PitchBook

PE Mega-Fund Strategy Overview: Part III

Comparing performance metrics for $5 billion+ PE funds

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Key takeaways

- PE mega-funds ($5 billion+) have tended to outperform smaller funds over the past 20 years, posting the highest IRRs on average. They also had a lower variation in results, leading to fewer funds dramatically underperforming as well as fewer "home runs."
- Across all fund sizes, PE mega-funds are the most likely to achieve TVPIs above 1.5x, yet the least likely to achieve results above 2.0x. These funds often register good but not great results.
- PME and Direct Alpha suggest that only mega-fund managers have been truly earning their fees in more recent years. With PMEs firmly above 1.0 and positive Direct Alphas, PE mega-funds have been most likely to outperform public indices when accounting for the performance drag of uncalled capital sitting in reserve accounts.

Introduction

In the first installment of our series of analyst notes covering PE mega-funds, we provided an introduction and overview to the space, looking at the key players and the strategy's evolution. In the second installment, we dove into cash flows and fund timing. This last note in the series will focus on performance for mega-funds spanning North America and Europe. We will slice the data by vintage and size bucket, comparing mega-funds to other PE funds between $1 billion and $5 billion and those under $1 billion. The analysis will look at traditional metrics including IRR and cash multiples, as well as the relative performance figures PME and

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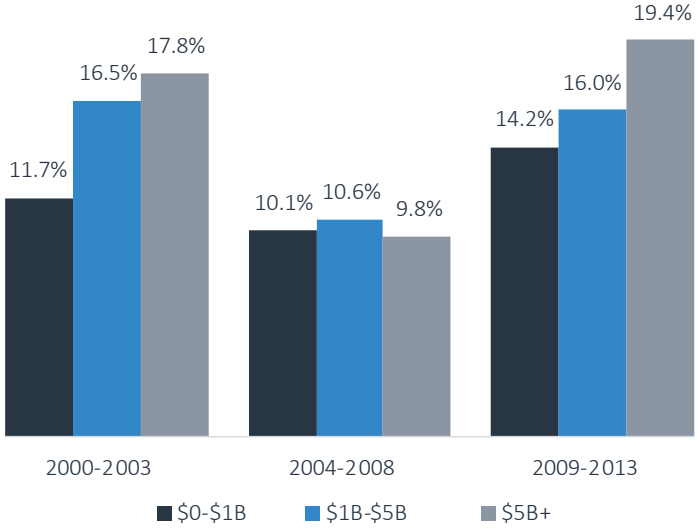
Direct Alpha. Each time frame has performance data for at least 100 funds in the smaller size buckets and between eight and 47 mega-funds.

Pooled statistics are calculated using an equal-weighted approach rather than a capital-weighted approach to ensure smaller funds in each size bucket are not dwarfed by a few massive vehicles. We also used a capital-weighted approach to double-check our results, and they are nearly identical. Barring a few basis points changes, there is no significant difference between the calculation methodologies, strengthening our confidence in the results.

IRR

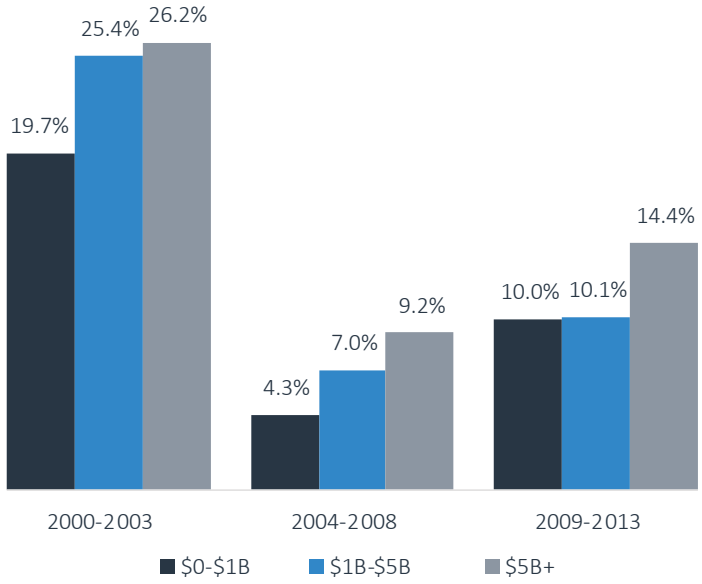
Comparing pooled IRRs across vintages and size buckets reveals that PE mega-funds consistently perform at or near the top compared with smaller funds in both North America and Europe. The 2009-2013 vintage bucket shows mega-funds significantly outperforming smaller funds. Much of this is likely attributable to the decade-long run-up in equity markets. Mega-funds can more aggressively mark portfolio companies to market since they are typically larger and more comparable to publicly listed companies, though this can have negative consequences in down markets. Whereas smaller companies have historically been assumed to outperform due to the size premium in public markets, it appears the same does not hold true for PE-backed businesses.

