New Insights into Private Equity: Empirical Evidence from More Than 500 Buyouts

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KEY FINDINGS

- We found that over the past 15 years, private equity has outperformed both the S&P 500 and the MSCI World. There is a decreasing edge over public equities that can be partly explained by the increasing multiples and risk that PE funds assume.
- While public equities are prone to large swings, private companies were able to conduct business as usual and operate without the public pressure that frequently resulted in ad-hoc strategic changes detrimental to company's long-term per-formance.
- Geographic specialization adds no value and has no impact on the performance of buy-outs. But the current study supports the outperformance of industry-specialized funds. Industry specialization results in higher return multiples.

ABSTRACT

This article investigates the performance of private equity–backed companies in the last 15 years and attempts to shed light on an industry in which data are scarce. Despite vivid debate about its actual performance, private equity investing has been attracting enormous amounts of capital in recent years. Research has mixed findings, but it often is biased and conducted by those close to the industry. The authors obtained data on approximately 500 buyouts between 2007 and 2018 from a limited partner and studied this proprietary and unique set of financial data to assess actual returns and examine the drivers of returns. They find that buyouts have outperformed public equities on a gross basis over the past 15 years significantly; money invested in private equity has increased fivefold while investments in the MSCI World or SP 500 Index have only increased threefold. From 2006 to 2018, private equity yielded 13% a year (CAGR), while the average annualized return has been 8% for the SP 500 and 6% for the MSCI World. While this finding supports previous research, the out-performance of private equity in fact is more severe, explaining the tremendous interest by investors in private equity. The authors conclude that industry specialization leads to higher returns and can partially support Jensen's (1986) theory of the firm, while no significant relationship between geographic specialization and performance can be found. Additionally, they found that active involvement of a fund correlates with higher performance—the more assets a fund has under management, the lower the performance of the buyout. Experience really matters, and there is no one-solution-fits-all approach.

The ferocity of competition in private equity (PE) is increasing, thus heightening the need for a close examination of private equity's actual returns and value drivers. There is now a vivid debate over the actual returns of private equity–backed buyouts. In a recent article, Ilmanen et al. (2019) questioned the growing interest in buyouts with a forward-looking approach, assessing whether buyouts realized and estimated expected returns in excess of their lower-cost public equity counterparts. Just months later, Brown and Kaplan (2019) published "Have Private Equity Returns Really Declined?" as a response to Ilmanen et al.'s study. The discussion centers around appropriate performance measures as well as comparable indices that proxy the counterparts and reveals a cognitive shift—funds must do more than simply hold and sell firms; they must actively create value. In a time of record levels of fundraising, financial engineering is simply insufficient.

This study examines these exact questions: Going forward, how can funds differentiate themselves from the competition? And which fund-level characteristics explain superior performance? As a first step, this study sheds light on the actual performance of buyouts. By comparing buyouts with public equity, we can dispel the myth of the outperformance of PE-backed companies. Second, and in line with the growing importance of value-creation initiatives, this study investigates the use of geographic and industry expertise. Third, the study investigates the heterogeneity of funds. More specifically, we examine the different drivers of superior governance, such as higher leverage or more personnel assigned to the buyout. Except for the third hypothesis, the research is in line with Jensen's (1986) theory of the firm: 1) operating profitability of PE-backed companies is higher than that of comparable firms by 4.5% (consistent with the Jensen hypothesis); 2) industry specialization of PE firms adds 8.5% to this premium (in line with the industry specialization hypothesis); and 3) the geographic specialization of PE firms increases this premium further (Jensen 1986; Cressy, Munari, and Malipiero 2007).

LITERATURE REVIEW

Research on private equity is, while already vast, still growing. Despite private equity being a young industry, its importance in the global economy should not be understated. Research relating to PE began generating academic interest in the late 1980s (Jensen 1986; Kaplan and Stromberg 2009). At this time, PE as a new asset class and organizational structure came into force, as did the related literature.

Returns of Private Equity Funds

Funds frequently report annual rates of above 25%, but are these claims true? For years, there has been a lively debate about the actual returns of PE funds. Bain & Company (2019) found that private equity has delivered net returns of 13.1% over the past 30 years in the United States, compared with only 8.1% for public markets. Upon closer inspection and with different time scales, however, returns of both private and public equities have changed. Since the Great Recession of 2008, both public and private equities have generated returns of approximately 15% a year.

Brown and Kaplan (2019) noted a decline of private equity returns since 2005 but that the returns still exceeded public equity counterparts every year. They measured PE returns with the Kaplan–Schoar (2005) public market equivalence (PME) and public equity returns with the MSCI ACWI index.

Ilmanen, Chandra, and McQuinn (2020) measured expected returns rather than internal rate of return (IRR) and found that comparing PE returns with large-cap equities was unfair due to fundamentally different levels of leverage and different

liquidity premiums. Henceforth, a comparison between expected returns of PEs and small-cap indices has to be drawn. They used expected returns to allow for the increasing equity risk due to the high level of debt. Here, expected returns do not outperform their small-cap indices counterparts. They also found that capital is drawn into private equity because it allows investors to smooth earnings.

