

APRIL 2019

Have Private Equity Returns Really Declined?

Gregory W. Brown, *UNC Kenan-Flagler Business School*

Steven N. Kaplan, *University of Chicago Booth School of Business*



INSTITUTE
for PRIVATE
CAPITAL

CHICAGO BOOTH 

The University of Chicago Booth School of Business

ABSTRACT

In a recent paper, “Demystifying Illiquid Assets – Expected Returns for Private Equity,” Ilmanen, Chandra and McQuinn (of AQR) give a perspective on the past, present, and expected future performance of private equity. They conclude that “private equity does not seem to offer as attractive a net-of-fee return edge over public market counterparts as it did 15-20 years ago from either a historical or forward-looking perspective.” This analysis provides our perspective based on more recent and, we think, more reliable data and performance measures – the historical perspective is more positive than Ilmanen et al. portray.

INTRODUCTION

Over the past 20 years, as new and higher quality datasets have emerged, there has been a growing body of research on the performance of private equity funds. This research has studied the returns of the asset class in absolute terms and relative to public equity, its risk-adjusted returns, attempts to replicate returns with public equities, as well as the persistence of returns. Conclusions on the performance of private equity have differed by data source, by methodology and benchmark, and by author. In a recent paper, “Demystifying Illiquid Assets – Expected Returns for Private Equity,” Imanen, Chandra and McQuinn (of AQR) give their perspective on the past, present, and expected future performance of private equity. They conclude that “private equity does not seem to offer as attractive a net-of-fee return edge over public market counterparts as it did 15-20 years ago from either a historical or forward-looking perspective.” They also conjecture that the greater attraction to private equity is “investors’ preference for the return-smoothing properties of illiquid assets in general.”

In this analysis, we use high quality data from Burgiss to provide our perspective on these questions using up-to-date numbers on the historical absolute and relative returns of private equity. We then discuss the implications of different variables for future expected returns.

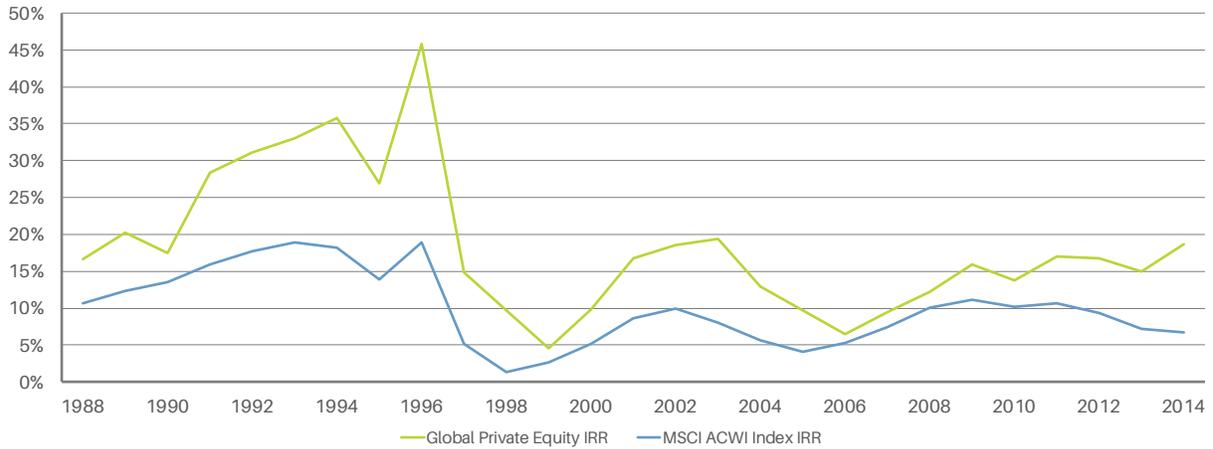
Exhibit 1A shows the annualized returns by vintage year and Exhibit 1B shows the Kaplan-Schoar (2005) public market equivalents (PMEs) by vintage year of global private equity funds against the contemporaneous total returns of the MSCI ACWI index. The exhibits use the most recent data from Burgiss. Burgiss sources its data directly from institutional limited partners (LPs), so the data are up to date and relatively free of selection bias. In these exhibits, we include in private equity the categories of buyout, venture, growth, and generalist private equity funds. In the rest of the paper, we focus on the largest category, U.S. buyout funds.

