Private capital performance

Overview

This paper sets out the current evidence on the performance of private capital investments, and to provide an explanation of the approaches and methodologies used to assess performance directly and in comparison with public markets. The paper also considers the main academic critiques of private capital performance and responds to these.

There is solid evidence from both industry and academic studies that private capital investments generate good returns for investors. The academic studies, which mostly focus on the US, and mostly on larger buyouts, generally find a long-term outperformance of c.3% p.a. vs public markets. This is consistent with industry studies.

Industry led research (BVCA, BBB, Invest Europe) presents information on returns for venture capital, growth equity, and non-US large buyouts. This shows that although collective returns are good there is a wide dispersion in returns at the fund level. Manager selection is critical, as is having the scale to invest in a broad range of funds to diversify within the venture capital asset class.

Investment in private capital also provides diversification benefits. Academic research (mainly on US buyouts funds) has found that the inclusion of private equity investments into the portfolio increases average returns and reduces portfolio standard deviation. The inclusion of PE funds in a portfolio can provide pension funds a more diversified investment with a better risk-reward.

The returns evidence from large US based endowment funds is also strong. It is important to bear in mind that these returns are for the overall allocation to private capital, which may include co-investments or other investments outside of traditional fund structures. These investors typically employ experienced individuals on their investment teams to form judgements about which deals to co-invest in. This is something which would take time and cost for new private markets investors to replicate.

Structure of this paper

1) *Methodologies*
2) *Fund performance – what does the data show?*
3) *Other evidence on investor returns*
4) *Risks*
5) *Diversification*

1) Methodologies

This section sets out the methodologies commonly used to assess investment performance in public markets and in private equity and venture capital.

How are returns assessed in public markets?

In simple terms, when analysing the performance of a public equity portfolio, one looks at: the value of the portfolio at the beginning of the calendar year (B), the value of the portfolio at the end of the year

(E) and any distributions of interest or dividends (D) during that period. A yearly return can be calculated as:

$$\text{Return (\%)} = \frac{E + D - B}{B}$$

Risks are usually measured by looking at the variation of the value of the portfolio within this time frame, and this simple calculation is possible because investors can buy and sell listed assets at any point in the year.

How are private capital returns measured?

There are multiple standard metrics used to measure performance of private equity and venture capital funds such as the internal rate of return (IRR), the multiple (also known as Multiple on Invested Capital [MOIC] or Total Value to Paid-In [TVPI]), and the Distributed Capital to Paid-In Capital ratio (DPI).

- *IRR* is the discount rate that makes the net present value of all cash flows equal to zero. The calculation accounts not only for the magnitude of the returns but also their timing. This means that returns (both positive and negative) in a short period of time have a larger impact on IRR than those over a longer period.

  IRR calculations can be performed forward looking (Since Inception IRR) or backward looking (Horizon IRR). Horizon returns measure the return between two specific points in time and can serve as a good indication of the industry performance over the short, medium and long term (the one-, three-, five- and ten-year horizon returns).

- *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 proportion of total capital drawn down from investors.

- *The ratio of Distributed Capital to Paid-In Capital (DPI).* The DPI multiple represents the total amount distributed to investors as a proportion of total capital drawn down from investors.

The IRR is time sensitive while the TVPI and DPI do not take into account the timing of cashflows. In addition, the IRR and the TVPI each account for unrealised value while the DPI does not. An evaluation of all three metrics together can therefore give an investor a more complete indication of a private equity fund's performance. In volatile environments, many investors place a premium on the DPI as unrealised returns are illiquid whereas realised returns can be spent or reinvested.

A well-known issue with the IRR methodology is that the calculation is heavily influenced by early cash flows. Thus, a fund which has very high cash flows in early years will frequently report a high IRR across the lifetime of the fund, with later cash flows having relatively limited impact. We recommend investors deal with this in two ways: firstly, by considering more than one metric (see above) and secondly, by looking at investments starting from different time periods. For example, since 2021, the BVCA's Performance Measurement Survey report has presented industry-level returns starting at different points in time. This demonstrates that the strong, industry-wide returns we see have continued through time and are not merely the result of high returns from 30 years ago.

Comparing public and private market performance

In order to compare private capital performance to public markets, academics and industry practitioners have developed a series of Public Market Equivalent (PME) methodologies.

A *Public Market Equivalent (PME)* approach compares an investment in a private equity/venture capital fund to an equivalent investment in a public market benchmark, such as the S&P 500. 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 would have been in the public market, by taking into consideration the markets movements.

