

RESEARCH

The Performance of European Private Equity

Benchmark Report 2020



Contents

01 Executive summary

Section 1

04 European Buy-Out

- 04 Definition
- 04 Sample analysis
- 08 Performance analysis
- 13 Risk analysis
- 15 Conclusion

Section 2

16 European Growth Capital

- 16 Definition
- 16 Sample analysis
- 19 Performance analysis
- 23 Risk analysis
- 25 Conclusion

Section 3

26 European Venture Capital

- 26 Definition
- 26 Sample analysis
- 30 Performance analysis
- 35 Risk analysis
- 37 Conclusion

Section 4

38 Appendix

- 38 Definition
- 39 Geographical regions
- 39 Data and indexes
- 40 Methodology
- 41 Credits

Executive summary

Providing Stability and Outperformance Through Periods of Disruption

A deep understanding of asset performance is essential for investors at the best of times, but it takes on even greater importance during periods of intense market disruption and volatility.

Last year, we launched **The Performance of European Private Equity Benchmark** report to shine a light on the returns generated by European private equity during the last four decades. Our aim was to show the European industry's outperformance over global listed equity benchmarks throughout the timeframes that really matter to long-term investors, including pension funds and insurers. We combined the research with a study into the metrics used to track private equity performance, which identified the Modified Public Market Equivalent (mPME) as a sophisticated way to measure private equity against public equities. In doing so, Invest Europe helped institutional investors to see the real risk and return profile of private equity and its benefits in a portfolio of assets.

This second edition of our annual Benchmark Report brings even greater transparency and understanding of private equity fund performance to investors. 2020 was an intensely challenging year for individuals, societies, companies and investors as COVID-19 swept through Europe. Private equity was not immune to those challenges. But as we have already seen from our research, the industry performed resiliently in the face of them. Our comprehensive report published in May - **Investing in Europe: Private Equity Activity 2020** - showed it was the second-best year for investment with €88 billion deployed, and another very strong year for fundraising with over €100 billion raised.

Invest Europe's Benchmark Report for 2020 echoes this data. Private equity managers made intense efforts to protect their portfolio companies, and that hard work paid off. The performance of European private equity funds improved in 2020, and the outperformance over listed indices widened. And while the time to liquidity for investors increased, the distribution of returns showed that the number of loss-making funds decreased, as did the level of those losses.

Our in-depth study looks across Venture Capital, Growth Capital and Buy-Outs, from funds early in their lifecycles to mature and fully exited funds. Again, as in 2019, we compare European funds with the relevant indices, as well as their private equity peers in North America and the Rest of the World. **This year, in our quest to delve deeper than ever into private equity investments and what makes them perform, we have expanded the basis of our research. Our 2020 sample, provided by Cambridge Associates, includes more European buyout funds, growth capital funds and venture capital funds than in 2019.** This data is aggregated and anonymised, which may mean some changes in the underlying funds covered. However, our move is to a broader and more comprehensive study of the industry.

By the same token, **we have included a full sample of funds from North America and the Rest of the World. We believe that incorporating as much available information as possible - as opposed to the vintage matching done last year - mitigates potential distortions in the data.** While this change did not noticeably affect performance data for buyouts and venture capital, it did lead to an improvement in returns for North American Growth Capital - primarily due to the increased sample size relative to the smaller European Growth Capital universe. Nonetheless, the data shows that European Growth Capital continued to beat equity benchmarks by a wide margin.

Indeed, across the board, the results confirm European private equity's consistent and frequently significant outperformance of listed equities, while bringing even greater transparency to the industry's returns and contribution long-term. Importantly, the data also illustrates private equity's ability to help long-term investors weather disruption and dislocation, providing much-needed performance and security to Europe's pensioners and savers through times of uncertainty.

Executive summary

Performance findings

Our findings validate European private equity's consistent and often significant outperformance of listed equities.

European Buy-Outs

European Buy-Outs is a mature segment in private equity, presenting rich data sets that demonstrate a consistent and strong performance across funds and investments of all sizes.

- European Buy-Outs delivered a net IRR of 15.06% versus 5.48% for the MSCI Europe and an MOIC of 1.69x vs. 1.20x
- Over long time horizons of 10 years and over, European Buy-Outs have routinely delivered between a 13.00% to 15.50% IRR
- Fund managers' outperformance is consistently strong across investment sizes, with mid-sized Buy-Outs generating the best IRR returns of 17.01% and outperforming the MSCI Europe index by the widest margin of 994 basis points
- 85% of Buy-Out funds generate positive IRR returns, and record a pooled average TVPI of 1.77x
- European funds perform consistently when compared against their North American peers, generating better IRRs but slightly lower MOIC
- European funds distribute capital more quickly than funds from anywhere else in the world, taking just 3.74 years to achieve liquidity compared with 4.53 years for North American funds

European Growth Capital

European Growth Capital is a relatively small but dynamic sector of private equity, supporting expansion at maturing businesses that are typically increasing revenues at double-digit rates.

- European Growth Capital funds generated an IRR of 13.66% and a MOIC of 1.57x, outperforming the MSCI Europe with returns of 6.40% and 1.21x, as well as the S&P Europe Small Cap Growth index with returns of 11.84% and 1.48x
- European Growth Capital funds provide a fairly consistent performance over long periods, with an IRR of 13.69% over a 25-year horizon and 15.10% over a 10-year period
- Liquidated Growth Capital funds provide some of the best returns, delivering a 17.27% IRR and a 1.66x MOIC, underlining the typically conservative valuations of active investments
- European Growth Capital funds lag North American peers by 840 basis points but beat funds from the rest of the world by 295 basis points
- 84% of Growth Capital funds generated positive IRR returns for investors while just 16% had negative returns (this minority nevertheless returning most of their capital with a MOIC of 0.9x).
- European Growth Capital funds distribute capital with similar speed to their peers, taking 3.52 years to achieve liquidity on average which is slightly more than the 3.28 years for North American funds

European Venture Capital

European Venture Capital is a maturing segment of private equity, reflected in the improving performance of Venture Capital funds over the past decade.

- European Venture Capital funds generated an IRR of 11.09% and a MOIC of 1.97x, outperforming the MSCI Europe which returned 7.82% and 1.33x
- Over 5, 10, and 15-year horizons, European Venture Capital funds perform strongly, generating IRRs of 21.90%, 19.70% and 12.83% respectively, outstripping the legacy of funds hit by the dot.com crash and underlining improved performance from later funds and more experienced managers
- European Venture Capital funds lag North American funds, which delivered 16.53% IRR, over the full period of the study, although European fund performance has been on a par with North American performance over 10 and 15-year horizons and has exceeded North American performance over shorter time periods
- On MOIC, European funds delivered 1.97x compared with 2.03x for North America funds, reflecting strong cash returns and the relatively long time taken historically for European funds to mature
- Seven out of ten European Venture Capital funds achieved positive returns and delivered an average MOIC of 2.29x, while 82% of active funds are currently generating positive returns

Section 1

European Buy-Out

Definition

Invest Europe defines leveraged buy-out (LBO) investing as the transfer of ownership of a company by the acquisition of the majority of a company to gain control, often by using a combination of equity and debt.

Funds tend to focus on specific company sizes, categorised as “small”, “mid-sized”, “large” and “mega” capitalisations¹.

Regardless of the size of the company, the change of ownership leads to the set-up of a new strategy. The successful implementation of this strategy by the management of the company is crucial to reap its reward. Therefore, new owners of the business actively guide, monitor and control the management, notably thanks to an advanced corporate governance framework.

Sample analysis

Sample description

In a similar fashion to their VC peers (see Section 3), European LBO funds started during the 1980s, but vintage years reached a critical mass of capital and number of funds by the mid-1990s (Fig. 1). Unlike VC funds, though, the overlap of active and liquidated funds is much more limited, providing a clearer image of final performances, as well as of active funds.

The sample contains 454 European LBO funds with a total capitalisation of €521.9 billion (Table 1). The vintage years captured range from 1987 to 2020, without interruptions (Fig. 1). The number of funds per vintage year ranges from 2 to 36, which means that some years do not support a quartile analysis. 270 funds with a capitalisation of €445.8 billion are active (Table 1). These funds provide only a partial reading of their performance² and their risks. 184 funds with a capitalisation of €76.15 billion are liquidated³, offering a more solid ground for analysis. 188 funds with a capitalisation of €93.5 billion qualify as ‘new’⁴, 146 with a capitalisation of €160.4 billion as ‘developing’⁵, and 120 with a capitalisation of €268.1 billion as ‘established’⁶.

454

Total European
Leveraged Buy-out funds

€521.9 billion

Capitalisation

188

New European
Leveraged Buy-out funds

€93.5 billion

Capitalisation

270

Active European
Leveraged Buy-out funds

€445.8 billion

Capitalisation

146

Developing European
Leveraged Buy-out funds

€160.4 billion

Capitalisation

184

Liquidated European
Leveraged Buy-out funds

€76.2 billion

Capitalisation

120

Established European
Leveraged Buy-out funds

€268.1 billion

Capitalisation

Notes

- 1 See definitions at the end of the document for further details.
- 2 Active funds have current investments in companies, which are yet to be sold (“unrealised”). These assets are appraised by fund managers conservatively, and thus create a drag on the performance of active funds until they are sold (“realised”).
- 3 Liquidated means that the funds have sold their assets and ceased operations.
- 4 First or second generation of funds.
- 5 Third or fourth generation of funds.
- 6 Fifth generation and beyond.

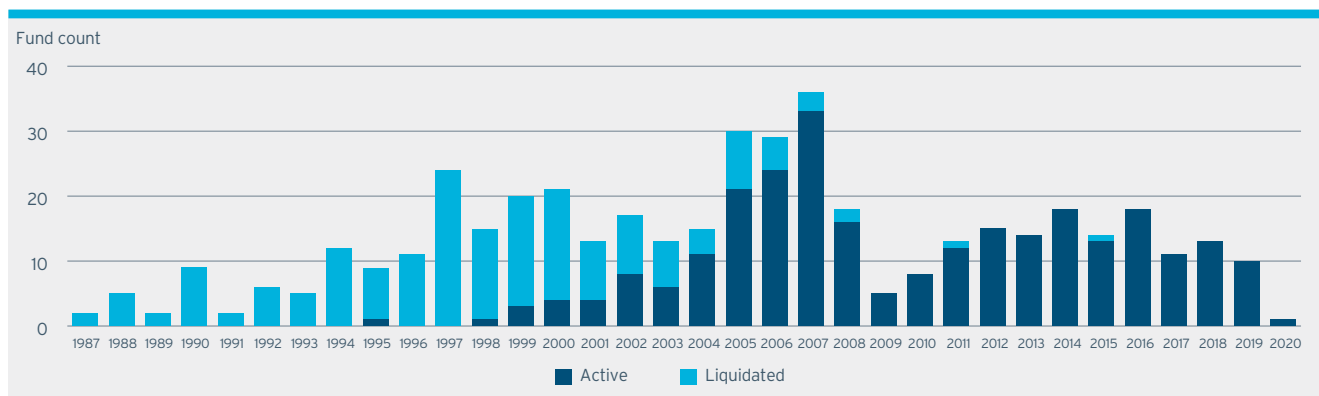
Sample description continued

Horizon returns (Table 1) can be challenging to analyse as they capture all the funds within a specific period of time. For example, the 30-year investment period captures all the funds in the database which were created in 1990 or after. As Horizon returns provide internal rates of returns (IRRs), they are not only sensitive to the timing of cash flows, but also overweight early cash flows. In a 30-year time-horizon analysis, the oldest funds might have a heavier weight. To help readers avoid analytical pitfalls, snapshots are taken every five years. The performance is fairly consistent on a 30-, 25- and 20-year horizon in Europe. Some caution has to be applied when drawing conclusions, for example when looking at the -35.98% IRR for liquidated funds over a 1-year period. The reference periods should be the 10- to 30-year horizons.

The performance of European LBO funds appears to be particularly stable (Table 1), the IRR of funds hovering around 15%, with the notable exception of the 15-year and 20-year time horizons (respectively 13.08% and 13.60%). Non-European LBO funds record a fairly stable and lower performance over a 30-year and 25-year time-horizon.

The performance of European LBO funds appears to be particularly stable.

Fig. 1: European LBO funds per vintage year and status



Source: Invest Europe, based on Cambridge Associates.

Table 1 - Horizon returns of LBO funds

Region	Status	Currency	Funds	Capitalisation		1-Year	3-Year	5-Year	10-Year	15-Year	20-Year	25-Year	30-Year
				(mn)									
Europe	All	EUR	454	521,964		17.00%	16.76%	16.73%	14.55%	13.08%	13.60%	15.35%	15.27%
North America	All	EUR	949	1,117,740		12.95%	16.07%	13.62%	16.71%	12.80%	10.76%	12.76%	13.30%
Rest of World	All	EUR	286	219,284		6.57%	8.74%	9.32%	11.29%	11.29%	10.49%	10.71%	10.64%
Europe	All	USD	454	630,116		27.67%	17.55%	19.71%	12.88%	12.82%	14.95%	15.79%	15.63%
North America	All	USD	949	1,342,510		23.18%	16.77%	16.42%	15.21%	12.71%	12.21%	13.05%	13.51%
Rest of World	All	USD	286	272,004		16.11%	9.40%	11.98%	9.81%	10.25%	10.25%	10.13%	10.08%
Europe	New	EUR	188	93,521		19.97%	14.19%	9.65%	11.58%	13.36%	13.47%	16.77%	16.60%
Europe	Developing	EUR	146	160,371		1.70%	9.13%	13.39%	14.61%	11.95%	12.54%	12.86%	12.79%
Europe	Established	EUR	120	268,071		21.93%	20.32%	19.71%	15.55%	14.02%	14.82%	17.43%	n/a
Europe	Liquidated	EUR	184	76,154		-35.98%	3.63%	9.36%	8.69%	18.81%	15.46%	20.40%	19.47%
North America	Liquidated	EUR	358	212,993		0.11%	9.85%	4.41%	16.37%	9.95%	6.18%	11.94%	13.30%
Rest of World	Liquidated	EUR	99	27,246		-12.01%	-21.35%	-3.33%	5.20%	13.10%	9.52%	10.23%	10.03%
Europe	Active	EUR	270	445,809		17.01%	16.78%	16.79%	14.90%	12.34%	12.78%	12.70%	n/a
North America	Active	EUR	591	904,747		12.96%	16.10%	13.77%	16.75%	13.46%	13.35%	13.29%	n/a
Rest of World	Active	EUR	187	192,038		6.57%	8.92%	9.52%	11.87%	10.96%	10.84%	n/a	n/a

Source: Invest Europe, based on Cambridge Associates.

European Buy-Out

Sample analysis continued

Sample description continued

North American LBO funds also record a drop of performance by the same magnitude as European ones at the 20-year horizon (roughly 200 basis points).

This points to challenging economic or market conditions which have affected Western European private equity funds, VC⁷ and GC funds being affected as well. The ICT bust is a suspected root cause for this dip, but further research would be required for confirmation.

The performance of funds from the Rest of the World seems to be recurrently lower than their Western European counterparts. An explanation is that use of financial leverage is less widespread, especially in emerging markets.

The second element to keep in mind is that horizon returns always include funds created more recently and still active. For that reason, reading the performance figures requires some caution: more recent funds might drag down the overall performance until they are fully realised. To avoid such an issue, Table 1 (but also Tables 2 and 3 for Growth and Venture funds) provide a perspective on liquidated and active funds.

The IRR of liquidated European funds is significantly higher than for non-European ones. It is also higher than for active funds. A possible explanation is that more successful funds tend to execute their strategy faster and thus liquidate earlier. As IRRs are time-sensitive, they react to this faster rotation of assets.

