Active Equity Funds that Incorporate Venture Capital

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Abstract

In this paper, the performance of active equity funds that incorporate venture capital (VC) as part of their investment strategy is measured to gain insight into the value of VC use. Previous evidence suggests that VC investing requires a specialized skill set. PSN Enterprise data from 2000 to 2022 are analyzed to determine whether a sample of 24 active equity funds with VC investments obtain higher returns than non-VC funds despite their lack of experience in originating VC investments. Funds with VC investments are matched to corresponding funds without VC investments that are from the same asset class, have similar assets under management (AUM), and use the same performance benchmark. The results indicate that funds incorporating VC underperform across all tests. The results support the notion that using VC investments is not an automatic means of achieving higher returns, and that the successful use of VC requires specialized expertise.
The Performance of Active Equity Funds that Incorporate Venture Capital

Introduction

Venture capital (VC) investments are often important in the life cycle of a business by providing early-stage enterprises with the capital they need to reach the holy grail: their initial public offering (IPO). VC has been widely studied both from an investor standpoint and that of firms seeking and receiving investments. Previous studies conclude that VC typically has a high expected rate of return due to the risk involved with investing in early-stage enterprises. According to Harris, Jenkinson, Kaplan, and Stucke (2020) over the past few decades, VC funds have tracked and even outperformed the market (S&P 500).

Typically, active equity mutual funds tend to underperform the market, especially once their expense ratio is netted from their returns (Jensen, 1968). Because of this, managers may turn to other, adjacent asset classes to obtain higher returns. With companies taking advantage of the ability to stay private for longer, active equity funds have increasingly looked to grow their exposure in the private markets, making VC an attractive candidate. Past studies examine the factors that have led to an increase in funds making VC investments and the overall impact those mutual fund investments have on corporate governance of target firms. To this point, there have been no studies on the overall returns that active equity funds with VC achieve.

Active equity funds utilizing VC as an element of their investment strategy should be able to obtain higher returns due to the increased risk compared to public equity investments. But studies have also pointed to the valuable skill set and experiences of typical VC investors and the impact it has on the success rate of a business. If active equity funds with and without VC as a constituent perform similarly, then investors can conclude that VC investing may not require as
specialized of a skill set as once believed. If active equity funds that incorporate VC underperform, then VC investments may require a unique skill set that fund managers lack.

This research uses the PSN Enterprise database to compare the performance of active equity funds that incorporate VC investments versus those that do not. The database provides 30 active equity funds that list VC as “very important,” “important” or “utilized” towards their product investment strategy. Of the 30 funds, only 24 provide enough data to be used in this study. Funds are then matched to a fund that does not incorporate VC based on asset class, performance benchmark, similar assets under management (AUM), returns of the same time frame, and global investment performance standards (GIPS).

I. Literature Review

Mutual Fund Investment in Venture Capital

Prior to 2017, little discussion had taken place regarding mutual fund investments in private firms, specifically for VC. Although no literature has done a deep dive into the overall returns on active equity funds with VC investments, the topic hasn’t been left completely unnoticed. Current literature has left a gap that is filled by this paper.

A Morgan Stanley research report by Mauboussin and Callahan (2020) observes that over the past 25 years, asset allocation has shifted away from the typical bond and equity portfolio to also holding buyout and VC funds. Institutional investors such as pension funds and endowments funds have followed suit by investing directly in private funds. Although there are several reasons why this has happened, one that is relevant for this paper is that the average age of a company
making its IPO has greatly increased over the past few decades. This puts more pressure on investors to find ways to gain an ownership stake via the private market rather than waiting to use the public market.

Initial examination of mutual fund investments in VC is by Chernenko, Lerner, and Zeng (2017) who explain the overall impact that mutual fund investments in VC has on the corporate governance of the firms in which they invest. Mutual fund investors tend to be inexperienced as active investors and lack the skills necessary to monitor the private firms they invest in. By reviewing the terms that mutual funds typically have in certificates of incorporation (COIs) the authors find that they usually have lower-quality corporate governance and as a result have fewer cash flow and voting rights. But, because of this investment approach, they typically benefit from improved redemption rights. This literature suggests that mutual fund investors are of course less experienced in venture investing compared to VCs themselves considering the target firms would prefer to give mutual funds a larger payout as opposed to giving them a say in the company’s operations.

