

# Russell Research

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Title: **Benchmarking Private Equity  
Getting Through the Maze**

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Synopsis: Benchmarking private equity is a difficult proposition given its illiquidity, infrequent pricing and 'J-Curve' effect. These characteristics pose challenges for measurement of returns and benchmark selection.

This paper discusses the benefits and limitations of some popular statistics used to measure private equity performance. The paper then assesses the various approaches used to benchmark private equity. Ultimately, the appropriate choice depends on the purpose of benchmarking, time period under consideration and implementation factors.

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# Benchmarking Private Equity: Getting Through the Maze

By: Vikrant Gupta, Analyst<sup>1</sup>

## EXECUTIVE SUMMARY

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Benchmarking private equity is a difficult proposition given its unique nature - illiquidity, infrequent pricing, J-Curve effect etc. These unique characteristics pose two challenges - firstly, measurement of returns and secondly, benchmark selection.

The paper briefly discusses the benefits and limitations of some popular return statistics as measures of private equity performance and highlights that a combination of IRR and Investment Multiple will provide investors with a sound measurement. Even though there is no silver bullet to benchmarking private equity, the paper then outlines the key factors to be considered when deciding between the common approaches to private equity benchmarking – absolute return style benchmarking and opportunity cost benchmarking (relative to peer groups or public equities).

The paper asserts that the choice between these approaches depends on the ultimate purpose of benchmarking, the time period under consideration and the feasibility of the implementation routes (based on the quality of data available). Our analysis concludes that over the long term, Public Market Equivalent (PME)/PME+ approach is most appropriate for performance reporting purposes, as well as strategic asset allocation level comparison.

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## SECTION I: THE INHERENT CHALLENGES

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### 1.1 INTRODUCTION

The goal of financial benchmarking is to measure comparative performance critical for investment allocation decisions as well as for manager compensation. The process involves employing benchmarks as tools against which to measure the effectiveness of an investment strategy either at an asset class (and at a broader portfolio level) or at a fund manager level.

Benchmarking for traditional publicly quoted investments is a fairly straightforward process. The return statistics of securities and asset managers are compared against those of an appropriate index. There exists a widely accepted toolbox of return and risk measures across public market assets and there are numerous market indices (that are continuously updated) available for comparisons.

However, in the case of non-traditional asset classes like private equity, there is no single ideal performance standard and there are hardly any investable indexes. In other words, relative to traditional asset classes such as equities and fixed income, performance benchmarking in private equity is a more difficult proposition. The diverse range of benchmark options available is testament to this. In this paper, we review some of the common benchmarking practices employed in the industry. To help investors get through the maze of issues in benchmarking private equity, we also outline some of the fundamental considerations in selecting a potential benchmark. Benchmarking for private equity performance analysis must take the following critical elements into account:

- **Whose performance is being assessed?** The choice of benchmark is based on whether the purpose of benchmarking is to make systematic judgments about private equity manager performance or whether it is concerned with the performance of private equity as an investment strategy (strategic asset allocation level).
- **The time horizon over which performance is measured.** It is also important to define in advance whether evaluation is over the short term or long term.
- **Pros and cons of the implementation methodologies** and the benchmark indices currently available, particularly in terms of the alternative benchmarks' attributes (length, breadth and depth) and quality of data involved.

The business of evaluating private equity performance has many complications. This research note highlights two issues central to the analysis of private equity benchmarking; measurement of returns and benchmark selection. First, the paper briefly discusses the benefits and limitations of some popular return statistics as measures of private equity performance. The discussion is followed by a review of the two common approaches to private equity benchmarking – absolute return style benchmarking and opportunity cost benchmarking (relative to peer groups or public equities) - and evaluates some of the implementation methodologies for each.

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## 1.2 WHY IS PRIVATE EQUITY A DIFFERENT BEAST?

The problem with private equity benchmarking lies in the unique nature of this privately traded asset class and includes the following:

- The level of commitment required - both in terms of the amount invested and the length of investment period involved - restricts the tradability of private investments like private equity;
- These illiquid assets normally exhibit little or no trading activity in the secondary markets. The lack of a true market pricing mechanism makes the analysis of private market assets highly subjective;
- Private equity is subject to irregular and unpredictable cash flow streams that do not lend themselves to standard return measurement methods easily;
- The infrequency of pricing events in the private equity sphere further complicates the matter. The absence of continuous transaction based pricing, in addition to stale pricing data, makes it challenging to construct a replicable index;
- In contrast to public equity, private equity investments often exhibit a 'J-curve' effect, i.e. negative returns and accumulated negative net cash flows in the initial years, and investment gains and positive cash flows later in the investment fund's life as the portfolio companies mature. The J-curve phenomenon implies that the time required in realising longer-term investment return can be significant. As such, any comparisons made during the investment period and shortly thereafter are usually nonsensical. It is therefore important to first consider the time horizon over which performance is measured; and
- Private Equity, in particular, is an opaque industry largely exempt from public disclosure requirements. As a result, one of the main obstacles has been the lack of access to information on private market returns.

These fundamental differences between private equity (and other unlisted assets) and publicly traded asset classes, render an analysis of the private equity industry a challenging endeavour.

### 1.3 BENCHMARK ATTRIBUTES

“Can private equity truly be benchmarked?”; “What is an appropriate private equity benchmark? Does one exist?” Academics and practitioners have often raised these questions and the most commonly quoted answer is invariably based on an assessment of the private equity benchmarks against a widely-documented set of criteria composing the desired qualities of an ideal benchmark<sup>2</sup>. Table 1 compares each of those benchmark qualities with the challenges posed by the inherent nature of private equity as an asset class.