The 15-year time-horizon is probably the most relevant for analytical purpose, as it includes funds which are realised, but recent enough to be relevant, and active funds too. Liquidated funds tend to perform particularly well, regardless of the geographical region. Market conditions must have been particularly favourable. However, as this sample includes a significant proportion of active funds and performance is measured through IRRs, this conclusion warrants some caution.

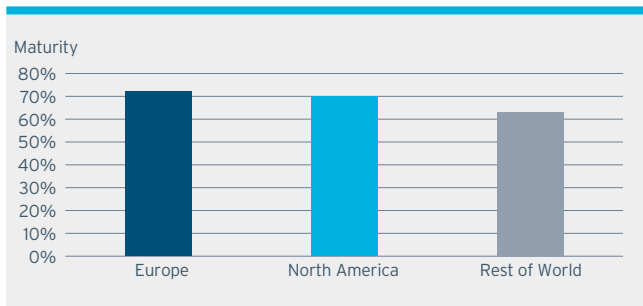
Context and limits

40.5% of European LBO funds are liquidated (Fig. 1 and Table 1), the highest proportion among the three investment strategies covered in this report. The maturity of active funds reaches 72% (Fig. 2), the highest among the three regions considered, ahead of North American peers (69%) and the Rest of the World (63%).

This high level of maturity will provide a significant level of confidence when drawing conclusions in this section.

The high level of maturity of European funds is related to their particularly short time-to-liquidity (Fig. 3): 3.74 years. In comparison, to get capital back, it takes on average 4.53 years for North American LBO funds and 4.54 years for funds from the Rest of the World. A possible explanation is that European funds found a solid exit environment as the emergence of the single European market supported cross-border M&A operations.

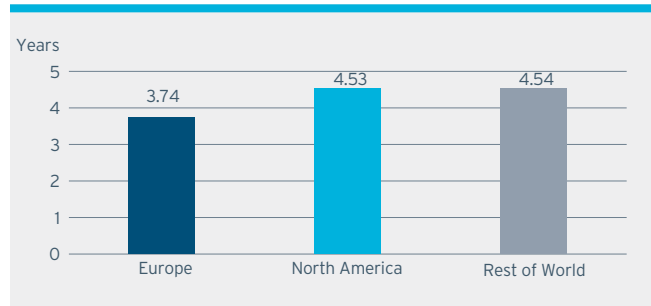
Fig. 2: Maturity of LBO funds in the sample, by region



Source: Invest Europe, based on Cambridge Associates.

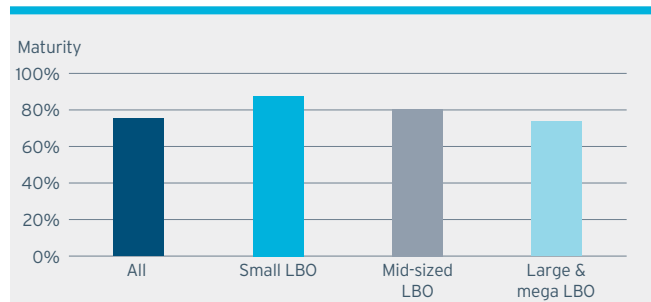


Fig. 3: Time-to-liquidity of LBO funds, by region



Source: Invest Europe, based on Cambridge Associates.

Fig. 4: Maturity of active European LBO funds, by size of deals



Source: Invest Europe, based on Cambridge Associates.

Notes

⁷ European VC funds provide a partial confirmation only. Although they do not show a drop in performance, as the 25-year and 30-year returns were low, they do show an increase with the 15-year return.

Looking at the maturity of active funds by size of deals (Fig. 4), small LBO funds have the highest level of maturity and the large/mega ones the lowest. Nevertheless, the three categories are mature enough to support conclusions with a fair level of confidence.

The time-to-liquidity tends to be rather homogeneous (Fig. 5), although LBO funds focused on the mid-sized segment record a shorter time period (3.11 years) than their small cap (4.01 years) and large/mega cap (3.73 years) peers.

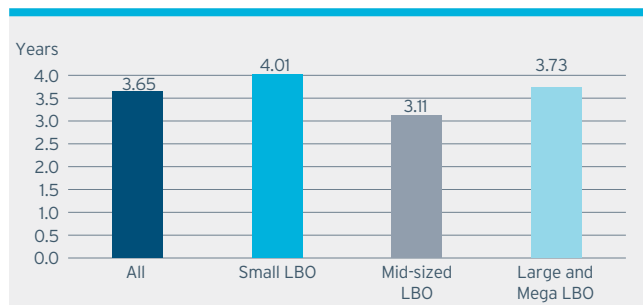
The apparent disconnect between a shorter time-to-liquidity of mid-cap LBO funds and their intermediate maturity can be explained by the fact that they embed a higher proportion of recent vintage years.

This is the most plausible explanation as active funds tend to have in general a longer time-to-liquidity than liquidated funds (Fig. 6).

However, the difference remains limited, and active and liquidated funds seem to have similar rhythms of investment so far.

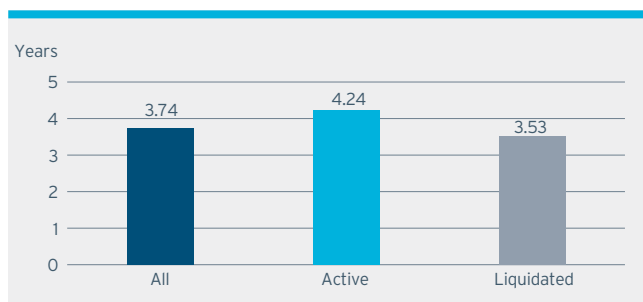
European LBO funds
have a particularly
short time-to-liquidity
– 3.74 years – when
compared to other regions.

Fig. 5: Average time-to-liquidity of European LBO funds, by size of deals



Source: Invest Europe, based on Cambridge Associates.

Fig. 6: Average time-to-liquidity of all, active and liquidated European LBO funds



Source: Invest Europe, based on Cambridge Associates.

European Buy-Out

Performance analysis

LBO funds are unique in their ability to use financial leverage and Table 1 provides a comparison of the performance of funds by geographical region.

As a consequence, it is necessary to systematically combine IRR and MOIC analyses to avoid analytical distortions. Absolute and relative performance analyses will be executed with this cautionary notice in mind.

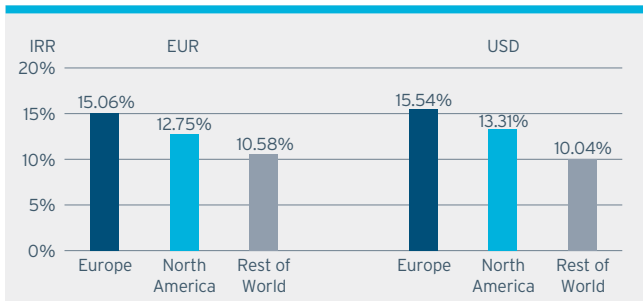
Absolute performance analysis

European LBO funds significantly outperform non-European ones (Fig. 7) in terms of IRR. This is true whether euros or US dollars are used. However, this is not the case when looking at MOIC (Fig. 8). North American LBO funds outperform slightly their European peers and funds of the Rest of the World. As mentioned earlier, the shorter time-to-liquidity magnifies the IRR performance of European funds.

Liquidated funds are lifting the overall IRR of the European sample (Fig. 9). Active European funds require more time to return capital (see earlier), which means that their IRR is comparatively lower. However, liquidated European LBO funds also record a higher MOIC than active funds (Fig. 10). This means that the historical performance of European LBO funds has been particularly strong.

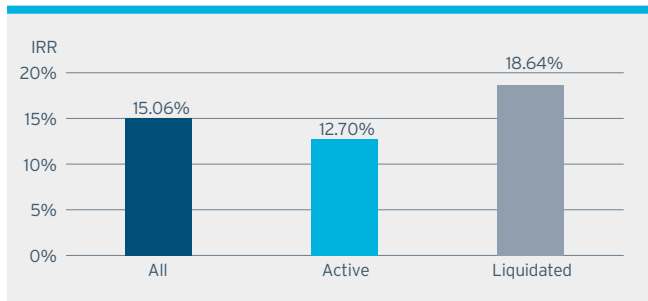
Therefore, the high IRR of liquidated funds (Fig. 9) is also the result of a strong cash-on-cash performance. As NAVs are appraised conservatively⁸ by fund managers, it is difficult to judge if they will catch up with their realised peers or not. Nevertheless, the high IRR of liquidated funds highlighted cannot simply be attributed to higher asset rotation or re-leveraging: European LBO funds have demonstrated their ability to generate on aggregate a MOIC of 1.83x.

Fig. 7: IRR of LBO funds per region, in EUR and USD



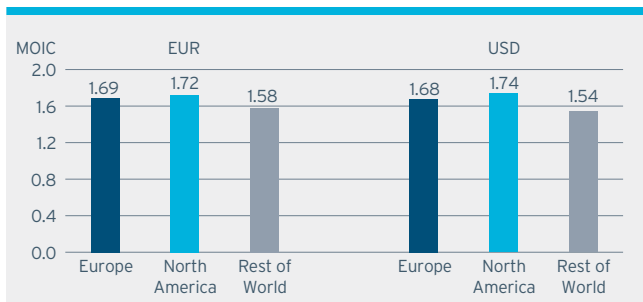
Source: Invest Europe, based on Cambridge Associates.

Fig. 9: IRR of all, active and liquidated European LBO funds



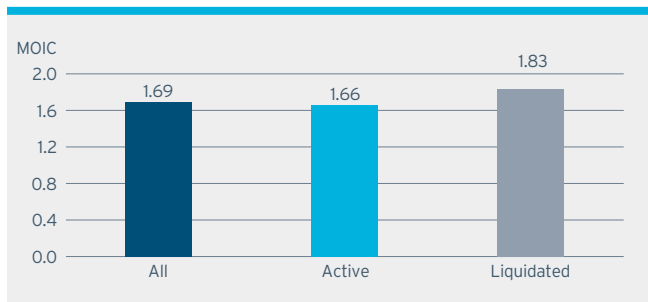
Source: Invest Europe, based on Cambridge Associates.

Fig. 8: MOIC of LBO funds per region, in EUR and USD



Source: Invest Europe, based on Cambridge Associates.

Fig. 10: MOIC of all, active and liquidated European LBO funds



Source: Invest Europe, based on Cambridge Associates.

Notes

⁸ Active funds have current investments in companies, which are yet to be sold ("unrealised"). These assets are appraised by fund managers conservatively, and thus create a drag on the performance of active funds until they are sold ("realised").

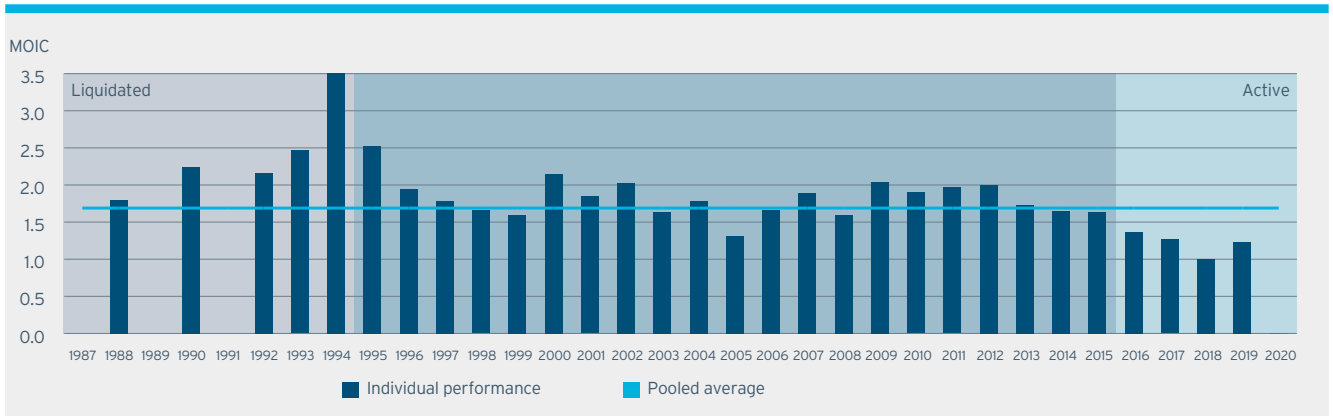
This is confirmed by the analysis of individual vintage years (Fig. 11). In particular, vintage years 1992, 1993, 1994 and 1995 have contributed significantly to the outperformance of liquidated funds (this is particularly visible in Fig. 12).

The performance is much more homogeneous from vintage year 1996 to vintage year 2014. The logical conclusion would be that active funds will probably not reproduce the performance of exceptional liquidated ones, but that the long-term pooled average of 1.69x is a good reference to estimate the potential performance of European LBO funds.

Indeed, most of the vintage years of funds which are mature enough are gravitating around this multiple (Fig. 11). IRRs (Fig. 12) are more volatile, and thus the 15% long-term pooled average performance is only useful to get an overall perspective.

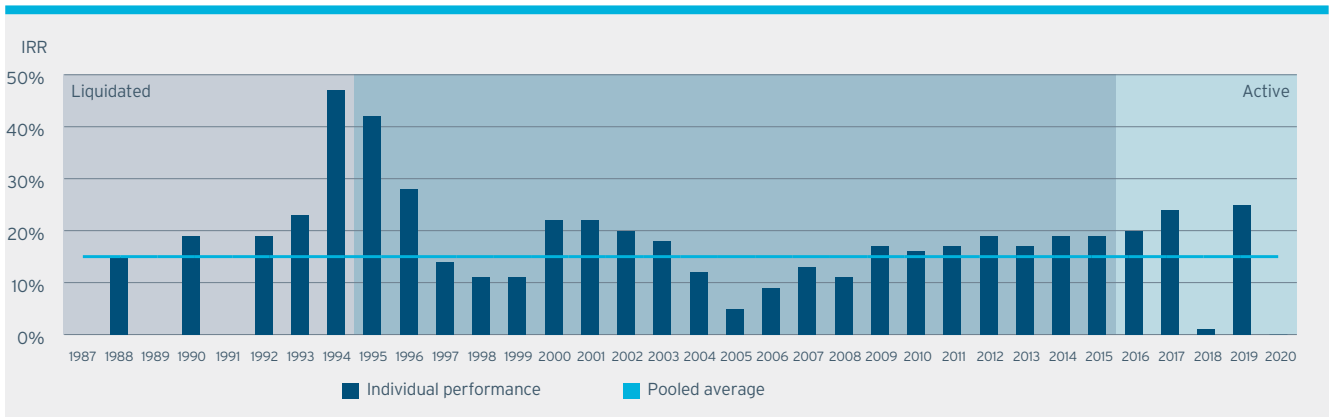
European LBO funds significantly outperform non-European ones in terms of IRR.

Fig. 11: MOIC of European LBO funds by vintage year⁹



Source: Invest Europe, based on Cambridge Associates.

Fig. 12: IRR of European LBO funds by vintage year¹⁰



Source: Invest Europe, based on Cambridge Associates.

Notes

⁹ Performance data is available for individual vintage years only when there are at least six funds in the sample. The area on the left (with the word 'Liquidated') refers to vintage years which count fully realised funds only. The area on the right (with the word 'Active') refers to vintage years which count active funds only. The area in the centre refers to vintage years which count liquidated and active funds.

¹⁰ Performance data is available for individual vintage years only when there are at least six funds in the sample. The area on the left (with the word 'Liquidated') refers to vintage years which count fully realised funds only. The area on the right (with the word 'Active') refers to vintage years which count active funds only. The area in the centre refers to vintage years which count liquidated and active funds. IRR performance can be highly distorted when funds are too recent (7-8 years-old or less).

European Buy-Out

Performance analysis continued

Looking at the pooled, capital-weighted, simple average and median MOIC of liquidated European LBO funds, the MOIC are fairly consistent, ranging from 1.74 to 1.88x (Fig. 13).