Harris, Jenkinson, and Kaplan (2015) and Kaplan and Sensoy (2015) instead used a PME to measure the return of PE funds. The PME measures the amount of capital generated by an investment in the fund. Future cashflows are discounted at the annualized return of the public indices. Both found an outperformance of roughly 1.2 against the S&P 500 Index, implying a 20% outperformance over the capital deployment period. Assuming an investment horizon of six years, this means an annual outperformance of approximately 3%.

Franzoni, Nowak, and Phalippou (2012) found no outperformance of private as compared with public equity, as long as they included the liquidity risk premium (whereby alpha turns to zero). However, investing in private equity enables a diversification of benefits for institutional investors. The authors also assessed the liquidity risk and found that, due to the high leverage of private equity funds, there is a strong correlation between private and public markets. In times of high market turmoil, it is more difficult to obtain funding for portfolio assets.

Stucke (2011) highlighted that the findings from Kaplan and Schoar (2005), as well as those of Phallipou and Gottschalg (2009), are surprising due to the cheap financing available for PE funds. In the beginning of an investment, up to 90% of assets are financed by debt. While this number gradually dropped to approximately 70% in the years that followed, the cost of capital of a buyout are far below those of their public counterparts. Contrary to the low cost of capital, the costs of PE funds outstrip public ones, albeit that could also be an indication for an optimal alignment of interests. Stucke's analysis showed that both papers are missing significant cash distributions toward the PE fund. Both studies use Thomson Venture Economics (TVE) data, which does not reflect the actual performance of private equity. At least 40% of the funds that have (voluntarily) reported their returns to the TVE in the dataset have stopped doing so at some point. This bias also explains why so many funds regard themselves as top performers. They compared themselves and their detailed cash distributions with the TVE. The identified errors resulted in a significant downward bias of fund performance. Solely including liquidated funds results in a PME of 1.10, or a 10% outperformance of PE compared with the public equity.

Industry Specialization of PE Funds

As seen earlier, there is already literature on fund specialization. However, the findings differ in the domain of specialization as well as in the performance measures.

Le Nadant, Perdreau, and Bruining (2018) not only examined the magnitude of industry specialization as a source of value creation but further researched the conditions in which industry specialization adds additional benefits. Using a sample of 217 buyouts in France between 2001 and 2007, they extended Cressy, Munari, and Malipiero's (2007) findings in two ways. First, they uncovered resource heterogeneity. Differences in firms exist concerning their ability to gain an advantage from the industry specialization. They found that industry specialization adds 7.5% to profitability and that post-buyout turnover growth is higher for specialists than generalists. Second, they found that the impact of industry specialization was more robust for low and high performers before the buyout than for medium performers.

Aigner et al. (2008) used the PME to assess the performance of private funds. They documented that past outperformance is a strong explanatory force for future outperformance. The probability that a top-performing general partner (GP) will also

outperform the benchmark in future ranges between 33.35 and 41.7%. This is a clear, strong finding that also makes investing for fund-of-funds easier. Somewhat surprisingly, they found no positive impact of geographic or industrial specialization. Additionally, they found that the number of deals executed by a fund adds value to its performance. Here, the authors can see that experience once again matters, however, specialized funds do not outperform their public counterparts.

Cressy, Munari, and Malipiero (2007) examined whether PE-backed buyouts by financial sponsors specialized in terms of industry or stage have higher post-operating profitability. They used a sample of 122 UK buyouts between 1995 and 2002. Although they measured turnover growth as the arithmetic mean three years from the acquisition, operating profitability was calculated as earnings before interest and taxes (EBIT) divided by assets. In line with Jensen (1986), they noted that buyouts outperform public counterparts by 4.5% over the first three years after the transaction. Moreover, industry specialization was found to add a further 8.5% to this. This increase was explained by specialization's ability to help funds more comprehensively understand the sector's competitive environment and its drivers. They argued that specialists not only find more suitable targets but tend to be more able supervisors and advisors (Cressy, Munari, and Malipiero 2007).

METHODOLOGY

The authors initially ran three distinct regressions for each dependent variable to test the relationship between the independent variables and performance metrics:

1. $Sales\ growth_y = \alpha_0 + \alpha_1 IND_y + \alpha_2 GEO_y + \alpha_3 PUR_y + \alpha_4 SAL_y + \alpha_5 EBI_y + \alpha_6 HOL_y + \alpha_7 CRO_y + \alpha_8 FIN_y + \alpha_9 EXP_y + \alpha_{10} AGE_y + \alpha_{11} AUM_y + \alpha_{12} SUP_y + \varepsilon_y$
2. $EBITDA\ growth_y = \alpha_0 + \alpha_1 IND_y + \alpha_2 GEO_y + \alpha_3 PUR_y + \alpha_4 SAL_y + \alpha_5 EBI_y + \alpha_6 HOL_y + \alpha_7 CRO_y + \alpha_8 FIN_y + \alpha_9 EXP_y + \alpha_{10} AGE_y + \alpha_{11} AUM_y + \alpha_{12} SUP_y + \varepsilon_y$
3. $MoIC_y = \alpha_0 + \alpha_1 IND_y + \alpha_2 GEO_y + \alpha_3 PUR_y + \alpha_4 SAL_y + \alpha_5 EBI_y + \alpha_6 HOL_y + \alpha_7 CRO_y + \alpha_8 FIN_y + \alpha_9 EXP_y + \alpha_{10} AGE_y + \alpha_{11} AUM_y + \alpha_{12} SUP_y + \varepsilon_y$