Pooled IRRs by size bucket and vintage for North America*



Source: PitchBook | **Geography:** North America
*As of December 31, 2018

Pooled IRRs by size bucket and vintage for Europe*



Source: PitchBook | **Geography:** Europe
*As of December 31, 2018

Although PE mega-funds have recently exhibited superior performance, in terms of IRR, they have a tighter performance distribution band. Larger funds are less likely to produce "home runs" for LPs in terms of performance but instead exhibit lower return distribution volatility.

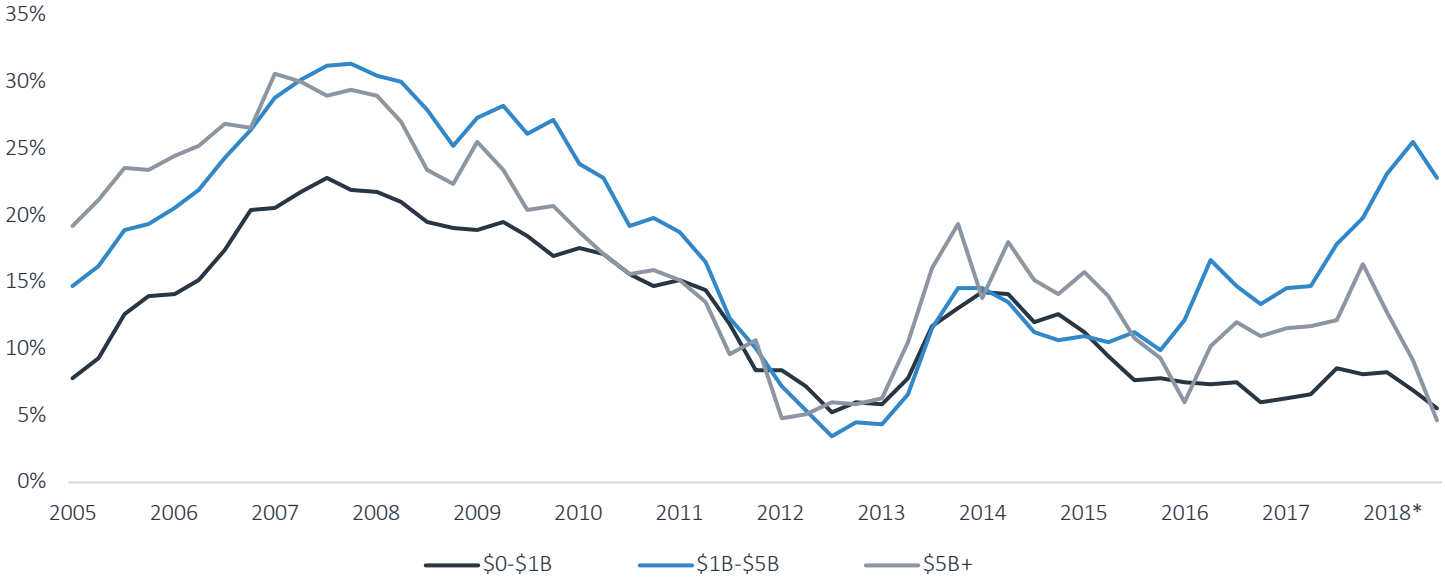
IRRs by size bucket and vintage*

Vintage	Size	Top quartile	Median	Bottom quartile	Standard deviation
2000-2003	$0-$1B	24.3%	13.6%	6.4%	20.1%
2000-2003	$1B-$5B	29.0%	19.5%	10.8%	14.8%
2000-2003	$5B+	24.7%	20.2%	15.5%	7.9%
2004-2008	$0-$1B	16.1%	8.9%	3.0%	15.8%
2004-2008	$1B-$5B	13.8%	9.4%	5.9%	9.9%
2004-2008	$5B+	13.0%	9.0%	5.9%	6.5%
2009-2013	$0-$1B	21.4%	12.6%	7.7%	14.3%
2009-2013	$1B-$5B	18.2%	12.5%	8.1%	10.6%
2009-2013	$5B+	19.0%	14.6%	13.4%	4.9%