As can be seen, private equity returns have been higher than the MSCI in every single vintage year. The PMEs are greater than one for every single vintage year.¹ While one can debate, whether the MSCI ACWI is an appropriate benchmark for private equity, it is a reasonable place to start for the average institutional investor’s public equity exposure.

While excess returns and PMEs have declined post-2005, they have still exceeded the returns to public markets. It seems likely that these persistent excess returns are the main reason for the past and current popularity of private equity. While it is probable that investors do not mind any perceived return smoothing that comes with illiquid assets, it seems unlikely that smoothing is a first order source of demand given the historical performance.

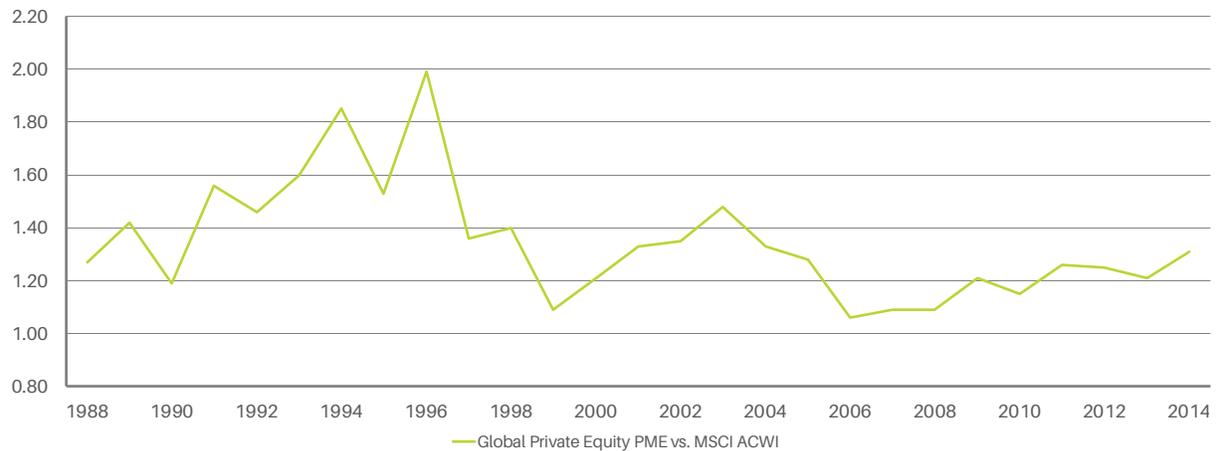
¹ Returns of private and public equities for less mature vintage years are still subject to change as portfolio investments are exited and valuation estimates are converted to cash returns.

Exhibit 1A: IRRs of Global Private Equity and the MSCI ACWI by Vintage Year



Source: Burgiss Private iQ, as of September 30, 2018. Global Private Equity includes buyout, venture, growth, and generalist private equity funds. Contemporaneous IRRs of the MSCI ACWI are derived via Direct Alphas as per Gredil, Griffiths, and Stucke (2014).

Exhibit 1B: PMEs of Global Private Equity against the MSCI ACWI by Vintage Year



Source: Burgiss Private iQ, as of September 30, 2018. Global Private Equity includes buyout, venture, growth, and generalist private equity funds. PMEs as per Kaplan and Schoar (2005).