There are several PME methodologies:

- Long-Nickels (LN-PME)
- (KS-PME)
- Capital Dynamics PME+
- Modified PME (mPME)
- Direct Alpha (DA)[1]
- Generalised PME (GPME) [2]

The most important decision when calculating relative performance of private equity and venture capital funds, and a widely debated topic among academics and industry practitioners, is the selection of benchmark indices. There are two approaches to selecting a benchmark index:

1. "Replication Approach" - matching the sector/size/industry tilt of the public and private market portfolio. In this case, the index should mirror the private market portfolio as closely as possible, taking into consideration the broad range of investment sizes, sectors and geographies.
2. "Opportunity Cost Approach" - selecting a public market index from the whole investment universe available to the investor, which may represent a completely different strategy. In this case, common indices are the MSCI World or, particularly for US investors, the S&P 500.

More detail on some of the most common PME methodologies can be found in the BVCA's Performance Measurement Survey Methodology Paper.

2) Fund performance – what does the data show?

This section looks at the evidence of fund-level investor returns from both industry studies and academic research.

Industry studies

[1] Gredil, Griffiths and Stucke (2022)
[2] Korteweg and Nagel (2013)

BVCA Performance Measurement Survey and Public Market Equivalent reports

The BVCA Performance Measurement Survey dataset goes back to 1980 and reports on the performance of UK managed, closed end funds which raise capital from third party investors. The volume and value of investments have grown significantly over time.

The BVCA data set is sourced from a survey of BVCA members. Provision of data for the performance survey is part of the BVCA's code of conduct. 85 members submitted their fund-level cash flows and valuations for the 2024 edition of the study and in total the dataset includes 993 funds.

The 2024 analysis shows that all suitably mature funds with the 2015 vintage onwards have delivered an IRR of 14.5% supported by the robust TVPI of 1.62x. The money multiple metric indicates that these funds would have returned 62% more than the capital invested, had all their assets been realised as at 31 December 2024 net of all costs and fees.

In addition, as of December 2024 the pooled 10-year horizon return for all funds in our sample stood at 15.8% p.a. compared to an equivalent annualised return of 6.2% for the FTSE All Share Total Return Index and 8.0% for the MSCI Europe Index. UK venture capital funds generated an IRR of 13.3.% over the 10-year horizon, compared to an IRR 12.5% for growth equity funds and 18.4% for large private equity funds.

The Public Market Equivalent (PME) analysis, which uses the same dataset as the BVCA's PMS study and assesses the performance of private capital funds in dataset relative to public equities, shows that private equity and venture capital funds have collectively outperformed the public market every year since 2001[3].

Since 2001 private equity and venture capital funds delivered an IRR of 13.7%. The PME+ analysis indicates that an equivalent public equity investment would have returned an IRR of 7.0% p.a. and 7.5% p.a. by December 2024 depending on the benchmark index selected (the FTSE All Share and the MSCI Europe respectively).

Note: Growth equity serves only as a proxy for small private equity funds (those that invest less than £10million in equity) and mid-market private equity funds (those that invest between £10million and £100million). It is possible that those funds make buyout investments and take a majority stake by employing leverage.

British Business Bank - UK Venture Capital Financial Returns 2025 Report (link)

The analysis encompasses a sample of 271 UK funds with vintages from 2002 to 2023, sourced from Preqin and Pitchbook, in addition to the information collected by the Bank from fund managers which it invests in.

Some key findings include:

- Overall performance of the UK market continues to be in line with the rest of Europe and below the US. Across the main 2002-2020 vintage years UK venture capital funds generated a pooled TVPI multiple of 1.84x compared to 1.95x for US funds and 1.85x for funds across the rest of Europe.

- UK funds with vintage years post the dot-com bubble (2002-2007) performed particularly well compared to other regions. UK VC funds delivered a DPI multiple of 1.77x, higher than US

[3] 2001 was selected as starting point for the PME analysis due to availability of data for both benchmarks, the MSCI Europe Index and the FTSE All Share Index.

funds (1.51x) and the rest of Europe (1.45x). UK funds also outperformed on TVPI (1.84x) compared to 1.62x for the US and 1.67x for the rest of Europe.

- VC and PE UK funds produced stronger returns than other alternative asset classes, while the top VC funds generated the highest gains**.** However, returns of VC are more widely distributed reflecting its risk profile.

- Compared to its competitors, the UK has a similar proportion of funds reporting good returns, but a lower share of the top performers. 8% of UK funds reported a TVPI of three or more, compared with 13% for the US and 14% for the rest of Europe,

Invest Europe's Benchmark Report 2024: The Performance of European Private Equity

The report uses data sourced from Cambridge Associates and compares performance of 822 European buy-out, growth capital and venture capital funds (including UK funds) to their international counterparts as well as listed equity as represented by the MSCI Europe, and the S&P Europe Small Cap index and other global indices.