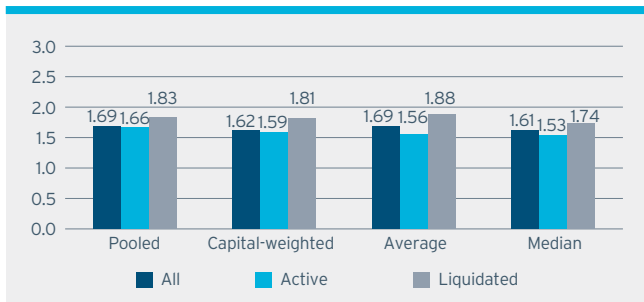
As for active funds, their MOIC ranges from 1.53 to 1.66x. They appear to have a pooled average MOIC in line with what would be expected: close to the liquidated one, but lower as funds are still active.

Emerging fund managers seem to perform slightly better than more established ones in terms of MOIC, although the difference is fairly marginal (Fig. 14). However, in terms of IRR (Fig. 15), the most established ones seem to have a lead. A possible explanation is that seasoned fund managers have the benefit of the learning curve and in particular manage to exit faster.

There is no major discrepancy in terms of MOIC between funds operating on different company sizes (Fig. 16), although small LBOs are registering slightly lower MOIC (1.55x) than the average (1.69x). Multiple reasons might explain this lower performance, ranging from a flurry of recent small deals valued at cost or conservatively, to a reflection of the impact of the Covid-19 pandemic on smaller companies.

The MOIC of LBO fund managers is fairly homogeneous across the board, and there is no obvious and consistent premium or discount associated to target sizes. The strategy implemented by fund managers might differ, but their merit and success are consistent. The slightly different picture in terms of IRR (Fig. 17) is likely to be related to the higher proportion of more recent mid-sized LBO funds (as mentioned earlier).

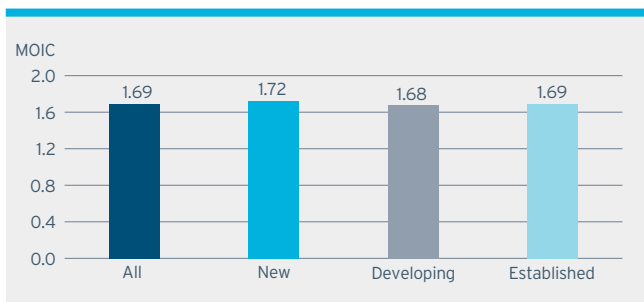
Fig. 13: Pooled average, capital-weighted, simple average and median MOIC of All, Active and Liquidated European LBO funds



Source: Invest Europe, based on Cambridge Associates.

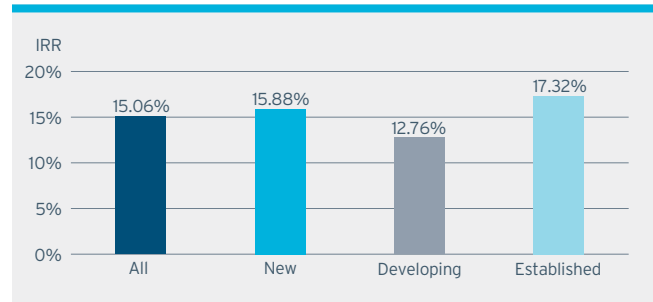
Note: excludes the YV 2019 as the top 5% outlier distorts the capital-weighted average.

Fig. 14: MOIC of all, new and developing European LBO funds



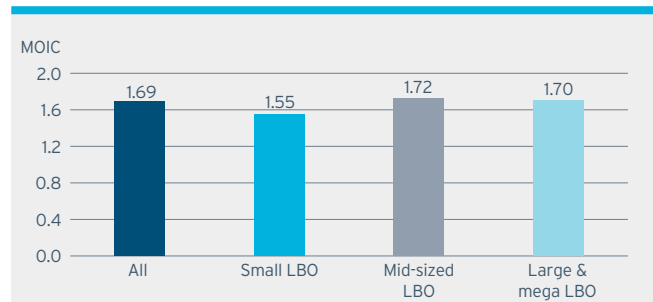
Source: Invest Europe, based on Cambridge Associates.

Fig. 15: IRR of all, new and developing European LBO funds



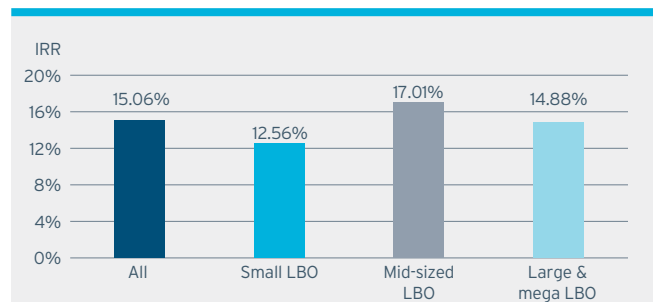
Source: Invest Europe, based on Cambridge Associates.

Fig. 16: MOIC of European LBO funds, by deal size



Source: Invest Europe, based on Cambridge Associates.

Fig. 17: IRR of European LBO funds, by deal size



Source: Invest Europe, based on Cambridge Associates.

Relative performance analysis

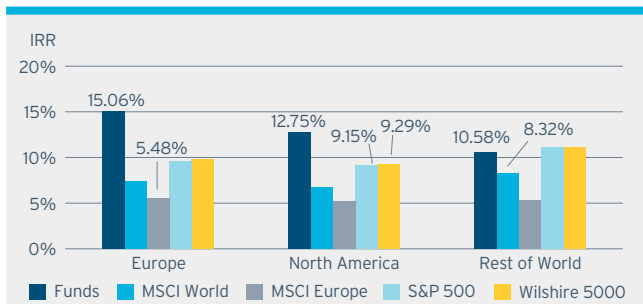
The mPME¹¹ analysis shows that Western LBO funds outperform all the major listed indexes in terms of IRR (Fig. 18) and MOIC (Fig. 19).

LBO funds from the Rest of the World also outperform major indexes, except the S&P 500 (and the Wilshire 5000 in terms of IRR).

Therefore, the high performance of European LBO funds is not simply related to favourable macro-economic or market environments, otherwise the indexes would do equally well. Fund managers effectively reap the reward of their value creation when they outperform the MSCI Europe by 958 basis points (0.49x when expressed in difference of MOIC).

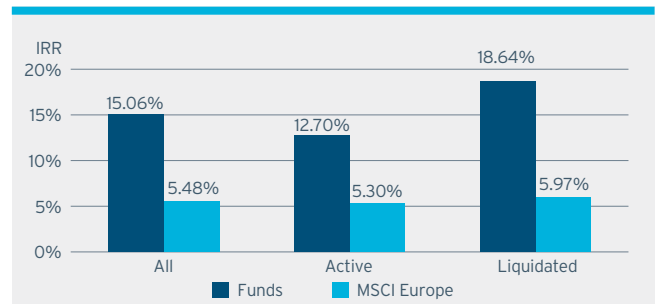
This statement applies to liquidated (1267 basis points and 0.64x of difference) and active funds (740 basis points and 0.45x of difference) as shown by Figs 20 and 21. Liquidated funds have been significantly outperforming the index. Active funds are also too, and they might increase their lead as they reach full maturity, although they already have exceeded the 80% threshold (see earlier). In that respect, it is unlikely that active funds will equal the performance of liquidated ones.

Fig. 18: IRR and mPME of all LBO funds, by region



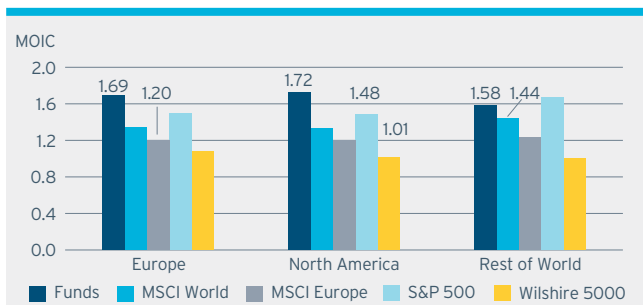
Source: Invest Europe, based on Cambridge Associates.

Fig. 20: IRR and mPME of all, active and liquidated European LBO funds



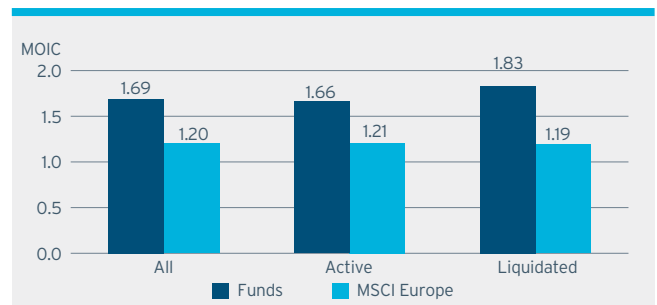
Source: Invest Europe, based on Cambridge Associates.

Fig. 19: MOIC and mPME of all LBO funds, by region



Source: Invest Europe, based on Cambridge Associates.

Fig. 21: MOIC and mPME of all, active and liquidated European LBO funds



Source: Invest Europe, based on Cambridge Associates.

Notes

¹¹ Please see Invest Europe's report 'Benchmarking Public & Private Markets with the Public Market Equivalent (PME)' for more details about the mPME method.

European Buy-Out

Performance analysis continued

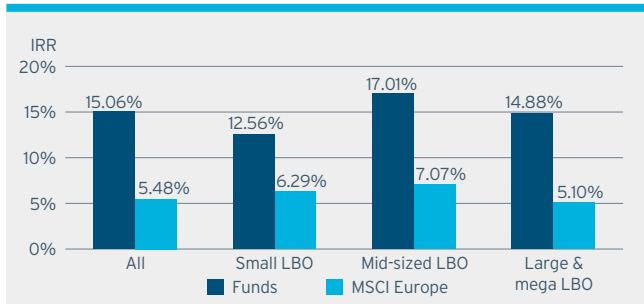
The outperformance of fund managers is remarkably consistent, regardless of deal sizes, ranging from 627 to 994 basis points (Fig. 22) and a MOIC difference of 0.31x to 0.48x (Fig. 23).

This is coherent with the conclusions made earlier: regardless of deal sizes, fund managers outperform the MSCI Europe.

These conclusions also apply to new, developing and established funds, with a consistent outperformance (Figs. 24 and 25) in terms of IRR and MOIC.

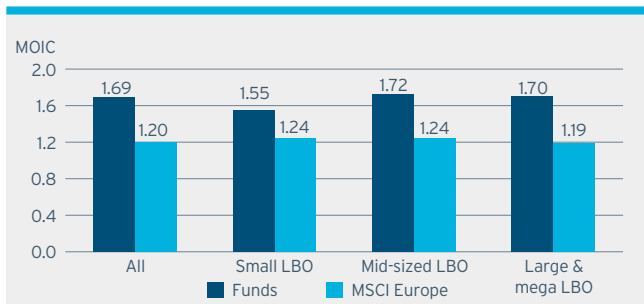
The mPME analysis shows that Western LBO funds outperform all the major listed indexes in terms of IRR and MOIC.

Fig. 22: IRR and mPME of European LBO funds, by deal size



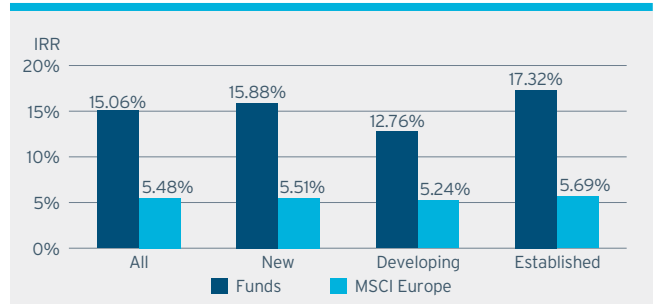
Source: Invest Europe, based on Cambridge Associates.

Fig. 23: MOIC and mPME of European LBO funds, by deal size



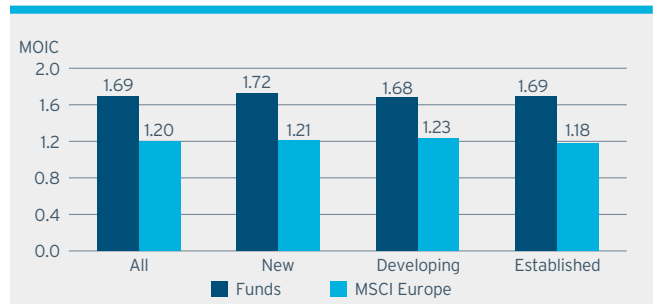
Source: Invest Europe, based on Cambridge Associates.

Fig. 24: IRR and mPME of all, new, developing and established European LBO funds



Source: Invest Europe, based on Cambridge Associates.

Fig. 25: MOIC and mPME of all, new, developing and established LBO funds



Source: Invest Europe, based on Cambridge Associates.

Risk analysis

LBO funds purchase a majority ownership and controlling stake in businesses by using a combination of equity and debt, which means that the risk profile of their investments should be conservative, whether in terms of capital-at-risk (measured by fund distributions) or selection risk (measured through the dispersion of quartile performances).

Distribution of risks

European LBO funds offer an attractive risk profile. The overall distribution of European LBO funds is largely in 'profits' territory (Fig. 26) as the normal distribution is skewed towards positive performance. 15.20% of the funds record a negative IRR. On average, their MOIC was 0.70x. As a matter of comparison, the MOIC of the 84.80% which record a positive IRR was 1.77x.

This perspective is made even more comforting when looking at liquidated funds (Fig. 27), which have an even lower percentage of loss-making funds (14.13%) and a lower average aggregated loss (their MOIC is 0.78x).

As a matter of comparison, the 85.87% which booked a profit record an aggregated average MOIC of 1.92x.

Active funds could give the impression that they are riskier (Fig. 28), as 15.93% are in 'loss-making' territory, recording an aggregated average performance of 0.69x. The 84.07% of profitable funds (so far) register a performance of 1.74x. However, as indicated earlier, these funds are still in the making, notably the most recent ones. Any conclusion should be drawn with caution, unless the maturity of funds is high enough to avoid analytical distortions.

Overall, investors in European LBO funds had a 15% chance to lose 30% of capital. Investing in a single fund has, therefore, its risks. However, as investors deploy capital across multiple vintage years, and among multiple funds, the chances of actually losing capital are limited. European LBO funds offer an attractive risk-return profile: 85% of the funds are profitable and, on aggregate, they record a MOIC of 1.77x.

European LBO funds offer an attractive risk profile.