Table 1: Private equity and the attributes of an ideal benchmark

Benchmark requisites	Challenges with Private Equity
<b>Unambiguous:</b> well defined with clearly identifiable component investments	Opportunities comprising the “market” are subjective and hence the private equity universe often cannot be defined.
<b>Appropriate:</b> reflective of the risk-reward profile of the portfolio manager’s investment universe	With limited access to individual funds for many investors, private equity benchmarks may not represent the true opportunity set available to an investor.
<b>Investable:</b> capable of passive replication	Investors are not able to invest in the whole private equity market. Given limited access to individual funds for many investors, it is not possible to adopt a totally passive approach to private equity investing.
<b>Measurable:</b> returns readily calculable over the time span of the investment period and on a reasonably frequent basis	Private equity is subject to infrequent and subjective valuations, so interim performance figures during the investment period are of limited value.
<b>Specified in advance:</b> mutually agreed upon and constructed prior to the start of an evaluation period.	Private equity market is constantly evolving (e.g., uncertain fund-raising), so it is difficult to pre-define the exact composition of the benchmark.
<b>Reflective of current investment opinion:</b> investment professionals’ views (on the assets within the benchmark) incorporated in portfolio construction.	Given the not-so-transparent nature of private equity, the investor will not have full knowledge of the investments that comprise the universe.

Given the above discussion and the peculiarities of the private equity industry, it is obvious why there is not one private equity benchmark that meets all the above requisites. Consequently, investors have had to adopt a range of less-than-perfect benchmarks. In order to help investors form a view on the comparative attractiveness of the various options available, we provide a detailed discussion on the strengths and weaknesses of some of the more commonly used private equity benchmarking techniques.

However, an important first step to evaluate the value-added by a private equity fund manager and private equity allocation within a broader portfolio is to accurately measure the performance of the underlying private equity investments. We therefore provide a brief discussion on the two most popular standards used for computing and measuring performance by various entities over the past, namely, IRR and Investment Multiples.

<sup>2</sup> Originally outlined by Jeffrey V. Bailey (1992) in his paper titled “Are Manager Universes Acceptable Performance Benchmarks?”

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## SECTION II: PERFORMANCE METRICS

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### 2.1 USING INVESTMENT MULTIPLES

One of the most popular, and certainly the simplest way to assess private equity performance is to use an investment multiple of a single fund or portfolio of funds. The Investment Multiple (also known as the Return Multiple) is the ratio of distributions received (proceeds received from a fund plus the valuation of the remaining investments) relative to the capital paid in (the capital contributed to the fund). So, a multiple greater than one indicates the private equity fund has created value.

The concept is typically applied in the form of two different metrics: Distributed value to paid-in capital (DPI) and Total value to paid-in capital (TVPI). DPI is a measure of the return that has actually been distributed to investors, as a multiple of the contributed capital. TVPI provides a multiple value on the entire portfolio—both distributed capital and the net asset value of the portfolio and therefore reflects the potential returns resulting from the unrealised valuations of portfolio companies as they approach exit. Given this difference, many Limited Partners rely on TVPI earlier in the life of a fund and DPI towards the end. While one shows the growth of the value added, the other indicates the speed at which the capital is deployed.

However, both these metrics neglect the time dimension and can thus result in a biased assessment of fund performance. The information that a private equity fund doubled investors' money (multiple of 2) is of little value unless we know how long their money had been invested. Money also doubles (in face value) in a standard bank account if one only waits long enough. Therefore, the disadvantage with these measures is that they do not incorporate the time value of money, which is critical for measuring the real performance of a private equity fund. Consequently, and despite the intuitive appeal of the Investment Multiple as a performance measure, it is too simplistic on a standalone basis to accurately assess the performance of a private equity fund investment.

### 2.2 EMPLOYING THE INTERNAL RATE OF RETURN

A method that incorporates the time value of money is the Internal Rate of Return (IRR) method. Since the early days of private equity, the IRR has served as the industry's prime metric. The IRR is the annualised implied discount rate, i.e. the effective compounded rate, that equates net present value of outflows (capital paid in for items such as fees and investments) with its net present value (distributions, as well as the unrealised net asset value or NAV of the unliquidated holdings).

In private equity (mostly closed end funds), the sequence of decisions to raise money, take money in the form of capital calls, and distribute proceeds are totally at the discretion of the private equity fund manager. Therefore, timing is an integral part of the investment decision process and the manager should be rewarded or penalised for those timing decisions. Thus, there is a need for value weighted measurement such as the IRR that takes into consideration the timing of cash contributions and distributions. Moreover, to its advantage, long-term IRR is a cash-on-cash measure which is independent of the valuation bias resulting from subjective NAV estimates. The CFA Institute (formerly the Association of Investment Management and Research, or AIMR), the governing body for Chartered Financial Analysts in the United States, has also deemed IRR as the most appropriate measure of returns for private equity investments. However, this widely utilised performance measure is not all flaw-free. Some of the hazards of using IRR are outlined in Table 2.