Sample Development

We used a sample of 900 PE-backed buyouts over 2007–2018 obtained from a limited partner (LP) investing in multiple private market vehicles. We opted for a propriety data set, which was made available from a family office, fund-of-funds investor in Europe in July 2020. The data were cross-checked against publicly available data by the authors and sanity checked for reasonability. Private equity seems to be well named; indeed, it is virtually impossible to find high-quality data, and there are no regulations in place that force general and limited partners to share their data (Harris, Jenkinson, and Kaplan 2015). LPs are even prevented from sharing and are legally bound to confidentiality agreements. Accordingly, the dataset obtained has been anonymized because it contains highly confidential financial information on over 1,200 alternative investments. Along with PE, the dataset also includes financial reporting data from various public and venture capital investments.

The sample contains firm-specific data, including 1) primary data on the global industry classification standard (GICS); 2) entry and exit date of the fund; 3) vehicle ownership by the fund; 4) and total costs and value attributable to PE firms, allowing for a gross return. A gross return values each cash flow from the fund as an investment and each cash flow to the fund as a return (Aigner et al. 2008). We chose to

EXHIBIT 1
Summary of the Variables

	Definition
Dependent Variables	
Sales Growth (multiple)	Average Turnover [yEntry, yExit/Current]
EBITDA Growth (multiple)	Average EBITDA/Turnover development [yEntry, yExit/Current]
Money on Invested Capital (multiple)	Multiple of realised or unrealised value divided by dollar amount invested
Independent Variables	
Industry Specialization (dummy)	ICAij = (Cij/Cj)/(Ci/C); if ICAij >1, 1, 0
Geograhic Specilization (dummy)	IGSij = (Gij/Gj)/(Gi/G); if IGSij >1, 1, 0
Control Variables	
Purchase Price (entry & log)	Natural logarithm of: deal size at entry
Sales (entry & log)	Natural logarithm of sales at entry
EBITDA margin (entry)	EBITDA margin at entry
Net Debt/EBITDA multiple (entry)	Net Debt/EBITDA multiple at entry
Holding Period (years)	Holding period of the buyout (exit date or current date – entry date) (years)
Cross-Border (dummy)	If the headquarter of the PE is different to the headquarter of the buyout, it is classified as a crossborder deal
Financial Crisis (dummy)	If the fund has invested into the buyout in 2007 or 2008, it is classified as a financial crisis deal
Fund–Experience	Natural logarithm of: number of deals at entry
Fund–Age	Sqrt of the age of PE firm
Fund–Assets under Management	Natural logarithm of: sum of PE firms total deal value
Fund–Support Intensity	Number of companies divided by number of total staff

ignore carried interest payments and the management fee in the return calculations and instead focused on gross returns as these data were not made available in the dataset. Nevertheless, given the scarcity of data available to the public from private market investors who are almost exclusively only held responsible to the limited partners of the respective investment vehicles, the authors deemed the dataset to be of high relevance as it mirrors the true returns of a family office investing in various private equity funds over the past 15 years.

The dataset includes such financial data as revenue, EBITDA development, or the net financial debt (see Exhibit 1). Noteworthy here is that the list has been used for monitoring purposes by an institutional investor. Each year, PE funds provide updates of their performance on portfolio companies. This monitoring is essential for pension funds, endowment managers, and family offices alike to understand the drivers of their returns. Compare this with Preqin providing little financial information on the various privately held companies out there, rather than showcasing returns and information on the size and structure of the respective fund as well on such outside-unavailable information as 1) assets under management, 2) funds raised, 3) dry powder, 4) as well as a portfolio overview by class or sector (Preqin 2021). What is not available to the public is deal-specific, financial information. The uniqueness of the dataset stems exactly from that; publicly available datasets—for example Preqin or Burgiss—provide such investment insights as investment size or percentage exit of average duration for existing investments and complementary data about the fund, such as fund size, but are very economical with providing firm-specific information such as revenue and EBITDA margin (Brown et al. 2020).