Fig. 26: Distribution of All European LBO funds

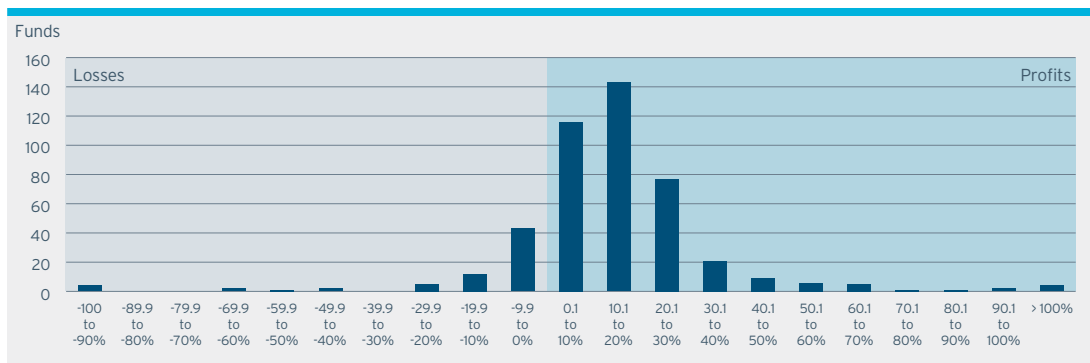


Fig. 27: Distribution of Liquidated European LBO funds

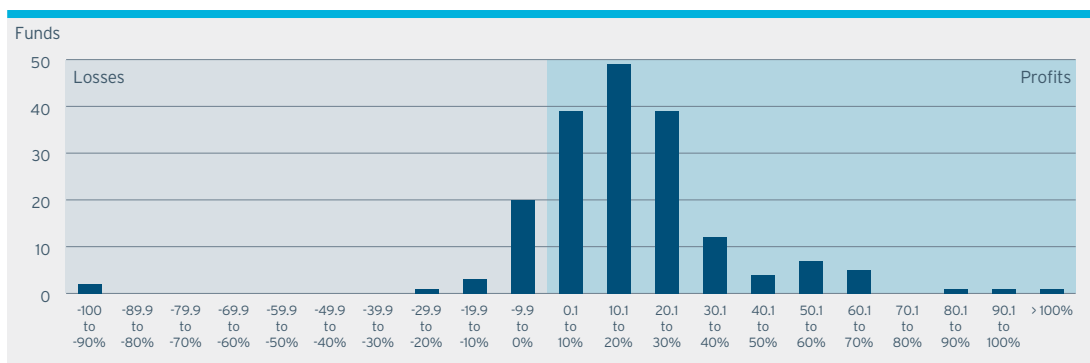
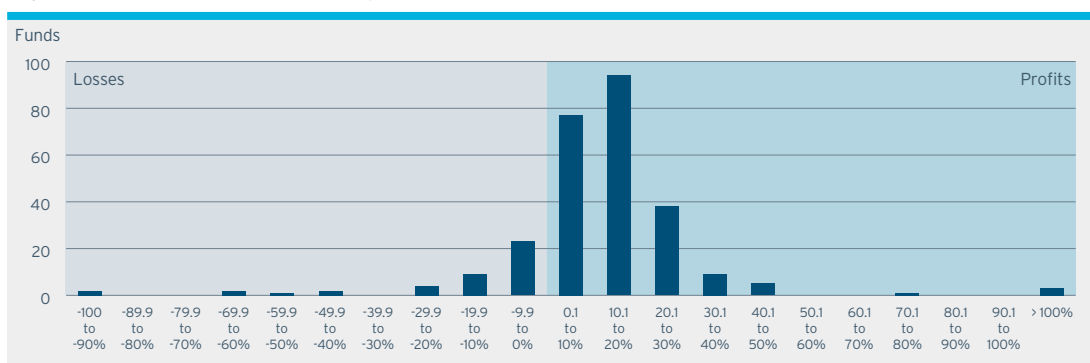


Fig. 28: Distribution of Active European LBO funds



Source: Invest Europe, based on Cambridge Associates.

European Buy-Out

Risk analysis continued

Selection risk

Confirming a preliminary conclusion, European LBO funds have a lower dispersion of returns than their international peers (Fig. 29).

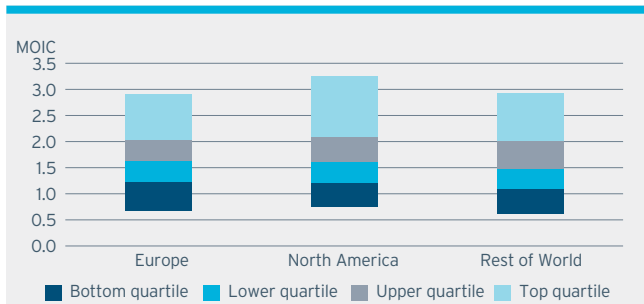
The dispersion in North America is driven by the top quartile, which explains the overall higher MOIC locally than in Europe.

As for funds from the Rest of the World, the dispersion is slightly higher and driven by the upper and bottom quartiles.

Liquidated funds show a fairly high selection risk, which is coherent with their high aggregate performance (Fig. 30). This is particularly true when it comes to the top quartile. Active funds, not surprisingly, show a lower dispersion of performance, which is coherent with the fact that this dispersion increased with the maturity of funds.

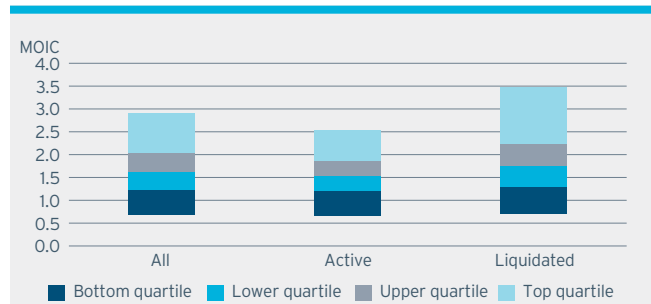
Although they might not replicate the full dispersion of performance of liquidated funds, active funds might see their first and second quartiles expand in terms of dispersion of returns.

Fig. 29: Quartile distribution of all European LBO funds, by region



Source: Invest Europe, based on Cambridge Associates.

Fig. 30: Quartile distribution of All, Active and Liquidated European LBO funds



Source: Invest Europe, based on Cambridge Associates.

Conclusion

Of the three strategies in this report, European LBO is the one with the highest level of confidence in the conclusions.

Funds are fairly mature, data samples are relatively rich, and data is consistent and coherent across the board.

The picture which emerges is one of strong historical performance, as illustrated by liquidated funds.

Key findings

Historically, the challenge for investors was to pick the top performing funds, especially during three exceptional vintage years (1993-1995). This has changed. European LBO funds tend to perform consistently and in line with their North American peers. The main difference is that they distribute capital faster than anywhere in the world. Although the time-to-liquidity has increased for active funds, it is far below the average in North America.

The risk-return profile of European LBO funds is attractive and fairly homogeneous, regardless of the deal sizes and the maturity of the fund manager.

The latter might appear puzzling, but it is coherent considering that 'new' fund managers are usually spinning off from existing teams. They have been through the learning curve and can perform. The main difference is that their time-to-liquidity is lower. This might be an optical effect. Established fund managers are likely to have managed liquidated funds. These liquidated funds are the ones with a short time-to-liquidity. This potentially skews the perception about established fund managers.

Given their fairly low loss ratio and their consistently high performance, European LBO funds appear as the first port of call for investors looking for a strategy which is rewarding but less demanding in terms of selection skills. Assuming that they build diversified programmes, they should ride out adverse macro-economic conditions which affect specific vintage years, as was the case for vintage years 2005-2007. This challenge is not specific to European funds but one shared by any investor interested in investing in private equity.

European LBO funds tend to perform consistently and in line with their North American peers. The main difference is that they distribute capital faster than anywhere in the world.

Section 2

European Growth Capital

Definition

Growth Capital¹² (GC) investing consists in increasing the capital of profitable companies with revenues growing at a double-digit rate in exchange for a significant minority stake in the firm. In exchange, GC funds usually get specific governance and shareholder rights.

As defined by Invest Europe, European GC funds are essential in supporting relatively mature companies with primary capital to expand and improve operations nationally or enter new markets to accelerate the growth of their business.

GC can finance acquisitions or the organic growth of a company launching or ramping up new products and services.

Sample analysis

Sample description

The vintage years captured range from 1994 to 2019 (Fig. 31). In any given vintage year, the number of funds ranges only from 1 to 4. As a consequence, multiple years do not support a quartile analysis.

36 funds with a capitalisation of €11.3 billion are still active (Table 2). Therefore, these funds provide only a partial reading of their performance¹³ and their risks.

8 funds with a capitalisation of €0.6 billion are liquidated¹⁴, offering a more solid - but also limited - ground for analysis. 30 funds with a capitalisation of €7.5 billion qualify as 'new'¹⁵, and 13 with a capitalisation of €4.1 billion as 'developing'¹⁶. Only 1 fund would qualify as 'established'¹⁷ and cannot be analysed as it is not representative.

Although GC is a long-standing investment strategy, its presence in the portfolio of fund investors remains limited when compared with VC and LBO. As a result, the sample is limited to 44 European GC funds with a capitalisation of €11.9 billion (Table 2).

Horizon returns can be challenging to analyse (see LBO section for full details on the issues). Some caution has to be applied when drawing conclusions.

44

Total European
Growth Capital funds

€11.9 billion
Capitalisation

30

New European
Growth Capital funds

€7.5 billion
Capitalisation

36

Active European
Growth Capital funds

€11.3 billion
Capitalisation

13

Developing European
Growth Capital funds

€4.1 billion
Capitalisation

8

Liquidated European
Growth Capital funds

€0.6 billion
Capitalisation

Notes

¹² Also, at times referred to as 'Growth Equity'.

¹³ Active funds have current investments in companies, which are yet to be sold ("unrealised"). These assets are appraised by fund managers conservatively, and thus create a drag on the performance of active funds until they are sold ("realised").

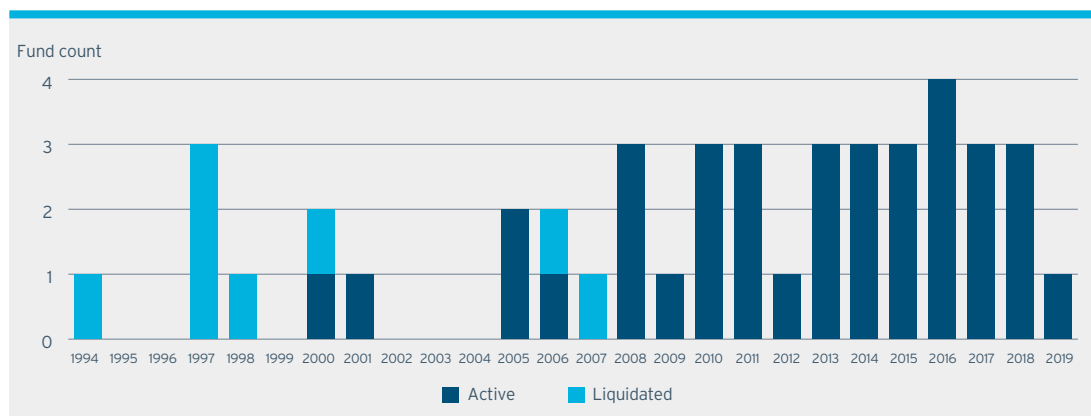
¹⁴ Liquidated means that the funds have sold their assets and ceased operations.

¹⁵ First or second generation of funds.

¹⁶ Third or fourth generation of funds.

¹⁷ Fifth generation and beyond.

Fig. 31: European Growth Capital funds per vintage year and status



Source: Invest Europe, based on Cambridge Associates.

Table 2 - Horizon returns of Growth Capital funds

Region	Status	Currency	Funds	Capitalisation (mn)	1-Year	3-Year	5-Year	10-Year	15-Year	20-Year	25-Year	30-Year
Europe	All	EUR	44	11,898	18.46%	17.16%	17.62%	15.10%	13.88%	11.54%	13.69%	n/a
North America	All	EUR	309	254,500	31.63%	27.24%	19.61%	19.24%	15.63%	11.47%	21.51%	23.62%
Rest of World	All	EUR	312	132,822	23.10%	15.45%	11.12%	11.99%	12.75%	11.17%	10.91%	10.76%
Europe	All	USD	44	14,779	29.42%	17.98%	20.33%	14.14%	13.46%	12.11%	13.57%	n/a
North America	All	USD	309	301,195	43.30%	27.83%	22.45%	18.01%	15.48%	12.64%	19.87%	21.64%
Rest of World	All	USD	312	165,527	34.10%	16.09%	13.74%	10.98%	12.23%	11.69%	10.92%	10.78%
Europe	New	EUR	30	7,541	19.42%	19.74%	20.31%	15.86%	14.77%	11.55%	14.35%	n/a
Europe	Developing	EUR	13	4,109	15.68%	12.01%	11.31%	13.07%	11.52%	n/a	n/a	n/a
Europe	Established	EUR	1	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Europe	Liquidated	EUR	8	593	n/a	16.37%	20.21%	21.13%	20.43%	6.87%	17.54%	n/a
North America	Liquidated	EUR	71	27,600	-36.57%	13.17%	15.64%	21.66%	13.49%	3.85%	43.41%	39.52%
Rest of World	Liquidated	EUR	70	10,946	-26.60%	-51.11%	16.24%	8.84%	17.85%	10.16%	9.59%	9.11%
Europe	Active	EUR	36	11,305	18%	17.17%	17.59%	14.82%	13.42%	12.83%	n/a	n/a
North America	Active	EUR	238	226,900	31.65%	27.28%	19.65%	19.10%	15.92%	13.93%	n/a	n/a
Rest of World	Active	EUR	242	121,876	23.10%	15.49%	11.10%	12.11%	12.30%	11.38%	11.29%	n/a

Source: Invest Europe, based on Cambridge Associates.

European Growth Capital

Sample analysis continued

Context and limits

The limited size of the sample has multiple significant consequences:

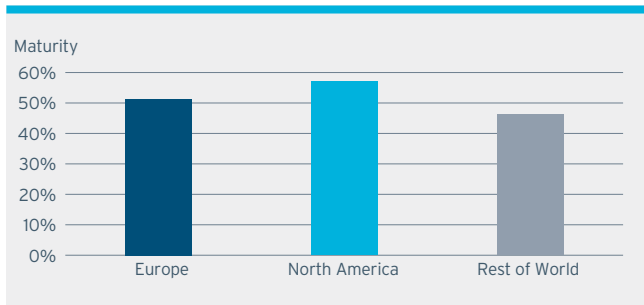
Most of the sample (81.8% of funds) is active. The maturity of the sample reaches 51% (Fig. 32). This can, at times, skew the performance analysis. NAVs of active funds are assessed conservatively¹⁸, and thus reduce the performance of active funds in comparison with fully liquidated ones. However, overall, the maturity of European GC funds is in line with the maturity of North American funds (Fig. 32), which stands at 57%. Funds from the Rest of the World mature more slowly (they are 46% realised as of December 31, 2020).

Indeed, the time-to-liquidity of GC funds from the Rest of the World reaches 5.35 years (Fig. 33), while it is 3.28 years for North American ones and 3.52 years for European ones. The time-to-liquidity of liquidated funds (3.19 years) was relatively short (Fig. 34), notably when compared with active funds (3.71 years). This explains Europe playing catch up in terms of maturity with more established North American funds.

The sample is concentrated in the vintage years 2005-2019¹⁹. Only one business cycle has essentially been captured by the data, and this could potentially affect the conclusions. Fortunately, Table 2 provides enough background to assess the impact of such a cycle (see the analysis below).

The limited number of funds per vintage year can introduce significant analytical distortions. Each year is very sensitive to potential outliers and each fund has a very significant weight. Some caution should be applied when drawing conclusions.

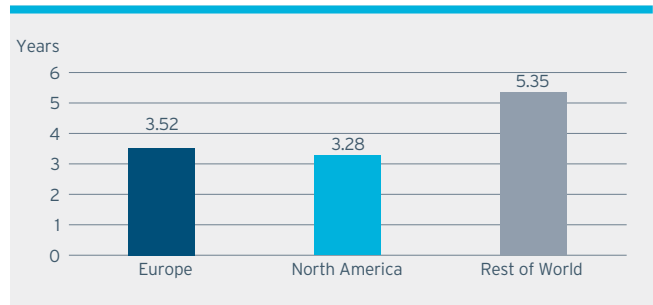
Fig. 32: Maturity of Growth Capital funds in the sample, by region



Source: Invest Europe, based on Cambridge Associates.

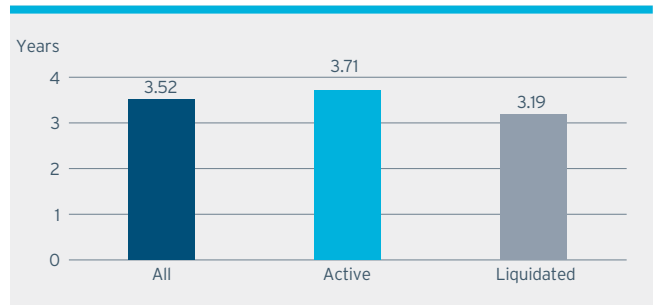


Fig. 33: Average time-to-liquidity of Growth Capital funds, by region



Source: Invest Europe, based on Cambridge Associates.

