Policy Benchmark Selection

Summary Report

February 2018

About this Paper

The following is an abridged version of our ***Policy Benchmark Selection*** white paper, which was originally published in August 2017. This paper is drawn primarily from the executive summary of the original paper's two volumes: 1) Setting Policy Benchmarks and 2) Selecting a Risk Premium, with selected private investment performance analyses that have been updated for this version with data through September 30, 2017 (the latest period now available).

A universal requirement for sophisticated investors is to measure the success of their investment strategies. However, the unique nature of private investments can complicate an LP's selection of an appropriate high-level performance goal, or Policy Benchmark, for the asset class. This summary report provides a broad review of considerations to support each LP's selection of a Policy Benchmark for its private investment portfolio.

The original paper, including references to externally-sourced materials, is located in the ILPA Document & Research Library (https://member.ilpa.org/document-library/ilpa-white-paper-series-policy-benchmark-selection/).

About the Author

Eric Johnson

With over 25 years of experience as an investor, advisor, and analyst, Eric Johnson has extensive knowledge of the institutional market, including expertise in strategic asset allocation, emerging markets, and private equity performance and benchmarking issues. Prior to forming TVPI Advisors (www.tvpiadvisors.com), Eric was a Managing Director at Cambridge Associates (CA), where he worked closely with board members and investment committees of endowments, foundations, sovereign wealth funds, healthcare organizations, and other institutional investors. He has advised Limited Partners on issues ranging from spending policy and asset allocation strategy to manager structure and selection, performance monitoring and benchmarking, investment policy, mission-related investing, and portfolio implementation. Eric has led due diligence of private investment partnerships globally including venture capital, buyout, growth equity, impact investment funds, and funds of funds. He was instrumental in the development and expansion of CA's emerging markets private equity and venture capital benchmarks. Eric also was the primary creator of the firm's proprietary Modified Public Market Equivalent (mPME) methodology for comparing private equity returns to public market returns, and was a strong advocate for including other PME approaches such as K&S PME and Direct Alpha in the firm's benchmarking toolkit.

Eric began his investment career with Small Enterprise Assistance Funds, managing a private equity fund backed by the European Bank for Reconstruction and Development (EBRD). Earlier, he served on the National Security Council staff in the White House Situation Room, and previously was an analyst for the U.S. Department of Defense. Eric has a Master of Arts in Russian and East European Studies and an MBA, both from Stanford University.

Approaches to Setting Policy Benchmarks

A Policy Benchmark should help an LP understand whether its program of Private Equity and Venture Capital investments ("PE/VC") is fulfilling its designated role within the LP's broader investment program. For most LPs, this role is to achieve higher potential long-term returns than may be available in the other asset classes in their portfolio. The two most common benchmarking approaches--public-market indices and private investment peer-group indices--can help an LP address two key questions:

1. Have we been adequately rewarded for allocating capital to PE/VC in comparison to other potential uses for our capital?
2. How well have we done in implementing our PE/VC allocation?

Policy Benchmarks based on public-market indices have the advantage of measuring the net effects of the full range of an LP's active management decisions versus a simpler, investable portfolio that consists solely of public securities. Importantly, this includes measuring the combined effects of the LP's decision to invest in PE/VC itself and the LP's overall implementation of the PE/VC portfolio. However, because an LP's performance versus a public-market index consists of both these elements, it is difficult for a public-market index alone to provide sufficient answers to address the second effect of how well the PE/VC portfolio has been implemented.

Policy Benchmarks based on peer-group indices of private investments, on the other hand, have the advantage of a much more direct comparison of the results of an LP's implementation decisions (e.g., strategy, geography, manager, and timing choices) with the performance of the most representative indices of actual private investments that the LP can identify. This can help answer the second question above, but does not provide a clear answer to the first one.

Some LPs already calculate two different overall portfolio Policy Benchmarks, one using private indices and the other using only public indices. This is a reasonable practice, even if only one of the calculations is designated as the "primary" Policy Benchmark that is reported on a quarterly basis using time-weighted returns. Other LPs may simply choose one approach for their ongoing quarterly Policy Benchmarks, and then conduct more detailed periodic reviews of their PE/VC programs that use both approaches and other analyses. These can include since-inception dollar-weighted returns (e.g., Internal Rates of Return) and comparisons to public-market indices using Public Market Equivalent ("PME") calculations (which weight the public market returns according to the cash flow pattern of the PE/VC investments) that provide a more comprehensive view of the answer to the second question.