THE PERFORMANCE OF U.S. BUYOUT FUNDS

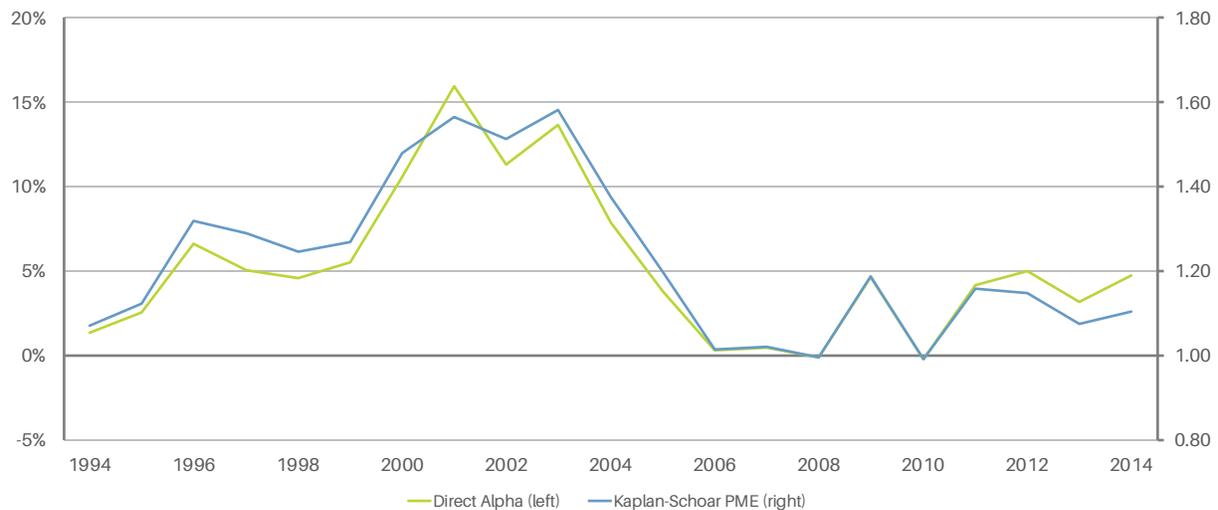
Ilmanen et al. (2019) focus on U.S. buyout funds, which represent the largest part of global private equity. Based on time-weighted returns back to 1986, they estimate an excess return over the S&P 500 of 2.3%.

This number appears low.² Using the latest fund cash flow data from Burgiss as of the third quarter of 2018, we calculate an average Direct Alpha of 4.8% and an average PME of 1.22 for 1986 to 2014 vintage years.³ Accounting for the different amounts of capital in each vintage year leaves an excess return of 3.5% or 1.15. In other words, U.S. buyouts have historically outperformed the S&P 500 by a fairly wide margin.

Ilmanen et al. reference research by L’Her et al. (2016) who found that U.S. buyout fund returns for 2009 to 2014 vintage years were roughly equal to those of the S&P 500. As it turns out, this finding was probably driven in part by the immature nature of those more recent vintage years.⁴ As of the third quarter of 2018, funds from 2009 to 2014 have generated an average Direct Alpha of 3.9% and a PME of 1.11. This is quite healthy performance and in line with expectations of returns that are 2% to 3% above public markets.

Exhibit 2 shows Direct Alphas and PMEs back to 1994.⁵ Capital-weighted average excess returns over this period are 3.6% and the average PME is 1.15. The highest excess returns are for 2000 to 2004 vintages. The lowest are for the 2006 to 2008 vintages. The 2009 to 2014 vintages look most like the vintages of the mid- to late-1990s, albeit slightly lower. Note that the funds for more recent vintage years are not fully realized. PMEs will increase if funds continue to generate returns in excess of the S&P. (Of course, they will decrease if the reverse is true.)

Exhibit 2: Direct Alphas and PMEs of U.S. Buyout Funds against the S&P 500 by Vintage Year



Source: Burgiss Private iQ, as of September 30, 2018.

² See Harris, Jenkinson, and Kaplan (2014), and Higson and Stucke (2012).

³ See Kaplan and Schoar (2005), and Gredil, Griffiths, and Stucke (2014) for a derivation of Direct Alpha.

⁴ In their paper, the authors acknowledge the preliminary nature of the returns for more recent vintage years.

⁵ Results for earlier vintage years are more volatile due to a much smaller number of funds in each vintage year. Capital-weighted average Direct Alphas and PMEs across 1980 to 1993 vintage years are 4.1% and 1.19, respectively.

SMART-BETA FACTORS AND U.S. BUYOUT FUNDS

It is no secret that buyouts use more leverage than and are smaller than the typical company in the S&P 500. There also is a perception that buyouts are more like value investments than growth investments. The question, then, is what is the appropriate benchmark to use for buyout fund investments.