Source: PitchBook | **Geography:** Global
*As of December 31, 2018

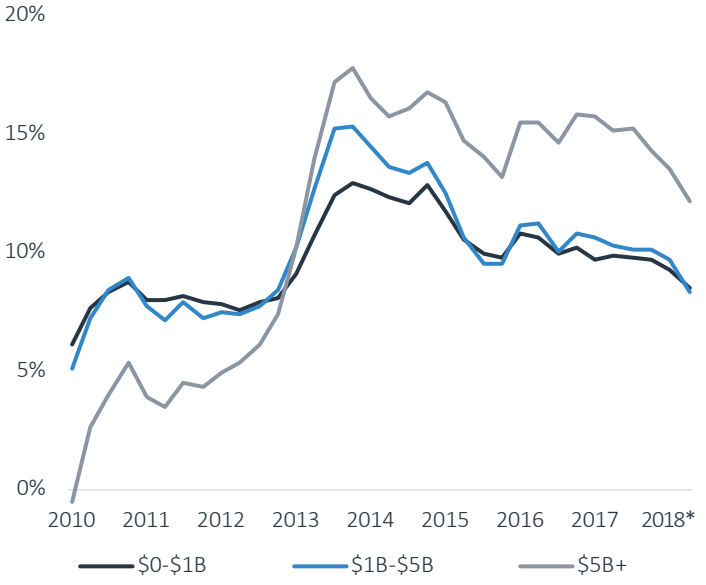
However, rolling five-year horizon IRRs by vintage bucket highlight mega-fund volatility in terms of absolute returns. The data from the 2004-2008 vintage bucket really illustrates how mega-funds tend to move in accordance with public indices. 2013 was the best year for the S&P 500 in the current economic expansion. It's also the year in which mega-funds vaulted from bottom to top performers. While PE mega-funds have outperformed recently and have the highest top-quartile returns, much of this may be explained by healthy public equity performance. If a recession were to occur, we expect mega-funds would suffer more than smaller funds; however, we have seen mega-funds outperform through full cycles, and we will see if they continue to outperform smaller funds irrespective of what is happening in public indices.

Rolling five-year horizon IRRs for vintages 2000-2003



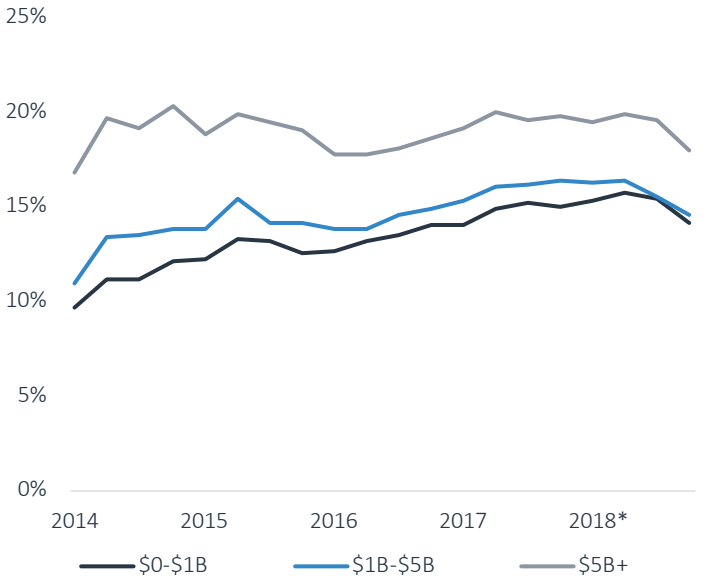
Source: PitchBook | **Geography:** Global
*As of December 31, 2018