The only other direct research on mutual fund investments in VC is by Kwon, Lowry, and Yiming (2020). They examine three factors that have led to an increase in demand for mutual funds to originate VC investments. Those factors are an increase in demand for capital directly from the target firms, postponement of IPOs, and the idea that mutual funds are an easy form of capital or, as some put it, “dumb money.” These factors are not mutually exclusive, in fact they work together because many private firms want to take advantage of being private as long as they can and simply put, postpone their IPO. Their research suggests that mutual funds’ private investments allow firms to stay private for longer which inherently takes away value at the public investment level and slows down the overall IPO market. This study leaves the question of whether these mutual funds
benefit from higher returns due to their VC investments. If mutual funds are indeed dumb money, then this may not be the case.

*Venture Capital as an Asset Class*

Although VC investments by active equity funds has not been heavily covered by researchers, VC as an asset class has been studied frequently. For the purposes of this paper, it is important to understand the value-add that VC could provide to a portfolio and the role that it plays in the investment ecosystem.

A major discussion among VC investors pertains to diversification and portfolio performance. Buchner, Mohamed, and Schwienbacher (2017) study how diversification can affect a VC fund with an emphasis on the risk that investors take. They found that experienced VCs benefit from higher returns when they diversify across industry and across stages of development. But the findings do not hold for inexperienced VCs because they likely do not have access to the large pool of opportunities that experienced VCs have. Often experienced VCs have a skill set that the early-stage businesses want access to, increasing their desire to receive investments from the experienced VCs. Being that this study emphasizes the benefit that experienced VCs have, it again puts pressure on whether active equity funds can boost performance by incorporating VC as they are likely inexperienced and lack the skill set that the early-stage businesses desire.

Previous research on the value of an experienced VC was done by Gompers, Kovner, Lerner, and Scharfstein (2006) where they found that serial entrepreneurs have a higher success rate compared to first-time entrepreneurs. The likely reason as to why this occurs is that serial entrepreneurs receive earlier investments from VCs, get more money invested, and/or have a better
working mentality. Although understanding why serial entrepreneurs tend to outperform is important, the real takeaway from this study is the impact the VCs have on success rates. First-time entrepreneurs have a success rate of 17.6% with an experienced VC compared to 11.7% with an inexperienced VC. Furthermore, failed entrepreneurs are 22.1% likely to succeed with an experienced VC firm and only 14.7% with the less experienced VC. These findings provide evidence that first-time and failed entrepreneurs are more likely to succeed with experienced VCs, but this is not the case for serial entrepreneurs. A serial entrepreneur working with an experienced VC has a success rate of 28.1% compared to 27.7% with a less experienced VC, a marginal difference. This could mean that experienced VCs have a specialized skill set that allows them to have higher success rates with less experienced entrepreneurs. If the previous study by Gompers et al. holds true, then active equity funds may not have access to large pools of investment opportunities, where the experienced entrepreneurs would likely fall into. On top of that, based on this study if active equity funds are truly inexperienced as VCs and are working with failed or inexperienced entrepreneurs, their success rate is far lower.

Asset Allocation Among Mutual Funds

Why fund managers would decide to invest in VC likely stems from the idea that diversified asset allocation can provide improved returns. Research by Chalmers, Kaul, and Phillips (2013) indicates that when mutual fund managers believe that there is a poor economic outlook, they adjust their asset allocation. Typically, mutual fund managers will move from risky assets to less risky assets by taking funds out of the equity market and moving it into money market funds without facing a risk-return tradeoff. It would be challenging for an active equity fund
manager to move VC investments into less risky assets because they are likely locked into the VC investments unlike equity stocks which tend to be liquid. This could negatively impact returns during economic downturn.

Asset Allocation Among Endowments

Literature on asset allocation applies across individual investors, pension funds, mutual funds, and more. Perhaps the best example of diversification across asset classes is seen by university endowment funds.

Brown, Garlappi, and Cristian (2010) point to the value that endowments provide in studying asset allocation because of their unlimited investment horizon, small spending needs, and flexible policies. By interpreting data from private and public university endowment funds, the researchers were able to breakdown returns into three aspects: the strategic asset allocation, tactical asset allocation, and the security selection decision. They found that of these three, strategic asset allocation is the main determinant of the overall return level in the time series analysis. This has also been the case for mutual funds and pension funds. In the case of endowments, they usually generate alpha by putting a heavier weight on the asset classes in which the fund manager feels he or she possesses strong active management capabilities. If this is the case for endowment portfolio managers, then less-savvy mutual funds may not be able to obtain higher returns by investing in VC. Although asset allocation provides value added, a fund manager may not have the strong active management skill set to invest in VC.