Funds rely on this information to evaluate the benefits of making further capital commitments in future funds and learning from successful strategies. While it is clear how financial numbers are measured, which valuation methodologies are used to assess the performance of portfolio companies remains uncertain. Funds will

EXHIBIT 2
Sample Composition

Industry Buyout		HQ–Buyout		HQ–PE Fund	
Consumer Discretionary	147	United States of America	136	United States of America	20
Industrials	116	UK	72	UK	8
Consumer Staples	65	Germany	60	Germany	6
Information Technology	64	Canada	33	France	2
Health Care	37	India	17	Sweden	2
Materials	36	Brazil	16	Finland	1
Financials	21	Peru	15	Australia	1
Telecommunication	14	Australia	12	Brazil	1
Services	13	Belgium	12	Canada	1
Energy	2	Netherlands	10	China	1
Utilities		Sweden	10	India	1
		France	9	Israel	1
		Poland	9	Italy	1
		Spain	8	Luxembourg	1
		Ukraine	8	Malaysia	1
		China	6	Peru	1
		Denmark	6	India	1
		Singapore	6	Israel	1
		Austria	6	Italy	1
		Egypt	5	Luxembourg	1
		Italy	5	Malaysia	1
		New Zealand	5	Peru	1
			5	Spain	1

most likely use precedent transactions as well as comparable company analysis to provide yearly performance updates as well as to reflect movements in stock prices and take into account—albeit to a smaller extend—leveraged buyout analyses. While there are incentives to overstate the current value of a portfolio company, there also limitations to this (Jenkinson, Sousa, and Stucke 2013).

Information on the fund level was gathered from the aforementioned platform, Preqin. Preqin collects information on alternative investments and makes this information available to investors and the public to assess the size and experience of each fund, and their levels of support (Preqin 2020).

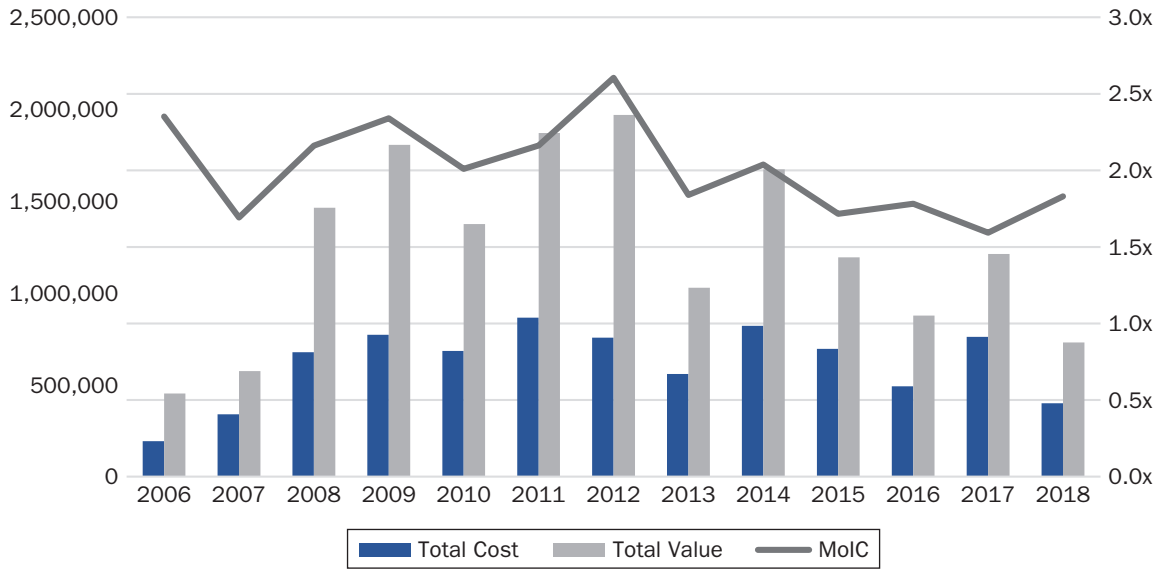
We followed a consistent procedure to develop a high-quality sample. The initial dataset included 1,200 companies. We first removed all venture capital firms and investments in public equities. Second, all buyouts with insufficient financial data were removed. Additionally, we removed investments from 2018 because the timespan would have been too short to assess the portfolio company's performance. This resulted in the removal of approximately 500 companies. Nonetheless, by conforming to the methodology, this number was further reduced. While financial data for all the companies exists, its quality is far from perfect. Outliers were present, thereby requiring more cleaning before we could apply statistical analyses.

Descriptive Statistics

Exhibit 2 provides an overview of the sample composition in terms of geography and industry. Although the data were provided by a European investor, the majority of the portfolio companies and funds are located in the United States and the United Kingdom, followed closely by Germany. There is a clear focus on Western,

EXHIBIT 3

Development of Entries over Time (in USD millions)



NOTE: Total cost and value are presented on the primary axis, while the MOIC ratio is shown on the right-hand side.

developed countries. Nevertheless, emerging markets are also reflected in the sample composition, with 14 investments in India, 13 in Peru, and 12 in Brazil. In line with the geographical characteristics of the portfolio companies, the funds are mainly situated in Anglo-Saxon countries, though again followed closely by Germany and France.

Concerning the industries, most of the targets are from the consumer discretionary sector (147); 112 portfolio companies are within the industrials sector; and 61 are in consumer staples. Only two companies are situated in the utility space.

Exhibit 3 provides an update about the average price paid in different vintage years and their value development. The total cost represents the price paid at entry, whereas the total value refers to the exit value. In case the investment is still active, this represents the current value provided by the fund.