Rolling five-year horizon IRRs for vintages 2004-2008



Source: PitchBook | **Geography:** Global
*As of December 31, 2018

Rolling five-year horizon IRRs for vintages 2009-2013

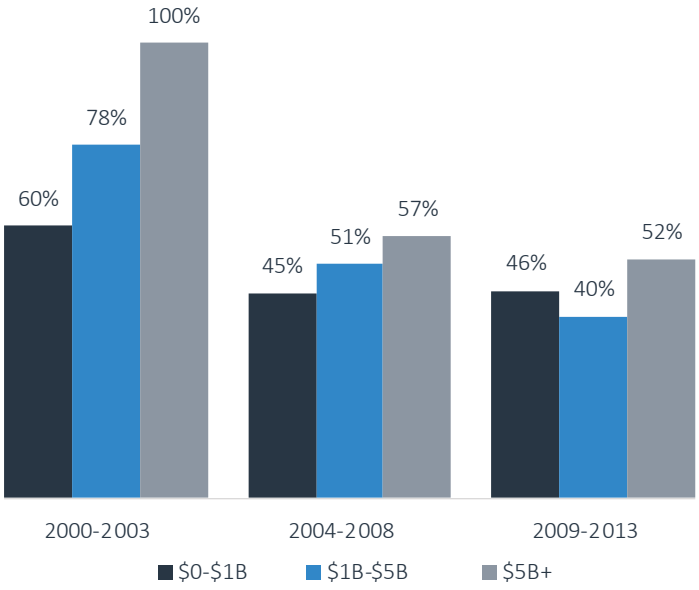


Source: PitchBook | **Geography:** Global
*As of December 31, 2018

Cash multiples

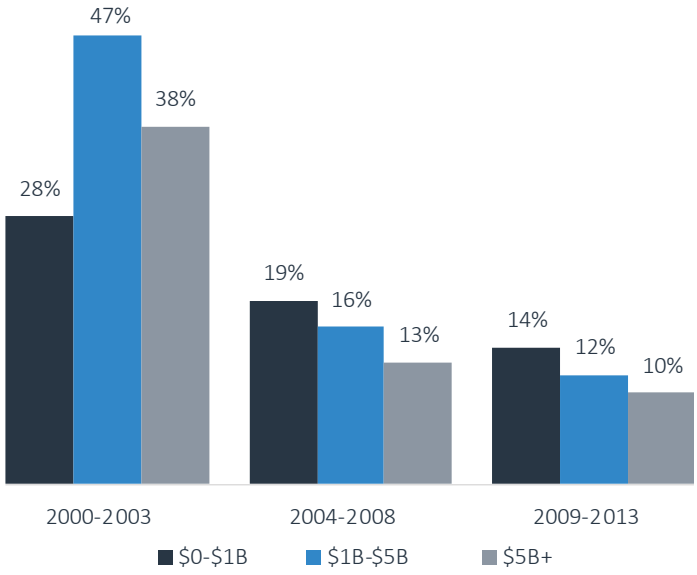
As is the case with IRRs, cash multiples show that mega-funds have higher floors and lower ceilings. While mega-funds have the highest chance of achieving a TVPI of at least 1.5x in each time frame, they are almost always the least likely to exceed the 2.0x mark. For those LPs willing to gamble and shoot for star managers, the smallest size bucket offers the best opportunity, while mega-funds are the superior choice for LPs aiming for consistent returns.

Proportion of funds that have TVPI exceeding 1.5 by size and vintage*



Source: PitchBook | **Geography:** Global
*As of December 31, 2018
Note: 2000-2003 mega-fund sample size equals eight.

Proportion of funds that have TVPI exceeding 2.0 by size and vintage*



Source: PitchBook | **Geography:** Global
*As of December 31, 2018

Median TVPIs tell a similar story to IRRs. The median cash multiple by fund size shows some variation, though mega-funds still tend to outperform. The consistent ranking between cash multiples and IRRs occurs because fund lives and cash return profiles tend to be approximately even. Mega-funds also routinely post the highest bottom-quartile performance and the lowest standard deviation, though they never post the highest top-quartile performance, mirroring the results seen in the accompanying chart.

TVPI by size bucket and vintage*

Vintage	Size	Top quartile	Median	Bottom quartile	Standard deviation
2000-2003	$0-$1B	2.09x	1.57x	1.31x	0.75
2000-2003	$1B-$5B	2.38x	1.91x	1.58x	0.60
2000-2003	$5B+	2.21x	1.89x	1.65x	0.36
2004-2008	$0-$1B	1.83x	1.44x	1.11x	0.67
2004-2008	$1B-$5B	1.83x	1.51x	1.27x	0.47
2004-2008	$5B+	1.82x	1.55x	1.32x	0.41
2009-2013	$0-$1B	1.76x	1.44x	1.21x	0.50
2009-2013	$1B-$5B	1.72x	1.43x	1.20x	0.49
2009-2013	$5B+	1.70x	1.55x	1.41x	0.34

Source: PitchBook | **Geography:** Global
*As of December 31, 2018

Mega-funds, with their monumental sums of cash, tend to move slower than smaller funds. They not only have way more capital to invest, but they also make more add-on acquisitions late into the fund's life. Because of this, the median mega-fund lags smaller funds in the payback period for two of the three vintage groups. Mega-funds, except for 2000-2003 vintages, take as long or longer to return investors' capital than smaller funds do across all time frames. Interestingly, there are fewer laggards among larger funds. The slowest 25% of mega-funds achieved a DPI of one as soon or sooner than smaller size buckets across vintages. This means that while mega-funds may take longer to return capital, they are often efficiently operated, and even the slower mega-funds return capital at a decent pace.

