

# Advanced private equity benchmarking

FUND MANAGER  
DUE DILIGENCE

*Oliver Gottschalg of HEC School of Management and Robert M. Ryan of Peracs Due Diligence Services present new techniques for quantitative private equity fund due diligence.*

Private equity investors commonly observe that attractive returns can only be found in top-quartile funds. Recent research supports this view, showing that while the overall private equity market historically underperformed comparable public market investments, the top-quartile private equity funds generate returns 50 percent greater than such public market benchmarks<sup>1</sup>.

The consequence for limited partners is obvious: only those with efficient fund selection processes will be able to identify future high-performing funds and thereby ensure attractive returns in their private equity portfolios. LPs without this crucial skill will be left with average returns at best and may suffer inconsistent results.

Unfortunately, the identification of future high-performing funds is far from trivial. As reported in a previous article in *Private Equity International*, a general partner's past performance measured relative to a vintage-year peer group is not always a good predictor of future performance<sup>2</sup>.

## SHORTCOMINGS OF THE TRADITIONAL BENCHMARKING APPROACH

The traditional reliance on historical performance to assess a GP seems intuitive. The process typically unfolds as follows: fund by fund, past performance is compared to the established performance benchmarks published by Thomson

Venture Economics and/or national industry associations. A judgment is then made depending on whether or how often the GP's prior funds fall within the first- or second-best performance quartiles according to these benchmark statistics. Without a doubt, such a comparison is of value, as it allows assessing the performance of a given fund relative (our "focal fund") to the population of all funds of the same stage and geographic focus that were raised in the same vintage year as the focal fund.

At the same time, this funds-level benchmarking by vintage years has significant limitations. First, benchmarks are based on groups of funds that can be highly heterogeneous. Consider, for example, the benchmarking group of US buyout funds raised in 2000. The 55 funds in this group range from \$25 million to over \$5 billion and include everything from focused single industry specialists to highly diversified generalists. The group features management styles ranging from operational GPs to hands-off investors. It also includes both those that consistently generate solid returns, as well as those otherwise mediocre performers who salvage their records through isolated home runs. Consequently, comparing the performance of one specific fund to the performance of this diverse population is not really comparing apples to apples, but seems more like an effort to identify some kind of pattern in a mixed fruit salad.

Second, additional problems stem from the classification of funds by their vintage year. Notably, the identification of a fund's vintage year can be ambiguous, depending on the "closing date" that is considered relevant for the exercise. Is it the "first close" or the "final close"? And what happens if for some reason a fund opens up again after the "final close" to let in additional capital? If these dates fall into different calendar years, it is not straightforward to identify the appropriate vintage year of the corresponding fund. This partly explains the legend repeated among LPs in which GPs always manage to find some kind of benchmark according to which their performance looks "top quartile".

But even if the vintage year of a given fund could be identified precisely, one may wonder how accurate fund-level benchmarks by vintage year can be. After all, our analysis of thousands of funds reveals that funds from two consecutive vintage years overlap on average to over 50 percent in their respective investment and divestment periods. This raises the question of why a 2000 vintage US mid-cap fund should be compared to a benchmark that *includes* 2000 vintage US mega-funds but *excludes* US mid-cap funds from vintages 1999 and 2001. A comparison to funds with a more similar investment focus from adjacent vintage years may be much more meaningful, as this is the relevant peer group of funds that competes for both LP money and suitable deals.

One possible, partial solution is to conduct a hand-selected fund-level comparison. Taking, for example, the type of data provided by Private Equity Intelligence, it becomes possible to identify a relevant group of funds that

**Table 1: Alternative benchmarking techniques and their ability to imitate PE characteristics. Benchmark matches the investment characteristics of the focal PE fund in terms of...**

	<b>Timing of cash flows</b>	<b>Industry mix</b>	<b>Financial leverage</b>	<b>Governance structure</b>
Annualised buy-and-hold public market returns	NO	NO	NO	NO
Public market benchmark	YES	NO	NO	NO
Public peers benchmark	YES	YES	NO	NO
Leveraged peers benchmark	YES	YES	YES	NO
Vintage-year benchmark	NO	NO	NO	YES
PEBenchmark™	YES	YES	YES	YES

are raised, say, in the same three-year period and with a sufficiently similar investment focus. This approaches our goal of a meaningful ‘apples to apples’ comparison. Unfortunately, this also introduces a higher level of subjectivity in the benchmarking exercise and sometimes significantly limits the size of the relevant peer group.

