

The Persistence of PE Performance

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The Persistence of PE Performance

Private equity (PE) investments have become an increasingly important allocation in institutional portfolios. However, investing in private equity requires considering several factors not relevant to investments in public equity. Perhaps the biggest difference is that a commitment in a private equity fund is not an investment in existing (e.g., publicly traded) securities with a manager whose track record is easily observed. In fact, because investors almost never have information on what companies they will be investing in, they are putting faith in an organization, a fund's stated investment strategy, and even specific individuals. This faith is based on an assessment of ability to find good opportunities over a fairly long investment period. Consequently, the reputation of fund managers becomes vitally important, and it is common practice for investors to evaluate the track records of previous funds by the same firm (or investment team) as one of the measures of expected performance. In this article we summarize the existing evidence on how useful previous track records and risk profiles are in predicting the ultimate performance and risk profile of a new fund. We also provide some new empirical analysis that furthers our understanding of performance persistence. In short, we confirm evidence indicating that performance and risk profile are persistent from one fund to the next.

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When investors rely on performance of past funds to make investment decisions, they are basing their analysis on several beliefs. First, they are inferring that performance is related to ability. Second, they are expecting that ability will be persistent so that identifying capable managers of a current fund will predict future fund performance. Third, they are trusting that managers will follow a similar strategy in the new fund or that their ability can be generalized to any different aspects of the new fund (e.g., different sector or size). Academic research has examined each of these beliefs to some extent.

The evidence on ability of private equity managers to add value above investments in public equity is fairly robust (see Brown *et al.*, 2015 and cites therein). A number of studies have examined performance using large samples of funds and the public market equivalent

(PME) method which provides a precise way of examining the opportunity cost of investing in a PE fund. These studies tend to show additional annual returns in the range of 2-4% for buyout funds and 1-3% for venture capital (VC) funds depending on sample period, public market benchmark, and risk-adjustment method. Results are generally similar across a variety of data sources. While this evidence suggests that the average PE fund manager has an ability to add value, the high degree of dispersion amongst PE funds places a lot of importance on manager selection.

The evidence on performance for a sequence of funds tends to justify the assumption that manager ability is persistent, but that the magnitude of persistence has declined some in recent years. Kaplan and Schoar (2005) find strong persistence by PE firms performance in the 1980s and 1990s. But, in a study including more recent

vintages (up to 2000), Kung (2012) finds significant persistence in the first follow-on fund, but weaker persistence for the second follow-on fund. Harris, Jenkinson, Kaplan, and Stucke (2015) find strong persistence for venture and pre-2000 buyout funds, but lower persistence in post-2000 buyout funds. Sensoy, Wang and Weisbach (2014) find endowment investors have superior performance in the 1991-1998 period due to their ability to access top-performing venture capital funds. Yet, in the 1999-2006 period, endowments relative returns are on par with benchmarks. These results naturally raise the question, if persistence is weakening, what is driving this trend?

There are a variety of issues that could result in less predictable performance. First, the market may have become more competitive. Certainly, the number of funds and assets managed in the PE space has grown massively over the last 30 years. If this implies more competition for a fixed opportunity set, then this should drive down return predictability since chance will play a larger role in performance. Another possible explanation is that investment talent leaves the firm over time (*e.g.*, partners may retire, move firms, or start a new firm). These two explanations may be related since new competition often

comes from a talented partner setting up their own firm. Intuitively, these explanations are appealing, though there is little large-sample empirical evidence providing direct support for them. A third possible explanation is that a successful fund allows for raising a substantially larger follow-on fund (which could be more profitable for the general partners). A larger fund size necessitates that managers either do larger deals or more deals, which in either case could cause the investment strategy to drift beyond the expertise of the team. This explanation is frequently referenced in anecdotal accounts of performance declines for specific firms, however, there is no strong empirical evidence to support it in the PE investment space. A fourth possibility is that the risks of funds managed by a particular firm change over time. Specifically, if a new fund is on average less risky than the previous fund then realized returns may moderate as well. Our analysis examines these last two hypotheses.