Another item to note is the range of medians and standard deviation in the 2009-2013 vintage bucket. The median return period for funds minted in this period spans just 0.3 years between the three size buckets. Additionally, standard deviations have been dropping in each successive time frame with the sole exception being mega-funds in the 2009-2013 vintage bucket. PE funds are becoming more calculated in their investment and return profiles, and we are seeing much less difference in the cash flow return profiles between funds as time goes on.

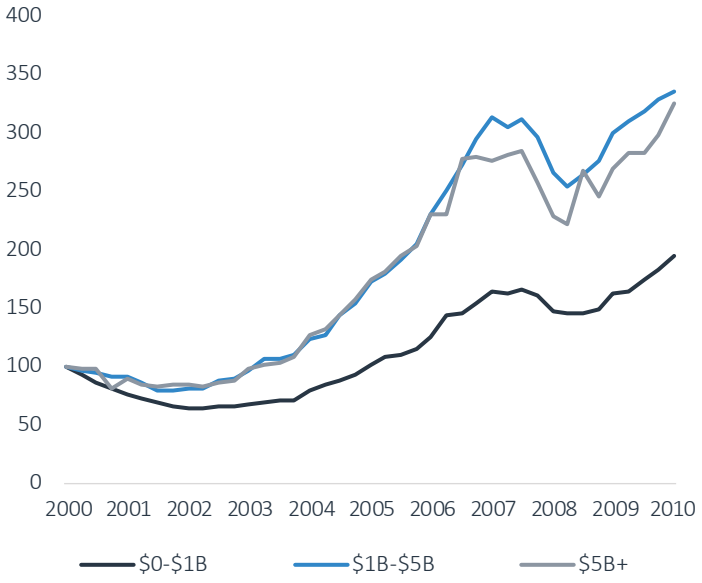
Years until DPI=1 by size bucket and vintage*

Vintage	Size	Top quartile	Median	Bottom quartile	Standard deviation
2000-2003	$0-$1B	10.6	8.4	6.1	2.9
2000-2003	$1B-$5B	9.9	6.8	5.6	3.2
2000-2003	$5B+	9.9	8.3	6.3	2.3
2004-2008	$0-$1B	10.3	8.8	7.5	2.3
2004-2008	$1B-$5B	9.8	8.5	7.8	1.7
2004-2008	$5B+	10.0	9.0	8.3	1.3
2009-2013	$0-$1B	7.8	6.8	5.8	1.6
2009-2013	$1B-$5B	8.3	7.1	6.0	1.5
2009-2013	$5B+	7.8	6.8	6.6	3.0

Source: PitchBook | **Geography:** Global
*As of December 31, 2018

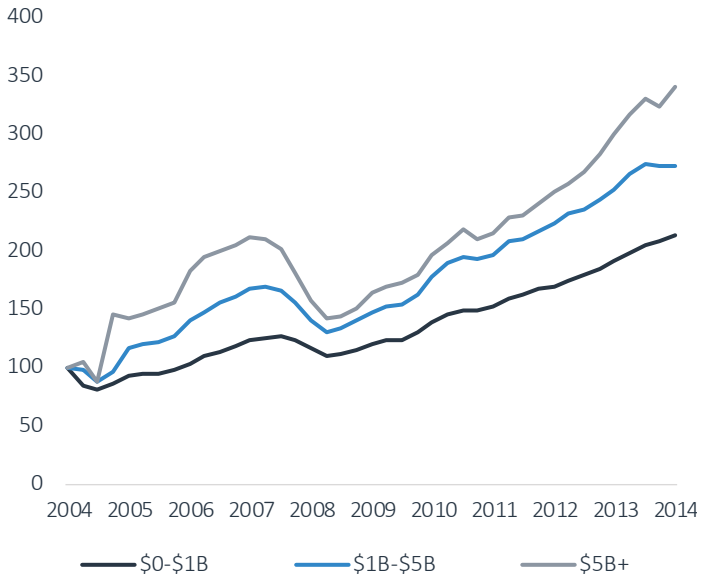
Rebasing NAVs to 100 by vintage bucket shows the consistency of returns for all size buckets, with funds under $1 billion placing last in each time frame. While the 2000-2003 vintages saw mega-funds slightly underperform $1 billion-$5 billion vehicles, mega-funds have consistently outperformed smaller funds in the 2009-2013 vintages over the years. Again, we see smaller vehicles generally lagging their larger peers.