One possibility is that the S&P 500 is just fine. Sorensen and Jagannathan (2015) show that this is a reasonable assumption if investors have log utility. And, of course, the primary objective of institutional investors is to generate returns in excess of their public equity portfolio.

An alternative is to try to adjust for leverage and the level of market risk (i.e., the CAPM beta). Ilmanen et al. assume that the market risk inherent in a portfolio of U.S. buyout funds is equivalent to having a beta of 1.2 and adjust accordingly. Because buyout funds are illiquid, it is difficult to estimate betas directly. The academic literature on this is inconclusive with betas typically ranging from 1.0 to 1.3.⁶ In general, using a beta above 1.0 has the effect of lowering the PME's and Direct Alphas of buyout funds because the stock market goes up on average. We note that, empirically, beta does not do a good job of explaining realized returns, i.e., a portfolio of higher beta public stocks does not perform much differently from a portfolio of low beta stocks. Evidence for this comes from Frazzini and Pedersen (2014). It is further not clear, to what extent risk measures based on volatility and covariance are particularly meaningful for illiquid investments, where cash flows are at the discretion of the fund manager.

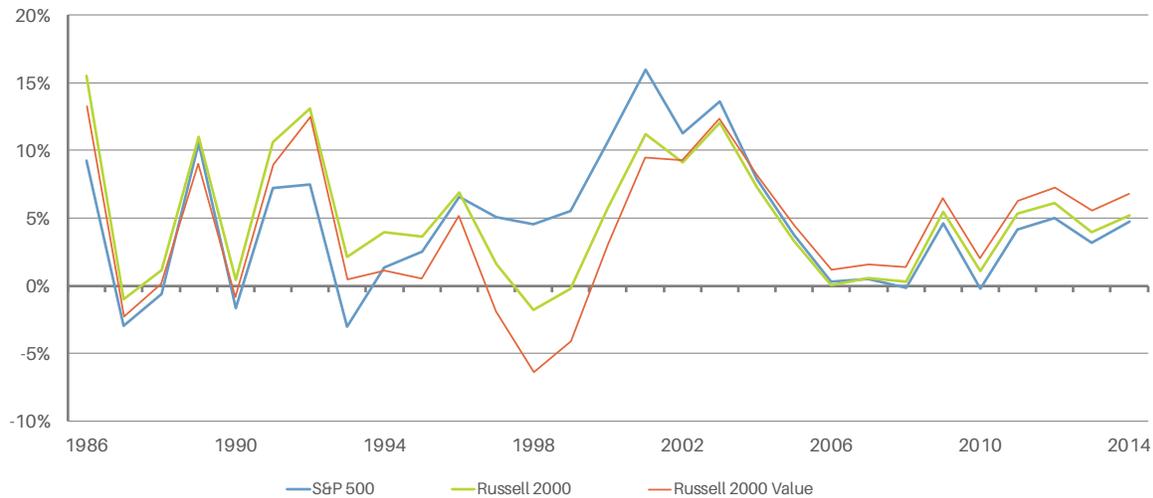
Another alternative is to adjust for size. Portfolios of smaller capitalization stocks perform differently over different periods than portfolios of larger stocks. And buyout investments tend to be in companies that are more like smaller capitalization stocks.

A final alternative is to adjust for value as opposed to growth. Again, portfolios of value stocks and growth stocks perform differently over different periods. As with beta, it is difficult to know exactly what value adjustment to make for buyout funds.⁷ While it is unclear which adjustments make the most sense, if any, we show the effects of making different adjustments. Exhibit 3 presents Direct Alphas using the S&P 500 index, the Russell 2000 and the Russell 2000 Value indices.

⁶ See Kaplan and Sensoy (2015) and Korteweg (2018) for a survey of this and other evidence.

⁷ Buyouts are priced at entry and exit because these valuations form the basis for eventual investment returns. For buyouts of privately-held companies, the valuation process usually starts with earnings multiples of a group of industry- and size-matched public peers as well as recent private equity or M&A transactions. A potential acquirer then determines a maximum bid based on its investment thesis (that includes operational improvements and strategic adjustments), the debt used to fund the transaction, the estimated cash flows and the valuation of the company at final exit. For buyouts of publicly-listed companies, the acquirer typically has to pay a premium of 20% to 40% to the selling shareholders. In summary, while buyout valuations are informed by recent valuations in the public market, those are only one part of the overall equation.