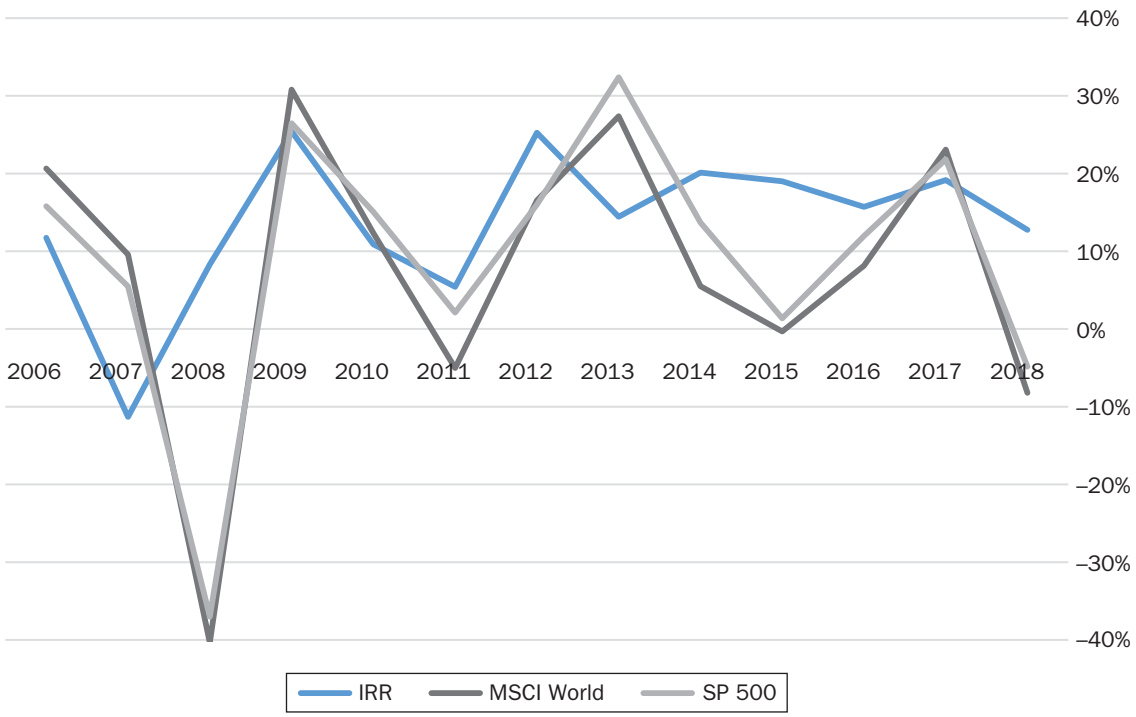
Exhibit 3 shows that the average price paid decreased substantially in 2007–08 and represented an opportunity to buy in at low costs. Nevertheless, the drop in exit price also quickly recovered and increased substantially shortly after the financial crisis. From 2009 to 2012, the average multiple on investment capital (MoIC) ratio increased year over year. While costs remained stable, the value of the assets decreased substantially. Investments in companies in 2012 seem to have performed extremely well—a finding which will require further study to explain. The underlying trend becomes apparent here as well, that since 2012, the returns of investing in private equity have almost continuously declined.

FINDINGS

In line with Brown and Kaplan (2019), we compared the sample's IRR with both the MSCI World Index and the S&P 500 (see Exhibit 4). The IRR represents the average return of all portfolio companies invested in a respective year. The return of the MSCI World Index represents its annual percentage change. The S&P 500 return is calculated in the same way.

EXHIBIT 4

Annual Returns of the PE Sample, the MSCI World Index, and the S&P 500 Index (in %)



NOTE: IRR is used for the PE sample, and annual percentage returns are used for the MSCI World (https://www.msci.com/documents/10199/178e6643-6ae6-47b9-82be-e1fc565ededb) and S&P 500 (https://ycharts.com/indicators/sp_500_total_return_annual).