Whether using public markets or private investment peer-groups, LPs should choose indices that reflect the geographies, strategies, and potentially even the company sizes that are relevant to the private investment strategies in their programs. The specific mix of indices should be changed over time, as needed, to reflect the evolution of the LP's private investment program (for example, by adding new geographies in the case of a North-America-focused program that decides to make ongoing commitments in Europe and Asia). LPs should consider, however, whether any large changes to their benchmarks may create unintended incentives for the institution either to speed up or slow down allocations to particular strategies or geographies. Weightings can be adjusted

based on the expected/targeted amount of annual commitments to each strategy/geography. Very large investors can also consider customized private investment peer-group indices that exclude smaller funds, which are not investable for them because of their required commitment sizes. Lastly, LPs may wish to add a time lag (e.g., three months) when using a public benchmark, given that reported private market valuations can take longer to adjust than the stock markets.

Approaches to Selecting a Risk Premium

LPs using public-market indices should choose a premium above the returns of public stocks that reflects the additional compensation that their institution both requires and expects to be able to achieve when taking on the illiquidity and other risks of PE/VC. This level can vary among institutions, but should be based on:

1. The LP's required premium for illiquidity and the other risks of PE/VC
2. Reasonable expectations of forward-looking premiums that reflect an understanding of the:
    a. Industry's historical returns
    b. Current/expected market environment
    c. LP's own capabilities

In deciding on the return premium to include in a public-market approach, LPs need to ensure that the expected return premium for their actual PE/VC allocation is greater than or equal to the return premium that is required for their PE/VC assets to fulfill their role in the LP's portfolio from an asset allocation perspective. If the expected return is greater than the required return, the Policy Benchmark premium can be set at the level of the premium requirement. If it is not, the LP should either reconsider its portfolio and asset allocation return requirements, or assess whether it needs to change its implementation approach to improve the expected return premium of its PE/VC allocation.

Different LPs can be expected to have different required premiums for illiquidity and other private investment risks. These required premiums can vary based on LP-specific factors, including the overall level of illiquidity in the LP's portfolio and the LP's level of expected future spending requirements. LPs with small allocations to illiquid assets and low near- and medium-term spending requirements, for example, may have lower required premiums than LPs with large allocations to illiquid investments and high near-term spending requirements.

The most common premium according to survey data in the original report is in the range of 300 to 399 basis points above public stocks, with many other LPs setting their premiums at 400 or 500 basis points.

As they seek to determine an expected forward-looking premium for inclusion in their Policy Benchmarks, LPs should review the academic and industry literature on the performance history of PE/VC. Whereas much of this work focuses separately on either venture capital or buyout funds, such studies may not be sufficient for LPs that are typically investing their PE/VC allocations across a range of strategies, and who need a clearer picture of the overall premium they may expect. The new analyses and considerations presented in Volume II of the original report include a broader approach that provides new insights into the aggregated results for a

wide range of US-focused PE/VC funds (including distressed and other credit strategies), as well US venture capital and private equity, individually.

These aggregated results, for more than $2 trillion in US-focused PE/VC funds over the last 20 years, have very often failed to meet 300 to 500 basis points of outperformance (as measured using Direct Alpha, a leading Public Market Equivalent, or PME, methodology). This is especially true when US PE/VC is evaluated versus small-cap stocks, which likely provide a better comparison given many of the higher risks of PE/VC than do the mega-cap and large-cap stocks that dominate the S&P 500 or Russell 3000 Indices.

Although US PE/VC funds of the 1995 to 2016 vintages beat the S&P 500 Index by 411 basis points, that same group of funds fell far short of a 300- to 500-basis-point objective versus small-cap stocks, beating the S&P 600 Small Cap Index by just 117 basis points (all data through September 30, 2017). This latter result came despite including the exceedingly strong results of the 1995 to 1997 US Venture Capital vintages.

Without those abnormal bubble-driven vintage years, the $1.7 trillion of US PE/VC commitments in the 1998 to 2014 vintages underperformed the S&P 600 Small Cap Index by 18 basis points (and thereby failed to meet any 300- to 500-basis-point objectives by very wide margins). This group of funds exceeded a 300 basis-point objective versus the S&P 500 Index by only a single basis point.

