UK PRIVATE CAPITAL
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In association with pwc

Performance Measurement

Survey Report

Methodology Paper

About this Methodology paper

This paper provides an explanation into how private equity and venture capital funds work and the different ways of measuring absolute and relative returns. It also introduces key concepts needed to understand the Performance Measurement Survey and Public Market Equivalent analysis for the reader unfamiliar with interpreting private equity and venture capital performance. It is designed to accompany the annual Performance Measurement Survey Report published by UK Private Capital in association with PwC.

The paper is structured as follows:

- **Section 1** (Measuring Investment Performance) explains how investment performance is measured for private equity and venture capital funds. It also clarifies the different subsets of the data and time frames of the analysis used to evaluate the performance of funds in the sample: Since Inception, Since Inception by Vintage Year, and Since Inception Starting from a Specific Vintage Year.

- **Section 2** (Benchmarking Performance) first explains why comparing the performance of private equity and venture capital to public equity is not a straight forward process and why Public Market Equivalent (PME) analysis is the best way of making this comparison. It explains in detail three common PME methodologies (LN-PME, Capital Dynamics PME+, and KS-PME).

Section 1: Measuring Investment Performance

How does a private equity or venture capital fund work?

What is a private equity and venture capital fund?

Independent private equity and venture capital firms typically raise money from institutional investors such as pension funds, insurance companies and family offices. This money is committed to a fund and is drawn down over several years as investments get made. The fund (often structured as a limited partnership) is managed by a private equity or venture capital firm, known in industry parlance as a 'General Partner' or 'GP'.

The capital is used to invest in companies that, typically, are not listed on a stock exchange, either for a minority or majority equity stake. The firm will generally also invest their own money into the funds they manage to ensure their interests are aligned with that of their investors.

Private equity and venture capital funds usually have an initial life-span of 10 or more years and it is intended by the end of this period that they will have returned to investors' share of the original money, plus any additional returns made. This generally requires the investments to be exited for cash or listed shares, before the end of the fund's life.

The investors in the funds first receive any distributions generated by a fund and it is only when these returns pass a certain point, known as the 'hurdle rate' (typically around 8%), that the private equity or venture capital firm receives any pay-out, known as carried interest. For further explanation on how carried interest is calculated, see worked example later in this paper

The fund lifecycle

A first step in understanding and interpreting private equity and venture capital returns is to understand the cyclical nature of these funds and how the cashflow profile develops over the life span of the fund.

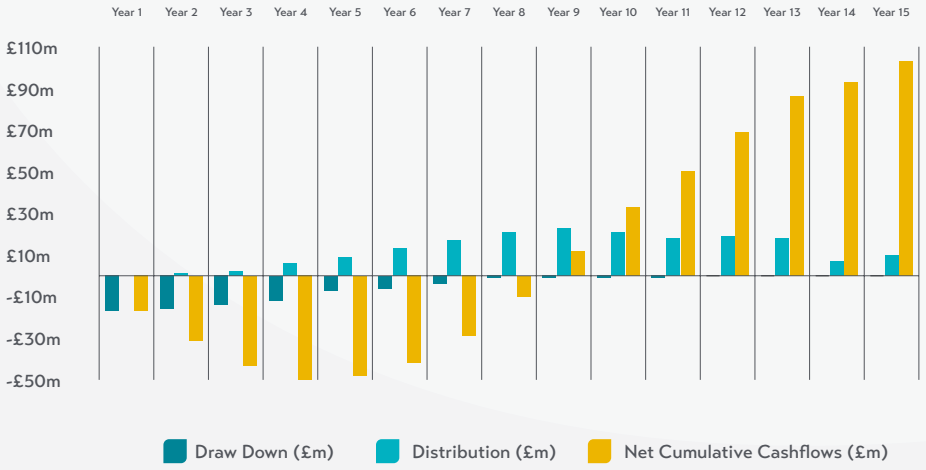
Investments into portfolio companies tend to take place in the beginning of a fund's life. In the case of the UK Private Capital members that have historically participated in the survey, the majority of raised capital (78%) is drawn down and invested during the first four years of activity.

Distributions, on the other hand, tend to start being more significant after about five years, with the majority of money (70%) being paid back to investors during years five to ten of a fund's life span.

Chart 1 shows an illustration of the draw downs, distributions and net cumulative cashflow in each year of a fund's life.