To examine the hypothesis that raising a bigger fund lowers performance, we take a look at data measuring the performance persistence by fund size. Specifically, we examine 1187 buyout funds and 1275 venture capital funds based in the U.S. incepted from 1979 to 2010, using data provided by Burgiss.¹ In Table 1, we rank pre-

Table 1: Performance Quartiles by Fund Sizes

Current Fund Size	Previous Fund Quartile	Current Fund Quartile							
		Buyout				Venture Capital			
		1 st	2 nd	3 rd	4 th	1 st	2 nd	3 rd	4 th
Large	1 st	29%	45%	17%	9%	42%	28%	22%	8%
	2 nd	17%	38%	29%	17%	39%	31%	18%	11%
	3 rd	26%	25%	34%	15%	23%	34%	31%	13%
	4 th	26%	19%	29%	26%	16%	25%	36%	23%
Small	1 st	45%	24%	21%	10%	45%	16%	23%	16%
	2 nd	30%	26%	11%	33%	18%	18%	33%	31%
	3 rd	22%	26%	26%	26%	9%	23%	25%	43%
	4 th	8%	12%	32%	48%	12%	8%	27%	53%

In each category, we report the percentage of funds that transition from a previous performance quartile to each current fund quartile. Performance is measured using the Kaplan and Schoar (2005) public market equivalent (PME) method with the S&P 500 index as the public market proxy. Results are for funds with vintage years from 1979-2010.

vious and current fund performance separately, as measured by the Kaplan and Schoar (2005) public market equivalent method (PME) benchmarked to the total return on the S&P 500. We classify funds into performance quartiles based on PMEs by vintage year after splitting the sample into three groups based on fund size: small, medium, and large (only results for small and large funds are reported in the table). We do the size grouping by vintage year to account for variation in fund size over time. We then report the percentage of funds that fall into each category. For example, the top left value in the table shows that among firms with top-quartile large buyout funds, 29% had their previous fund in the top-quartile.

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We find several interesting results. First, persistence is stronger for small buyout funds than for large buyout funds. For example, among small buyout funds, 44.8% of the top-quartile performers were previously a top-quartile fund. While for large buyout funds, only 29% of top-quartile funds were previously top-quartile performers. A caveat to this finding is that a disproportionate number of large second-quartile buyout funds were previously first or second quartile. Consequently, investing in large top-quartile buyout funds has historically resulted in better than median performance.

In contrast, persistence is high for both large and small

top-quartile venture funds. 42% of large venture funds have a follow-on fund that is top-quartile. For small venture funds, 45% of top performers persist as top-quartile with their next fund. Persistence is also high for large venture funds in the second-quartile, but small venture funds in the second quartile do not fare as well with their next fund.

To better understand exactly how a change in fund size is related to future performance we conduct some basic regression analysis using the same data. We regress past fund PME percentile, fund size and the change in fund size on current fund PME percentile (calculated by vintage year). This analysis lets us disentangle effects on current fund performance from past performance, fund size and change in fund size. The regression results are reported in Table 2. First, our analysis reveals that there is statistically significant performance persistence over our long sample period for both buyout and venture funds even when we control for fund size *and* the change in fund size. Second, there is generally a *negative* relationship between fund size and performance rank. This indicates that larger funds tend to have a somewhat better performance rank. Third, and of most interest to us, is the relation between fund performance and the change in fund size. We find that there is generally no significant relationship between a change in fund size and performance of either buyout or venture funds. These results indicate that changes in fund size are unlikely to be responsible for any decline in fund performance in recent years.