More reliable and insightful results are possible, however, if one combines the traditional vintage-year comparison with more innovative benchmarking techniques against public markets *and* other private equity investments.

#### **SMART PUBLIC MARKET BENCHMARKS: WHAT THEY SHOW AND WHAT THEY HIDE**

One important way to assess the performance of a private equity investment is to ask the intuitive question “what returns would have been available in public securities instead?” In this context, it is important to point out that such a simple comparison can be highly misleading. For example, the 20-year performance (pooled IRR) of all private equity funds covered by Thomson Venture Economics as of 12/2006 is 14 percent *per annum*. The S&P 500 increased by about 9.3 percent *per annum* over the same time period. However, the comparison of these two numbers is not an accurate assessment of the relative performance of private equity. The 9.3 percent on the S&P 500 are based on a simple buy-and-hold strategy,

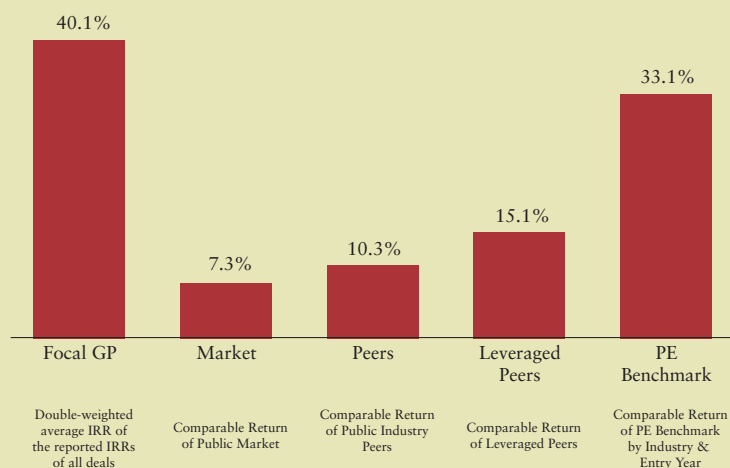
whereas cash flows in and out of private equity funds occurred almost constantly throughout the 20-year period<sup>3</sup>.

A meaningful comparison between a private equity investment and a broad market index will therefore have to consider the cash flow pattern of private equity. Practically speaking, private equity performance has to be compared to the returns from an investment into and out of a broad index fund that follows the rhythm of takedowns and distributions of the private equity fund. Such a cash flow-matched public market benchmark provides LPs with two important pieces of information: First, it shows the focal fund’s performance relative to putting money in a simple investment strategy in public equity. Second, it

shows whether and to what extent the GP was able to time the fund’s investments in a way that takes advantage of general market trends to enhance the fund’s performance.

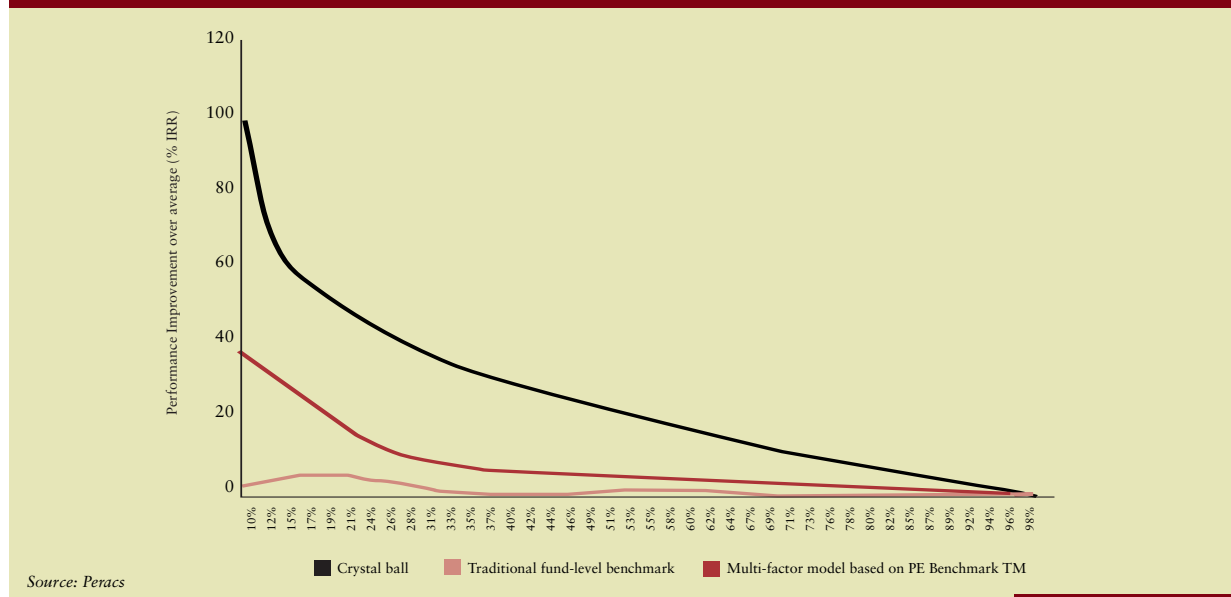
Such a broad public market benchmark ignores, however, the characteristics of the underlying investments of a focal private equity fund, in particular with respect to their industry sector. This problem can be addressed by calculating a benchmark based on so-called “public peers”. For each of the underlying investments of the private equity fund, one can calculate the returns to an investment into a peer group of publicly traded firms that are active in the same industry sector. In other words, for an automotive buyout made in 1996 and exited in 1999, we