Further literature on asset allocation across university endowment funds by Liaw (2020) found that funds diversified across asset classes typically performed better than less-diversified
funds. Being that asset allocation has been a heavily covered topic, this research focused on the difference in investment performance of different-sized funds and the fund's investments in alternative assets. His findings were that larger endowment funds typically benefit from being able to increase diversification compared to their smaller counterparts. By looking at asset allocation among endowments before and after the 2008 financial crisis, post-2008 endowments had decided to increase diversification. What was also discovered is that the returns of high-profile university endowment funds cannot be replicated by smaller funds. For this research, this begs the question of whether smaller funds may have a more challenging experience in obtaining higher returns from VC compared to the larger funds.

An interesting case study of asset allocation among endowments is the University of Minnesota (UM), which has increased allocation into VC, private equity, and private credit. The UM Chief Investment Officer, Stuart Mason, pointed out in an article written by McElhaney (2023) that prior to 2008 the endowment was increasingly diversifying its allocation and after 2008 further increased diversification which supports the view of Liaw. With VC representing 35% of the portfolio value, Mason points to high returns that a venture investment in proven managers can produce. Based on his expressed views, VC appears to be an asset class that should be used mainly by those with related experience. For many portfolio managers, VC may still be a rather unfamiliar asset class.

Asset Allocation for Individual Investors

The idea of asset allocation providing possible benefit also holds true at the individual-investor level, as studied by Jacobs, Muller, and Weber (2013). Although most of this study was
relevant only for individual investors, simply diversifying investments among asset classes for individual investors’ portfolios provides higher expected risk-adjusted performance. This raises the question of whether diversification among asset classes for professionally managed equity funds provides superior performance.

II. Hypotheses

This study’s main hypothesis can be stated as follows.

Null Hypothesis

H₀: Active equity funds that incorporate venture capital do not underperform.

VC investing has inherently higher risk than most other forms of equity investing, which is rewarded with higher expected returns. By allocating part of their funds towards the VC asset class, fund managers can generate higher expected returns. If this is the case, the higher expected returns to the VC asset class dominate the need for VC investing to be accompanied by a specialized skill set.

Alternative Hypothesis:

H₁: Active equity funds that incorporate venture capital underperform.

This hypothesis is consistent with past studies that argue VC investing requires a specialized skill set to generate higher returns. Portfolio managers’ failure to obtain higher returns despite making VC investments is evidence that higher expected returns can be realized only by applying a VC-specific investment skill set.
III. Data and Methodology

Data and methodology used in this study are presented in the following subsections.

Data

Firm information, product information, AUM, and returns for active equity funds used throughout this study are from the PSN Enterprise database. In total there are 16,783 equity funds in the PSN Enterprise database. After filtering for active equity funds that indicate VC as “very important,” “important” or “utilized” towards the product investment strategy, 30 funds are considered to incorporate VC investments. Only 27 of those funds have returns reported in PSN. A further inclusion requirement is that each fund must have at least 10 months of returns and report AUM. After applying all screens, 24 funds were included in the sample for this study.

The following are key characteristics of the sample: the average fund provided about 6 years of reported returns between 2000 to 2022. The average AUM of the funds at the start of the return period was $721 million. Lastly, the key portfolio manager had an average start date of 1998.

Matching Process

To analyze the active equity funds that incorporate VC, this study employs a systematic matching process based on several criteria. The first criterion is based on asset class and product database. So, for example, “Domestic Equity” funds are only matched with “Domestic Equity” funds.
The funds are further matched based on their GIPS compliance. GIPS is an important aspect of the matching process because it indicates whether a firm is held to rigorous standards in reporting their returns and other relevant information. GIPS compliant firms are matched with each other and the same holds true for non-GIPS compliant funds. Any fund that has not reported its GIPS compliance status in PSN are considered non-GIPS compliant. Any funds that are compliant yet have no verification are considered non-GIPS funds and matched with funds having the same characteristics.

After matching based on GIPS compliance, the funds are then matched based on their performance benchmarks. For any fund that has not reported its benchmark in PSN, the S&P 500 Index is assumed to be the performance benchmark. For funds that do report a performance benchmark, the S&P 500 is frequently used.