This table reports results of a regression analysis of the new fund performance rank based on previous fund performance rank, the natural logarithm of fund size, and the change in the natural logarithm of fund size. Per-

Table 2: Regression Analysis of New Fund Rank

	Buyout		Venture Capital	
	Coef.	p-value	Coef.	p-value
Last Fund PME Rank (percentile)	5.10	<0.001	6.91	<0.001
New Fund Size	-1.83	0.061	-4.03	<0.001
New Fund Change in Size	0.53	0.669	1.21	0.367
Intercept	78.31	<0.001	113.76	<0.001

This table reports results of a regression analysis of the new fund performance rank based on previous fund performance rank, the natural logarithm of fund size, and the change in the natural logarithm of fund size. Performance rank is measured using the Kaplan and Schoar (2005) public market equivalent (PME) method with the S&P 500 index as the public market proxy. Results are for funds with vintage years from 1979-2010.

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As noted previously, an important facet of performance analysis is the riskiness of investments. If variation in relative performance is driven by changes in the risk profile of funds, this confounds the analysis. In contrast, if funds tend to exhibit similar levels of risk through time, this would indicate that metrics related to performance persistence are more reliable. As a means of estimating the risk profiles of various funds, we compare the Capital Weighted Loss Rate (CWLR) of funds in the Adams Street Partners (ASP) fund database. Here, CWLR is defined as the sum of all losses for investments in a given fund as a percentage of the fund’s total invested capital. While loss rates are affected by a number of factors including company specific circumstances and broader market effects, on the whole they reflect patterns in the underlying risk profiles for different investment strategies. For example, higher loss rates are associated with venture funds as opposed to buyout funds, which reflects the higher probability of failure for venture investments. Of course, this higher risk is a likely a trade-off to higher long-term expected returns.

Funds in the ASP universe are also categorized as either venture or buyout. We only consider funds prior to the 2010 vintage in order to avoid less mature investments that may not have stable loss rates. In total, the data consist of 143 venture funds and 209 buyout funds. Funds are classified as being “Low Loss” or “High Loss” relative to the median CWLR within the relevant strategy and vintage year cohort. Finally, the funds are assigned

to one of four quadrants based on their Upper/Lower classification along with that of their predecessor funds.

In a world with no strategy persistence, and where risk profiles are independent of the risk profile of a predecessor fund, we would expect a 50% probability that a fund would have a CWLR that was the same as its predecessor fund relative to the median. Instead, we find that relative CWLR is a good indicator for CWLR of the following fund (see Table 3 for the detailed results). For example, 64% of the buyout funds and 63% of the venture funds with a relatively lower loss rate had a low loss rate in their previous funds. Persistence in CWLRs implies some degree of persistence in risk of the investment strategy which implies that any decline in performance persistence is unlikely to be caused by a significant reduction in fund risk over time.

Overall, our analysis suggests that fund performance persistence is strong over the long sample period we examine. We also find that any moderation in PE performance persistence cannot be attributed to changes in fund size or risk. In other words, current fund performance and risk profile are good indicators of future performance and risk profile over the long-run. Indeed the return phenomenon is reliable even after controlling for differences in fund size, and is stronger for small funds than large funds. Specifically, a fund that is larger than the previous fund does not appear to experience weaker relative performance, *ceteris paribus*. Consequently, the evidence is not consistent with successful firms outgrowing their size niche on average. Returning to our possible explanations for moderating persistence, these findings imply that any change in persistence over time is likely due to some other explanation such as loss of talent and

Table 3: Loss Rate by Subclass

Previous Fund Ranking	Current Fund Ranking in Loss Rate			
	Buyout		Venture Capital	
	Low Loss	High Loss	Low Loss	High Loss
Low Loss	64%	36%	63%	37%
High Loss	29%	71%	31%	69%

In each category, we report the percentage of funds that transition from a previous fund loss rate ranking to each current fund loss rate ranking.

a more competitive market.

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ENDNOTES

¹Burgiss is a global provider of investment decision support tools for the private capital market. The Burgiss Manager Universe is a research-quality database that includes the complete transactional history for over 7,500 private capital funds with a total capitalization representing over \$5 trillion in committed capital across the full spectrum of private capital strategies.