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Table 2: IRR and its hazards<sup>3</sup>

Hazard	Why is it an issue?
<b>Reinvestment hypothesis</b>	The notion that intermediate cash flows generated by a private equity investment can be reinvested in another equally profitable opportunity (offering a return equal to the IRR) is an unrealistic assumption implicit in IRR calculations.
<b>Aggregation issues</b>	The average or a median IRR reported by fund managers across their different private equity investments could be misleading, as it is not the same as IRR of the aggregate cash flows.
<b>Valuation risk</b>	Interim performance results based on short-term IRR, which depends upon the value of the residual assets, may be meaningless
<b>Endogenous cash flows</b>	IRR can be gamed as it is biased in favour of early cash flows and thus provides severely distorted incentives to managers to strategically time their cash flows.

In summary, despite these shortfalls, IRR and Investment Multiples have become the standard for comparison in the private equity industry. The real question for an investor is “Which of these metrics is the best assessment of fund performance?” In Russell’s view, if used in isolation, both these metrics can result in a biased assessment of fund performance due to the way each is calculated.

*Considering that the interpretation and evaluation of results remains critical, Russell believes that a combination of both these performance metrics will provide investors with a sound measurement for assessing the success of an investment manager.*

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<sup>3</sup> Phalippou, L., (2008) “The Hazards of Using IRR to Measure Performance: The Case of Private Equity”, Working Paper.

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## SECTION III: PRIVATE EQUITY BENCHMARKING APPROACHES

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In this section we discuss two common approaches to private equity benchmarking: absolute return style benchmarking and opportunity cost benchmarking (relative to peer groups or public equities), and evaluate some of the implementation methodologies for each.

### 3.1 ABSOLUTE RETURN STYLE

One of the ways for investors to assess the likely risk and returns from private equity managers is to follow an 'absolute return style benchmarking' approach, i.e. to benchmark against one of the following measures:

- A fixed absolute rate of return based on the investor's cost of capital, which establishes the minimum acceptable return;
- A fixed absolute rate of return reflecting a reasonable long-term expectation for the level of returns expected from private equity markets; or
- A fixed margin above an economic indicator that reflects the performance characteristics of the private equity investments under evaluation, e.g., inflation + margin.

An absolute benchmark approach is conceptually simple, in that it sets a single absolute return target that represents the notional level of performance to be achieved, and then compares it against the actual performance as measured by IRR or Investment Multiple. Several arguments can be made for using absolute return benchmarks: they are unambiguous, measurable, specified in advance and appropriate when investors make direct investments and have a specific return target employed as a hurdle rate.

However, these absolute return benchmarks have a number of issues. To begin with, they are not investable. They fail to take into account both historic and prevailing market returns. Moreover, private equity returns in the early years are often negative (J-curve phenomenon), and as such a fixed rate (non-negative) absolute return benchmark is not appropriate for measuring performance over the short-term. In fact, it can be argued that absolute benchmarks are more appropriate as long-term measures. For example, funds with long investment horizons may need returns that significantly outpace inflation. For them, a CPI + margin benchmark might set an appropriate minimum return goal in the long run as they are focused on long-term, real returns. However, with a more uncertain inflation environment looming – with both deflation and double digit inflation touted as possible scenarios – this could reduce the effectiveness of absolute benchmark approaches.

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There are also a number of the issues with implementing these absolute return benchmarks, namely:

- Selecting the type of benchmark – CPI + margin or absolute return target;
- Determining the target return level for absolute return benchmarks. For example, General Partners (GPs)<sup>4</sup> within the investor's organisation receive performance-based compensation if their funds achieve returns above 8% per annum. However, this hurdle rate would seem low in view of some research findings that suggest a cost of capital as high as 18% in excess of the risk-free rate<sup>5</sup>; and
- Quantifying the margins in the theoretical benchmarks with a margin component: as it may essentially be a “finger-in-the-air” exercise. E.g. Should it be CPI + 3% or 8%?

The phenomenon of the J-curve limits the use of absolute return benchmarks as a short term measure while the ambiguity with defining the appropriate margin limits its ability to be used as a stand-alone measure. *That said, we think the absolute approach is worthy of consideration as a benchmarking tool for assessing manager performance in the long term, especially when an appropriate peer-based benchmark is unavailable.*

### 3.2 OPPORTUNITY COST BENCHMARKING

Although absolute benchmarks can be of value in assessing private equity fund manager performance, as well as at a strategic asset allocation level, they only evaluate one dimension of the investment decision. A private equity benchmark should also reflect what the investor actually decided to invest in, as well as comparing this to what the investor did not decide to invest in. Therefore, an alternative and a more common approach, is to measure returns against the opportunity cost of the decision that reflects the next best alternative use of capital forgone. To help investors assess their private equity investment in terms of opportunity cost, either a familiar market index in the public equity market or a peer group index in the private market can be used as benchmark.

#### 3.2.1 PEER RELATIVE BENCHMARKING

Since a peer group of a particular fund is the most identifiable approximation to the available opportunity set, relative private equity benchmarking usually involves comparing the returns of a private equity investment or portfolio (measured by IRR or Investment Multiple) to the returns of a comparable segment of the private equity industry, over the same time period.

Investors are increasingly relying on relative peer group comparisons as their primary method of benchmarking. Peer group indices are measurable and updated on a reasonably frequent basis. Potential peer groups can be created across a host of different investment styles (e.g., buyouts versus venture capital versus distressed) as well as various geographies, thereby enabling more valid comparisons to common positive and negative return drivers. The most important point is that the relevant peer group is also subject to the J-curve, meaning comparisons can be made over all time frames (even in the short run when returns are negative). This not only allows investors to identify the enhancement in investment returns due to active manager skill, or ‘alpha’, but would also allow performance to be measured over shorter intervals (i.e. in similar parts of the J-curve).