Fig. 34: Average time-to-liquidity of all, active and liquidated European Growth Capital funds



Source: Invest Europe, based on Cambridge Associates.

Notes

¹⁸ Brown, G., Gredil, O. and Kaplan, S., "Do private equity funds manipulate returns", Journal of Financial Economics, forthcoming and 2017, SSRN Working Paper No. 2271690, pg. 74. Jenkinson, T., Landsman, W., Rountree, B. and Soonawalla, K., "Private Equity Net Asset Values and Future Cash Flows", The Accounting Review, January 2020, Vol. 95, No. 1, pp. 191-210.
¹⁹ There were no new funds in the sample for the vintage year 2020, so the 15-year horizon is 2005-2019.

Performance analysis

To put the sample in perspective, the performance of Growth Capital funds is compared in Europe, North America and the Rest of the World (Table 2).

Although the sample size of the other regions is significantly higher, their long-term performances are rather similar to Europe's. The relevant time-horizon, given the constraints mentioned earlier, is 15 years (2005-2019): this captures 81.8% of the European sample, and a few liquidated and mature funds. The 20-year horizon is also of interest. The 25-year horizon would be a good basis for comparison as it encompasses the full European sample, but North American funds include an outlier which distorts the perspective: the vintage year 1994 contains 5 funds with an exceptional IRR of 52.75%.

A preliminary conclusion is that despite a fairly small sample, European GC funds perform in line with non-European funds over a 20-year horizon.

It is, therefore, possible to proceed towards a deeper analysis thanks to absolute and relative performance analyses.

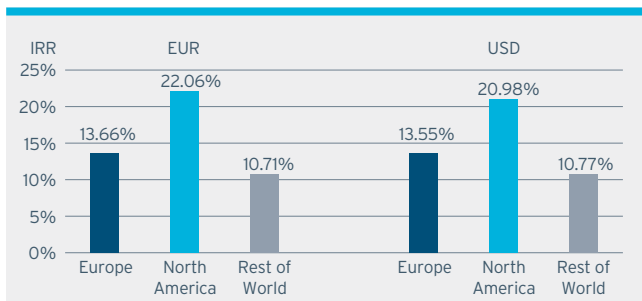
Absolute performance analysis

A full-sample analysis shows that European GC funds generated a 13.66% IRR in EUR, while North American funds reached 22.06% and the Rest of the World 10.71% (Fig. 35). North American funds outperform European ones by 840 basis points in EUR and 743 basis points in USD. European funds outperform the Rest of the World by 295 basis points in EUR and 278 basis points in USD.

As for the MOIC (Fig. 36), the performance in USD and EUR is almost identical.

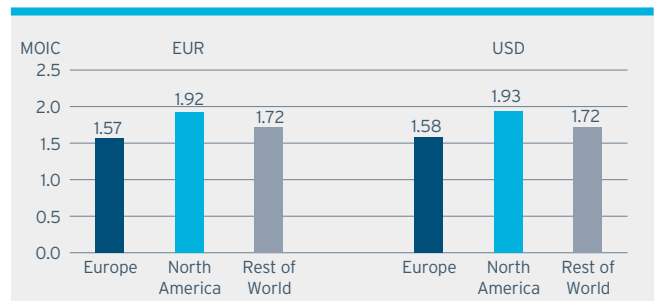
There is no significant distortion when comparing the performance of funds across regions within one currency, whether it is the dollar or the euro. The choice of the currency of reference does not distort the results significantly.

Fig. 35: IRR of Growth Capital funds per region, in EUR and USD



Source: Invest Europe, based on Cambridge Associates.

Fig. 36: MOIC of Growth Capital funds per region, in EUR and USD



Source: Invest Europe, based on Cambridge Associates.

European GC funds perform in line with non-European funds over a 20-year horizon.

European Growth Capital

Performance analysis continued

European funds seem to trail the performance of American and international ones. The relative underperformance of the European funds could be due to the relatively high proportion of active European funds in the overall sample. The performance of purely liquidated funds (Table 2, Figs. 37 and 38) tends to be significantly higher than for active funds (Figs. 37 and 38), with the exception of the 20-year horizon, which seems to affect all the funds regardless of their region.

The burst of the so-called 'Internet bubble' (ICT bust) in 2000-2001 might have affected European GC funds.

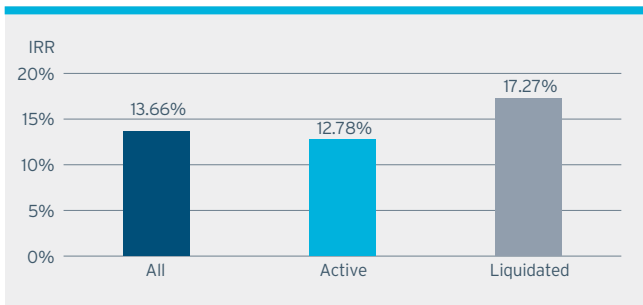
Moreover, the difference in sample sizes (see above) should lead to caution when drawing definitive conclusions. The 309 American Growth Capital funds generate a multiple of 1.92x, the

312 international funds a multiple of 1.72x, while the 44 European funds record a 1.57x. The latter, being more sparse, capture a less rich history than the American and International samples.

To further assess potential distortions in the analysis of liquidated and active funds, the median, pooled, capital, and simple average MOIC are compared (Fig.39).

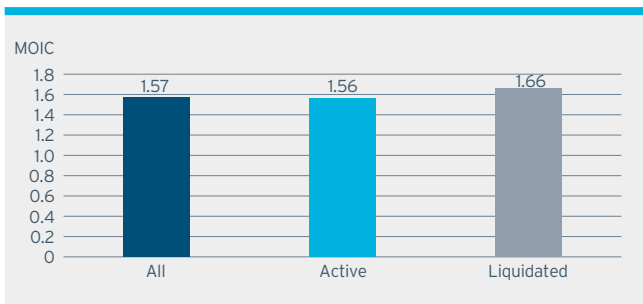
The four measures of performance of liquidated funds are remarkably coherent. Despite the small size of the sample, there is very little influence of the size of funds, as the capital-weighted and the simple average diverge very little. There is also very little influence of their dispersion on the performance, as the median and other metrics are similar.

Fig. 37: IRR of all, active and liquidated European Growth Capital funds



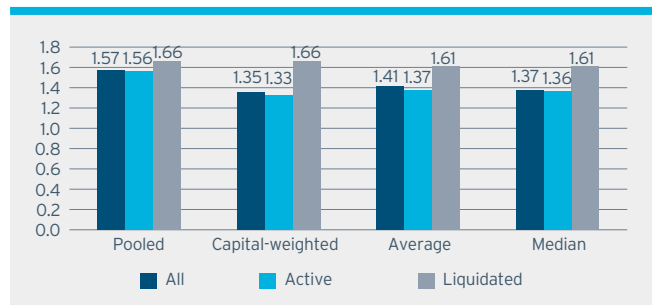
Source: Invest Europe, based on Cambridge Associates.

Fig. 38: MOIC of all, active and liquidated European Growth Capital funds



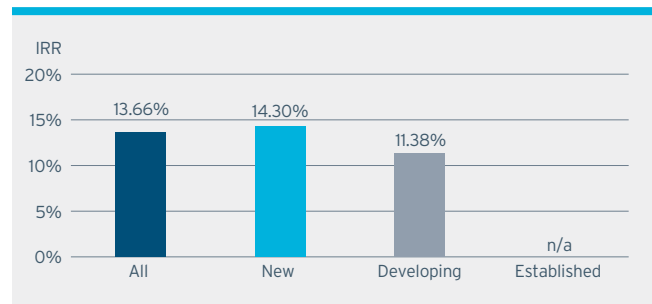
Source: Invest Europe, based on Cambridge Associates.

Fig. 39: Pooled average, capital-weighted, simple average and median MOIC of all, active and liquidated European Growth Capital funds



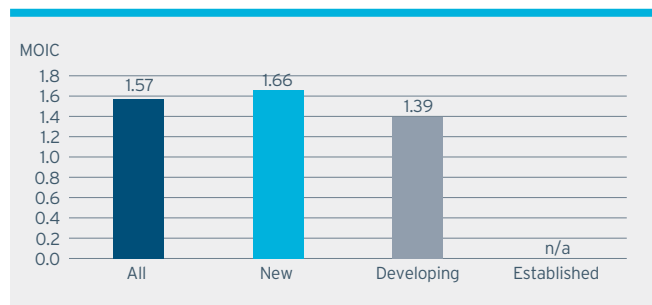
Source: Invest Europe, based on Cambridge Associates.

Fig. 40: IRR of all, new and developing²⁰ European Growth Capital funds



Source: Invest Europe, based on Cambridge Associates.

Fig. 41: MOIC of all, new and developing European Growth Capital funds



Source: Invest Europe, based on Cambridge Associates.

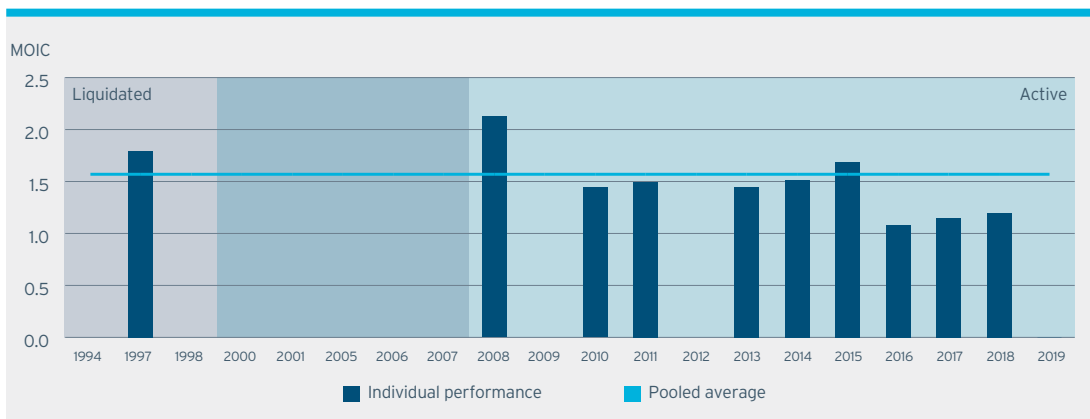
Notes
²⁰ There is not enough data on established funds, hence the mention 'n/a' (not available).

The picture for active funds shows a lower MOIC than for liquidated funds. Some explanations stem from the fact that the NAV is conservative. The pooled-average metric compensates for some of this effect as it blends cash flows and NAVs. It is significantly higher than the median, as well as the capital-weighted and simple averages. The latter three are fairly similar. The conclusion is reassuring: there is no significant distortion of performance readings due to fund sizes or dispersion of performances.

On this basis, it is possible to assess further the dynamics of returns by looking at subsets, such as the generations of funds. The first two generations ('new') of funds seem to perform better (Figs. 40 and 41) than the following two ('developing'). A possible explanation is that emerging fund managers have more appetite for risk than when more established.

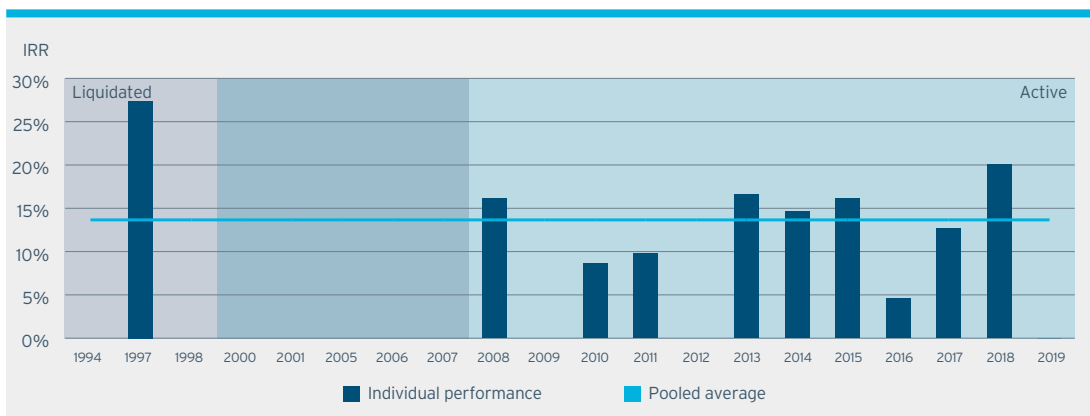
A closer look at MOIC by vintage year (Fig. 42) shows that active but maturing European GC funds (2008 to 2011) tend to perform close to the long-term average of 1.52x, or significantly above. The IRR picture is more contrasted (Fig. 43).

Fig. 42: MOIC of European Growth Capital funds by vintage year²¹



Source: Invest Europe, based on Cambridge Associates.

Fig. 43: IRR of European Growth Capital funds by vintage year²²



Source: Invest Europe, based on Cambridge Associates.

Notes

²¹ Performance data is available for individual vintage years only when there are at least six funds in the sample. The area on the left (with the word 'Liquidated') refers to vintage years which count fully realised funds only. The area on the right (with the word 'Active') refers to vintage years which count active funds only.

²² Performance data is available for individual vintage years only when there are at least six funds in the sample. The area on the left (with the word 'Liquidated') refers to vintage years which count fully realised funds only. The area on the right (with the word 'Active') refers to vintage years which count active funds only. The area in the centre refers to vintage years which count liquidated and active funds. IRR performance can be highly distorted when funds are too recent (7-8 years-old or less).

European Growth Capital

Performance analysis continued

Relative performance analysis

The public market equivalent analysis²³ provides an interesting perspective on the relative performance of GC funds.

For European ones, the closest indexes of listed stocks would be the MSCI Europe and the S&P Europe Small Cap Growth (Figs. 44 and 45). For North American funds, we chose the S&P 500 and the Wilshire 5000 indexes; and for the Rest of the World, the MSCI World²⁴.

In terms of IRR (Fig. 44), European GC funds outperform all the major indexes of listed companies, including American and global indexes. This is also true for North American funds. More specifically, European GC funds outperform their local indexes such as the S&P Europe Small Cap Growth by 182 basis points, and the MSCI Europe by 726 basis points. North American funds outperform the S&P 500 by 1202 basis points and the Wilshire 5000 by 1185 basis points. Funds from the Rest of the World outperform specifically the MSCI World index by 246 basis points.

In terms of MOIC (Fig. 45), European GC funds outperform their local index (1.57x vs 1.21x for the MSCI Europe and 1.48x for the S&P Small Cap Growth). North American funds also outperform their local indexes (1.92x vs 1.48x for the S&P 500 and 1.50x for the Wilshire 5000), as well as funds from the Rest of the World (1.72x vs 1.48x for the MSCI World).

These relative performances are based on an all-funds sample, thus including essentially active funds in the case of European funds. As NAVs are conservatively appraised, the performance of active funds systematically lags the evolution of listed stocks.

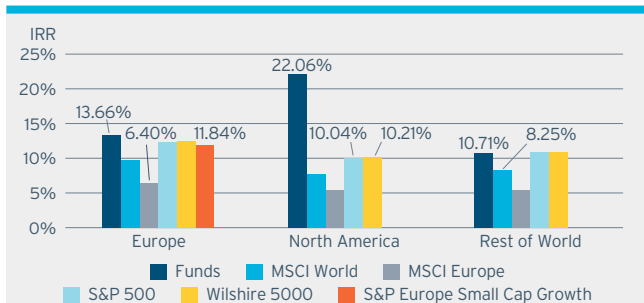
An analysis of active and liquidated funds (Figs. 46 and 47) provides more perspective, although with the limitations mentioned in terms of sample sizes.