10-year performance of vintages 2000-2003 with NAV index rebased to 100 in December 31, 2000*



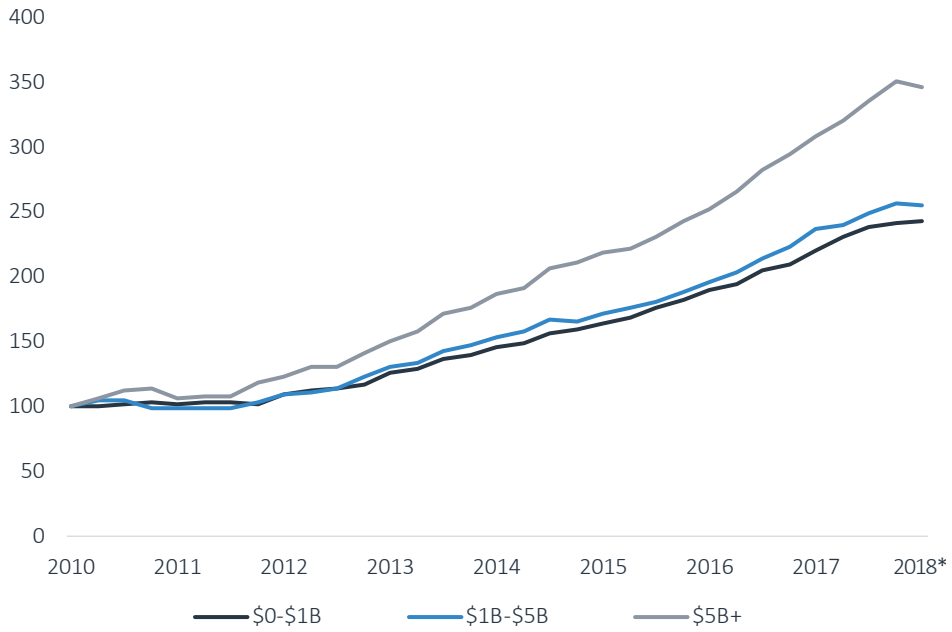
Source: PitchBook | **Geography:** Global
*As of December 31, 2018

10-year performance of vintages 2004-2008 with NAV index rebased to 100 in December 31, 2004*



Source: PitchBook | **Geography:** Global
*As of December 31, 2018

10-year performance of vintages 2009-2013 with NAV index rebased to 100 in December 31, 2010



Source: PitchBook | **Geography:** Global
*As of December 31, 2018
Note: Some of the more recent vintages in this bucket contain less than 10-years worth of data.

PME

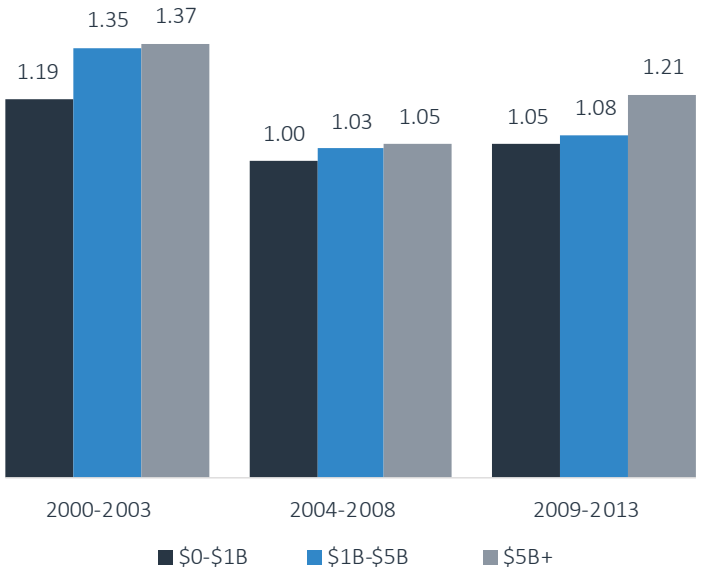
PMEs have fallen for funds of all sizes after the 2000-2003 era in which GPs of all sizes significantly outperformed the public market. More recent vintages have seen a flood of capital drive up purchase price multiples—alongside a 10-year bull market in public equities—and subsequently drive down returns. This paradigm shift may call into question investing in PE more broadly unless performance figures recover. It may be hard for public pension plan investment committees to justify PE exposure—with its extended time horizon, high fees, substantial diligence and monitoring costs, and illiquidity risks[1]—without being able to show sustained outperformance.