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<sup>4</sup> General Partners (GPs) tend to make all of the decisions about the private equity fund and are also in charge of managing the fund's portfolio. The investors in the fund, which includes financial institutions and individuals, are known as Limited Partners (LPs).

<sup>5</sup> Franzoni, Francesco, Eric Nowak, and Ludovic Phalippou (2011) set out their reasoning in detail in their findings.

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One critical conceptual issue with evaluating private equity performance via peer comparison is that it is not easy to define a comparable universe. There is often limited access to certain funds within the industry, with various investors actually excluded from participation in many individual funds. Thus, it is fair to say that the true opportunity set available to an investor does not equate to the entire private equity industry. As such, peer comparisons across the industry may misrepresent the opportunity cost involved.

#### THE COMPLEXITIES OF USING PEER INDICES

While peer group indexes may be useful in giving a general indication of what might be happening in the industry, they have a number of issues. To start with, most of them cannot be passively replicated in one step and therefore fall short in terms of investability. Further issues include vintage year risk and limited manager data/reporting biases.

**Vintage year risk:** A crucial aspect of peer comparisons is vintage year comparison. Opportunities and economic environments vary across time, so funds from different vintage years are not directly comparable. As a result, current practice in private equity benchmarking relies upon comparisons to a universe of other private equity funds with the same starting point or vintage year. Even though vintage year risk is diversifiable to some extent by investing throughout years, these simple vintage year comparisons have two potential weaknesses.

First, private equity funds vary materially in their underlying business and financial profiles, and this can profoundly impact relative ranking even when comparing funds with the same vintage year. Second, the vintage year method classifies funds by year of initial cash investment or drawdown. This initial drawdown can be small relative to future drawdowns, which can stretch over several years. This, coupled with the timing of the first year's investment, can make a sizable difference to the measured return. For example, vintage 1987 buy-out funds investing before the October 1987 stock market crash do not really belong in the same vintage group as those investing after October 1987. However, on balance, there is no doubt that these vintage year comparisons allow us to come closer to comparing apples to apples, and hence the exercise remains the most popular way to deal with peer relative evaluation.

**Inadequacies of IRR as a performance metric:** The built-in biases of IRR may affect comparisons across different peer groups and may have greater implications for certain types of funds, particularly funds that focus on certain stages or sectors. In other words, when measured in terms of IRR, a fund may appear less attractive than another (fund performing equally well) simply because of the nature of investments it is comprised of. For instance, some funds may have investments concentrated in sectors that require large amounts of capital very early in a company's life cycle and involve longer investment periods, and thus may inherently generate lower IRRs. As compared to other funds, returns would be realised later in the life of this type of fund. Companies in life sciences may fit this profile, while quicker exits might come from internet companies. Likewise, later-stage investments would potentially generate returns after a shorter time period than early-stage funds, with a potentially higher IRR due to the timing of the returns, assuming equal performance. In such cases, conclusions based on IRR comparisons against a broader peer group may thus be misleading.

**Limited manager data and reporting biases:** In the case of private equity, various databases provide information on how a variety of funds performed to help the investor understand the relative success of the manager. However, the available manager data can have its own limitations. To begin with, it is not only hard to collect accurate financial data on private investments; it's also difficult to report consistently on performance. The database providers are more different than they are similar, not only in their business structure, but in how they gather, analyse and report benchmarks. Performance metrics vary widely from one benchmarking source to another. Specifically, different providers employ different methodologies for data collection, use different samples of funds for their calculations and report different performance results. Further, private equity is prone to subjective valuations in the absence of a market pricing mechanism; the manager is often the source of valuation in an industry where voluntary performance reporting dominates<sup>6</sup>.

Moreover, the universe of comparison can be extremely small, and what's available is plagued with the long-recognised problem of survivorship and selection biases. With underlying funds moving in and out of the index, this problem is quite significant in investments like private equity. The most often-cited example is the self-selected reporting universe of venture capital partnerships used by Thomson Reuters to compute its venture capital index. In Thomson Reuters' case, partnerships need not go out of business in order to bias the index; rather, firms with poor returns simply cease to report, leaving the more successful firms to populate the index. The primary disadvantage of peer comparisons therefore, is the inherent presence of biases in each of the provider's reporting methodologies. Different databases have different biases. The pros and cons of various peer universe providers are covered in the Table 3.

**Table 3: Pros and cons of peer universes**

Universe	Advantages	Disadvantages
Thomson Reuters	<ul style="list-style-type: none"> <li>• Wide coverage</li> <li>• Strong in Buyouts</li> <li>• Long History</li> </ul>	<ul style="list-style-type: none"> <li>• Self-reporting Bias</li> <li>• Survivorship Bias</li> </ul>
Cambridge Associates	<ul style="list-style-type: none"> <li>• Wide coverage</li> <li>• Strong in Venture</li> <li>• Long History</li> <li>• Favours Fund Managers</li> <li>• Venture/Buyout Split</li> </ul>	<ul style="list-style-type: none"> <li>• Self-reporting Bias</li> <li>• Survivorship Bias</li> <li>• Restrictive to Investors</li> </ul>
Preqin	<ul style="list-style-type: none"> <li>• More granularity</li> <li>• No survivorship bias</li> <li>• Last 10 years – very complete</li> </ul>	<ul style="list-style-type: none"> <li>• No information from funds with private money only</li> </ul>
Pitchbook	<ul style="list-style-type: none"> <li>• No survivorship bias</li> <li>• Last 10 years – very complete</li> </ul>	<ul style="list-style-type: none"> <li>• No information from funds with private money only</li> </ul>
Burgiss	<ul style="list-style-type: none"> <li>• Accurate cash flow data</li> <li>• Sourced exclusively from LPs</li> <li>• No survivorship bias</li> </ul>	<ul style="list-style-type: none"> <li>• Limited sample of LPs</li> </ul>