A private equity and venture capital firm will frequently have more than one fund active at the same time, at different stages of the lifecycle. For some of the analysis in this report we group funds by vintage year, i.e. by the year in which they first draw down capital. Funds within each vintage year are likely to be at a broadly similar stage in the fund lifecycle.

Chart 1 – Illustrative cash flow (£m) by life stage of the fund



Measuring private equity and venture capital performance

There are two principal ways investors measure performance of private equity and venture capital funds:

1. By looking at the annualised percentage return on investment, known as the Internal Rate of Return ('IRR'). This accounts for the size and timing of cashflows and valuations.
2. By looking at the proportion of the initial invested capital which is returned, known as the Multiple of Invested Capital ('MOIC'). This measure only considers the size of the return and does not account for the time value of money.

For private equity funds which are still investing and have not yet distributed all of their assets, there are three types of money multiple which are frequently considered:

1. The ratio of Distributed Capital to Paid-In Capital ('DPI'). The DPI multiple represents the total amount distributed to investors as a percentage of total capital drawn down from investors for a given period.
2. The ratio of Residual Value to Paid-In Capital ('RVPI'). The RVPI multiple represents the residual value/ unrealised portfolio value attributable to investors as a percentage of total capital drawn down from investors for a given period.
3. The ratio of Total Value to Paid-In Capital ('TVPI'). The TVPI multiple represents the total amount distributed plus the residual value attributable to investors as a percentage of total capital drawn down from investors for a given period.

In equation form this can be expressed as:

Total Value to Paid-In (TVPI) = Distributed Value to Paid-In (DPI) + Residual Value to Paid-In (RVPI)

Individual investors and fund managers will find that different combinations of these metrics work best for them in assessing their private equity and venture capital portfolios. When these institutions invest in a fund, they will have information rights, including detailed reporting requirements on performance and fees.

Illustrative example: IRR, DPI and TVPI

In our example we have a private equity fund which was launched in year 1 and is currently in year 5 of its life, with cash flows as shown in the table below:

Year	Amount (£m)	Description
1	-10	Drawdown
2	0	
3	0	
4	15	Distribution
5	5	Valuation

As at the end of year 5, the key performance metrics in this example fund are:

- IRR: 24% (Annualised return calculated using the IRR function in excel – Please note that UK Private Capital uses the XIRR function to calculate returns presented in this report)
- DPI: 15/10 = 150% or 1.5x the initial investment
- RVPI: 5/10 = 50% or 0.5x the initial investment
- TVPI: (15+5)/10 = 200% or 2x the initial investment.

Different ways of looking at IRRs

The life cycle of a fund is important because it affects the different ways in which IRRs can be looked at. Firstly, to be able to calculate the actual return of a fund, the fund has to be terminated and to have liquidated all its assets, with proceeds returned to investors – any interim measures will necessarily require an estimation of the residual value of the fund's investments.

Since inception IRR

Since inception IRR is the most meaningful way in which to measure private equity and venture capital funds' performance, as it refers to the IRR of a fund since its first draw down. This therefore most closely reflects the return an investor would achieve if they invested at the start of a fund.

As illustrated in chart 1, during the first four years of their life, funds are mostly investing and only returning small amounts of capital to investors. Therefore, the calculated IRR may not be meaningful and may not provide an accurate indication of what that fund performance could be at liquidation. To avoid this issue, we only include funds that are at least four years old in our since inception return measures. For instance, in the 2024 report, since inception returns comprise funds that started investing between 1980 and 2020.

Since inception IRR by vintage year

UK Private Capital classifies the vintage year of a fund as the first year in which the fund made a draw down. Since inception returns by vintage year are useful when analysing the returns delivered to date of funds at different stages of a fund's life cycle. For example, the vintage 2015 in this report will contain all funds that started investing in 2015, and therefore are currently 10 years old, having most likely invested the majority of their capital and distributed a significant proportion back to investors. Since inception returns by vintage year are also useful for analysing the impact that economic cycles can have on fund performance.

Since inception starting from a specific year

This measure is a pooled since inception return for all funds starting at a certain vintage, and excluding the four most recent vintages. For instance, since inception starting from 2015 includes cashflows from all funds of vintages between 2015 and 2020, therefore funds that are between five and ten years old. This means that the funds included in the since inception starting from 2015 category, will probably have invested the majority of their capital and distributed a large proportion of it as well.