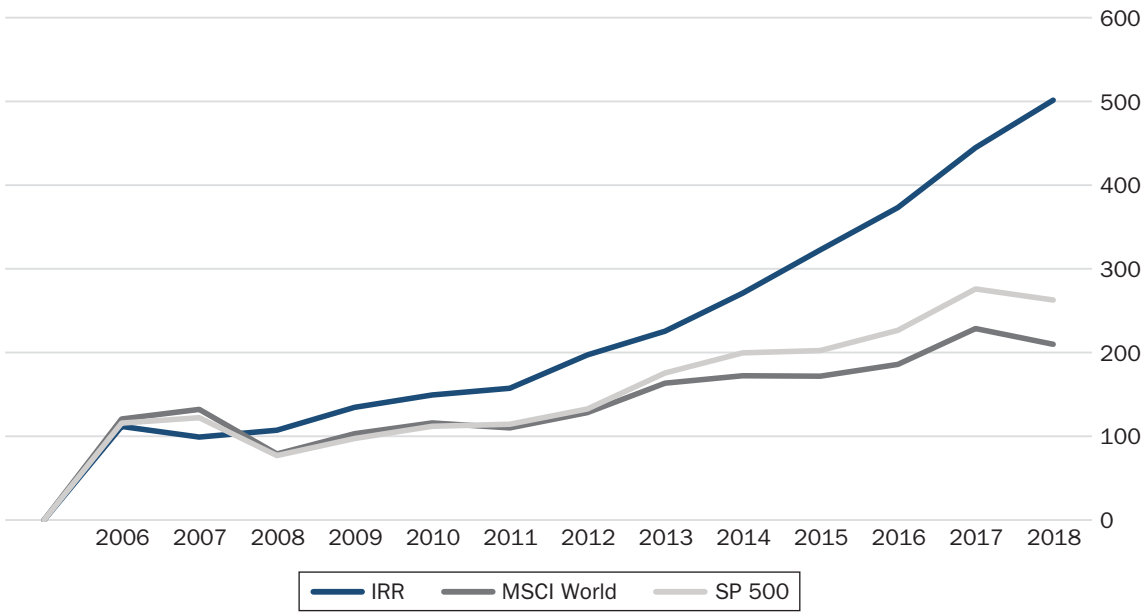
Comparing IRRs with annual percentage changes is not without its limitations. While both deal with percentage returns on an annualized basis, the computation is fundamentally different. The IRR is calculated at the end of an investment and is particularly suitable for those with differential cash flows. The annual percentage return of a public index is calculated at the end of the year. First, capital committed is only called once a suitable investment has been found. Second, the IRR is the hurdle rate that sets the outflows equal to the inflows. However (as outlined in the variables definition), the IRR is solely based on the current or exit valuation as well as the price paid at entry, whereas intermediate dividends are ignored. For those reasons, the IRR method is also more suitable than the PME method as it represents the net asset value at a given point in time. Assessing the performance of buyouts using the PME is only possible on an ex-post basis.

Although the volatility of the IRR is lower than the comparable public indices, the returns seem similar at first glance. PE investments were hit hardest shortly before the global subprime mortgage crisis, whereas their investments during the crisis performed higher than public ones. Shortly after the crisis, from 2008 to 2015, public equities outperformed the performance of the buyouts. From 2015 onward, the IRR is higher. The performance of PE is similar to the returns found by Brown and Kaplan (2019).

Nevertheless, to compare the return over the lifetime, we assumed investing USD 100 dollars in 2005 (see Exhibit 5) and reinvesting it each year. Contrary to Ilmanen, Chandra, and McQuinn (2020) and in support of Brown and Kaplan (2019), there is a clear outperformance of private equity against public equities. Both the S&P 500 and the MSCI World were outperformed over the past 15 years. The results are clear and not surprising. Even in the year 2020, there is clear advantage of a private owner.

EXHIBIT 5

Money Return of Investing USD 100 at the Beginning of 2005



SOURCES: Data from MSCI World Index (https://www.msci.com/documents/10199/178e6643-6ae6-47b9-82be-e1fc565ededb) and Yahoo, Finance (https://ycharts.com/indicators/sp_500_total_return_annual).

While this comparison is clearly favorable to the private owner, it ignores the inherent illiquidity premium required by investors for providing capital that cannot be easily drawn out of limited partnerships, which are commonly managed by alternative investments fund managers (e.g., the fund) and rather assumes that limited partners are able to liquidate and reinvest their holdings annually. In reality, limited partners as the managers of endowments, retirement plans, insurance companies are looking for bespoke solutions allowing them to invest on a regular basis in different private market vehicles in a way to match the regular incoming cash flows.

Linear regressions were deployed to examine the drivers of returns and compare specialized and nonspecialized funds. During the comparison of the performance of funds on a portfolio level, we also examined whether an industry or geographic focus resulted in higher returns, as measured by operational improvements or higher multiples at the exit, in line with the Jensen theory of agency costs. In line with Gompers et al. (2016), sales and EBITDA growth were used as proxies for operational improvements (see Exhibit 6). In contrast to IRR or the MoIC ratio, this measure effectively illustrates economic improvements. Turnover growth, for instance, is critical for gaining market share, which serves to protect companies (Nadant, Perdreau und Bruining 2018). For the valuation, we deployed the MoIC ratio. The regression runs for each firm *y*.

DISCUSSION

This study had three aims, the first of which was to shed light on the performance of private equity funds and compare it with public indices. Such a comparison is hugely complicated. Public equities are traded, they are severely regulated, and financials are disclosed regularly. Conversely, private equity is illiquid, has limited available data, and does not allow for the assessment of annual returns. Indeed, returns can only be truly assessed once an asset has been sold. This study has compared the

