBIA survey. The excess MOIC is 0.43x which is about 0.3x less than the 0.74x in the SBIA survey. These results indicate that there may be a modest selection bias in the SBIA survey. However, SBICs still outperformed peer non-SBICs even in the MSCI-Burgiss sample which is unlikely to suffer from selection bias. The PME of 1.48x for all funds shows that SBICs also outperformed public-market benchmarks by an average of 48% over the life of the typical fund which is about twice the outperformance of 23% by non-SBIC peers.

The first four rows of Table 5 examine performance by fund strategy. Equity in the Burgiss-MSCI data performs much better on average than in the survey, with an excess IRR of 4.09% versus 2.29%. On the other hand, junior debt funds fare noticeably worse than in the SBIA survey with an excess IRR of 0.88% versus 5.23% in the survey. Senior debt shows no appreciable difference. A similar pattern follows for excess MOIC. It is worth noting, however, that generalist SBIC funds perform quite well on average with an excess IRR of 4.14%, an excess MOIC of 0.92x, and an

excess PME of 0.40x. It is plausible that the drop in observed average junior debt performance is due to categorization, specifically, many of the funds categorized as generalist—and with high performance—could be categorized as junior debt in the survey but as generalists in the MSCI-Burgiss data.

TABLE 5: PERFORMANCE COMPARISON OF MSCI-BURGISS SAMPLE OF SBICS

		IRR			MOIC			PME		
Strategy	**Obs**	**SBIC**	**BM**	**Diff**	**SBIC**	**BM**	**Diff**	**SBIC**	**BM**	**Diff**
Equity	24	21.68%	17.59%	4.09%	2.73x	2.42x	0.31x	1.65x	1.39x	0.26x
Junior Debt	31	11.63%	10.75%	0.88%	1.61x	1.38x	0.23x	1.35x	1.20x	0.15x
Senior Debt	9	12.18%	10.72%	1.46%	1.65x	1.31x	0.27x	1.39x	1.21x	0.18x
Generalist	22	15.97%	11.83%	4.14%	2.50x	1.51x	0.92x	1.53x	1.13x	0.40x
All	86	15.60%	12.93%	2.67%	2.16x	1.94x	0.43x	1.48x	1.23x	0.25x

This table reports benchmark-adjusted performance for IRR and MOIC by BMU fund type. The table also reports Kaplan and Schoar (2005) public market equivalents using separate benchmarks for equity and debt (see main text for details). Data are through 2023:Q4 and for fund vintages 2002-2020.

We now consider the distribution of fund returns. We start by noting that outliers could be affecting average performance and so it is instructive to compare medians of the peer-adjusted returns (these are reported in Table A4 and Table A5 along with other percentile breakdowns). Overall, median excess performance is positive across the board, with 1.42% excess IRR (compared to an average of 2.67%), excess MOIC of 0.14x (compared to an average of 0.27x), and excess PME of 0.18x. The fact that overall median performance is positive for all three performance metrics corroborates the findings from the survey data that SBIC funds generally perform well relative to similar non-SBIC funds. That said, the consistently high averages relative to medians emphasize the importance of skewness in performance metrics when aggregating, and highlight that SBIC funds can have a prominent right tail in their return distribution.

Box and whiskers plots for the sample of MSCI-Burgiss SBICs are shown in Figure 7, and illustrate more directly the extent of the right tail of excess returns. For equity, all medians are negative: -2.83% for excess IRR, -0.46x for excess MOIC, and -0.32x for excess PME. This suggests that average performance of equity funds is driven upward by positive outliers. Junior debt on the other hand shows a different pattern, with not only positive medians across the board, but with a median excess IRR of 2.11% compared to average excess IRR of 0.88%. These results indicate that some junior debt funds in the sample with very low excess IRR are disproportionately driving down average excess IRR. Senior debt has only 9 observations so we cannot infer much from the numbers. For the same reason, it is plausible that the sometimes large disconnect from medians and averages come from the relatively small MSCI-Burgiss sample: with fewer than 40 observations for each strategy, outliers can have a disproportionately large effect on calculating sample average performance that might not represent the performance of the SBIC population at large.