<sup>6</sup> Most managers now follow FAS 157, by adhering to guidelines provided by the Private Equity Industry Guidelines Group or PEIGG. The revised standard for private equity reporting (in effect since 2006) encourages increased transparency with regard to a manager's fair value measurement of investments. However, even though it reduces the valuation risk involved, it does not completely eliminate it.

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To summarise, the peer group of a particular fund is the closest representation of the universe of available managers for selection. Thus, peer group indices can be considered appropriate for measuring the success of a particular private equity investment both in the short and the long run. Unfortunately, none of the available peer group indices (even for the U.S. and other developed markets, much less the emerging markets) can come close to meeting all of the characteristics of an ideal benchmark.

None can provide a complete and verifiable coverage of the entire opportunity set of private investments, nor is it possible for an investor to invest in a broad index of all the private investment funds in the benchmark. Investors considering whether to allocate to private investment strategies should be aware of, but not overwhelmed by, the limitations related to private investment performance databases. As more data becomes available, we anticipate that this form of benchmarking will become more widespread.

### 3.2.2 RELATIVE BENCHMARKING AGAINST PUBLIC EQUITIES

There is no doubt that in today's investment environment, private equity offers an intriguing alternative to public equity and other mainstream investment strategies. As investors have the option to either invest in public securities or in private equity, some investors elect to use a public benchmark, i.e. a broad stock market index such as S&P 500, MSCI World or Russell Global Indices. The issue for the investor here is to appraise the value of the option of going private - whether and to what extent private equity investments are able to create value beyond the value appreciation of the overall public equity market in general.

We would like to point out, at this stage, that it is important to specify whether the potential of return enhancement is to be evaluated at an individual private equity fund level (concerning a private equity fund manager's alpha) or at the overall asset class level (concerning strategic asset allocation). This is because the choice of the approach to benchmarking would depend on its ultimate use. For instance, when an investor is interested in evaluating the decision to invest in private equity versus the alternative use of capital (i.e. public equities), a peer group index comparison is obviously meaningless. It is therefore necessary to identify the exact purpose of private equity benchmarking, i.e. is it to gauge the success of a private equity manager (e.g., the GP of a single private investment fund or a single private equity portfolio) vis-à-vis public equities, or is it to measure the success of the overall private equity allocations relative to public equities?

Benchmarking private equity investment returns at the asset allocation level usually involves comparing the returns of a private equity investment or portfolio to the returns of a public market index using any of the following approaches:

- Direct comparison to listed equities
- Using Public Market Comparables
  - Public Market Equivalents (PME)
  - PME+
  - Profitability Index (PI)
- Public market comparables + premium

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## DIRECT COMPARISON TO LISTED EQUITIES

Investors normally expect a greater return from private equity than from more liquid and less risk investments in public markets. One of the simplest and most popular methods involves comparing the performance of private equity investments (usually measured by IRR), with the investor's expectations of long-term equity market performance, plus a premium to compensate for the costs and challenges associated with investing in private equity (notably illiquidity, fees and the long-term commitment required).

To elaborate further, the process involves the following three steps:

- Estimating a long term proxy of the returns expected from equity markets;
- Assigning a premium over and above what investors would expect from the quoted market index; and
- Comparing the performance of private equity investments with the expected public equity market returns + a premium, over the same time period.

However simple it may sound, the process of directly comparing the performance of private equity against public equity markets is marred with complications at every single step, as follows:

- There is limited consensus as to what level of long term returns to expect from public equity markets;
- It is difficult to define the sources of risk that contribute to the need for the premium, and determining the magnitude of this premium is no less problematic. Private equity is generally considered more risky than public markets, mainly because it is less liquid. The illiquidity premium has often been set at approximately 3% to 5% net of all fees, and seems to be a reasonable expectation of the appropriate outperformance that a successful private equity program or fund should deliver<sup>7</sup>. However, investors may expect the additional premium from private equity to reflect other risks it may carry depending upon the strategy in review, for example, concentration risk, leverage risk and maturity risk<sup>8</sup>. In the absence of a standard methodology to quantify the exposure to these risk factors, the magnitude of these risk premia is determined largely from experience and can be subjective and somewhat arbitrary; and
- A direct comparison of performance results of private equity with that of the public market may not be appropriate considering the following aspects of the process.

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<sup>7</sup> Ljungqvist and Richardson (2003) find that private equity investments outperformed the S&P 500 by more than 5%. While the liquidity risk premium was estimated to be about 3% annually by Franzoni, Francesco, Eric Nowak, and Ludovic Phalippou (2011).

<sup>8</sup> These risks cause private equity to trade at deeper value and the value realisation process delivers the extra return over and above the passive equity risk premium.