EXHIBIT 6

Returns and Fund Specialisation

	Dependent Variables		
	Sales Growth	**EBITDA Growth**	**MoIC**
Independent Variables			
Industry Specialization	0.002	0.016	0.196*
	(*0.049*)	(*0.108*)	(*0.108*)
Geographic Specialization	0.045	0.012	–0.049
	(*0.055*)	(*0.119*)	(*0.122*)
Control Variables			
Purchase Price (entry & Log)	–0.152**	–0.132	–0.351**
	(*0.061*)	(*0.134*)	(*0.141*)
Sales (entry & Log)	0.168***	0.396***	0.338***
	(*0.039*)	(*0.083*)	(*0.084*)
EBITDA Margin (entry)	0.303**	1.523***	1.258***
	(*0.141*)	(*0.329*)	(*0.307*)
Holding Period	0.008	–0.009	–0.006
	(*0.013*)	(*0.027*)	(*0.026*)
Cross-Border	0.125*	–0.009	–0.096
	(*0.064*)	(*0.027*)	(*0.137*)
Financial Crisis	–0.075	–0.312	–0.138
	(*0.106*)	(*0.231*)	(*0.239*)
Fund-Experience	0.023	0.424***	0.077
	(*0.072*)	(*0.161*)	(*0.158*)
Fund-Age	0.133	–0.228	–0.461
	(*0.205*)	(*0.441*)	(*0.430*)
Fund-Assets under Management	–0.195***	–0.246*	–0.169
	(*0.064*)	(*0.142*)	(*0.144*)
Fund-Support Intensity	0.112	0.109	–0.077
	(*0.105*)	(*0.228*)	(*0.222*)
Constant	0.918**	–1.405	1.949*
	(*0.464*)	(*1.020*)	(*1.061*)
Observations	448	444	478
R-Squared	0.087	0.132	0.073
Adjusted *R*-Squared	0.062	0.108	0.049
F Statistic	3.453***	5.452***	3.037***

NOTES: This exhibit presents the linear regression of the dependent variables: EBITDA growth; Sales growth and Money on Invested Capital. Standard deviations are in parantheses. Statistical significance at the 10%, 5%, and 1% level is denoted with *, **, and *** respectively.

IRR of a portfolio—which is to say the average return an asset has generated from the time it was bought to the time it was sold (or if it has not yet exited, based on the current valuation)—with the annualized return of traded indices. While this may initially appear to be inaccurate, it is often the only possibility for shedding light on alternative investments. Using current valuations and financials to assess a portfolio's performance seems reasonable, as it is also the basis for LPs to monitor fund performance. Nevertheless, evidence suggests that those valuations are biased.

Contrary to Ilmanen, Chandra, and McQuinn (2020), Harris, Jenkinson, and Kaplan (2015), and Kaplan and Schoar (2005), we found that over the past 15 years, private equity has outperformed both the S&P 500 and the MSCI World. Given the fees collected from funds, however, one could argue that PE funds performed similarly to public equities. Ever more capital is deployed toward this asset class, however,

there is a decreasing edge over public equities that can be partly explained by the increasing multiples and risk that PE funds assume. The decreasing edge is linked to the inflows into that asset class. Fueled by low interest rates and a growing interest in re-underwritings, PE funds are left out with only a limited number of suitable investment candidates. This study also explains why private equity is still so attractive. Next to the outperformance, there is also the earnings smoothing characteristics of private equity. While public equities are prone to large swings and have lost over 50% of their value during the current Covid-19 pandemic, private companies were able to conduct business as usual and operate without the public pressure that frequently resulted in ad-hoc strategic changes detrimental to the company's long-term performance. Moreover, given the investor interest in private markets, private equity is clearly attractive for such long-term investors as pension funds, endowment funds, or insurance providers.

The logic behind the similar performance of public and private equities cannot be neglected. Both are valued and discounted using the same (or similar) discount rates. Private companies are valued using publicly traded comparable companies; trading multiples and precedent transactions are among the most common valuation methods as they mirror current market sentiment.

Moreover, it would be pertinent to remind the reader once more of the incomplete nature of the dataset. As outlined earlier, we used the entry and exit valuation to arrive at return metrices and calculate the IRR, neglecting any cash flows in between the entry and exit values. Quite often, especially for extremely high-performing assets, funds recapitalize a portfolio company to boost returns and derisk their investment. Equity is swapped for debt, and dividends are paid out to the fund before exiting the investments. Furthermore, there is a tendency to provide fair or undervalued valuations to the LPs for the annual performance updates (Jenkinson, Sousa and Stucke 2013) so as not to make empty promises. Accordingly, it seems likely that the performance of private equity in recent years has been even more positive than shown in this study.

The second aim was to analyze how specialization helps funds to more effectively source, monitor, and improve portfolio companies. The Jensen theory can only be partly supported. We ran three distinct models and have only found support for industry specialization for MoIC but not for EBITDA growth. Geographic specialization, that is, focusing on a limited number of countries, seems to yield no benefits. In times of decreasing trade barriers and the free movement of goods, services, and people within the European Union (and an inherent focus of LPs on European investments), this finding should be somewhat unsurprising. In line with Aigner et al. (2008) and Lossen (2007), geographic specialization adds no value and has no impact on the performance of buyouts.