This measure is very important because it allows us to show since inception returns for the industry, and at the same time, remove any historical bias that may exist due to past performance. As an example, the since inception IRR starting from 2000 removes from our calculations funds which were active during the 1980s and 1990s when the market was very different from today.

Horizon IRRs

Horizon IRRs look backwards at specific time horizons. For instance, the ten year horizon IRR in this report looks at the performance of the industry for the past ten years (between January 2015 until December 2024) – this measure will include cashflows from all funds that were active at some point during the last ten years, regardless of lifecycle stage. The one year horizon figures are more volatile and inappropriate as a realistic measure of performance, since it is generally not possible to invest in a private equity or venture capital fund for just one year. It may, however, be used as an indicator of how well the UK industry performed during that year.

Note that UK Private Capital works with pooled daily cash flows provided by our members. To maintain this level of granularity within our calculations we use the XIRR function instead of IRR.

To calculate the Horizon IRRs, we:

- (i) select a specific horizon (e.g. 5 years);
- (ii) aggregate the NAVs of all funds as at 31 December of the year before the horizon (i.e. for a 5-year horizon as at December 2024, we use the fund NAVs as at 31 December 2019), and treat this amount as the first draw down;
- (iii) calculate the aggregated net cash flows for every day until 31 December 2024;
- (iv) add the aggregated fund NAVs as at 31 December 2024; and
- (v) calculate the Horizon IRR on the resulting cashflows.

Example IRR calculation with carried interest

As explained earlier, private equity and venture capital firms are typically entitled to a share of profits, called carried interest, once fund investors have been repaid their initial capital investment plus a designated "preferred return" or "hurdle rate" (typically around 8-10%). This mechanism aligns the interests of the firm with that of investors and incentivises the firm to maximise a fund's performance over the long term.

The following pages set out a worked example of how carried interest might be calculated for a fund, and demonstrates the difference between 'gross return' (i.e. the total returns of the fund including carried interest), and 'net return' (i.e. the total returns due to investors).

It is the net return after carried interest which is presented in this survey i.e. the returns actually due to investors.

Sample carried interest calculation to produce an interim IRR

An interim IRR is a 'snapshot' of performance to date. In calculating an interim IRR, the assumption used is that the fund is wound up at the valuation date (in this case 31 December 2024) and that the residual value is distributed according to the rules laid out when the fund was set up.

In order to calculate the interim IRR to investors, we need to know not only the fund cash flows and a current valuation estimate, but also the rules on how returns are divided between investors and fund managers. These will vary by fund, with most funds having a hurdle rate of around 8-10%. It is only after this is achieved that the private equity or venture capital firm is entitled to any share in the fund's profits (carried interest).

Example IRR calculation with carried interest

For the purpose of our worked example, we have made the following assumptions:

Cash flows (set out in the table opposite)

Fund size – £20 million

Draw down – £17 million (85%)

Distributed – £12.25 million

Residual net asset value (NAV) at 31 December 2024 (before carried interest) – £12 million

Distribution priority (Waterfall)

i) 100% to investors until commitments returned

ii) 100% to investors until a 'preferred return' of 10% pa compound is achieved (i.e. a hurdle rate of 10%)

iii) 100% to manager until payments equal 25% of ii)

iv) 80% to investors, 20% to the private equity fund thereafter

As the fund is not fully drawn down, one of two assumptions can be made, each of which has the same effect on the IRR calculation:

i) The £3 million not yet drawn down is cancelled and commitments correspondingly drop to £17 million; or

ii) The £3 million is drawn down on 31 December 2024 and distributed simultaneously

This example produces an interim IRR before carried interest of 12.9%.

Cash flow date	Amount (£m)	Comment
01-Feb-20	-2,000,000	10% draw down from investors
10-Jun-20	-2,000,000	10% draw down from investors
25-Nov-20	-2,000,000	10% draw down from investors
03-Apr-21	-2,000,000	10% draw down from investors
09-Sep-21	-2,000,000	10% draw down from investors
12-Dec-21	-2,000,000	10% draw down from investors
05-May-22	-2,000,000	10% draw down from investors
15-Oct-22	1,500,000	Cash distribution to investors
11-Nov-22	-1,000,000	5% draw down from investors
29-Mar-23	2,500,000	Cash distribution to investors
27-Jun-23	1,000,000	Cash distribution to investors
18-Sep-23	-2,000,000	10% draw down from investors
29-Apr-24	3,000,000	Cash distribution to investors
12-Aug-24	1,500,000	Cash distribution to investors
15-Dec-24	2,750,000	Cash distribution to investors
31-Dec-24	12,000,000	Residual NAV

Example IRR calculation with carried interest

The IRR in this example is above the 10% hurdle rate and a proportion of this return will be allocated to the private equity or venture capital firm in the form of carried interest.