The funds are again filtered to assure that the matched funds have returns across the same return horizon. Any VC fund that provides returns prior to their GIPS compliance date has the prior returns discarded. Furthermore, any matched fund that is not GIPS compliant until later in the return period is not retained in the matching pool for that specific VC fund.

The final matching criterion is fund AUM. In many cases, the AUM is provided at year end. If the VC fund does not provide AUM until later in the return horizon, then all the returns prior to providing AUM are thrown out unless the AUM is provided in the same year that the returns had begun to be reported.

After utilizing this matching process, 24 VC funds are matched with funds to facilitate analysis of performance. Following the matching of funds, the paired funds are analyzed in two distinct samples. The first sample includes all 24 VC funds and their respective matched funds. A separate subsample includes only GIPS-compliant funds. To meet this criterion, the VC fund and
its matched counterpart must be GIPS compliant, provide returns after their GIPS compliance date, and have GIPS verification. Using these two samples allows the study to employ the maximum number of funds available and verify robustness by examining only funds whose performance data meet the highest professional reporting standards.

**Methodology**

The returns of the funds with VC are compared against the returns of the matched funds and the underlying benchmarks across the same return horizon. The first step in comparing the returns is to find the average return of the funds with VC, the matched funds, and the benchmarks across each individual return period. Once the average return of each fund and the benchmark is calculated they need to be converted from a monthly average return to an annualized average return. Each gross fund returns and returns net of the benchmark (BARs) are annualized using Equation 1:

\[
ARR_i = (1 + R_i)^{12} - 1
\]  

(1)

Equation 1 calculates the annualized rate of return (ARR\(_i\)) based on the average monthly return (R\(_i\)) of each fund \(i\). The same approach is also used to annualize each fund’s average monthly BAR. Next, a difference-of-means \(t\)-test is used to analyze the funds with VC against the matched funds. A second difference-of-means \(t\)-test analyzes the funds with VC against their benchmarks. These tests are both run for the complete sample and the GIPS-only subsample.

The next step involves analyzing the BARs of the funds with VC and their respective matches. To calculate BAR, Equation 2 is used:
\[ BAR = R_i - B_i \]  \hspace{1cm} (2)

This formula calculates the BAR by taking the monthly return of the fund \((R_i)\) and subtracting the monthly return of the benchmark \((B_i)\) during the same period. After calculating the BAR for each month, the average and standard deviation of those BARs are calculated. The average returns are annualized using Equation 1, and the annualized standard deviation of returns is calculated using Equation 3:

\[ Return \ Standard \ Deviation_a = Return \ Standard \ Deviation_m \times \sqrt{12} \]  \hspace{1cm} (3)

This equation calculates each fund’s average annualized standard deviation of returns by taking the fund’s monthly return standard deviation and multiplying it by the square root of 12. The same approach is used to annualize monthly BARs.

By annualizing the BARs, an information ratio can be calculated. An information ratio can provide insight into the returns of a fund compared to a benchmark and the overall volatility that a fund has as compared to the benchmark. The information ratio is calculated using Equation 4 as shown below:

\[ Information \ Ratio_i = \frac{Average \ BAR_i}{Standard \ Deviation \ of \ BAR_i} \]  \hspace{1cm} (4)

The information ratio divides the average annualized returns of the BARs by the average annualized standard deviation of the BARs. Once this is completed, a difference of means \(t\)-test is
conducted to compare the means of the information ratio for the funds with VC and the matched funds. This is run independently for both samples.

The next step is a maximum drawdown test. This test involves finding the value of one dollar invested across the period of returns and then calculating the maximum drawdown an “unlucky investor” could have if they bought at the highest point of return and sold at the lowest. To find the value of one dollar invested over time one uses Equation 5:

\[ A = A_{n-1}(1 + R_i) \]  

(5)

The current value of one dollar invested \( (A) \) is found by taking the previous period amount \( (A_{n-1}) \) and multiplying it by one plus the current period return \( (R_i) \).

Following the previous step, the maximum drawdown is calculated using Equation 6:

\[ MDD = \frac{Trough\ Value - Peak\ Value}{Peak\ Value} \]  

(6)

This equation calculates the max drawdown \( (MDD) \) by finding the lowest value of one dollar invested \( (Trough\ Value) \) and finding the difference between that number and the subsequent highest value \( (Peak\ Value) \). The maximum drawdown for the funds with VC is then compared to the benchmarks and matched funds max drawdown in a difference-of-means \( t \)-test. Once again, these tests are completed for the main sample and the GIPS subsample of funds.