DISTRIBUTION OF PERFORMANCE FOR MSCI-BURGISS SAMPLE OF SBICS

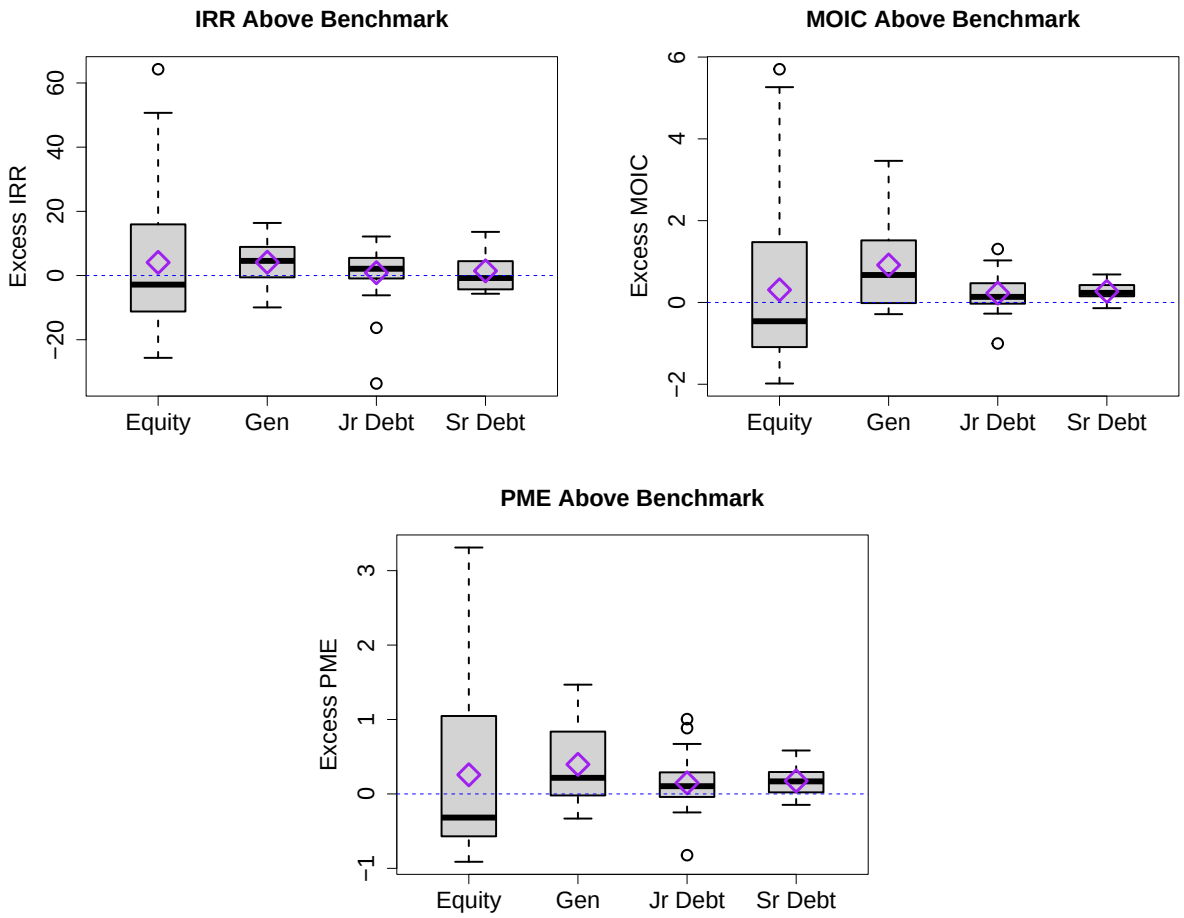

FIGURE 7: This figure plots the distribution of reported SBIC fund performance relative to a custom benchmark for each fund that matches on equity percentage and vintage. The top-left panel reports excess IRRs, the top-right panel reports excess MOICs, and the bottom panel reports excess Kaplan-Schoar PMEs. The purple triangles represent the sample averages (means). The horizontal bars in the boxes represents the sample medians. The boxes represents the interquartile (25-75%) range. The "whiskers" show ±1.5X the interquartile range and hollow circles represent outliers outside of this range. Data are for fund vintages 2002-2020.