Unfortunately, one of the industry's most popular performance measures--a methodology for aggregating the returns of many different PE/VC funds between two specific points in time, called the "horizon return"--is highly flawed, and cannot be used reliably for determining an appropriate premium. LPs should beware of reports citing 20- or 25-year "returns" in excess of 20, 40, or even 60 percent for various US Venture Capital strategies, since those figures are based on unrealistic assumptions that are inherent in the horizon return's IRR calculation (including those for the returns on reinvested capital). These assumptions can lead to the absurd outcome that even extremely large losses in the future will have little or no effect on the "long-term" horizon return since a given inception date. Horizon returns can also be highly unreliable over shorter time periods, especially when used for comparisons to public stocks on an IRR or PME basis, since they depend on the valuation, size, and maturity of existing illiquid assets at the start of the measurement period in ways that are almost never transparent to the end user.

LPs can instead use analyses based on PME methodologies such as the Direct Alpha calculation mentioned above, Cambridge Associates Modified PME (mPME), and/or Kaplan Schoar (K&S) PME to inform their decisions on an expected returns premium. These analyses should be combined with forward-looking assessments of the market environment and a candid understanding of the institution's strengths and limitations as an LP, which affect its capabilities for manager selection and/or access.

LPs commonly use a broad market index such as the Russell 3000 Index or even the S&P 500 Index as the base index for their Policy Benchmarks. LPs should consider, though, if part of what they currently consider as a "premium" or "spread" versus such a broad market index could essentially be replicated by more targeted public-market allocations. For example, an index of

small-cap stocks (or even active management in small-cap stocks) might better represent the opportunity costs for many LPs allocating to PE/VC, and could therefore be considered as the base index for the Policy Benchmark, above which a premium would be added. Whichever index is selected should be calculated on a "total return" basis, including reinvestment of dividends (rather than on a price-only basis).

On the other hand, for LPs wishing to continue using a broad market index such as the Russell 3000 Index (or even the S&P 500 Index) for consistency with their public equity benchmark, the historical outperformance of small-cap stocks over various extended time periods shown in this paper (as well as leverage and sector effects highlighted in recent research by L'her, et. al., 2016) may suggest the value of setting a premium well above the typical 300 basis points when using the Russell 3000 or S&P 500 as the base index.

LPs considering the use of a small-cap index should also be careful about studies based on premiums to the Russell 2000 Index, a common Policy Benchmark for small-cap stocks. Much of what appears to be "outperformance" by PE/VC investments when using the Russell 2000 Index for benchmarking or in academic studies disappears when the S&P 600 Small Cap Index or another non-Russell small-cap index is used instead. For example, instead of the 18 basis points of underperformance versus the S&P 600 Small Cap Index (mentioned earlier in this report) for the US PE/VC vintages of 1998 to 2014, there is outperformance of 141 basis points versus the Russell 2000 Index, but only 51 basis points versus the Dow Jones Small Cap index and 19 basis points versus the MSCI US Small Cap 1750 Index. LPs may wish to review additional public-market analyses if they are currently using the Russell 2000 (and perhaps by extension also the Russell 3000) Indices for their PE/VC Policy Benchmarks.

The analyses in the paper confirm and expand upon past studies showing that PE/VC outperformance has been quite concentrated, with the top 5%, 10%, and 25% of funds accounting for a disproportionate share of the positive results. LPs using "pooled" average historical results for setting their Policy Benchmark premiums should carefully consider their own institution's experience and capabilities in determining whether they are likely to be able to identify and access their proportionate share of the future top funds. It goes without saying that it is impossible to "buy the index" of PE/VC funds in the same way that an LP can be assured of receiving an index return for its commitments to public stocks (minus fees). It is also well known that an LP must devote significant resources just to participate in PE/VC, which wind up as costs that reduce its allocation's overall net returns.

What is less understood is that an LP may, in fact, require above-average manager selection skills and access simply to gain its full proportionate share of those winners whose performance drives the industry's pooled returns. Devoting resources to hiring a talented internal team and/or an experienced external advisor is not necessarily sufficient to obtain these pooled returns, since the future top funds are also being sought by other talented, experienced LPs that are fervently attempting to get more than their proportionate share of the winners.

Without an index-proportional weighting to the top performers, an LP with only "average" skills and access may experience results well below the pooled averages, which raises questions about whether those commonly-used pooled figures provide a good basis for setting an LP's premium.

As a result, LPs may wish to consider whether a broad set of funds in the middle of the distribution might represent a more "neutral" baseline that could in theory be accessed by a typical institutional LP (for example, missing out on the top of the distribution but also having the skills and ability to avoid many of the worst funds), and build their assumptions for expected outperformance from there.

The difference in performance between historical pooled results for the whole industry and those for the middle of the distribution can be quite striking. One simple proxy is to use funds within the second and third quartiles (25th to 75th percentile) of each vintage year to calculate historical pooled returns. Such returns can be thought of as a rough substitute for using median returns, but in a way that incorporates a broader group of mid-performing funds in a calculation that also incorporates the effects of different capitalization sizes for a group of different vintage years.