To calculate the net IRR for investors after carried interest, we need to apply the distribution priority waterfall set out on the previous page.

Firstly, we identify the net asset value (NAV) required to produce the preferred return of 10% to investors as of 31 December 2024. Back solving the cash flows on the previous page to achieve a compounded annualised return of 10% means that the investors must be allocated £10,098,788 out of the £12,000,000 net asset value.

This leaves an excess of £1,901,212 to be allocated between the investors and the fund manager.

Once investors have been allocated their preferred return, the fund manager becomes entitled to an amount equivalent to 25% of the minimum profit achieved (i.e. £1,337,197) in accordance with distribution priority item iii) which allows the fund to 'catch up' such that the profit share ratio between investors and the manager remains 80/20 overall.

Any remaining excess amount is then divided in line with distribution priority iv) and split 80% / 20% between the investors and the fund manager.

In our example, this means that 20% of the remaining excess of £564,015 (£1,901,212 – £1,337,197) would be allocated to the fund manager and the remainder to the investors. The manager would now have received 20% of total profits, that is, 20% of (£5,348,788 + £1,337,197 + £564,015).

The net IRR to investors is calculated by using the cash flows on the previous page but substituting the £12,000,000 net asset value with solely the net asset value due to investors, in this case £10,550,000.

The interim IRR after carried interest in this example is therefore 10.7% p.a. It is this figure which is reported in the UK Private Capital Performance Measurement Survey.

Of the £12,000,000 residual NAV, £11,435,985 has been allocated as follows:	
£4,750,000	To the investors to make draw downs equal to distributions
£5,348,788	To the investors to produce the preferred return – ii)
£1,337,197	To the manager to produce 20% of gains at the preferred return point – iii)
£11,435,985	

The residual £564,015 (£12,000,000-£11,435,985) is to be allocated in accordance with condition iv):	
£451,212	To the investors
£112,803	To the manager
£564,015	

In total the £12,000,000 has been allocated as follows:	
£10,550,000	To the investors
£1,450,000	To the manager
£12,000,000	

Please note that the manager has received 20% of net gains (£1,450,000 being 25% of (£10,550,000 + £12,250,000-£17,000,000)). NB. If the residual NAV had been £10,098,788 condition iii) could not be fulfilled in its entirety and the interim IRR would be exactly 10% pa.

Section 2: Benchmarking Performance

Public Market Equivalents (PMEs)

Benchmarking the performance of investments in private equity and venture capital funds to other asset classes (such as public equities) is not a straightforward process. Private equity and venture capital fund returns are typically measured in a different way to other asset classes. IRRs and multiples are not ideal ways of comparing the performance of private equity and venture capital funds to public equity investments.

A Public Market Equivalent (PME) analysis is a method which allows investors to compare the performance of a private equity or venture capital fund, to the performance the public market would have generated over the same period using the same investment timings.

In general, the PME method is to create a theoretical fund that replicates the cashflows of private markets by buying and selling stocks of a specific index. The index is a hypothetical portfolio of investments that represent specific segments of an economy or sector. Creating a theoretical portfolio that invests at the same time and same amount into an index, allows the investor to gauge what the return of its investments in the public equity markets would have been, by taking into consideration the market movements.

This section provides an overview of three different methodologies that will be explained in detail on the following pages:

- Long-Nickels PME (LN-PME);
- Capital Dynamics PME+; and
- Kaplan Schoar PME (KS-PME).

A PME analysis is the fairest method of comparing the performance of the two asset classes, as it indicates to the investor what return could have been achieved if an equivalent investment had been made in the public markets.

In the PMS report we frequently use the term "equivalent investments" – by equivalent investments we mean investments of the same amount and at the same dates as those which took place in the private equity / venture capital funds.

UK Private Capital reports performance IRR, TVPI and DPI net of fees, whereas public equity will have trading costs. However, since the PME analysis implies that investments are made into an index, trading fees are negligible, making it a reasonable comparison.