A PME of 1.03 may not be worth the fees and lock-up period while a PME of 1.4 likely is, even though both exceed 1.0. Furthermore, the drag of cash that sits uninvested during call down periods likely means a PME of 1.0 actually underperformed public markets. PMEs in mega-funds still have a much better chance of exceeding 1.0 than smaller funds. The most recent time frame gives mega-funds nearly five-in-six odds of exceeding 1.0, while smaller funds' odds are less than half of that. For LPs looking to outperform public indices, mega-funds offer the highest percentage chance.

1: PMEs are calculated net of fees.

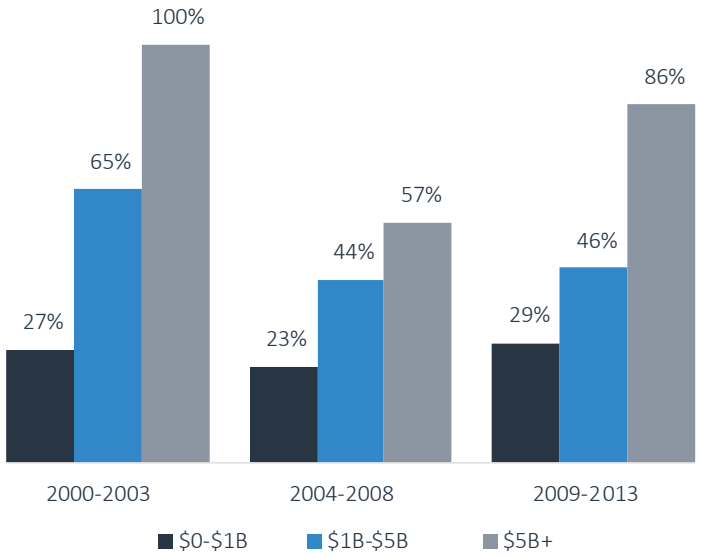
We will have to be watchful for future results to determine not only if PE funds of all sizes can continue posting PMEs above 1.0, but if the PMEs are well above 1.0.

Russell 2000 PME by size bucket and vintage*



Source: PitchBook | **Geography:** Global
*As of December 31, 2018

Proportion of funds that have PME exceeding 1.0 by size and vintage*



Source: PitchBook | **Geography:** Global
*As of December 31, 2018

As we have seen with previous performance metrics, mega-funds rarely post the highest top-quartile results. They do, as we've mentioned, always post the highest bottom-quartile figures, meaning odds of significant underperformance are lowest with this fund category.

PME by size bucket and vintage*

Vintage	Size	Top quartile	Median	Bottom quartile
2000-2003	$0-$1B	1.62	1.25	1.01
2000-2003	$1B-$5B	1.91	1.54	1.28
2000-2003	$5B+	1.65	1.49	1.31
2004-2008	$0-$1B	1.21	0.95	0.70
2004-2008	$1B-$5B	1.19	1.00	0.80
2004-2008	$5B+	1.20	1.02	0.87
2009-2013	$0-$1B	1.19	0.95	0.81
2009-2013	$1B-$5B	1.21	1.01	0.89
2009-2013	$5B+	1.22	1.08	1.04