**Figure 1: Focal fund performance relative to alternative public market and PE benchmarks**



Source: Peracs

Figure 2: Improvements in PE fund selection efficiency through PEBenchmark fund rating



derive the returns to an investment in publicly traded automotive firms from 1996 and 1999 and so forth for all other investments made by a given fund.

Then we aggregate the performance of all these individual public peers to mirror the focal fund's composition and timing. The result is a "public peer benchmark" at the fund level that reflects the performance of public market investments that are similar in timing and industry mix to the focal fund. A comparison between this figure and the "public market benchmark" further indicates to what extent the GP was able to identify attractive industry sectors for the fund's investments.

One final element of precision can be added by considering the differences in leverage between the private equity investments and the public market investments in the comparison. To this end, we can lever up each of the previously calculated individual "public peer" returns to the point where the corresponding investments become identical to the respective focal buyouts in terms of their debt-equity ratio. Aggregating these leveraged returns to the fund level gives us the "leveraged peer benchmark". This benchmark closely matches the risk profile of the focal private equity investments and

constitutes the most precise way to benchmark a private equity fund against public market investments<sup>4</sup>.

#### ADVANCED BENCHMARKING BASED ON DEAL-LEVEL PRIVATE EQUITY BENCHMARKS

No matter how sophisticated we get in constructing *public* market benchmarks that imitate the risk and return characteristics of *private equity*, they will always suffer from the shortcoming that they are unable to correct for differences in corporate governance between the two asset classes. There are many reasons to believe that the fundamental differences between the public corporation and the private equity form of governance make it impossible to exactly replicate private equity based on public securities.

Consequently, the best way to benchmark the performance of a given private equity fund is to compare it to a population of *truly similar* other private equity investments. As discussed initially, the traditional fund-level performance benchmark by vintage year is generally unable to provide a sufficiently similar basis for such a comparison.

One major innovation in private equity benchmarks is the shift from rough, fund-

level comparisons to a more meaningful, deal-level analysis of comparable private equity transactions. This method considers all underlying investments of a given private equity fund individually and assigns them a deal-level private equity benchmark. Coming back to the previous example of a fund with an automotive buyout made in 1996, this particular buyout would be compared to the relevant value for other automotive buyouts made in 1996. This process is repeated for every deal within the fund. In the next step, the deal-level analyses are aggregated to yield a meaningful benchmark for the overall fund given the unique size and the duration of each of the constituent deals. This way we obtain the described benchmark at fund-level reflecting the average performance of private equity investments that are similar in timing (based on the matched timing of the actual investments and not on the year of a fund's closing) and industry to those made by the focal fund.

This provides detailed insights into the value-generating ability of a given GP: First, a comparison between the actual performance of a focal fund and its deal-level benchmark tells us whether and to what extent the GP has been able to outperform the other GPs making similar

investments. Second, a comparison between a fund's deal-level benchmark and the average performance of its vintage year peers illustrates whether and to what extent the GP has been able to identify attractive industries for its investments and to time its investments in a way that outperforms its vintage year peers. To some extent, the first comparison speaks to a GP's ability to create more value than its peers, holding investment characteristics constant, while the second comparison speaks to a GP's ability to make investments with attractive characteristics.

For a long time, such an analysis has been impossible, as sufficient data on deal-level private equity performance has been unavailable. Fortunately, some deal-level benchmark tools have started to enter the marketplace<sup>5</sup>.