The Long-Nickels PME (LN-PME)

The first of the PME methodologies created, the LN-PME mirrors the cashflows of the private equity or venture capital fund, and adjusts the final Net Asset Value (NAV) such that it reflects the movements of the public equity market. The methodology is as follows:

1) When there is a draw down, it is assumed that you buy the same amount of the index (so if there is a draw down of -100, it is assumed that an investment of 100 was bought).

2) When there is a distribution, it is assumed that you sell the same amount of the index (so if there is a distribution of 100, it is assumed that an investment of 100 was sold).

3) Calculating the LN-PME NAV:

To calculate the NAV, first we must find the amount of shares owned in our theoretical portfolio. For the first period, shares owned are simply the amount invested divided by the price of shares (therefore, 100 / 76.7 = 1.30).

For the remaining periods, we take the amount of shares of the previous period, and add or subtract the amount of shares bought or sold in the current period. In our example, in the second period we bought 0.6 shares (50 / 83.99) and we add it to the previous 1.3, leading us to 1.9 shares.

In the third period of our example, we sell 0.34 share (30 / 88.45). Deducting this amount from the amount of shares from the previous period, we arrive at 1.56 shares.

Once we have found the amount of shares owned in each period, we multiply it by the price of the index. That value will then be the Net Asset Value of the portfolio.

4) Calculating the LN-PME IRR:

Once we have found the value of the NAV at the last period, we use the same cashflows as the private equity or venture capital fund, but add the LN-PME NAV instead of the fund's NAV as a last distribution.

Date	Draw Down	Distribution	NAV	Net Cashflow	Index	Shares Owned	LN-NAV	LN Net Cash Flow
21/01/2017	100			-100	76.70	= 100 / 76.70 = 1.30	= 1.30 * 76.70 = 100	-100
29/05/2017	50			-50	83.99	= 1.30 + (50 / 83.99) = 1.90	= 1.90 * 83.99 = 160	-50
03/04/2018		30		30	88.45	= 1.90 - (30 / 88.45) = 1.56	= 1.56 * 88.45 = 138	30
07/10/2018	100			-100	87.19	= 1.56 + (100 / 87.19) = 2.71	= 2.71 * 87.19 = 236	-100
26/01/2019		110		110	93.00	= 2.71 - (110 / 93.00) = 1.52	= 1.52 * 93.00 = 142	110
01/01/2020	50			-50	90.24	= 1.52 + (50 / 90.24) = 2.08	= 2.08 * 90.24 = 188	-50
23/04/2021		90		90	109.80	= 2.08 - (90 / 109.80) = 1.26	= 1.26 * 109.80 = 138	90
15/03/2022	50			-50	112.32	= 1.26 + (50/ 112.32) = 1.70	= 1.70 * 112.32 = 191	-50
01/05/2023	50			-50	120.73	= 1.70 + (50 / 120.73) = 2.12	= 2.12 * 120.73 = 256	-50
10/09/2024		150		150	105.14	= 2.12 - (150 / 105.14) = 0.69	= 0.69 * 105.14 = 73	150
31/12/2024			200	200	115.92	= 0.69	= 0.69 * 115.92 = 80	80
IRR				**11.5%**				**4.9%**

In this example, the private equity / venture capital fund would have an IRR of 11.5%. Had the investor made an equivalent investment in the public equity market, the IRR at 31 December 2024 would have been 4.9%.

The Long-Nickels PME (LN-PME) – a common issue

The main issue with this methodology is that, if the private equity / venture capital fund greatly outperforms the benchmark, the LN-PME NAV may become negative, as seen in the example below. This can lead to a nonsensical comparison of the performance of a long-only private equity or venture capital fund, being compared against a short position in the public market.

Long & Nickels were the first to develop a measure of relative performance in private equity. Due to the issue explained in this section, several attempts were made to address the outperformance of the private equity and venture capital industry. Amongst them are a) Capital Dynamics PME+ b) KS-PME, which are explained in the following slides and are the methodologies we calculate as part of the Performance Measurement Survey Report.