Exhibit 3: Direct Alphas – S&P 500 vs. Russell 2000 and Russell 2000 Value by Vintage Year



Source: Burgiss Private IQ, as of September 30, 2018.

If U.S. buyouts were indeed subject to a size and value premium in public equity markets, this should be accounted for when using the Russell 2000 indices as benchmarks. Since the 2008 vintage year, excess returns of U.S. buyout funds have been consistently higher against the Russell 2000 index than against the S&P 500. Since 2004, excess returns have been consistently higher against the Russell 2000 Value index. The advantage of small-cap value stocks over the S&P 500 is concentrated in the 1997 to 2001 vintages. This fact is typically ignored by research that attempts to replicate long-term buyout returns with small-cap value stocks. (That research also ignores potential capacity constraints in public markets – the market capitalization of the entire Russell 2000 Value index of about \$1.5 trillion compares to uncalled capital by U.S. buyout funds of about \$500 billion.)⁸

We also estimate the effects of assuming a beta of 1.2 using the S&P 500, the Russell 2000, and the Russell 2000 Value indices. Exhibit 4 presents the Direct Alphas and PME's over different time periods. What is clear from these calculations is that buyout performance has exceeded the leveraged indices for the vintages from 1986 to 2014 and over the two more recent different sub-periods.

It is worth pointing out that outperformance has been the greatest against the Russell 2000 Value index for 2009 to 2014 vintage years and, inversely, it has been at the lower end against the Russell 2000 Value index in earlier periods, especially in the 1990s. This observation raises questions as to whether buyouts are at all subject to a small-cap and value premium as historically observed for public equities, particularly given the increased size and competitiveness of the buyout industry over the past 10-15 years.⁹

⁸ See Chingono and Rasmussen (2014), and Stafford (2017).

⁹ Using a benchmark with a greater size and value tilt, such as customized Fama-French portfolios of small-cap value stocks also generates positive PME's and Direct Alphas for post-2000 vintages.

Exhibit 4: Direct Alphas and PME's against a simulated Beta of 1.2

From	Direct Alpha				KS-PME			
	1986	2000	2000	2009	1986	2000	2000	2009
To	2014	2014	2008	2014	2014	2014	2008	2014
S&P 500	2.1%	1.9%	2.0%	1.3%	1.09	1.07	1.09	1.04
Russell 2000	0.8%	1.0%	0.6%	2.4%	1.03	1.04	1.03	1.07
Russell 2000 Value	0.9%	1.8%	1.2%	3.9%	1.04	1.07	1.06	1.11

Source: Burgiss Private IQ, as of September 30, 2018. Direct Alphas and PME's are calculated based on capital-weighted, vintage year concurrent cash flows.

EXPECTED OR FUTURE RETURNS FOR U.S. BUYOUT FUNDS?

Ilmanen et al. conclude their paper by attempting to estimate expected returns for buyout funds going forward. They conclude that the expected buyout fund returns relative to public markets are likely to be lower than the past – on the order of 80 basis points. They base this on several considerations.

First, they note that buyout fund returns appear to have declined post-2005 to almost equal public market returns. They also point out that this coincided with private market purchase multiples have been in line with public market multiples since 2006 (suggesting that there is no longer a valuation discount to buyouts). As we showed above, the conclusion that buyout fund returns equal public market returns for post-2008 vintages just does not hold using the most recent data. As an aside, by the same logic, one might conclude that the value premium is also a figment of the past as it has performed quite poorly the last decade.

Second, they point out that buyout fundraising has been substantial over the last five years and that high fundraising has been associated with lower subsequent returns. We agree that this is, indeed, a concern. There is a negative correlation historically between PME's and buyout fundraising. However, that correlation is to some extent backward looking. The correlation has been smaller in real time. See Brown et al. (2018).