#### THE FUND SELECTION EFFICIENCY OF ADVANCED PRIVATE EQUITY BENCHMARKING TECHNIQUES

The most powerful way to assess to what extent the presented advanced benchmarking techniques for private equity funds increase the efficiency of an LP's fund selection process is to "backtest" them based on historical data. To this end, 531 historic fundraising situations have been replicated as follows. 531 focal funds raised in 1999 or before were selected. For these funds, actual performance as of today can already be measured with a sufficient degree of accuracy. For each of the 531 focal funds, detailed data on the performance and investment characteristics of all previous funds managed by the same GP have been gathered, similar to the performance track record information that would have been available to a potential investor in the fund at that time. Using this data, we can compare the power of different selection criteria to identify focal funds with superior performance. In other words, we turn back the clock and simulate the choices made by a hypothetical LP who is being presented with 531 fundraising documents during the 1980s and 1990s.

We then turn the clock forward again and observe the actual performance of the selected portfolio of funds. In doing so, we can assess and compare the efficiency of different decision rules.

In a first analysis, we compare the ability of different benchmarks to *statistically* explain the actual future performance of the 531 focal funds. In doing so, we find the statistical explanatory power of the standard fund-level vintage year benchmarks to be rather limited. In our regression analysis, past performance relative to the vintage year benchmark explains little over 4 percent of the variance in future fund performance. If, instead, we combine several of the discussed advanced performance benchmarks in a multivariate statistical model, this model is more than twice as powerful in explaining variation in actual future fund performance.

The *economic* relevance of alternative performance benchmarks as fund selection criteria is a related, yet different question. To this end, we calculate the PESEM<sup>TM</sup> measure for different alternatives<sup>6</sup>. Evaluating the 531 performance track records based on the traditional fund-level vintage year benchmark leads to only small improvements over a random capital allocation process, as is illustrated through the corresponding PESEM<sup>TM</sup> of 3 percent for the traditional performance benchmark. In other words, investors relying only on fund-level vintage year benchmarks in their fund selection are only able to reach a level of performance improvement over the average portfolio that corresponds to no more than 3 percent of the power of perfect foresight that is attainable only through a hypothetical crystal ball.

If, on the other hand, we combine several advanced performance benchmarks in a multi-factor fund rating model and use this model to identify future high-performing funds in our due diligence simulation, we obtain a PESEM<sup>TM</sup> of 36 percent. Thus the combination of multiple advanced performance benchmarks to assess a given performance track record enables investors to reach a

level of performance improvement over the average portfolio equivalent to 36 percent of the improvement that a crystal ball would have generated. This clearly illustrates that the presented advanced benchmarking techniques are not only statistically more powerful in predicting future performance, but that based on our analysis of actual historical data they are also of greatest practical relevance in helping LPs to identify future high-performing funds. ■

1 L. Phalippou and O. Gottschalg, "The Performance of Private Equity Funds," forthcoming in the Review of Financial Studies.

2 O. Gottschalg, and B. Kreuter, "Picking Winners," Private Equity International, May 2007 – available for download at [www.peracs.com](http://www.peracs.com).

3 A more detailed analysis reveals in fact that the performance of all mature private equity funds is below the S&P 500 by over 3% annually; see Phalippou and Gottschalg, Review of Financial Studies, forthcoming.

4 See Groh and Gottschalg (2006), "The Risk-Adjusted Performance of US-Buyouts," NBER Working Paper.

5 In a joint research project, HEC Paris and PERACS have developed PEBenchmark<sup>TM</sup>, an accurate and reliable deal-level performance benchmark data available in the PERACS PE Due Diligence Analytics<sup>TM</sup> tool. For further information, please visit [www.peracs.com](http://www.peracs.com).

6 The methodology to calculate the PERACS Private Equity Selection Efficiency Measure<sup>TM</sup> (PESEM) has been presented in detail in the article "Picking winners" (Private Equity International, May 2007) which is available for download at [www.peracs.com](http://www.peracs.com). PESEM<sup>TM</sup> assesses the ability of different fund selection rules relative to (a) a random fund selection scheme and (b) a "crystal ball" fund selection device through which an investor would have perfectly foreseen the future performance of each focal fund at its vintage and invested accordingly. PESEM<sup>TM</sup> takes values close to 100 percent if the efficiency of the assessed method approaches the performance of the "crystal ball" and tends towards 0 for methods that only offer average performance. Should a selection method point to below-average funds, PESEM<sup>TM</sup> turns negative. The PESEM<sup>TM</sup> can be interpreted as follows: a PESEM<sup>TM</sup> of 50 percent enables investors (on average) to reach a level of performance improvement over the average portfolio equivalent to half the improvement that a true crystal-ball device would have generated.