Using such an approach, the US PE/VC funds in the middle two quartiles for the 1998 to 2014 vintage years had an overall IRR that was 200 basis point worse than for the broad pool of all four quartiles (8.4% versus 10.4%). Outperformance in terms of Direct Alpha versus public indices was worse by more than 160 basis points (versus small cap indices) and more than 200 basis points (versus the S&P 500 and Russell 3000 Indices).

Perhaps even more discouraging for LPs attempting to beat the returns of small-cap stocks are the Direct Alpha results for the second quartile of such funds. A hypothetical LP that invested its entire allocation only in second-quartile funds (and thereby entirely avoided a single "loser" fund while having a 100% success rate in choosing "winners") would still have only outperformed the S&P 600 Small Cap Index or the Dow Jones US Small Cap Index by 66 or 126 basis points, respectively. Based on the survey data in Volume I of the original paper, these returns for even such an implausibly high manager selection hit rate would have been well below most LPs' required premium levels. And, as with all the historical returns cited in this paper that are based on fund-level net returns, the LP would still need to account for its own internal and external costs for managing the program before it could determine the final true net outperformance for the allocation.

Another way to look at the impact of concentration on the pooled returns and an LP's potential premiums derived from them is to remove the top 5% or 10% of funds over the full time period. Missing out on just the top 5% of US VC funds and US Buyout/Growth Equity funds caused outperformance to drop by 238 basis points and 95 basis points, respectively, over the periods reviewed in the original paper (2001 to 2014 vintages for US VC and 1995 to 2008 vintages for US Buyouts/Growth Equity). Missing out on the top 10% of funds caused an overall drop in performance of 332 basis points for VC and 138 basis points for Buyouts/Growth Equity. These various declines represent a large percentage of a 300-basis point premium that an LP might otherwise consider to be achievable. Looked at another way, without the top decile, the remaining 90% of the funds during these periods had Direct Alpha versus the S&P 600 Small Cap Index of negative 414 basis points for US VC and zero basis points for US Buyouts/Growth Equity.

LPs should also assess whether they are likely to continue investing in PE/VC during the time periods where it becomes unpopular and fundraising dries up, as well as whether they are likely to slow down commitments when the market is overheated or moving into "bubble" territory. The

only US Private Equity vintage years after 1995 that have substantially beaten a 300-basis-points premium above the S&P 600 Small Cap Index are 2000 to 2004, most of which had low levels of capital commitments following the bursting of the internet bubble.

The review of existing LP practices and historical industry returns in the original paper suggests that LPs should generally set lower Policy Benchmark premiums overall, rather than higher ones, based on: 1) the modest premiums that the industry has generated overall on a total pooled returns basis, especially versus the more relevant small-cap stock indices; and 2) the even lower or, in some cases, negative premiums that have been generated by the "average" funds (e.g., the middle two quartiles) or by the "vast majority" of the industry (e.g., the 90% to 95% of the industry remaining after excluding the top 5% or 10% of funds). The differentials in relative performance of PE/VC versus broad-market indices and small-cap indices would suggest that for any given level of overall expectations of private investment returns, investors using a broad-market index may wish to use a higher premium relative to the premium they might use versus a small-cap index that incorporates at least some of the additional risks associated with PE/VC investments.

On the other hand, LPs must compare any revised expected return premiums for their actual implementation approach with the premium requirement that they determined was necessary based on the role of PE/VC in their portfolios, as well as their tolerances for illiquidity and the other risks associated with PE/VC. As previously noted, if the expected return premium continues to exceed the required return premium, the Policy Benchmark premium can be set at the premium requirement. If not, the LP should either revise the return requirements for its portfolio and its asset allocation assumptions, or should consider whether it needs to change its implementation approach to increase the expected return premium for its actual PE/VC investments.

Note: Sources for performance analyses include Cambridge Associates, Frank Russell Company, Thomson Reuters Datastream, MSCI Inc., Thomson Reuters Datastream, Standard & Poor's, Dow Jones Indexes, TVPI Advisors' analysis. MSCI data provided "as is" without any express or implied warranties. Returns in this summary are in US Dollars, net to Limited Partners, through September 30, 2017. "US PE/VC" returns include Buyouts, Growth Equity, Private Equity Energy, Venture Capital, Control-Oriented Distressed, Credit Opportunities, and Subordinated Capital funds. Further sourcing details in the main report.

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