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## LIMITATIONS OF DIRECT COMPARISON WITH LISTED EQUITIES

**Apples and Oranges:** We must note that it is inappropriate to directly compare value-weighted private equity return measures (e.g. IRRs) with time weighted public market returns that are independent of the time pattern. The fact that a private market investment fund has achieved an internal rate of return in excess of the total return to the Russell Global Index over a particular period of time does not necessarily mean that the private market investment has outperformed the Russell Global Index. When the timing of cash flows is taken into account, the return to a private market investment and the return to a public market index over the same time period can diverge significantly, particularly over long time periods, volatile public markets or where there are numerous cash contributions and distributions involved.

**Ahead of the public markets:** A relative performance evaluation of private equity against the public market assumes a relationship between stock market movements and private equity investments as they are all equity-linked. However, studies have shown that market movements only weakly impact private equity valuations and that private equity funds, in fact, have pro-cyclical performance<sup>9</sup>. For example, private equity funds that started investing before a stock market boom and when interest rates were low, tend to outperform public equities. Thus, the correlation between private and public equity markets is not direct and there is a time lag<sup>10</sup>. In a sense, an investor is taking an option on where the public markets will be in (say) three years' time.

**Stale Pricing:** Unlike public market valuations that are frequently calculated, mostly on a daily basis, private equity returns are constructed from prices that are months or years old and usually reported on a quarterly basis. For venture capital, the values reported often reflect the valuation of the most recent financing round. This value could be a few weeks old or a few years old. Buyout deals are reported at values estimated by GPs based on stock market comparables (since the companies in a buyout portfolio are usually more mature companies relative to others in the stock market) and hence the valuations will often be stale because the comparables tend not to be current. There is no market to observe the prices of these non-tradeable assets, so the stale pricing phenomenon in private equity is much more acute than any staleness that exists in the public markets. Since the reported values are a mix of current and stale values, determining the relationship of returns on these assets to returns on a public market portfolio is not as straightforward.

**Pitfalls of IRR:** IRR as a performance metric suffers from several defects that may negatively impact the measurement of private equity investments required in the benchmarking process. However, when it comes to comparing private equity returns with the returns of other asset classes, the IRR's weaknesses have given rise to the development of various concepts that aim to address them. Most notable among them is the Public Market Equivalent (PME), which rests on an assumption that the opportunity cost of a private equity investment is equal to the rate of return of a public market benchmark.

*Thus, for the reasons outlined above, we believe a direct comparison with Listed Equities is not appropriate for assessing either the performance of GP or that of private equity as an asset class.*

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<sup>9</sup> Phalippou, Ludovic and Maurizio Zollo (2005)

<sup>10</sup> Woodward, Susan (2004)

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## USING PUBLIC MARKET COMPARABLES

### a) Public Market Equivalents (PMEs)

In order to circumvent the problems associated with the IRR-approach, we focus on the alternative Public Market Equivalent approach of assessing private equity performance relative to public benchmarks. The PME is the ratio of the terminal wealth of private equity investment compared to the terminal wealth of a public market equivalent, taking into account the fund's cash flows. The basic premise of this approach is to allow a like-for-like comparison by translating time-weighted returns to money-weighted returns. This is done by calculating the hypothetical cash returns obtained by buying and selling a public index to mirror the cash flows of the private equity investment. A capital call would trigger the buying of the index, while cash distributions would result in the selling of the index. Basically, the PME determines how many dollars one would need to invest in the chosen benchmark to generate a return equal to that of a one dollar investment in private equity on a present value basis. It can be directly compared to the IRR of the private equity fund with the corresponding cash flow pattern and, hence, conveniently provides for apples to apples comparison.

Given cash distributions occur sporadically over a fund's lifetime, PME implies a more realistic reinvestment scenario by assuming that the intermediate cash flows generated by a private equity fund are reinvested in a public benchmark. The greatest challenge with PME however, arises when the private equity portfolio significantly outperforms public equities and results in high cash distributions that trigger an index sell-off forcing the investor to sell all his shares and even run a short position to match the private equity distributions. This shortcoming, however, can be partly corrected at the cost of some assumptions using an improved PME+ approach. Alternatively, a Profitability Index approach, used by Ljungqvist and Richardson (2003) in assessing private equity performance is similar in spirit to PME and is free of that problem. Both these approaches are discussed below.

### b) PME+

The PME+ concept intends to overcome the shortcomings inherent in plain PME by avoiding the short exposure (i.e. holding a negative NAV) resulting from a sizeable distribution. The PME+ approach is to redeem (at least at the end of the period) a constant proportion of the distributions instead of the full amount (as is done under PME). It fixes the closing NAV of the benchmarking vehicle to be the same as the private equity fund, and scales back the PME vehicle's cash outflows accordingly. The optimal proportion is obtained by scaling down distributions until the final valuation of the public market index is equivalent to the private equity net asset value (NAV). By selling a fixed proportion of the corresponding private equity cash flows instead of an equal amount, PME+ ensures a positive end balance while preserving the overall cash flow pattern. However, it does not guarantee that the exposure stays positive over the entire investment period.

One of the most attractive features of both PME and PME+ is their conceptual simplicity. They can also be adjusted for factors, such as leverage, to reflect the additional risks associated with higher levels of debt versus a passive public market investment. As with any benchmark, the choice of indices becomes the most important factor in creating a fair comparison under this approach once the cash flow adjustment is made. It is therefore important to ensure that the benchmark chosen is a total return index where dividends are reinvested, as this is the basis by which private equity investments operate.