Lastly, a nonparametric test is run on all the performance variables for each of the fund samples. The specific test used is a Wilcoxon signed-rank test.
IV. Empirical Results

This section reviews the results of the tests done on the entire sample and the GIPS subsample. Both samples were tested against their matched funds and performance benchmarks. Exhibit 1 shows the benchmarks used by the funds and the number of funds that reported each benchmark as their performance index.

**Exhibit 1: Fund Benchmark Frequencies**

<table>
<thead>
<tr>
<th>Benchmark</th>
<th># of Funds</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard &amp; Poor’s 500</td>
<td>8</td>
</tr>
<tr>
<td>MSCI Emerging Markets</td>
<td>2</td>
</tr>
<tr>
<td>MSCI ACWI</td>
<td>2</td>
</tr>
<tr>
<td>70% S&amp;P500I/30% BlmAB</td>
<td>1</td>
</tr>
<tr>
<td>Alerian Master Limited Partnership</td>
<td>1</td>
</tr>
<tr>
<td>Dow Jones U.S. Select Dividend</td>
<td>1</td>
</tr>
<tr>
<td>HFRX Absolute Return Index</td>
<td>1</td>
</tr>
<tr>
<td>HFRX Global Hedge Fund</td>
<td>1</td>
</tr>
<tr>
<td>MSCI ACWI ex USA</td>
<td>1</td>
</tr>
<tr>
<td>MSCI EAFE</td>
<td>1</td>
</tr>
<tr>
<td>MSCI EAFE Gross</td>
<td>1</td>
</tr>
<tr>
<td>Russell 1000 Value</td>
<td>1</td>
</tr>
<tr>
<td>Russell 2000</td>
<td>1</td>
</tr>
<tr>
<td>Russell 2000 Growth</td>
<td>1</td>
</tr>
<tr>
<td>Russell 2500 Growth</td>
<td>1</td>
</tr>
<tr>
<td><strong>Total Funds</strong></td>
<td><strong>24</strong></td>
</tr>
</tbody>
</table>

Of the 24 funds in the sample, 15 of them underperformed their matched funds. This is illustrated in Exhibit 2.
Exhibit 2: Performance of Funds with VC vs. Matched Funds and Benchmarks (n=24)

The first sample inclusive of all funds with VC investments, their matches, and benchmarks had the funds with VC underperforming across all tests, as shown in Exhibit 3.

Exhibit 3: Performance Metrics for Whole Sample (n=24)

<table>
<thead>
<tr>
<th>Panel A: VC Funds vs. Benchmark</th>
</tr>
</thead>
<tbody>
<tr>
<td>Performance Metric</td>
</tr>
<tr>
<td>---------------------</td>
</tr>
<tr>
<td>Raw return</td>
</tr>
<tr>
<td>Max drawdown</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Panel B: VC Funds vs. Matched Fund</th>
</tr>
</thead>
<tbody>
<tr>
<td>Performance Metric</td>
</tr>
<tr>
<td>---------------------</td>
</tr>
<tr>
<td>Raw return</td>
</tr>
<tr>
<td>Information ratio</td>
</tr>
<tr>
<td>Max drawdown</td>
</tr>
</tbody>
</table>
Panel A of Exhibit 3 indicates that the benchmark raw returns outperformed the funds with VC. Moreover, the maximum drawdown was far higher for the funds with VC compared to the benchmarks. This is also consistent with the nonparametric tests ran on the funds with VC compared to its benchmark.

The results were similar in Panel B. Raw returns for the matched funds were higher compared to the funds with VC. Maximum drawdown was again higher for the funds with VC compared to the matched funds, although there wasn’t as large of a difference as compared to the benchmarks. Furthermore, the information ratio of the matched funds was higher compared to the VC funds. Again, the nonparametric tests confirmed these results.

The GIPS subsample, which includes only funds at GIPS-compliant firms, yields similar results as shown in Exhibit 4.