The 8 liquidated funds outperform the S&P Small Cap Growth by 825 basis points, and the MSCI Europe by 1119 basis points (Fig. 46).

In terms of cash-on-cash MOIC (Fig. 47), liquidated European GC funds generated a 1.66x multiple, while the S&P Small Cap Growth reached 1.38x and the MSCI Europe 1.22x.

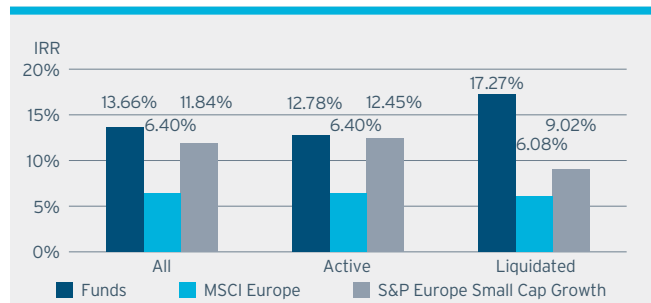
In terms of IRR, European GC funds outperform all the major indexes of listed companies, including American and global indexes.

Fig. 44: IRR and mPME of all Growth Capital funds, by region



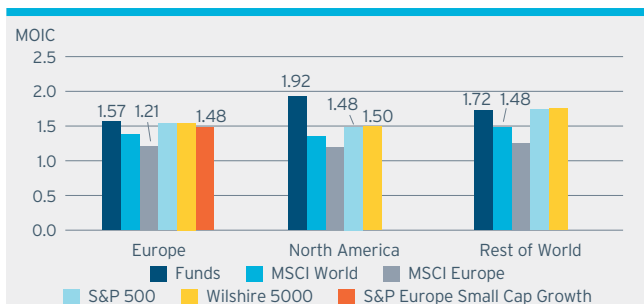
Source: Invest Europe, based on Cambridge Associates.

Fig. 46: IRR and mPME of all, active and liquidated European Growth Capital funds



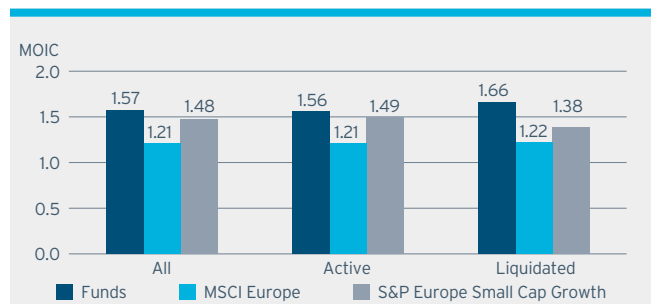
Source: Invest Europe, based on Cambridge Associates.

Fig. 45: MOIC and mPME of all Growth Capital funds, by region



Source: Invest Europe, based on Cambridge Associates.

Fig. 47: MOIC and mPME of all, active and liquidated European Growth Capital funds



Source: Invest Europe, based on Cambridge Associates.

Notes

²³ Please see Invest Europe's report 'Benchmarking Public & Private Markets with the Public Market Equivalent (PME)' for more details about the mPME method.

²⁴ For a description of the indexes, please see the methodology section.

Risk analysis

GC funds invest in profitable and growing companies, and do not use leverage to do so. The intrinsic investment risk that they take is lower than in other private equity strategies such as VC, LBO or turn-around investing.

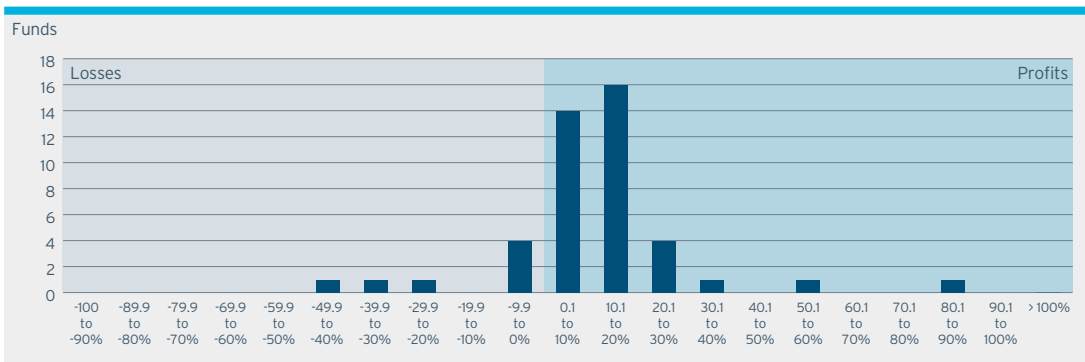
Distribution of risks

This is confirmed by the distribution of European GC funds (Fig. 48). The distribution of all of the European GC funds is heavily skewed towards profits. 15.91% of the funds record a negative IRR. On average, their MOIC was 0.88x. As a matter of comparison, the MOIC of the 84.09% which record a positive IRR was 1.66x.

Unfortunately, the limited size of the data sample does not easily support a deeper analysis. All of the liquidated funds recorded a positive IRR and their average MOIC was 1.66x (Fig. 49). Not surprisingly, it is the active funds (Fig. 50) which contain funds with negative IRRs: 19.44% of the sample record and average MOIC of 0.88x. They might recover these losses as their portfolio matures and companies are sold. The 80.56% of funds which are profitable booked a multiple of 1.66x so far.

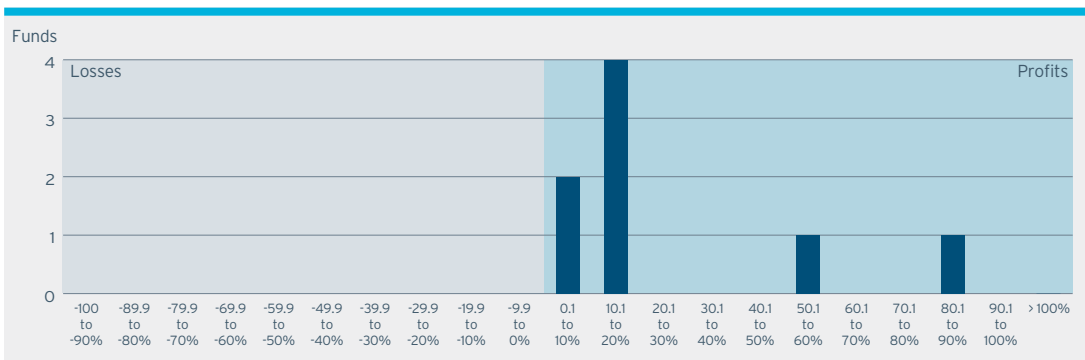
The risk of losing capital when investing GC funds is, therefore, relatively limited. So far, this scenario did not happen among liquidated funds. Active funds are still in the making. The jury is out on the final performance of these funds.

Fig. 48: Distribution of all European Growth Capital funds



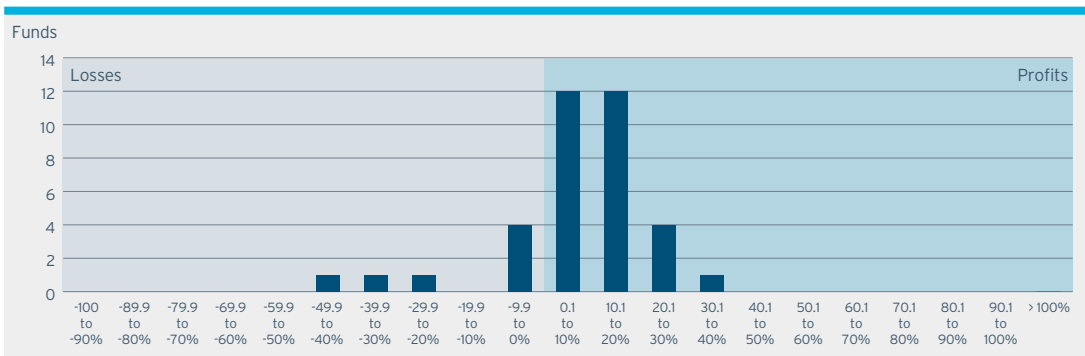
Source: Invest Europe, based on Cambridge Associates.

Fig. 49: Distribution of liquidated European Growth Capital funds



Source: Invest Europe, based on Cambridge Associates.

Fig. 50: Distribution of active European Growth Capital funds



Source: Invest Europe, based on Cambridge Associates.

European Growth Capital

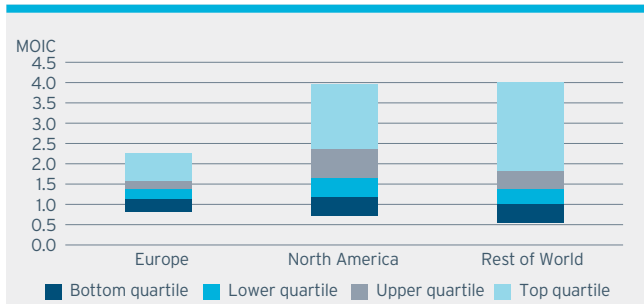
Risk analysis continued

Selection risk

The fund selection risk looks also limited in Europe (Fig. 51), in two ways. First, only the bottom quartile effectively breaks the 1.0x threshold: European GC funds record a negative performance of funds belonging to the bottom 5% (0.83x). This is also true for GC funds from North America (0.72x) and the Rest of the World (0.56x). Second, European GC funds record a limited dispersion of returns: a 1.44x spread between the top 5% and the bottom 5%, while North American funds stand with a 3.24x spread and funds from the Rest of the World with a 3.46x spread. Therefore, if the performance of European GC funds is lower than in North America, the selection risk is also lower.

This analysis includes a significant proportion of active funds and immature funds. Liquidated funds might differ from this picture (Fig. 52), as none of the funds records a negative performance. As mentioned before, the limited size of the sample of liquidated funds limits the conclusions.

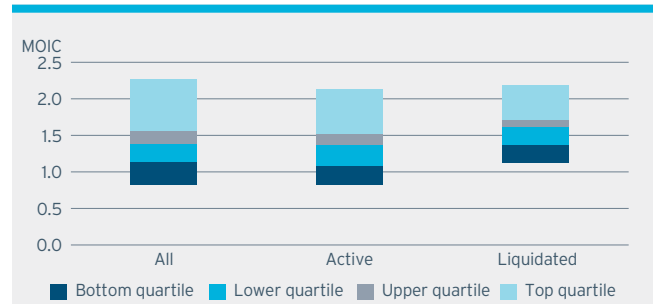
Fig. 51: Quartile distribution of all Growth Capital funds, by region



Source: Invest Europe, based on Cambridge Associates.

If the performance of European GC funds is lower than in North America, the selection risk is also lower.

Fig. 52: Quartile distribution of all, active and liquidated European Growth Capital funds



Source: Invest Europe, based on Cambridge Associates.

The MOIC of the 84% which record a positive IRR was 1.66x.

Conclusion

Although the sample is limited in size, and still fairly immature, a few conclusions have emerged from the analysis.

On a pooled average basis, European GC funds record a 13.66% IRR and a MOIC of 1.57x. This includes liquidated and active funds. European GC funds provide a fairly consistent performance in a benign environment, with IRRs ranging from 13.69% over a 25-year horizon to 15.10% over a 10-year horizon. Adverse conditions can affect European GC funds: over a 20-year horizon, the IRR decreases to 11.54%.

Key findings

European GC funds significantly outperform local indexes of listed stocks. This is particularly visible once the distortions associated with conservative NAVs is eliminated: liquidated funds book a 1.66x multiple vs 1.38x for the S&P Europe Small Cap Growth and 1.22x for the MSCI Europe.

The performance of European GC funds is fairly homogeneous, notably regardless of fund sizes. The dispersion of fund performance is half of what it is in other regions. This might be due to relative lack of maturity of the funds in the sample. Nevertheless, risks are fairly limited in terms of capital-at-risk and in terms of fund manager selection. Liquidated funds did not lose money so far, and the 19.4% of active funds with a negative performance record an average MOIC of 0.88x.

Therefore, European GC funds offer a coherent risk-return profile to investors, with the added specificity that European GC funds have the shortest time-to-liquidity. Liquidated funds prove that this is not an exceptional situation, nor due to the lack of maturity of active funds.

Section 3

European Venture Capital

Definition

Venture Capital (VC) funds specialise in sourcing, funding and building young, innovative companies that focus on industries such as technology and healthcare. As defined by Invest Europe, VC funds invest in equity for the launch (seed capital), early development (start-up), or expansion (later stage) of a business. Therefore, they usually fund companies through successive rounds of capital increase.

European VC funds have registered solid performances, similar if not better than their American peers.

Seed and early-revenue investments will be grouped under the "early-stage" category in this report. These investments are in pre- or early-revenue companies where the initial product or service is still being developed.

Invest Europe defines seed stage as the funding provided before the company has started mass production and distribution to complete research, product definition or product design, including market tests and creating prototypes.

The start-up stage is the funding of companies being set up or that have been in business for a short time, which have not sold their product commercially yet and need capital to cover capital expenditures and initial working capital.

Other early-stage financing is included as well, funding companies that have initiated commercial manufacturing but requiring further funds to cover additional capital expenditures and working capital before reaching the break-even point.

Funds with late and expansion stage investments will be grouped with funds investing across multiple stages of company development under the "late and multiple stage" category in this report. Late and expansion stage investments are in more established, growing companies for the purpose of scaling operations. Invest Europe defines late and expansion stage as the funding of an operating company which may or may not be profitable, often already financed by VC funds - hence the grouping with multi-stage financing.

Sample analysis

Sample description

The sample contains 173 European VC funds with a total capitalisation of €30 billion (Table 3).

The vintage years captured range from 1986 to 2020, with some interruptions due to a lack of data (Fig. 53). The number of funds per vintage year ranges from 1 to 20, which means that some years do not support a quartile analysis.

120 funds with a capitalisation of €22.7 billion are active (Table 3). These funds provide only a partial reading of their performance²⁵ and their risks. 53 funds with a capitalisation of €7.3 billion are liquidated²⁶, offering a more solid ground for analysis. 99 funds with a capitalisation of €12.5 billion qualify as 'new'²⁷, 40 with a capitalisation of €8.4 billion as 'developing'²⁸, and 34 with a capitalisation of €9.1 billion as 'established'²⁹.

Although some professional European VC funds started during the 1980s, they effectively gained momentum in the late 1990s and early 2000s (Fig. 53), during the wave of investments in information and communications technologies (ICT) and the subsequent stock market crash ('ICT bust'). This event has had a long-standing negative impact on the overall performance of the sector.

However, since then, European VC funds have registered solid performances, similar if not better than their American peers (Table 3).

Notes

²⁵ Active funds have current investments in companies, which are yet to be sold ("unrealised"). These assets are appraised by fund managers conservatively, and thus create a drag on the performance of active funds until they are sold ("realised").

²⁶ Liquidated means that the funds have sold their assets and ceased operations.

²⁷ First or second generation of funds.

²⁸ Third or fourth generation of funds.

²⁹ Fifth generation and beyond.