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### c) Profitability Index

The Profitability Index (PI), just like the PME, is designed to incorporate the dilemma posed by reinvestment of capital, as outlined in Table 2 which summarises IRR related hazards. PI is the present value of all cash inflows related to an investment using the appropriate discount rate (e.g. the public market index return) divided by present value of all cash outflows. Unlike the IRR, PI implicitly considers the expected return to the alternative investment opportunities and thus helps investors compare investment options in a better way. By design, a PI of greater than 1 indicates that a given option (e.g. the private equity investment) is more attractive than the default option (e.g. public equities) and vice versa.

### PUBLIC MARKET COMPARABLES + PREMIUM

Despite the well-established superiority of these public market comparables (PME/PME+/PI), several researchers warn of misleading results and suggest that these concepts ignore risk when simulating returns. Toledano (2006) explains that (assuming the CAPM holds) if private equity returns have a beta greater (less) than one, PME will overstate (understate) the true risk-adjusted returns. With several studies confirming a market beta of more than one for private equities<sup>11</sup>, we put forward a PME (or PME+, or PI) plus premium approach that incorporates private equity risk factors into benchmarking. This additional premium can be defined to reflect compensation for risk factors such as illiquidity, varying degree of control, less diversification (concentration risk), higher leverage and longer term commitment (maturity risk).

*In conclusion, regardless of which implementation option is adopted for relative benchmarking against public equities using public market comparables, (PME, PME+, PI, with or without the advised premium concept) the time required to realise longer-term investment returns can be significant. Therefore, time periods used to assess performance should still remain relatively long, with less weight placed on the early years of the investment period due to issues associated with the J-curve.*

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<sup>11</sup> Korteweg and Sorensen (2010) estimate beta for Venture Capital portfolio investments in the neighborhood of 2.5. Driessen, Lin, and Phalippou (2011) report a beta of 1.3 for buyouts and a beta of 2.7 for ventures.

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## SECTION IV: PRACTICALITIES FOR AUSTRALIAN SUPERANNUATION FUNDS

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### 4.1 CUSTODIAN ISSUES

Australian superannuation funds appoint an independent custodian to hold the assets of the fund and perform certain administrative, accounting, monitoring and reporting functions. Generally speaking, for private equity, a custodian should be able to provide capital call and distribution processing, outstanding commitment monitoring, cash flow tracking and forecasting, statement reconciliation, pricing and valuation support, performance analytics, underlying portfolio company monitoring and validation of key financial limited partnership agreement terms. However, in the Australian landscape, not all custodians have demonstrated requisite expertise, understanding of private market assets, tools and systems, and quality execution for reporting purposes. Consequently, we believe that funds may face challenges implementing PME or PME plus a premium approach.

Some custodians have made advancements on this front and are in a position to report PME for private equity investments; however the majority only have the ability to report private equity performance on a money weighted basis.

*Russell recommends that superannuation funds continue to discuss the benchmarking options with their custodian, as they are likely to be responsive to changing market dynamics over time.*

### 4.2 CURRENCY ISSUES

As offshore assets are typically denominated in foreign currency, their value is affected by changes in Australian dollar exchange rates, in addition to movements in foreign asset prices. Private equity is further complicated by high levels of cash flows (calls and distributions) associated with most programs, as well as the liquidity demands of maintaining a currency hedge program on an illiquid asset class. From a benchmarking perspective, another challenge for superannuation funds or custodians arises when there is a need to combine the gain/losses on currency hedging with the profit/losses on the private equity program to assess overall portfolio performance. This is often difficult to reconcile as the hedging program typically sits outside the private equity umbrella.

Currency managers should have the ability to provide currency hedging on a number of underlying portfolios (property, infrastructure, private equity as well as international equities) within a fund's total hedging program. This allows superannuation funds to more easily attribute or apportion currency gains/losses to various asset classes within a program and therefore undertake better portfolio assessment.

## SECTION V: RUSSELL'S VIEW

### 5.1 SUMMARY OF ANALYSIS

A relative evaluation of performance in the private equity industry is far from simple, defying traditional notions of benchmarking. There is an over dependence on the benchmarking approaches designed and suited specifically to public market assets.

Challenges central to the issue of private equity performance analysis:

- There is no ideal private equity performance metric. Investment Multiples ignore the time value of money and IRR poses its own hazards.
- Despite much academic literature on the subject, there are no universally accepted methods for benchmarking in private equity. If results are benchmarked against peers, there are replication issues, vintage year risk and reporting biases. On the other hand, comparisons against public markets are faced with the problem of not comparing apples with apples, due to stale pricing in private equity.
- The existing private benchmarks lack the attributes of good benchmarks. Absolute style benchmarks and peer group indexes fall short in terms of investability, while public market indices may meet most ideal benchmark criteria except appropriateness for manager level performance evaluation. Table 4 summarises the alternative benchmark approaches in Section III and compares them against the ideal benchmark attributes set out in Section I.

Table 4: Comparison of benchmark approaches

Benchmark Requisites	Absolute return	Opportunity cost – peer index	Opportunity cost – public market comparables
<b>Unambiguous</b>	x	x	✓
<b>Appropriate</b>	x	✓	x/✓*
<b>Investable</b>	x	x	✓**
<b>Measurable</b>	✓	✓	✓
<b>Specified in advance</b>	✓	✓	✓
<b>Reflective of current investment opinion</b>	x	x	x

\* Might be appropriate from opportunity cost perspective at strategic asset allocation level, but not at manager evaluation level

\*\* Additional premium is not investable, but the underlying public market index is.