Date	Draw Down	Distribution	NAV	Net Cashflow	Index	Shares Owned	LN-NAV	LN Net Cash Flow
21/01/2017	100			-100	76.70	= 100 / 76.70 = 1.30	= 1.30 * 76.70 = 100	-100
29/05/2017	50			-50	83.99	= 1.30 + (50 / 83.99) = 1.90	= 1.90 * 83.99 = 160	-50
03/04/2018		30		30	88.45	= 1.90 - (30 / 88.45) = 1.56	= 1.56 * 88.45 = 138	30
07/10/2018	100			-100	87.19	= 1.56 + (100 / 87.19) = 2.71	= 2.71 * 87.19 = 236	-100
26/01/2019		110		110	93.00	= 2.71 - (110 / 93.00) = 1.52	= 1.52 * 93.00 = 142	110
01/01/2020	50			-50	90.24	= 1.52 + (50 / 90.24) = 2.08	= 2.08 * 90.24 = 188	-50
23/04/2021		90		90	109.80	= 2.08 - (90 / 109.80) = 1.26	= 1.26 * 109.80 = 138	90
15/03/2022	50			-50	112.32	= 1.26 + (50/ 112.32) = 1.70	= 1.70 * 112.32 = 191	-50
01/05/2023	50			-50	120.73	= 1.70 + (50 / 120.73) = 2.12	= 2.12 * 120.73 = 256	-50
10/09/2024		250		250	105.14	= 2.12 - (250 / 105.14) = -0.26	**= -0.26 * 105.14 = -27**	250
31/12/2024			200	200	115.92	= -0.26	**= -0.26 * 115.92 = -30**	**-30**
IRR				15.6%				N/A

In this example, the private equity / venture capital fund would have an IRR of 15.6%. It is not possible to calculate the LN-PME as the index has had to be sold short.

Capital Dynamics PME+

A second generation of PME methodologies, the Capital Dynamics PME+ was developed to address the problem of short exposure that can happen with the LN-PME. It deals with the issue by fixing the closing NAV of the theoretical public equity portfolio to be the same as the closing NAV of the private equity / venture capital fund.

This is achieved by scaling the distributions by a factor λ such that the PME+ NAV at the end is equivalent to the private equity fund NAV. With this, the private equity fund and the theoretical fund have the same draw downs and final NAV, but different distributions.

The first step in conducting a Capital Dynamics PME+ analysis is finding the λ factor.

$$\lambda = \frac{(\text{Total shares bought} - \text{Total shares at the end of the period})}{\text{Total shares sold}}$$

Therefore in our example:

$$\lambda = \frac{(4.46 - 1.73)}{4.72} = 0.579$$

Date	Draw Down	Distribution	Nav	Net cashflow	Index	Shares bought	Shares sold	Shares end
21/01/2017	100			-100	76.70	= 100 / 76.70 = 1.30	-	
29/05/2017	50			-50	83.99	=50 / 83.9 = 0.6	-	
03/04/2018		30		30	88.45		= 30 / 88.45 = 0.34	
07/10/2018	100			-100	87.19	=100 / 87.19 = 1.15	-	
26/01/2019		110		110	93.00		= 110 / 93.00 = 1.18	
01/01/2020	50			-50	90.24	= 50 / 90.24 = 0.55	-	
23/04/2021		90		90	109.80		= 90 / 109.80 = 0.82	
15/03/2022	50			-50	112.32	= 50/ 112.32 = 0.45	-	
01/05/2023	50			-50	120.73	= 50 / 120.73 = 0.41	-	
10/09/2024		250		250	105.14	-	= 250 / 105.14 = 2.38	
31/12/2024			200	200	115.92	-	-	= 200 / 115.92 = 1.73
Total						**4.46**	**4.72**	**1.73**

Capital Dynamics PME+

The second step of the Capital Dynamics PME+ methodology, is creating the cashflows of the theorical fund, using the factor to adjust distributions.
As we have seen, for our example, the factor is calculated as:

$$\lambda = \frac{(4.46 - 1.73)}{4.72} = 0.579$$

In this example, the private equity or venture capital fund would have an IRR of 15.6%. Had the investor made an equivalent investment in the public equity market, their IRR at 31 December 2024 would have been 4.4%.

There are other second generation PME methodologies which also address the shortness issue, such as the Modified PME (mPME) developed by Cambridge Associates. The UK Private Capital research team has tested all of them and found that the Capital Dynamics PME+ methodology is the most appropriate for our dataset.. The UK Private Capital Performance Measurement Survey uses daily cash flows, which we can also use in the Capital Dynamics PME+ allowing us to maintain consistency in presenting investment performance. To apply the Modified PME, we would need to amalgamate cashflows on a yearly or quarterly basis, which may make our performance metrics inconsistent with the Performance Measurement Survey report.