As outlined previously, the positive effect of fund specialization can be explained by the strategic approach of PE funds. An increasing number of funds are beginning to focus solely on a couple of industries. In line with Le Nadant, Perdreau, and Bruining (2018), Duong (2015), Cressy, Munari, and Malipiero (2007), and Jensen (1986), the current study supports the outperformance of industry-specialized funds. While other studies have shown a stronger outperformance—especially for the operating variables—this study's findings offer weaker support. Industry specialization results in higher return multiples.

The difference between this and other studies is that the latter tend to measure outperformance on a fund level, whereas we have conducted the analysis on a portfolio level. Funds that are industry specialized know the key players in the market, tend to have a better set of advisors, and have a well-known track-record, which makes them trusted partners for banks. This could also be one of the reasons why specialized funds have significantly higher MoIC ratios, while there is only limited support

for the operating variables. Furthermore, in times of tremendous amounts of dry powder, managers face increasing pressure to have strong deal pipelines. Sourcing is the first critical step in closing transactions. The ability to build relationships with companies before they even begin to consider selling is certainly advantageous. This notwithstanding, it is surprising that funds do not predict a higher operating profitability than their public peers.

The third aim was to examine the heterogeneity of funds. There are strong differences between funds and their performance. These differences can be partly explained by the active involvement of investment teams within the portfolio companies. The findings suggest that more active involvement results in higher performance levels.

First, the number of deals conducted positively correlated to EBITDA improvement. This could well be explained by further add-ons or effective knowledge of capitalizing on low-hanging fruits, meaning easy costs. Moreover, being able to accurately assess the performance of the management and being able to intervene where necessary are also important drivers.

While fund age can be an indicator of experience, it does not produce significant results. As a variable, fund age tells us little about the number of deals conducted or the performance of past investments.

For assets under management, the more AUM a firm has, the lower the performance of the asset. Here, one can clearly see that a lower level of involvement results in lower performance. The more assets to manage, the more the investment team must divide their efforts between sourcing, monitoring, and closing.

We have outlined throughout the study that private markets have become ever more competitive, multiples are at their peaks, huge amounts of dry powder exist, and that the hunt for strong performing assets continues. While sustaining market outperformance is highly challenging, it can be done. Having considered both a specialization strategy and the adoption of a perspective that allows one to examine the active involvement of funds, it has become apparent that funds that want to outperform the market must have similar structures to strategic advisors.

Indeed, such funds must have an extensive knowledge of the space in which they operate. A strong track record in a particular industry will ensure that they can source superior assets and can become actively involved in monitoring and guiding the company after having bought it. The first recommendation to LPs and GPs alike would be to invest in funds that are strategically focused on one or two industries. For instance, technology and healthcare frequently work well together. Business services and industrials also seems like a reasonable combination. Based on the findings of this study, we would advise against investing in funds that cover every industry and play the game more opportunistically.

The second recommendation concerns the fund involvement in the asset. Funds that are more involved are more equipped to sustain higher performance. The more deals you have conducted in the past, the more able and equipped you are to add value. However, the authors assume that higher amounts of AUM result in more processes being in place, although time can be a differentiating factor. If you have to convince a large investment committee but are unable to preempt, it is difficult to obtain exclusive rights for a deal. However, if you can get the management on board and make a preemptive offer early, you will likely find that everyone is relieved and appreciates the transaction certainty. Due to the enormity of the costs involved, lean processes coupled with deal experience and a strong later involvement in the asset form an optimal strategy.

CONCLUSION

This study investigated the performance, and its drivers, of private equity–backed companies over the past 15 years and provided answers to fund differentiation. The study adds to the existing literature and supports the established opinion—namely, that private equity funds outperform public equities. However, the findings are as mixed as those of past research. In line with Brown and Kaplan (2019), this sample outperformed the S&P 500 between 2007 and 2018. Looking at the returns over time, it can be concluded that the edge of private equity has declined and, in some cases, has even led to an underperformance of private equity. In line with Stucke (2011), there are also reasons to believe that the financials do not reflect the actual performance of the buyouts. One of the limitations of this study is that the authors have neglected intermediate dividends to the fund and assessed the performance on the purchase price paid at entry and exit.

Furthermore, they found that active fund participation correlates with higher performance. The more AUM a fund has and the fewer staff in the investment team, the lower the performance of the buyout. Experience plays a significant role as there is no "one-solution-fits-all" approach. Additionally, industry specialization has a positive connotation with the MoIC ratio, while the results for revenue and EBITDA growth are mixed. No significant correlation was found between geographic specialization and performance.

The implications for limited and general partners are multiple. First, actual returns must be more closely examined. Is it still reasonable to attribute a large percentage of one's capital toward private equity in light of its decreasing edge? Second, LPs should allocate more capital to specialized funds. While this study has not evaluated each industry by performance, it would be reasonable to cover a wide range of industries in order to diversify. Only investing in one or two specialized funds would not offer a more attractive portfolio than a diversified fund that covers all industries and offers better diversification.

Next, LPs should choose funds in which an active involvement of the fund is the method of choice. The investment team should transcend mere sourcing and selling. Indeed, they should actively increase their involvement. Based on the findings, one would expect funds with more people in the investment team, as well as operating groups in place, to be more likely to outperform in future.

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