Overall, 56% of SBIC funds outperform their benchmark in terms of IRR, 60% in terms of MOIC, and 59% in terms of PME. Despite very high nominal returns, equity is the weakest performing strategy with only 33% of funds outperforming their benchmark. "Generalist" funds (which may include many funds classified as junior debt in the SBIA survey) were the best performing on a relative basis with about 71% of funds outperforming their benchmark.

5 Regression Analysis

To better understand the determinants of SBIC fund returns, we estimate ordinary least-squares linear regression models with benchmarked SBIC performance measures as the dependent variables and various fund attributes as the explanatory variables. As explanatory variables, we use fund size, LMI and smaller business investments as a percentage of all business investments, leverage ratio, accounting methodology (SBA or GAAP), ESG status (did the fund have an ESG policy in place when first closed), and percent equity (PE) or strategy (S), depending on the kind of benchmarking used.

The results are shown in Table 6. All models suggest that larger funds have better benchmarked performance with high statistical significance. The coefficients suggest that when considering two otherwise similar funds that differ in size by 10 million USD, the larger fund will on average have higher benchmarked IRR by about 0.3 percentage points. For MOIC, the difference is about 0.045x. We can use these regression estimates to estimate the diffference in return between the SBIA survey sample and the MSCI-Burgiss sample. Specifically, the average difference in fund size of 47 million USD implies a difference in IRR of about 1.4% and a difference in MOIC of 0.24x which are very close to the observed differences of 1.5% and 0.31x (as reported in Tables 3 and 6). This suggests that reporting bias in the SBIA survey may not be much of a problem at all.

Besides the size effect, there are few consistent results from the regression analysis. There is some weak evidence that SBA accounting yields lower IRR than does GAAP by around 3 percentage points, all else equal. But these results do not hold for differences in MOICs. The statistical significance of other explanatory variables is spotty. All else equal, excess IRR is considerably lower for equity funds (relative to junior debt), and higher for senior debt (again relative to junior debt), although we caution again that senior debt only has 16 observations from which to draw inference. Senior debt funds with more debt also seem to perform relatively poorly, losing 1.8% IRR for every 0.1x additional leverage. None of these results hold for MOICs. Overall, it appears that few fund attributes besides strategy, vintage and size have much explanatory power for the cross-section of fund returns.

6 Conclusion

Overall, SBIC funds from vintages 2000 through 2020 appear to perform quite well relative to non-SBIC peers in IRR, MOIC, and PME, yielding both positive average and median peer-adjusted

performance. Furthermore, the unajusted performance of SBIC funds has also been quite good averaging net IRR of 16.9% and average net MOIC of 2.3x. Debt funds with an intermediate (as opposed to maximum) level of debt appear to perform the best on a benchmarked basis. In particular, funds with leverage ratios in the 1-1.75x range appear to have the highest IRRs. Larger SBIC funds also tend to have higher benchmarked IRRs and MOICs, other factors held constant. Equity funds, while having good unadjusted performance and market-adjusted performance (i.e., PMEs), show more variation in performance than debt funds when compared to non-SBIC funds.[10]

TABLE 6: Strategy Benchmarked SBIC Performance Regressions

	XS IRR (PE)	XS IRR (S)	XS MOIC (PE)	XS MOIC (S)
Fund Size (Millions USD)	0.031***	0.029***	0.005***	0.004***
LMI Percent	−4.393	−3.883	−0.661	−0.604
Smaller Percent	2.825	2.287	0.576	0.515
SBA vs GAAP	−2.742*	−3.151**	0.040	0.069
ESG vs Non-ESG	−1.827	−1.456	−0.275	−0.220
Medium vs Low Equity	1.728		0.524	
High vs Low Equity	−3.857		0.575	
Leverage Ratio x Low Equity	−1.238		0.055	
Leverage Ratio x Medium Equity	−0.520		0.002	
Leverage Ratio x High Equity	1.478		0.077	
Equity vs Junior Debt		−8.653***		−0.022
Senior vs Junior Debt		24.694***		0.737
Leverage Ratio x Equity		2.452		0.184
Leverage Ratio x Junior Debt		−0.790		−0.010
Leverage Ratio x Senior Debt		−17.707***		−0.535
N	209	209	213	213
Adj R-sq	0.227	0.225	0.264	0.234

Dummy variables included for all vintage years but omitted from table
Standard errors calculated to be heteroskedasticity-robust
*$p < 0.10$, **$p < 0.05$, ***$p < 0.01$

[10]Perhaps the nascent Accrual Debenture funds offered by the SBA could affect this in time.