Date	Draw Down	Distribution	NAV	Net Cashflow	PME+ Draw Down	PME+ Distribution	PME+ NAV	PME+ Net Cashflow
21/01/2017	100			-100	100			-100.00
29/05/2017	50			-50	50			-50.00
03/04/2018		30		30		= 30 * 0.579 = 17.37		17.37
07/10/2018	100			-100	100			-100.00
26/01/2019		110		110		= 110 * 0.579 = 63.69		63.69
01/01/2020	50			-50	50			-50.00
23/04/2021		90		90		= 90 * 0.579 = 52.11		52.11
15/03/2022	50			-50	50			-50.00
01/05/2023	50			-50	50			-50.00
10/09/2024		250		250		= 250 * 0.579 = 144.75		144.75
31/12/2024			200	200			200	200.00
IRR				**15.6%**				**4.4%**

Kaplan Schoar PME (KS-PME)

The KS methodology creates a relative measure of performance that directly compares an investment in private equity or venture capital funds to an equivalent investment in the public equity market. Thus, the results of the KS-PME can be viewed as a market-adjusted multiple of invested capital.

Calculating a KS-PME is a two step process:

1) Find the future value of each draw down and distribution, using the selected benchmark index. This requires taking the actual cashflow amount and multiplying it by the ratio of the benchmark index at the last valuation date, to the benchmark index at the actual date of the cash flow. Since the residual value is the Net Asset Value of the fund at the last point in time, it remains unchanged.

2) Sum the total future value of all distributions and the residual value, and divide it by the total future value of paid-in capital (i.e. total drawdowns). This is the same calculation as for a TVPI multiple.

In our example below, the TVPI multiple indicates that at the end of fund's life the investor is expected to receive 45% more than originally invested. The KS-PME multiple of 1.23x, implies that at the end of the fund's life, investors end up with 23% more than if they had made an equivalent investment in the public market.

Date	Draw Down	Distribution	Residual Value	Index	Index Growth	KS Draw Down	KS Distribution	Residual Value
21/01/2017	-100			76.70	= (115.92 / 76.70) = 1.51	= (-100 * 1.51) = -151.14		
29/05/2017	-50			83.99	= (115.92 / 83.99) = 1.38	= (-50 * 1.38) = -69.01		
03/04/2018		30		88.45	= (115.92 / 88.45) = 1.31		= (30 * 1.31) = 39.32	
07/10/2018	-100			87.19	= (115.92 / 87.19) = 1.33	= (-100 * 1.33) = -132.96		
26/01/2019		110		93.00	= (115.92 / 93.00) = 1.25		= (110 * 1.25) = 137.11	
01/01/2020	-50			90.24	= (115.92 / 90.24) = 1.28	= (-50 * 1.28) = -64.23		
23/04/2021		90		109.80	= (115.92 / 109.80) = 1.06		= (90 * 1.06) = 95.02	
15/03/2022	-50			112.32	= (115.92 / 112.32) = 1.03	= (-50 * 1.03) = -51.61		
01/05/2023	-50			120.73	= (115.92 / 120.73) = 0.96	= (-50 * 0.96) = -48.01		
10/09/2024		150		105.14	= (115.92 / 105.14) = 1.10		= (150 * 1.10) = 165.38	
31/12/2024			200	115.92	= (115.92 /115.92) = 1			200
Total	-400	380	200			-517	437	200
TVPI	**1.45**					**1.23**		

Summary of PME methodologies

Methodology	Metric	Private Equity Outperformance if:	Description of Calculation	Strengths	Weaknesses
LN PME (Long-Nickels)	Annualized Rate	Estimated PME IRR < PE Fund IRR	Contributions to PE fund are converted to an equal purchase of shares in the public index. Distributions represent liquidation of share in public index. IRR calculation uses same contributions and distributions as PE fund, but with a different final period remaining value.	LN PME IRR is directly comparable to the PE Fund IRR, allowing an apples-to-apples comparison.	IRR sensitive to early distributions. Large distributions could cause a negative PME final period remaining value, making PME IRR calculation computationally impossible.
Capital Dynamics PME+	Annualized Rate	Estimated PME IRR < PE Fund IRR	Uses a fixed scaling factor (lambda) to modify each distribution to ensure the PME final period remaining value is the same as the PE fund remaining value. IRR calculation uses modified distributions but same contributions and final period remaining value.	As for LN PME, with the added benefit of avoiding a final period negative remaining value, making PME IRR calculation possible in more cases.	PME+ does not match the cash flows perfectly.
KS PME (Kaplan-Schoar)	Ratio	Value > 1	Calculated by discounting the private equity fund cash flows by the public market index value. The discounted distributions plus the current remaining value are divided by the discounted contributions to obtain the ratio.	The calculation looks at the ratio of outflows versus inflows as opposed to generating an IRR, which is time dependent and is easily manipulated. Easy to interpret.	Ignores the timings of cash flows.