Exhibit 4: Performance Metrics for GIPS Sample (n=15)

<table>
<thead>
<tr>
<th>Panel A: VC Funds vs. Benchmark</th>
<th>Performance Metric</th>
<th>Funds with VC</th>
<th>Benchmarks</th>
<th>Difference</th>
<th>Pos/Neg</th>
</tr>
</thead>
<tbody>
<tr>
<td>Raw return</td>
<td>-0.04%</td>
<td>3.77%</td>
<td>-3.81%*</td>
<td>4/11</td>
<td></td>
</tr>
<tr>
<td>Max drawdown</td>
<td>-55.15%</td>
<td>-24.27%</td>
<td>-4.99%***</td>
<td>0/15***</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Panel B: VC Funds vs. Matched Fund</th>
<th>Performance Metric</th>
<th>Funds with VC</th>
<th>Funds without VC</th>
<th>Difference</th>
<th>Pos/Neg</th>
</tr>
</thead>
<tbody>
<tr>
<td>Raw return</td>
<td>-0.04%</td>
<td>4.95%</td>
<td>-4.99%**</td>
<td>4/11**</td>
<td></td>
</tr>
<tr>
<td>Information ratio</td>
<td>-0.31</td>
<td>0.30</td>
<td>-0.61**</td>
<td>5/10**</td>
<td></td>
</tr>
<tr>
<td>Max drawdown</td>
<td>-55.15%</td>
<td>-48.49%</td>
<td>-6.66%*</td>
<td>6/9</td>
<td></td>
</tr>
</tbody>
</table>

Panel A of Exhibit 4 illustrates that the raw return of GIPS compliant VC funds still underperformed their benchmarks. Additionally, the maximum drawdown was also higher for funds with VC compared to their benchmarks but at an even larger scale compared to the whole
sample. Panel B of Exhibit 4 also highlights the underperformance of GIPS-compliant funds with VC across all three tests when being compared to their matched funds. Once again, the nonparametric tests had similar results with significant findings at the max drawdown level when comparing the funds with VC and their benchmarks. Moreover, the nonparametric tests reconfirmed these results in both Panel A and Panel B for every test.

The results of these tests indicate that funds with VC underperform at every level. One notable theme throughout the 22 years studied is that the number of funds that incorporate VC in their investment strategy has decreased significantly, as shown in Exhibit 5.

Exhibit 5: Number of Funds Incorporating VC in their Investment Strategy from 2000 to 2022 (n=24)

Exhibit 5 illustrates that from 2000 to 2022 the number of funds that incorporate VC starts in the double digits but ultimately went down to the low single digits by 2022. This could indicate
that investors and fund managers learned a lesson regarding making VC investments through active equity funds, they underperform. It is important to note that this is only made up of funds that report on the PSN Enterprise database.

The results have revealed VC underperformance across every test. This is further emphasized by the large difference in the current value of a mythical $1 invested on January 1, 2000, in all VC funds and in the matched funds. The average return of the funds with VC generated $1.90 from January 2000 to December 2022. Meanwhile, the average return of the matched funds across the same period resulted in $3.20. This represents a 220% increase in value of the matched funds over the 22 years, while the funds with VC returned only 90% over the same period. This is illustrated in Exhibit 6.

**Exhibit 6: Subsequent Values of $1 Invested in VC Funds vs. Matched Funds, January 2000**
V. Conclusion

This paper examines the performance of active equity funds that incorporate VC in their investment strategy. The PSN Enterprise database contains the 24 funds analyzed in this study from December 2000 to January 2022.

This study finds underperformance at every level for active equity funds that incorporate VC in their investment strategy. VC-related fund performance is compared to both matched funds that do not use VC in their investment strategy as well as to fund benchmarks. The results of this study are consistent with the original hypothesis, allowing the null to be rejected.

Maybe for good reason, the number of funds that incorporate VC in their investment strategy dramatically decreased over the life of this study. This could suggest that investors and fund managers noticed the large underperformance of VC asset classes in portfolios of active equity funds and parted ways with the investment strategy. Furthermore, this study could provide insight to portfolio managers on a go forward basis looking to diversify their investment strategy. VC may not be their best choice if the fund manager lacks expertise in the VC space.

Two notable implications come from this study. First, VC investing may take a specialized skill set that fund managers do not have. This is consistent with much of the prior literature. Second, this opens the door for possible research on consequences of investing in alternative asset classes without the proper skill set and/or experience. It would be interesting to see if investing in other asset classes besides VC without a proper skill set leads to such significant underperformance as seen with these fund managers making VC investments.
References