References

Brown, Gregory W, Sarah Kenyon, and David Robinson (2020) "Filling the US small business funding gap," *Frank Hawkins Kenan Institute of Private Enterprise Report. UNC Kenan Institute of Private Enterprise*.

Harris, Robert S, Tim Jenkinson, and Steven N Kaplan (2014) "Private equity performance: What do we know?" *The Journal of Finance*, 69 (5), 1851–1882.

Kaplan, Steven N and Antoinette Schoar (2005) "Private equity performance: Returns, persistence, and capital flows," *The Journal of Finance*, 60 (4), 1791–1823.

Paglia, John and David T Robinson (2016) "Measuring the Representation of Women and Minorities in the SBIC Program," *US Small Business Administration*.

——— (2017) "Measuring the Role of the SBIC Program in Small Business Job Creation," *Office of Investment and Innovation, US Small Business Administration, 1*, 33.

Appendix

TABLE A1: FUNDS BY VINTAGE AND TYPE

	DEBENTURE		NON-LEVERAGED		OTHER		ALL	
Vintage	**Total**	**In Data Set**	**Total**	**In Data Set**	**Total**	**In Data Set**	**Total**	**In Data Set**
2020	23	13	1	0	3	2	27	15
2019	28	24	4	4	1	1	33	29
2018	27	20	2	2	1	1	30	23
2017	21	16	3	2	0	0	24	18
2016	15	13	8	6	0	0	23	19
2015	15	13	2	2	0	0	17	15
2014	16	13	3	2	0	0	19	15
2013	16	12	6	2	0	0	22	14
2012	27	18	4	1	0	0	31	19
2011	20	12	1	0	0	0	21	12
2010	29	15	5	3	1	1	35	19
2009	22	12	2	2	0	0	24	14
2008	12	9	2	2	0	0	14	11
2007	16	9	2	0	0	0	18	9
2006	3	2	1	0	0	0	4	2
2005	6	5	0	0	0	0	6	5
2004	16	8	3	3	1	1	20	12
2003	12	5	0	0	0	0	12	5
2002	9	5	0	0	0	0	9	5
2001	4	1	1	0	0	0	5	1
2000	8	6	0	0	1	1	9	7
Total	345	231	50	31	8	7	403	269
Percent		67%		62%		88%		67%

This table shows the number of known funds for each SBIC type and how many of those funds are in the SBIA survey data set, by vintage.

TABLE A2: EXCESS IRR AND MOIC STATISTICS BY PERCENT EQUITY

	0-20% EQUITY		>20-50% EQUITY		>50% EQUITY		ALL FUNDS	
Statistic	**XS IRR**	**XS MOIC**	**XS IRR**	**XS MOIC**	**XS IRR**	**XS MOIC**	**XS IRR**	**XS MOIC**
Min	-18.62%	-1.18x	-12.43%	-1.19x	-28.29%	-0.99x	-28.29%	-1.19x
10%	-3.92%	-0.18x	-6.15%	-0.17x	-12.09%	-0.55x	-6.19%	-0.23x
25%	-0.46%	0.04x	-1.89%	-0.01x	-6.49%	-0.30x	-1.79%	-0.02x
Median	2.61%	0.37x	3.50%	0.33x	0.70%	0.19x	2.63%	0.32x
75%	6.74%	0.84x	11.61%	1.11x	7.57%	1.69x	8.10%	0.90x
90%	9.59%	1.16x	24.18%	2.59x	19.20%	3.57x	15.90%	1.85x
Max	20.36%	7.58x	59.40%	5.99x	32.13%	8.30x	59.40%	8.30x
Obs	104	107	67	67	29	30	200	204

This table shows the distribution of excess IRR and excess MOIC by equity percent in the SBIA survey data. A positive excess (XS) metric means the SBIC funds outperformed the benchmark. Data include fund vintages 2000 through 2020.