173

Total European
Venture Capital funds

€30 billion

Capitalisation

99

New European
Venture Capital funds

€12.5 billion

Capitalisation

120

Active European
Venture Capital funds

€22.7 billion

Capitalisation

40

Developing European
Venture Capital funds

€8.4 billion

Capitalisation

53

Liquidated European
Venture Capital funds

€7.3 billion

Capitalisation

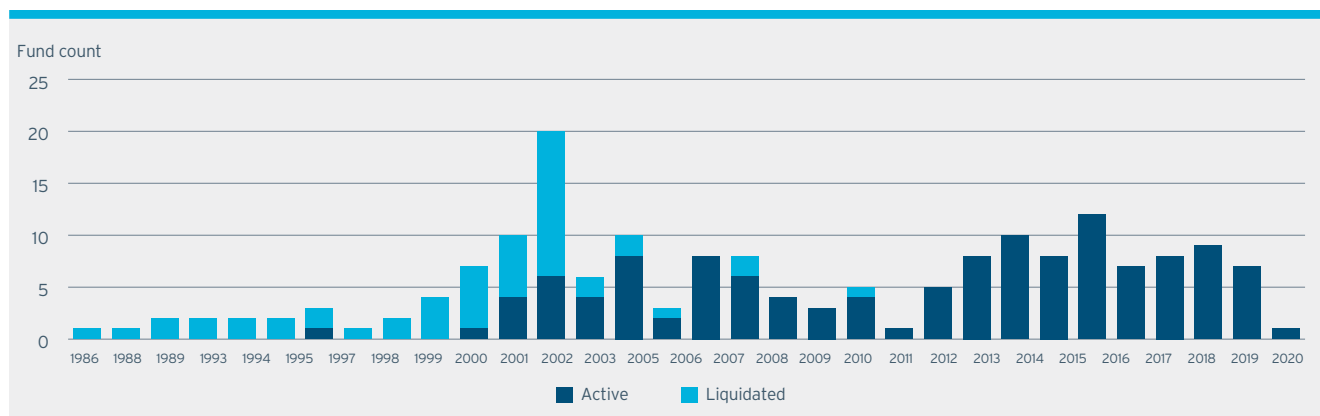
34

Established European
Venture Capital funds

€9.1 billion

Capitalisation

Fig. 53: European Venture Capital funds per vintage year and status



Source: Invest Europe, based on Cambridge Associates.

Table 3 - Horizon returns of Venture Capital funds

Region	Status	Currency	Funds	Capitalisation (mn)	1-Year	3-Year	5-Year	10-Year	15-Year	20-Year	25-Year	30-Year
Europe	All	EUR	173	29,995	46.17%	34.78%	21.90%	19.70%	12.83%	8.50%	10.88%	10.58%
North America	All	EUR	2,027	401,216	37.71%	27.52%	15.51%	18.50%	13.04%	5.99%	45.49%	30.63%
Rest of World	All	EUR	331	56,470	34.62%	24.75%	17.49%	21.80%	17.63%	12.40%	13.43%	13.22%
Europe	All	USD	173	34,650	59.17%	35.50%	24.86%	18.49%	12.83%	9.45%	10.58%	10.25%
North America	All	USD	2,027	459,522	49.87%	28.08%	18.23%	17.17%	13.08%	7.22%	32.33%	25.29%
Rest of World	All	USD	331	67,143	46.56%	25.38%	20.25%	20.71%	17.37%	13.29%	13.85%	13.58%
Europe	New	EUR	99	12,499	33.04%	30.48%	17.61%	14.86%	8.46%	3.82%	8.71%	8.55%
Europe	Developing	EUR	40	8,435	39.68%	29.44%	17.97%	18.21%	11.58%	8.81%	8.88%	n/a
Europe	Established	EUR	34	9,061	57.88%	40.87%	27.45%	25.37%	21.67%	19.46%	n/a	n/a
Europe	Liquidated	EUR	53	7,288	-68.61%	108.51%	28.50%	16.87%	6.94%	0.96%	8.34%	8.23%
North America	Liquidated	EUR	829	101,930	-26.17%	25.32%	-0.03%	10.75%	4.55%	-5.76%	57.07%	34.85%
Rest of World	Liquidated	EUR	68	6,360	-12.74%	-33.82%	-19.15%	1.62%	2.55%	-3.15%	0.84%	0.75%
Europe	Active	EUR	120	22,708	46.20%	33.70%	21.63%	20.06%	14.41%	12.01%	12.02%	n/a
North America	Active	EUR	1,198	299,286	37.80%	27.53%	15.76%	19.09%	14.59%	10.73%	11.37%	11.39%
Rest of World	Active	EUR	263	50,110	34.63%	24.82%	17.59%	22.44%	19.38%	16.71%	n/a	n/a

Source: Invest Europe, based on Cambridge Associates.

European Venture Capital

Sample analysis continued

Sample description continued

Horizon returns (Table 3) can be challenging to analyse as explained in Section 1 above. Performance seen here is fairly consistent on a 30-, 25-, and 20-year horizon in Europe. This is particularly important: North American funds benefitted a lot from the ICT wave, as the 25-year horizon shows, and then dropped substantially over the 20-year horizon. VC funds from the Rest of the World seem to have been fairly stable, in a similar fashion to their European peers, meaning that the ICT boom was largely an American phenomenon. There is no major analytical distortion related to the currency of reference.

Table 3 provides a comparison of the performance of funds by geographical region. Liquidated European funds record a much more stable performance than their international peers. The performance over a 20-year period stays positive (0.96%), while it turns negative in other regions.

Over a ten-year period, the performance of all funds (19.70%) is similar to that in North America (18.50%), although lower than in the rest of the world (21.80%).

The IRR of liquidated funds can appear as fairly low. This is the result of the slow maturation of VC investments, which require a much longer time to be realised (see maturity analysis below) than other types of investments. Moreover, VC fund managers tend to cut their losses early and let their promising companies grow by reinvesting in them.

As a consequence, short horizons (10 years or less) are less relevant for analytical purpose, as they essentially embed active funds. They can be useful to understand dynamics or do reporting benchmarking but should not be used to draw conclusions on absolute performances.

Looking at the 15-year horizon, the returns of European and American funds seem to be fairly similar, while funds from the Rest of the World show a higher performance.

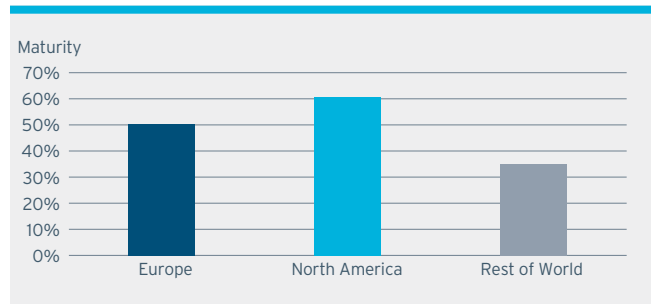
Context and limits

30.6% of European VC funds are liquidated (Fig. 53 and Table 3).

The maturity of active funds reaches 50% (Fig. 54), which is slightly lower than for their North American peers (61%) but much higher than for the Rest of World funds (35%).

North American funds (Fig. 55) mature much faster (4.63 years) than their European peers (6.43 years). Rest of World VC funds are the slowest (7.05 years). Geographical comparisons should thus be drawn with caution.

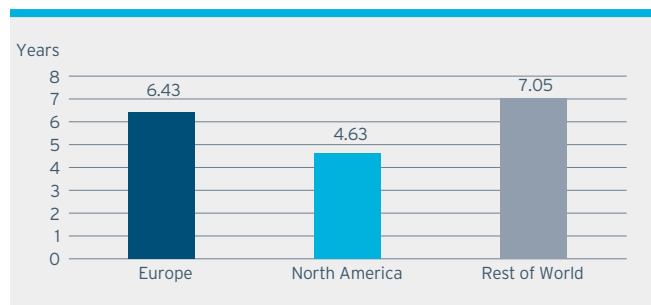
Fig. 54: Maturity of Venture Capital funds in the sample, by region



Source: Invest Europe, based on Cambridge Associates.



Fig. 55: Time-to-liquidity of Venture Capital funds, by region

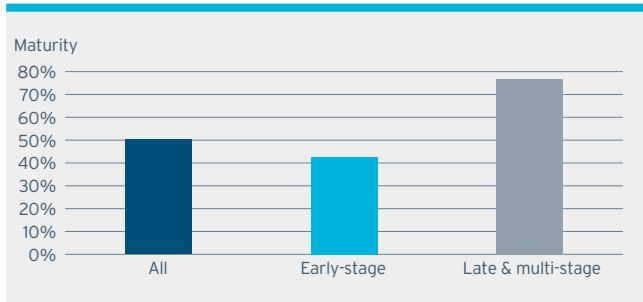


Source: Invest Europe, based on Cambridge Associates.

Late and multi-stage funds (Fig. 56) are the ones which have the highest maturity level (77%, versus 43% for early-stage funds). This is logical, as start-ups enter their portfolio when they are more mature and thus closer to a trade sale or an initial public offering. The time-to-liquidity of early-stage (7.51 years) and late/multi-stage funds (4.15 years) confirms this (Fig. 57). Comparison between early and late/multi-stage funds should also be made with caution. NAVs of active funds are assessed conservatively³⁰, and thus reduce the performance of active funds. Early-stage funds will, therefore, exhibit lower performances when compared to their late/multi-stage peers.

Time-to-liquidity can vary over time. This is quite visible when comparing liquidated and active funds (Fig. 58). Liquidated funds benefitted from supportive conditions for quicker exits in the late 1990s and early 2000s (Figs. 53 and 58), than active funds. While all funds record a 11.09% IRR, active funds 12% and liquidated funds 9.49%, the respective MOIC are 1.97x, 2.16x and 1.47x. The turn-around of assets for liquidated funds was higher, but so were the valuations³¹ as witnessed by the lower multiple of invested capital.

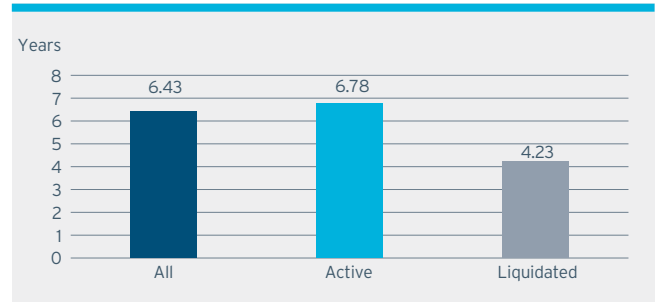
Fig. 56: Maturity of active European Venture Capital funds, by stage of development



Source: Invest Europe, based on Cambridge Associates.

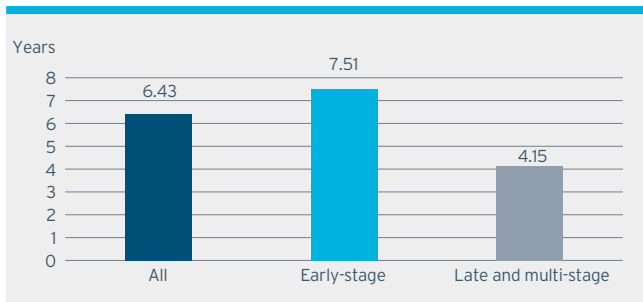
50% All 43% Early-stage 77% Late & multi-stage

Fig. 58: Average time-to-liquidity of all, active and liquidated European Venture Capital funds



Source: Invest Europe, based on Cambridge Associates.

Fig. 57: Average time-to-liquidity of all, early-stage and late/multi-stage European Venture Capital funds



Source: Invest Europe, based on Cambridge Associates.

Looking at the 15-year horizon, the returns of European and American funds seem to be fairly similar.

Notes

³⁰ Jenkinson, T., Landsman, W., Rountree, B. and Soonawalla, K., "Private Equity Net Asset Values and Future Cash Flows", The Accounting Review, January 2020, Vol. 95, No. 1, pp. 191-210. Brown, G., Gredil, O. and Kaplan, S., "Do private equity funds manipulate returns", Journal of Financial Economics, forthcoming and 2017, SSRN Working Paper No. 2271690, pg. 74.
³¹ Values of companies at exit and net asset values of companies in portfolio as of December 31, 2020.

European Venture Capital

Performance analysis

For a deeper understanding of the evolution of European VC funds, we turn to absolute and relative performance analyses.

Absolute performance analysis

If European VC funds are more resilient in their performance (see horizon returns analysis), and thus less risky, they also register comparatively lower returns. The full-sample analysis shows a 11.09% IRR in EUR, while North American funds registered 16.53% (notably thanks to the unique ICT boom of the 1990s) and the Rest of the World 13.10%. The picture is essentially identical in USD (Fig. 59).

However, IRRs are particularly time-sensitive and the shorter durations of investment in North America magnifies their outperformance. In that respect, multiples of invested capital (MOIC) provide a different and useful analytical basis.

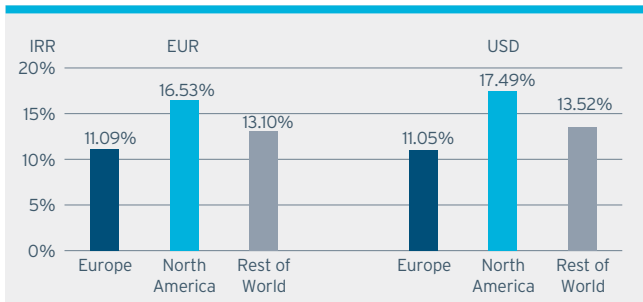
Though the MOIC of European VC funds is still lower than those of their international peers, the difference between North American and European funds is actually limited.

European funds reach a net MOIC of 1.97x (Fig. 60) and North American ones 2.03x (3.05% more). Funds from the Rest of World lead the pack with a MOIC of 2.38x. However, this performance is only realised at 35% maturity (see Figs. 54 and 56 and comments on the maturity of funds). It has to be confirmed as funds mature.

On the face of it, the IRR of active and liquidated European VC funds are relatively close (Fig. 61). There is, however, more than meets the eye. Liquidated funds have a much lower MOIC (1.47x, Fig. 62) than active funds (2.16x). This could be explained by a significant increase of the valuations of portfolio companies of active funds through multiple successive “up rounds”.

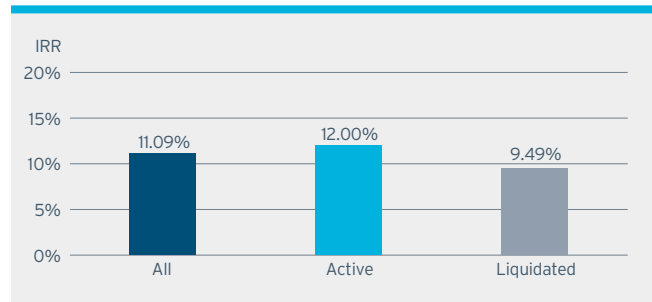
Another explanation is that managers of active funds have changed their approach by keeping companies longer in portfolio but in exchange maximising the MOIC.

Fig. 59: IRR of Venture Capital funds per region, in EUR and USD



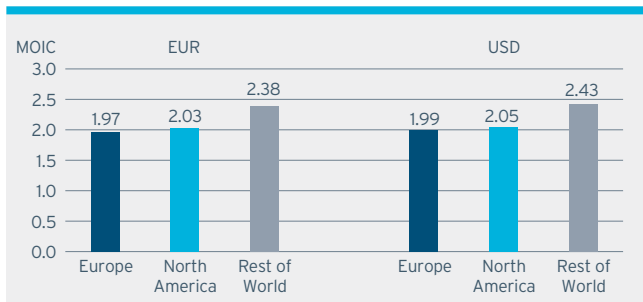
Source: Invest Europe, based on Cambridge Associates.

Fig. 61: IRR of all, active and liquidated European Venture Capital funds



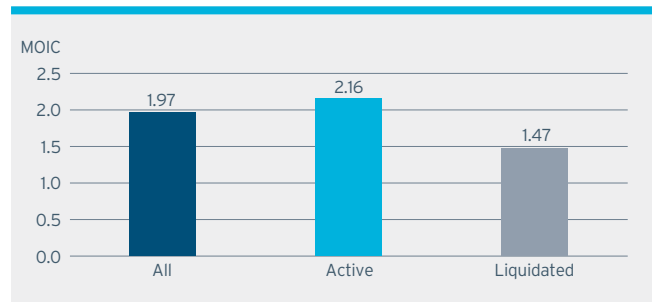
Source: Invest Europe, based on Cambridge Associates.

Fig. 60: MOIC of Venture Capital funds per region, in EUR and USD



Source: Invest Europe, based on Cambridge Associates.