Furthermore, below is a summary of the benchmarking options available for evaluating decisions.

- a) Fund level:** Manager compensation or allocation between private equity funds.
- **Option 1:** Absolute return style benchmark against a specific return target (usually based on the cost of capital) or against a “fixed absolute return + margin” (usually based on an economic indicator);
  - **Option 2:** Peer-based comparisons - benchmark against comparable vintage year peer group index by employing a combination of IRR, Investment Multiples and PME approach. (Some peer group indices report PME); and
- b) Asset class level:** deploying capital to private equity for Strategic Asset Allocation.
- **Option 1:** Absolute return style benchmark against a “fixed absolute return + margin” (usually based on a long term economic indicator); and
  - **Option 2:** Relative benchmarking against public equities employing either
    - a) A direct comparison against the “expected long term public market return plus premium”;
    - b) A public market comparable such as PME, PME+ or PI; or
    - c) Russell’s “public market comparable plus premium” approach.

#### 4.2 RUSSELL’S RECOMMENDATIONS

Russell considers that, there is no dependable benchmark for private equity, in the traditional sense. Yet there is a demand for some barometer of success, with the performance industry eagerly responding with a number of indexes, composites and universes. However, investors and managers both need to be aware of the benefits and limitations of these “benchmark indexes”, because they can be either insightful or misleading, depending on their ultimate use.

The choice of benchmark is based on whether the purpose of benchmarking is to make systematic judgments about private equity manager performance or whether it is concerned with the performance of private equity as an investment strategy (strategic asset allocation level). It is also important to define whether performance evaluation is over the short or long term. Table 5 summarises our recommendations on the appropriate benchmark, in light of these considerations.

**Table 5: Recommended benchmarking approaches**

	Short Term	Long Term
Manager Performance	Peer-based	Peer-based
Strategic Asset Allocation*	N/A**	PME or PME+ and <u>add a premium</u>

\* From an opportunity cost perspective alone

\*\* Comparison cannot be made over the short term given the J-curve phenomenon associated with Private Equity

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While there are some definite shortcomings and inconsistencies in the benchmarking techniques currently employed in the private equity industry, the body of knowledge on private equity is growing and alternative approaches like PME (and PME+), tools like Profitability index, as well as customised benchmark indexes like Sand Hill and listed private equity indexes<sup>12</sup> appear promising. Better approaches are on the horizon, but for now, there is no “silver bullet” to benchmarking private equity.

*In conclusion, Russell believes that for the majority of superannuation funds with reporting obligations that rely on a custodian or a third party for management of this process, a public comparables plus premium approach is the most suitable option to perform SAA level performance evaluation in the long term from an opportunity cost perspective. Where this approach is unable to help however, is over the short term when funds are still in draw down mode and are often producing negative returns.*

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<sup>12</sup> See Appendix I for more details.

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## APPENDIX I: SOME EMERGING ALTERNATIVES

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### LISTED PRIVATE EQUITIES (LPES)

Publicly traded equities whose primary business activities are consistent with the business activities of traditional private equity firms are being bundled together to form listed private equity indices. These bundles of publicly traded firms are engaged in private-equity strategies and designed to track the performance of publicly traded private equity firms (on any nationally recognised exchange worldwide) and are being considered as suitable proxy benchmarks for the private equity asset class.

The number of listed private equity firms (LPEs) on a global basis has increased from just over 25 in 1990s to more than 400 with a total market cap of about \$63 billion in early 2008. In 2005, Standard & Poors initiated its global LPE index, representing a diverse exposure in terms of consolidated stage of investment (early, mid, late), type of capital (equity, debt, mezzanine, etc.), sector (energy, industrials, technology, etc.), and geography.

LPEs, however, have some serious limitations - they are neither appropriate as benchmarks nor have sufficient coverage of the investable universe. It is noted that LPEs represent the returns of asset management firms more than returns of the asset PE funds which make them inappropriate for comparison. Moreover, the S&P Global LPE Index is the only private equity index that is investable, through investment products such as the PSP Powershares ETF. There are very few (less than 100) PE firms/funds that are publicly traded and they do not represent the majority of the thousands of PE firms/funds that comprise the industry. However, with the number of private equity firms listed on public market indexes increasing consistently over years, a new way of benchmarking the private equity asset class is certainly emerging.

### SAND HILL PRIVATE EQUITY INDEXES

Sand Hill Econometrics (Woodward and Hall) developed an alternative series of indices aimed at dealing with the stale-pricing issue embedded within private equity. The index is built from company-level pricing data using actual valuations observed in episodic transactions like financing rounds, acquisitions, liquidations and IPOs, rather than from fund-level return data based on manager valuations. To deal with the issue of non-continuous reporting for private companies, it adopts a modern hybrid version of the repeat-sales technique (introduced by Bailey et al., 1963) successfully employed by indices like the Case Shiller housing indexes and the MIT Transactions Based Index in the real estate markets that face similar intermittent pricing challenges.

Additionally, to deal with biases in the reporting of valuations, Sand Hill employs econometric techniques to independently provide information about valuations on a market-wide basis that is both relevant and more current. By providing month-to-month market-wide movements in value, the index enables investors to measure risk-adjusted performance on their venture investments in essentially the same way as they measure it for their traded securities like stocks and bonds. However, the index is currently available only for the U.S. venture capital market and is based on estimated values, and may not be investable, which limits its usefulness in practice.

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