TABLE A3: EXCESS IRR AND EXCESS MOIC STATISTICS BY STRATEGY

	EQUITY		JUNIOR DEBT		SENIOR DEBT		ALL FUNDS	
Statistic	**XS IRR**	**XS MOIC**	**XS IRR**	**XS MOIC**	**XS IRR**	**XS MOIC**	**XS IRR**	**XS MOIC**
Min	-28.40%	-1.28x	-7.08%	-1.14x	-14.04%	-0.23x	-28.40%	-1.28x
10%	-14.16%	-0.67x	-2.69%	-0.02x	-13.98%	-0.05x	-7.08%	-0.24x
25%	-9.51%	-0.38x	0.15%	0.18x	-6.30%	-0.01x	-1.32%	0.03x
Median	-0.43%	0.31x	4.48%	0.50x	2.40%	0.23x	3.75%	0.45x
75%	12.82%	1.74x	9.00%	1.04x	8.88%	0.53x	9.00%	1.08x
90%	24.49%	4.28x	13.51%	1.47x	12.48%	0.97x	14.63%	1.84x
Max	51.34%	8.11x	27.79%	7.69x	21.52%	1.42x	51.34%	8.11x
Obs	49	50	137	140	16	16	202	206

This table shows the distribution of excess IRR and excess MOIC by strategy in the SBIA survey data. A positive excess (XS) metric means the SBIC funds outperformed the benchmark. Data include fund vintages 2000 through 2020.

TABLE A4: MSCI-BURGISS EXCESS PERFORMANCE STATISTICS BY EQUITY, JUNIOR DEBT, AND SENIOR DEBT STRATEGIES

	EQUITY			JUNIOR DEBT			SENIOR DEBT		
Statistic	**XS IRR**	**XS MOIC**	**XS PME**	**XS IRR**	**XS MOIC**	**XS PME**	**XS IRR**	**XS MOIC**	**XS PME**
Min	-25.65%	-1.98x	-0.91x	-33.64%	-1.00x	-0.82x	-5.67%	-0.14x	-0.15x
10%	-15.43%	-1.60x	-0.63x	-5.25%	-0.18x	-0.15x	-4.62%	-0.05x	-0.08x
25%	-10.65%	-1.03x	-0.57x	-0.92%	-0.03x	-0.04x	-4.31%	0.15x	0.02x
Median	-2.83%	-0.46x	-0.32x	2.11%	0.14x	0.10x	-0.77%	0.23x	0.17x
75%	15.71%	1.47x	0.93x	5.50%	0.47x	0.29x	4.48%	0.43x	0.29x
90%	30.42%	3.41x	2.03x	10.17%	0.90x	0.61x	10.60%	0.67x	0.42x
Max	64.28%	5.70x	3.31x	12.16%	1.31x	1.01x	13.60%	0.68x	0.58x
Obs	24	24	24	31	31	31	9	9	9

This table shows the distribution of excess IRR and excess MOIC by equity, junior debt, and senior debt, in the BMU data. A positive excess (XS) metric means the SBIC funds outperformed the benchmark. Data include fund vintages 2000 through 2020.

TABLE A5: MSCI-BURGISS EXCESS PERFORMANCE STATISTICS BY GENERALIST AND ALL STRATEGIES

	GENERALIST			ALL		
Statistic	**XS IRR**	**XS MOIC**	**XS PME**	**XS IRR**	**XS MOIC**	**XS PME**
Min	-9.93%	-0.29x	-0.33x	-33.64%	-1.98x	-0.91x
10%	-3.58%	-0.10x	-0.12x	-10.02%	-0.89x	-0.44x
25%	-0.50%	0.00x	-0.01x	-3.35%	-0.16x	-0.12x
Median	4.57%	0.67x	0.22x	1.42%	0.14x	0.09x
75%	8.86%	1.49x	0.79x	7.21%	0.77x	0.48x
90%	11.43%	2.21x	1.19x	14.06%	1.83x	1.16x
Max	16.39%	3.46x	1.47x	64.28%	5.70x	3.31x
Obs	22	22	22	86	86	86

This table shows the distribution of excess IRR and excess MOIC by generalist and all SBIC funds, in the BMU data. A positive excess (XS) metric means the SBIC funds outperformed the benchmark. Data include fund vintages 2000 through 2020.