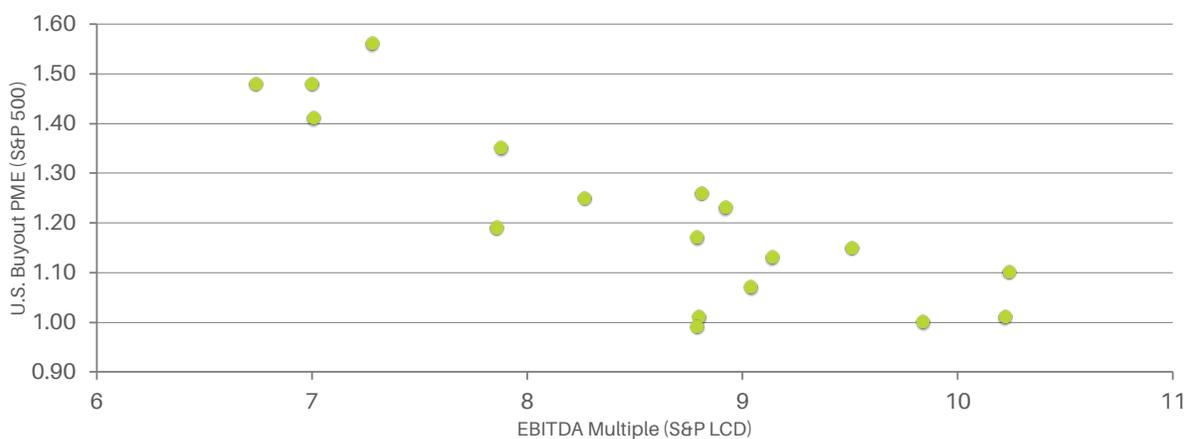
Finally, they point out that buyout earnings yields are relatively low today. Under certain assumptions, that implies relatively low future returns. That is another way of saying that buyout multiples are historically high. On this, we agree. The high multiples being paid are a cause for concern.

Historically, higher multiples are associated with lower PME's and Direct Alphas. Exhibits 5A and 5B show the relationship between PME's and Direct Alphas (relative to the S&P 500) and EBITDA multiples paid in

deals worth more than \$500 million in enterprise value according to the S&P LCD. Consistent with this, a regression of EBITDA multiples on PME's yields a negative and significant coefficient of -0.13.

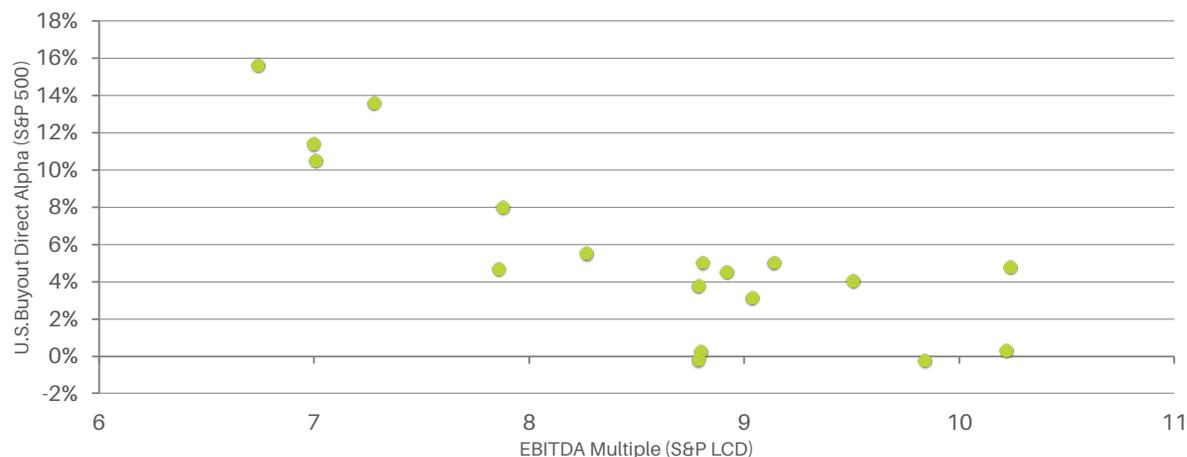
This correlation is concerning because EBITDA Multiples averaged 10.9 in 2017 and 2018. At those multiples, the regression coefficients imply performance for those vintages will be less than the S&P 500 with PME's of 0.90. That said, EBITDA multiples have been above 10 for vintages since 2014. Despite that, the 2014 and 2015 vintages currently have PME's above one and Direct Alphas well above zero.