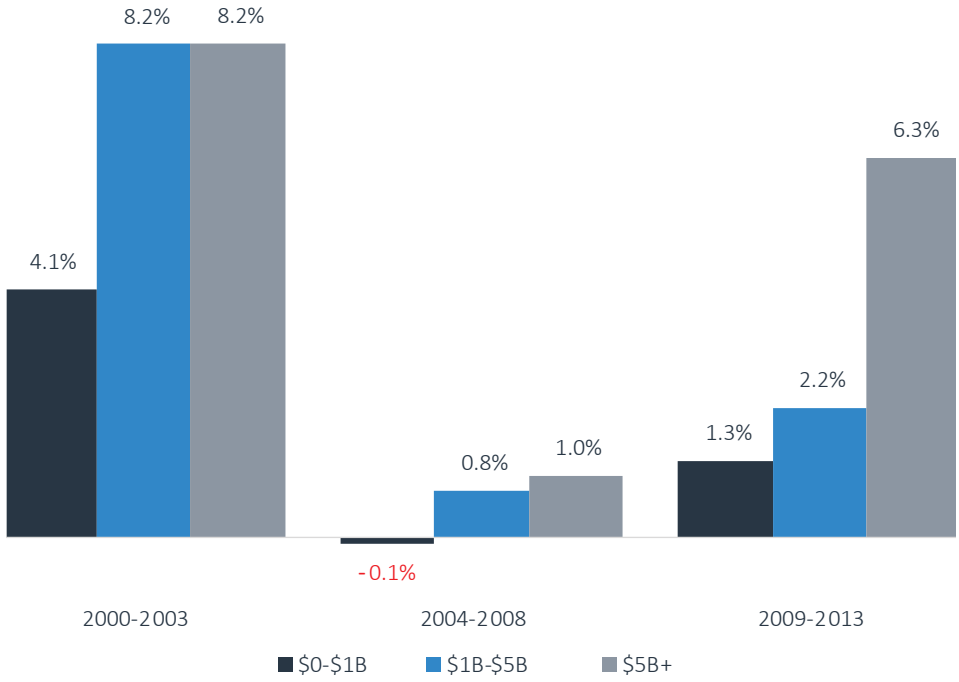
Source: PitchBook | **Geography:** Global
*As of December 31, 2018

Direct Alpha

While most private market practitioners have heard of PME, fewer have heard of Direct Alpha. Simply put, Direct Alpha annualizes the PME and equals zero any time the PME is one. A more thorough explanation of the metric and how it compares to others can be found in PitchBook Benchmarks (as of 4Q 2018).

When it comes to assessing mega-fund performance, Direct Alpha results are mixed. While the 2004-2008 vintage bucket shows little outperformance one way or another, earlier and later time frames reveal more. Despite the significant bull market in public equities since 2009, mega-funds have outperformed when we take into consideration the timing of cash flows and investments (factors that are also incorporated into PME calculation).

Russell 2000 Direct Alpha by size bucket and vintage*



Source: PitchBook | **Geography:** Global
*As of December 31, 2018

Conclusion

Mega-funds seem to have disproved the notion that size is the enemy of performance, at least for PE funds. These massive vehicles were able to achieve higher IRRs and cash multiples than smaller funds and exhibited a tighter band in terms of relative performance. The lower chance of significant outperformance is traded off for consistency. Underperformance may lead to

firing while outperformance is unlikely to have an equally positive reward. Most LPs desire consistent returns over time as opposed to outperformance with high variability. These vehicles appear to be the best option for the most massive LPs looking to allocate to PE. We should note the possibility of bias in the data given the best managers are the ones that go on to raise larger funds, and by virtue of raising mega-funds, these managers have established a noteworthy performance track record.

While there are some opportunities for outperformance in smaller managers, the work associated with finding these top-decile managers may be better suited to the most sophisticated LPs. To that end, some of the more sophisticated LPs, such as Alaska Permanent, may achieve outperformance without allocating to mega-funds due to their ability to secure co-investment rights with smaller funds as well as preferential fee arrangements. Moreover, some LPs may have seeding programs or in-house teams able to separate the wheat from the chaff with funds under $5 billion.

Performance is not the only story, though. Mega-funds appear to have a high beta and to be more correlated with public equities, benefiting from the last 10 years in which public equity markets shot up. We still expect these funds to outperform public markets if this tailwind fades, however. Not only does our previous research show that PE funds tend to outperform public markets during downward price dislocations, but mega-funds have huge capital reserves and are more able to take advantage of depressed prices in a recessionary or flat economic environment. Additionally, these managers have the resources, such as top-ranked management teams and proven business combination strategies, to seek out marginal performance that many smaller managers lack. We have seen the largest ever tech buyout fund (Vista Equity Partners Fund VII totaling $16 billion) and largest ever buyout fund (Blackstone Capital Partners VIII totaling $26 billion) close in recent weeks as LPs seem to agree with the sentiment.

While we expect mega-funds will outperform smaller funds and public markets through an entire economic cycle, we expect smaller funds to outperform mega-funds in trying times. Operational expertise can make a larger impact in non-mega-funds, PE's nimble operating structure favors smaller companies and funds in a downturn, and smaller companies are under less pressure to mark to market as stocks decline. This is similar to the results we saw in the prior recession and is something we believe LPs should consider when allocating.