The report uses Since Inception IRR, Horizon IRRs and TVPI but also the mPME (modified PME) method to analyse absolute and then relative performance of private capital funds.

The vintage years for growth equity include 1994 to 2024, while for venture capital the sample starts with the 1986 vintage year. The sample of buyout funds, the largest segment in the study, includes vintage years from 1987 to 2024.

Some of key findings for European Buyout, Growth and Venture Capital (with a small note of caution given the relatively small sample of growth capital funds) include:

- European Growth Capital funds generated since inception an IRR of 14.57% and a TVPI of 1.60x, outperforming the MSCI Europe with returns of 7.51% and 1.25x, as well as the S&P Europe SmallCap index with returns of 8.55% and 1.25x.

- European Growth Capital funds provide consistent performance over long periods, with an IRR of 13.35% over a 25-year horizon and 17.19% over a 10-year period.

- Liquidated Growth Capital funds (i.e. those completely exited) provide returns similar to active funds, generating a 1.66x TVPI (vs 1.59x for active funds), underlining the typically conservative valuations of active investments.

- European Venture Capital funds generated since inception an IRR of 11.34% and a TVPI of 2.04x, outperforming the MSCI Europe which returned 8.06% and 1.39x.

- Over 10-, 15-, and 20-year horizons, European Venture Capital funds perform strongly, generating IRRs of 18.95%, 17.37% and 13.11% respectively.

- European Venture Capital funds lag North American funds, which delivered a 16.46% IRR over the full period of the study, although European fund performance has exceeded North American performance over 10- and 15-year horizons in euros and dollars and continues this trend also over shorter time periods.

- European Buyout funds delivered since inception an IRR of 14.86% versus 6.21% for the MSCI Europe and a TVPI of 1.70x vs 1.26x.

- Over long time-horizons of 10 years and over, European Buyouts have routinely delivered IRRs between 13.61% to 15.83%.

- European Buyout funds perform consistently when compared against their North American peers, generating better IRRs but slightly lower TVPIs.

Relative performance analysis

The mPME analysis shows that European Buyout outperform all the major listed indices, either local and global (MSCI Europe, MSCI World, S&P 500, FT Wilshire 500) in both IRR and TVPI. European growth capital funds, on the other hand, outperform all the major indices of listed companies in terms of IRR, but local indices in terms of TVPI (MSCI Europe and S&P Europe SmallCap), while European Venture Capital funds outperform their geographical index (MSCI Europe) on both metrics.

Academic literature

Private equity fund performance has been extensively studied for many years. The majority of 'recent' studies (i.e. since the 2010s) cover both buyout and venture capital strategies. Historically, there has been strong evidence of buyout funds (private equity) outperforming the public markets on average over the long run, whereas evidence on venture capital has been somewhat mixed. Venture capital performance declined significantly in the 2000s, which coincided with the dot-com bubble. Academic studies dedicated solely to performance of venture capital funds and particularly the performance gap between the US and Europe are quite old, covering time periods only up to 2007 and hence not included in the below literature review.

Findings and conclusions on performance of private equity and venture capital have greatly varied depending on authors, data source, sample period, methodology and benchmark used.

For example, using data from Burgiss, Hariss, Jenkinson, and Kaplan (2014) show that buyout funds (buyout and venture capital funds with North American focus) raised between 1984 and 2008 provided higher returns net of fees that the S&P 500 by 3-4% per year on average.

Expanding on the previous study, having included more global private equity funds and their cashflow data through mid-2014, Harris, Jenkinson and Kaplan (2016) show that buyout funds have outperformed public markets in almost all vintages before 2006 by around 3-4% annually. Since 2006, buyout funds returns have been roughly equal with those of public markets.

Similarly, using an independent dataset obtained from a large institutional limited partner and with US funds constituting a greater majority (85%) of the sample, Robinson and Sensoy (2015) also find that for vintage years 1984 to 2010, buyout funds outperformed public markets by around 3% per year on average. This excess return was considerably less for venture funds.

More recently, Brown and Kaplan (2019) using the Burgiss data from 1986 through mid-2018 (for vintage years 1986-2014) document that US buyout funds have outperformed the S&P 500 by about 3.5%.

According to Kaplan (2024)[4], who expanded on the above analysis including cashflows and valuations through Q3 2023, the average US buyout fund has beaten the S&P 500 every year since 1992. Large buyouts and venture offer "significant diversification benefits relative to public equities" as buyout

[4] See Slide 85

funds have sometimes outperformed when public equity is in decline, such as during the dot-com bubble of 1999 and 2000.