Exhibit 5A: PME's Versus EBITDA Multiples from 1997 to 2014



Source: *Burgiss Private IQ*, as of September 30, 2018. S&P LCD.

Exhibit 5B: Direct Alphas Versus EBITDA Multiples from 1997 to 2014



Source: *Burgiss Private IQ*, as of September 30, 2018. S&P LCD.

CONCLUSION

U.S. buyout funds have historically outperformed public market indices, even more recently. This remains true even after making reasonable adjustments for leverage (beta) and a potential small-cap and value premium.

That said, there are two forces that will make it more difficult for buyout firms to continue that performance. First, the amount of capital raised by buyout funds is at historically high levels. Second, purchase price multiples also are at historically high levels. In the past, realized buyout returns have been lower when capital and, particularly, multiples have been high.

While those two forces operate, buyout firms have faced similar headwinds in the past. Perhaps surprisingly, buyout firms have been able to offset those headwinds in every vintage year in the last twenty-five years, to perform at least as well as the S&P 500.

REFERENCES

- Brown, Greg, Robert Harris, Wendy Hu, Tim Jenkinson, Steve Kaplan and David Robinson, 2018, Can Investors Time Their Exposure to Private Equity? Working paper, Kenan Institute, University of North Carolina.
- Gredil, Oleg, Barry Griffiths and Rüdiger Stucke, 2014, Benchmarking Private Equity: the Direct Alpha Method, SSRN number 2403521.
- Harris, Robert, Tim Jenkinson, and Steven N. Kaplan, 2014, Private Equity Performance: What Do We Know? *Journal of Finance* 69(5), 1851-1882.
- Harris, Robert, Tim Jenkinson, and Steven N. Kaplan, 2016, How Do Private Equity Investments Perform Compared to Public Equity? *Journal of Investment Management*, 14(3), 14-37.
- Higson, Chris, and Rüdiger Stucke, 2012, The Performance of Private Equity, Working Paper, London Business School.
- Ilmanen, Anti, Swati Chandra and Nicholas McQuinn, 2019, Demystifying Illiquid Assets: Expected Returns for Private Equity, Working Paper, AQR.
- Kaplan, Steven N., and Antoinette Schoar, 2005, Private Equity Returns: Persistence and Capital Flows, *Journal of Finance* 60(4), 1791-1823.
- Kaplan, Steven N., and Berk Sensoy, 2015, Private Equity Performance: A Survey, *Annual Review of Financial Economics* 21(11), 1-18.
- Korteweg, Arthur G., 2018, Risk Adjustment in Private Equity Returns, Working Paper, University of Southern California. SSRN number 3293984.
- L'Her, Jean-Francois, Rossitsa Stoyanova, Kathryn Shaw, William Scott and Charissa Lai, 2016, A Bottom-Up Approach to the Risk-Adjusted Performance of the Buyout Fund Market, *Financial Analysts Journal* 72 (4), 36-48.
- Sorensen, Morten, and Ravi Jagannathan, 2015, The Public Market Equivalent and Private Equity Performance, *Financial Analysts Journal* 71(4), 43-50.
- Stafford, Erik, 2015, Replicating Private Equity with Value Investing, Homemade Leverage, and Hold-to-maturity Accounting. Working paper, Harvard Business School.

Established in 1985 by Frank Hawkins Kenan, the Kenan Institute of Private Enterprise is a nonpartisan business policy think tank affiliated with the UNC Kenan-Flagler Business School. The nonprofit institute and its affiliated centers convene leaders from the private sector, academic community and government to build a greater understanding of how entrepreneurship, economic development and global commerce can work for the public good. The institute leverages best-in-class research to develop market-based solutions to today's most complex economic challenges. In doing so, the institute aims to support businesses and policies that better the lives of people in North Carolina, across the country and around the world.

For more information, please visit kenaninstitute.unc.edu.

[in kenaninstitute.unc.edu/in](http://kenaninstitute.unc.edu/in) [f](#) [t](#) [@](#) [@kenaninstitute](#) [v](#) [/UNCKenanInstitute](#)



We put knowledge to work.