Source: Adapted from Preqin Special Report: Public Market Equivalent (PME) Benchmarking, 2015.

Glossary

Capital statistics

Capital raised / funds raised
Capital committed by investors (capital they have agreed to subscribe). This will not usually all be paid in at one time.

Paid in capital
Capital that has actually been paid into the fund by investors.

Return metrics

IRR
The annualised internal rate of return (IRR) achieved over a period of time, based on the portfolio cash flows and valuations.

DPI
The distributed (DPI) multiple is the total amount distributed to investors as a percentage of paid-in/committed capital.

TVPI
The total value multiple (TVPI) is the total amount distributed plus the residual value attributable to investors as a percentage of paid-in capital.

Return inputs

Cash flow
Transfer of capital into and out of a business.

Drawdown
Fund manager collecting capital from investors.

Distribution
Fund manager returning capital to investors.

Time periods

Vintage year
Governed by the date of the fund's first drawdown, that is, the earlier of either: (i) the first payment by the investor to the fund; or (ii) the first investment made by the fund.

Since inception
From the actual start of the fund (i.e. from the first drawdown) up to a particular point in time. This measure of return most closely reflects the return a primary investor would have achieved.

Horizon
Horizon IRRs look backwards at specific time horizons. This measure includes cashflows from all funds that were active at some point during horizon period, regardless of which part of the life cycle the fund is in.

Types of return

Net return
The return represents the 'net' return to investors after costs and fees. Provision is made for carried interest, which would have been payable if the residual valuation had been realised at the valuation date.

Gross return
The return represents the 'gross' return to investors before costs, fees and carried interest provision.

Further reading

The authors found the papers below to be helpful in developing an understanding of the various PME methodologies, and would recommend these to readers wanting to understand more about this topic:

BVCA. Private Equity Performance Measurement - BVCA Perspectives Series, 2015.

Capital Dynamics. Public benchmarking of private equity. Quantifying the shortness issue of PME, July 2015.

Oleg R. Gredil, Barry Griffiths, Rüdiger Stucke, Benchmarking private equity: The direct alpha method, Journal of Corporate Finance, Volume 81,2023.

Kaplan, S.N. and Schoar, A. (2005), Private Equity Performance: Returns, Persistence, and Capital Flows. The Journal of Finance, 60: 1791-1823.

Long, A. D., & Nickels, C. M. (1996). A private investment benchmark. Investment Counseling Inc., February 1996.

Preqin. Preqin Special report: Public Market Equivalent (PME) Benchmarking, July 2015.

Brown, G. W., Harris, R. S., Hu, W. Y., Jenkinson, T., Kaplan, S. N., & Robinson, D. T. (2021). Can investors time their exposure to private equity? Journal of Financial Economics, 139(2), 502–519.

Sorensen, M., & Jagannathan, R. (2015). The Public Market Equivalent and Private Equity Performance. Financial Analysts Journal, 71(4), 43–50.

About the UK Private Capital

UK Private Capital (formerly the British Private Equity and Venture Capital Association) is the association of the UK private capital industry. We represent 600 firms including the wider ecosystem of professional advisers and investors.

Private capital consists of private equity and venture capital which make long-term investments to grow British businesses
and build a better economy. Private credit and venture debt provide active and engaged debt finance to businesses.

The private capital industry backs 13,000 UK businesses, nine in 10 of which are small or medium-sized enterprises. Businesses backed by the industry employ 2.5 million people across the UK and contribute 7% to GDP.

In 2025, £25.0bn was invested by private capital into UK businesses in sectors across the UK economy, ranging from consumer products to emerging technology. This increased investment has fuelled the growth of businesses across the UK. These investments are long-term, with an average investment period of six years, in contrast to less than a year in public markets.

UK-based private capital specialists have raised £190bn of funds, known as dry powder, which is expected to be invested over the next three to five years.

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