Phalippou (2020) challenges the validity of buyout funds' outperformance. He finds that buyout funds of vintage years 2006-2015 performed about the same as the S&P 500. Many other academics have taken issue with this analysis, as the time period selected is 'cherry-picking' the period with the lowest returns. Subsequent analysis of the same set looking at different periods, or even the same vintage years but allowing for more recent performance, shows that buyout funds in the sample outperform the S&P 500. Academic commentators have also critiqued Phallippou's choice of the S&P 500, stating that an index focused on smaller cap businesses would be more comparable, and that some of the funds included in this study were not 'pure' private equity and venture capital funds but also include infrastructure and energy funds.

Ilmanen, Chandra and McQuinn (2020) of AQR provide their perspective on the past, present and expected future performance of private equity. The authors estimate that US buyout funds with vintage years 1986 to 2017 delivered an excess return over the S&P 500 of around 2.3% which is lower than that of other empirical studies. They find that as private equity grew in size, with more capital allocated to the asset class, the valuation gap between private equity and public equities has narrowed over time, and as a result private equity outperformance over public equities have decreased with post-2006 vintages. The authors conclude that "private equity doesn't seem to offer as attractive a net-of-fee return edge over public markets counterparts as it did 15-20 years ago from either historical or forward-looking perspective".

L'Her, Stoyanova, Shaw, Scott and Lai (2016) using the Burgiss dataset show that buyout funds formed between 1986 and 2014 have historically outperformed the S&P 500, while buyout fund returns for 2009-2014 vintage years have roughly equalled to those of the S&P 500. However, after adjusting for appropriate risks such size and leverage, they find no outperformance of buyout funds compared to their public market equivalents. That being said, the authors are advocates for including private markets funds in investor portfolios, as they see this as a route to diversification and providing access to a different universe of companies to complement public markets investing.

In their well-regarded book, '*Patient Capital: The Challenges & Promises of Long-Term Investing*', Victoria Ivashina & Josh Lerner make a strong case for long-term investing and consider the incentive structures needed to achieve this. Their analysis of private capital returns, which includes funds up to and including the 2016 vintage, finds that private equity collectively[5] outperformed the S&P 500 until 2003, and was broadly in line for the subsequent years – although this will have included some very young funds which would not yet be realising assets. Venture capital outperformed in the years to 1998, underperformed the public markets 1999-2003 and appear to be broadly in line subsequently. Ivashina and Lerner emphasise the range of returns between the top and bottom quartiles and point out that the top performing managers do generate very strong returns. They also study persistence in performance and find that top quartile managers do tend to have higher than average performance on subsequent funds.

More recently, Harris, Jenkinson, Kaplan and Stucke (2022) use cashflow and valuation data (as of December 2020) of US private equity funds from Burgiss (now MSCI), and confirm previous findings of some performance persistence, but highlight that these patterns differ between private equity and venture capital and over time. The authors find that performance persistency remains strong for venture capital, while the persistence in private equity has diminished over time.

[5] NB. Figures presented here are medians, not pooled averages as per BVCA study

3) Other evidence on investor returns

This section looks at the overall returns obtained by large investors in private equity and venture capital, such as US university endowments and public pension schemes. These are large investors able to take a long-term view. They typically have deep and longstanding relationships for private equity and venture capital managers. In addition to being investors/limited partners in private capital funds, which may open doors to other investment opportunities.

Investments outside of traditional fund structures

Large investors such as endowment funds frequently co-invest alongside the fund in specific deals. This means putting in additional capital, usually equity capital, alongside that contributed by the fund. The advantage of this strategy is that an LP can increase their exposure to assets which are particularly attractive to them. As co-investment is outside of the fund wrapper, returns are not subject to carried interest, which can increase the investor's overall returns after fees if an investment generates a good return.

There are a couple of academic studies on the performance of private equity co-investments which offer competing results. Fang, Ivashina and Lerner (2015) based on co-investment data obtained directly from a sample of LPs, document that "co-investments underperform the corresponding funds with which they co-invest, due to an apparent adverse selection of transactions".

In contrast to the aforementioned paper, Braun, Jenkinson and Schemmerl (2018), using a much larger dataset, find no evidence of adverse selection. They conclude that on average co-investments outperform deals in the corresponding funds regardless of the type of investment such as buyout or venture capital. Moreover, the authors state that "given the skewed distribution of deal-level returns, engaging in single co-investments, will on average, deliver returns that are below the average fund return. Therefore, in absence of skill in picking the best deals, the average investors will only benefit from co-investments if they pursue a diversification strategy and construct a portfolio of deals."

Evidence from pension schemes and endowment funds

Reports from US pension funds show that private equity returns have consistently exceeded those of other asset classes.

The CEM Benchmarking report from 2023 analysing asset allocation and fund performance of defined benefit pension funds in the United States between 1998 and 2021 found that private equity had the highest average net return over the period, estimated to be at 12.4% compared to other asset classes.

The AIC Pension study from 2019 found that private equity delivered the highest return among all asset classes, with private equity's median 10-year annualised net return of 10.2% versus 8.5% for public equity.

Similarly, a recent study by Cliffwater, LLC, an investment advisory service to institutional investors, shows that private equity investments by US state pensions outperformed the pensions public equity benchmarks by around 4.8% on annualised basis over the 23-year time period. It concludes that private equity has consistently been of the strongest performing asset classes within US state pension portfolios.

4) Risks

When evaluating the returns of any asset class, it's important to consider the risks underlying that return. In general, the academic literature suggests that private equity funds carry higher risks

compared to public market indices, so estimates of risk-adjusted returns to private equity appear less favourable to the asset class than unadjusted return comparisons. The level of risk will depend on the experience of the investment manager, and the business lifecycle stage of the underlying assets.

"Some studies estimate high market betas for private equity funds. Axelson, Sorensen, Stromberg (2014), Driessen, Lin, Phalippou (2011), and Buchner and Stucke (2014) document market betas for private equity funds between 2.4 (for years 1980-2001) and 2.7 (for years 1994- 2007). However, these risk estimates are at the high end of the range of betas reported in private equity research. Korteweg (2019) concludes that the risk of private equity funds tends to be higher than that of the market index but with an estimated beta in the range of 1.3. While risk-adjusted returns to private equity appear to be better than public markets for long periods, estimates for recent periods can show weaker performance."

According to Kaplan (2024) fund betas[6] do not appear to be different than 1 indicating that private equity funds are no riskier than investing in public equity. This conclusion is based on most recent studies, e.g. Korteweg and Nagel (2022) estimate buyout fund betas using cashflows and find them to be less than or equal to 1. Brown et al. (2022) find that the market beta of an average buyout/(venture) fund is around 1.0/(1.4).

And while risk-adjusted returns are lower than absolute returns, it is important to consider overall returns in the context of diversification.

5) Diversification

The Markovitz Model, also known as Modern Portfolio Theory, is a fundamental concept in finance. All investment opportunities will have an expected return and level of risk. Fund managers seek to create portfolios which maximise returns for a given level of risk. Diversification is a key part of this strategy. By identifying assets or asset classes are uncorrelated (or at least less than perfectly correlated), the overall return can be increased for a given level of risk (or the level of risk reduced for a given target return).

A common view is that private equity and venture capital investments provide additional diversification relative to more traditional stock/bonds, thus increasing the risk adjusted returns.

An analysis by Goetzmann, Gourier and Phalippou (2019) decomposes private fund returns into a set of risk factors and finds substantial diversification benefits from private funds. The authors note, "Perhaps some assets perform better, or more true to their underlying factor exposures, when held by private capital. This paper shows that private markets provide exposures that public markets do not, thereby offering an additional source of factor risk premia. This may help to understand why institutional investors regard private markets as a source of diversification."

Another recent study by Brown, Kuhn, and Hu (2019) creates simulated diversified portfolios with an allocation to buyout funds for the years 1987-2017. They find that the inclusion of private equity investments into the portfolio increases average returns, reduces portfolio standard deviation (after adjusting for serial correlation in returns), and thus improves portfolio Sharpe ratios (return per unit of risk).

→ These findings suggest that inclusion of private equity funds in a portfolio can provide pension funds with a more diversified investment with a better risk-reward trade off.

[6] Betas measure how funds vary with overall stock market

Binfare, Brown, Harris & Lundblad (2019) show that portfolios of particularly large endowments (which are by and large heavily invested in alternative asset classes) significantly outperform portfolios consisting of traditional asset classes. It shows that endowment portfolios have higher returns per unit risk as expressed in higher Sharpe Ratios.

A white paper by Time Partners finds that private capital can be a beneficial addition to portfolio, as it provides a variety of exposures and attributes that can significantly enhance value and reduce volatility. It stresses that the importance of manager selection, a robust network, and a thoughtful portfolio creation are key to achieving optimal results. This is particularly important given the broad range of returns and alpha generation across different capital funds and the "persistence" observed across fund vintages. There are numerous benefits for the long-term investor. These include the ability to capture the illiquidity premium, investing in line with long-term themes, or minimising trading costs.

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