Fig. 62: MOIC of all, active and liquidated European Venture Capital funds



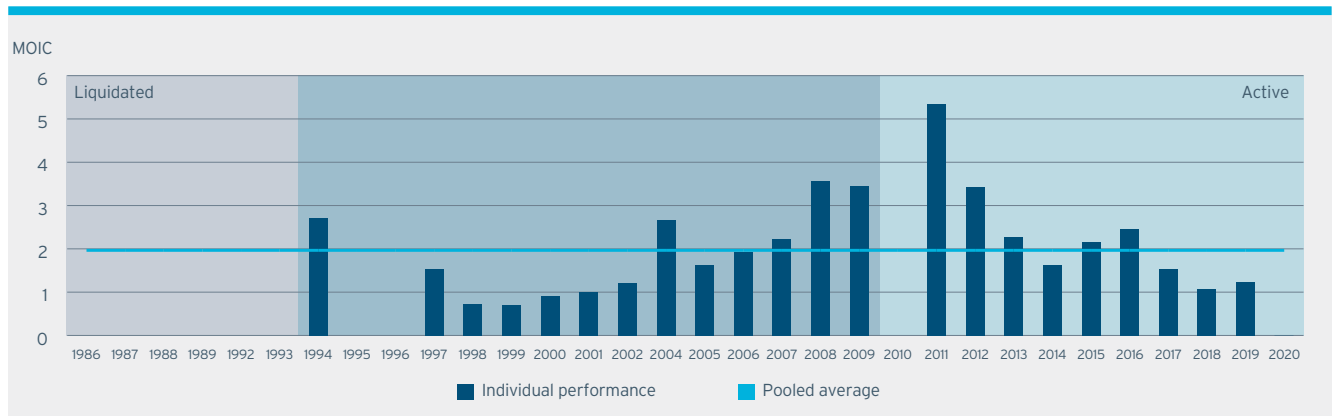
Source: Invest Europe, based on Cambridge Associates.

A closer look at MOIC by vintage year (Fig. 63) not only confirms that European VC funds suffered from the ICT bust³² of the late 1990s and early 2000s, without capitalising on the boom, unlike their US peers, but also that their performance is close to or above the average since 2005.

The picture is fairly similar with IRRs (Fig. 64). Assuming that these multiples are confirmed as funds mature, this could point to a 'new normal' for European VC funds, akin to the situation of their North American peers.

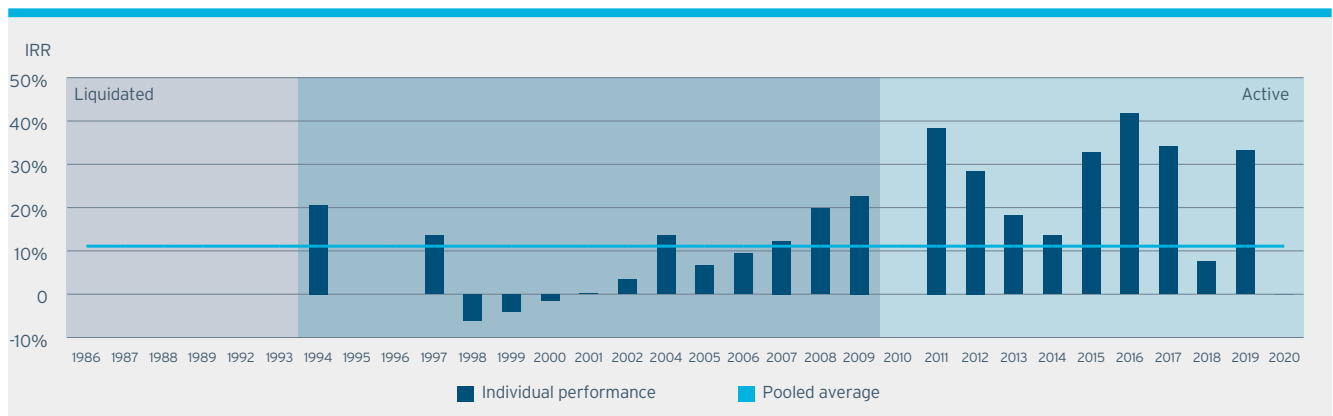
The difference between the MOIC of European VC funds and North American VC funds is actually limited.

Fig. 63: MOIC of European Venture Capital funds by vintage year³³



Source: Invest Europe, based on Cambridge Associates.

Fig. 64: IRR of European Venture Capital funds by vintage year³⁴



Source: Invest Europe, based on Cambridge Associates.

Notes

- ³² At that time, the European VC industry was in its infancy. Our sample does not have a heavy coverage of boom funds: 12 European VC funds are captured from 1992 to 1997 (351 in the US from 1990 to 1998). Contrasting with this, 37 funds from the bust (with negative returns, encompassing vintage years 1998 to 2000) are in the European sample (1998-2000) and 251 in the US (encompassing vintage years 1999 to 2000).
- ³³ Performance data is available for individual vintage years only when there are at least six funds in the sample. The area on the left (with the word 'Liquidated') refers to vintage years which count fully realised funds only. The area on the right (with the word 'Active') refers to vintage years which count active funds only. The area in the centre refers to vintage years which count liquidated and active funds.
- ³⁴ Performance data is available for individual vintage years only when there are at least six funds in the sample. The area on the left (with the word 'Liquidated') refers to vintage years which count fully realised funds only. The area on the right (with the word 'Active') refers to vintage years which count active funds only. The area in the centre refers to vintage years which count liquidated and active funds. IRR performance can be highly distorted when funds are too recent (7-8 years-old or less).

European Venture Capital

Performance analysis continued

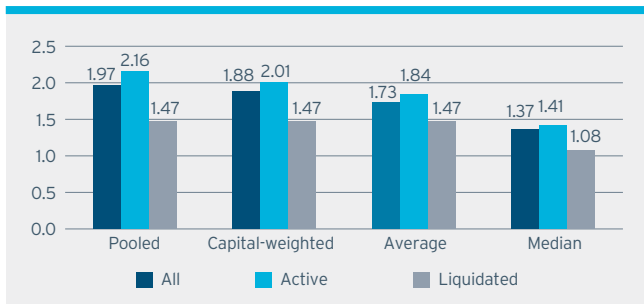
Looking at the pooled, capital-weighted and simple average performance of liquidated funds, the MOIC is remarkably stable at 1.47x (Fig. 65). This is of importance as VC funds are usually described as being a 'winner takes all' investment strategy (a few funds capture most of the performance of the sector). This is not confirmed by the data. The median is, however, much lower (1.08x), pointing to the fact that the less well performing funds record particularly low MOIC. This is confirmed by the risk analysis (see below). However, poor performers are probably small funds, as they do not affect the capital-weighted average. Part of the reason for the underperformance of small funds lies with the fact that they have proportionally higher costs to invested capital. They have higher management fees to enable the manager to maintain its operations. They might also not have aggregated the critical mass of capital to diversify enough.

On all counts, active funds seem poised to record a higher performance than liquidated ones. This confirms previous findings and points to a stronger performance of active European VC funds compared to fully liquidated ones. The MOIC might have benefited from a significant increase of valuations of portfolio companies.

Another explanation is that the European VC market has matured, investment teams have gained in experience, and the conditions of investment have improved when compared to the late 1990s. The learning curve is particularly important in VC. This is visible (Fig. 66) when comparing the performance of new (1.56x), developing (1.95x) and established funds (2.64x). It is clear, as confirmed by IRRs (Fig. 67), that experienced VC fund managers record higher performance.

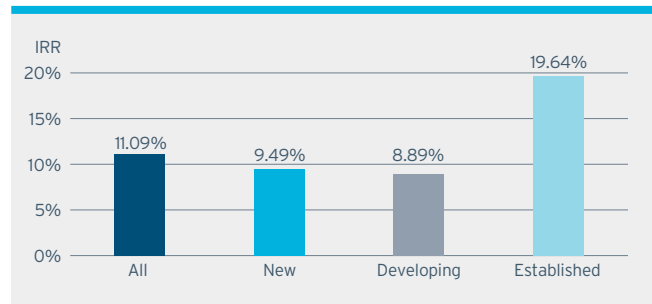
The MOIC (Fig. 68) of early-stage is higher (2.05x) than those of late and multi-stage funds (1.73x), although the IRR reflects the fact that late and multi-stage funds invest in start-ups when the exits are closer in time than early-stage funds (Fig. 69).

Fig. 65: Pooled average, capital-weighted, simple average and median MOIC of All, Active and Liquidated European Venture Capital funds



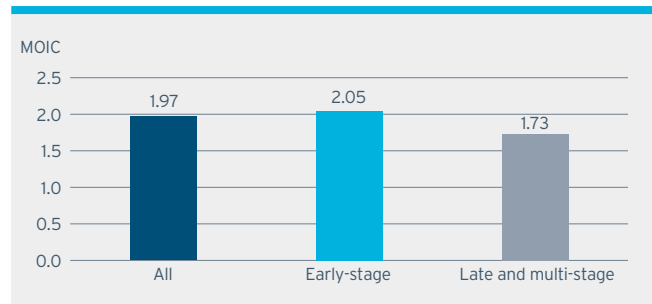
Source: Invest Europe, based on Cambridge Associates.

Fig. 67: IRR of all, new and developing European Venture Capital funds



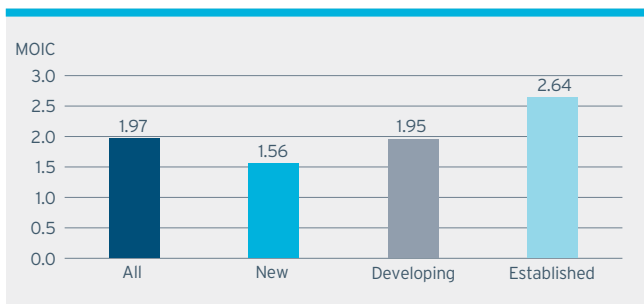
Source: Invest Europe, based on Cambridge Associates.

Fig. 68: MOIC of all, early-stage and late and multi-stage European Venture Capital funds



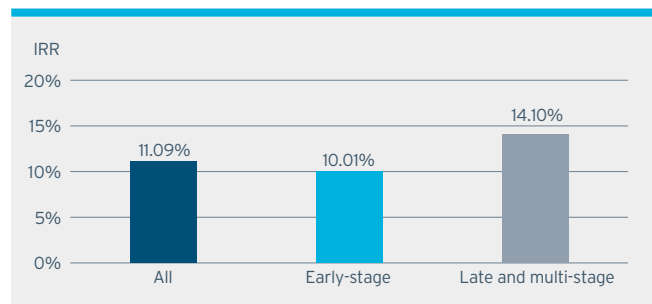
Source: Invest Europe, based on Cambridge Associates.

Fig. 66: MOIC of all, new and developing European Venture Capital funds



Source: Invest Europe, based on Cambridge Associates.

Fig. 69: IRR of all, early-stage and late and multi-stage European Venture Capital funds



Source: Invest Europe, based on Cambridge Associates.

Relative performance analysis

There is no specific index with which to benchmark an investment strategy focusing on start-ups. As a consequence, the public market equivalent³⁵ analysis uses multiple indexes which track fast growth companies (the NASDAQ Composite), different geographical exposures (MSCI World, MSCI Europe, S&P 500), and the full range of company sizes³⁶ (Wilshire 5000³⁷).

The MSCI Europe will be the reference point as it covers the most relevant geographical area (Europe), with a sufficiently long history of data to match the history of European VC funds, and it is close to a total market index (which is by default the best choice to benchmark European VC funds, as there is no other choice).

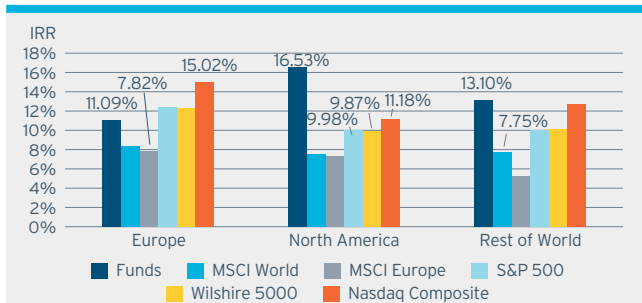
European VC funds have outperformed the MSCI Europe in terms of IRR (Fig. 70) and MOIC (Fig. 71). The NASDAQ Composite outperforms European VC funds, but it is difficult to compare the two given their different geographical exposure and dynamics.

In general VC funds outperform their geographical indexes: European funds beat the MSCI Europe by 327 basis points, North American funds beat theirs by 535-655 basis points, and funds from the Rest of the World by 535 basis points.

These relative performances are based on an all-funds sample. A closer look at active and liquidated (Figs. 72 and 73) funds shows that the latter, invested in the 1990s and early 2000s, underperformed the MSCI Europe. This confirms previous findings and conclusions on the fact that managers were in the learning curve and deployed capital pro-cyclically.

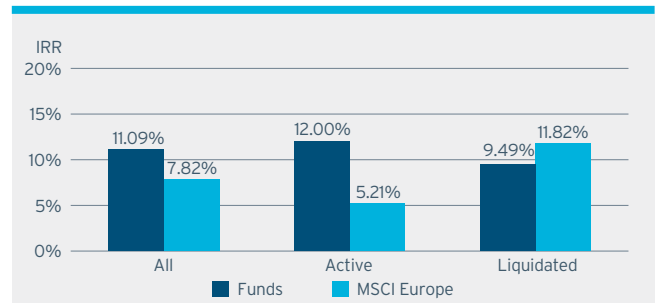
European VC funds have outperformed the MSCI Europe in terms of IRR and MOIC.

Fig. 70: IRR and mPME of all Venture Capital funds, by region



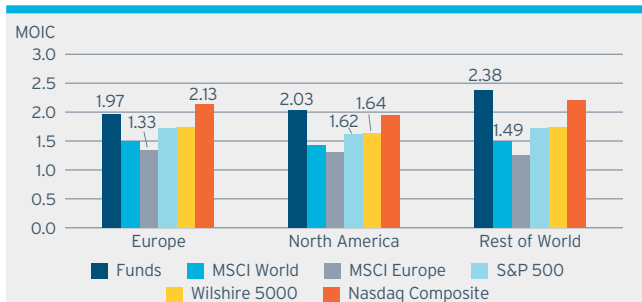
Source: Invest Europe, based on Cambridge Associates.

Fig. 72: IRR and mPME of all, active and liquidated European Venture Capital funds



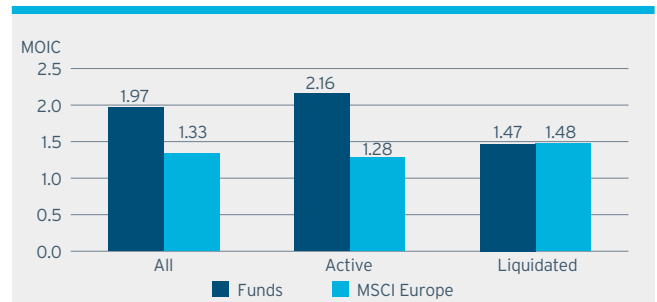
Source: Invest Europe, based on Cambridge Associates.

Fig. 71: MOIC and mPME of all Venture Capital funds, by region



Source: Invest Europe, based on Cambridge Associates.

Fig. 73: MOIC and mPME of all, active and liquidated European Venture Capital funds



Source: Invest Europe, based on Cambridge Associates.

Notes

³⁵ Please see Invest Europe's report 'Benchmarking Public & Private Markets with the Public Market Equivalent (PME)' for more details about the mPME method.

³⁶ It would have been tempting to include the S&P Europe SmallCap Growth Index as a benchmark index. However, this index started as of Q3 1989 only.

The sample of European VC funds starts in 1986. Therefore, the index cannot be used to benchmark the full sample with the mPME method.

³⁷ For a description of the indexes, please see the methodology section.

European Venture Capital

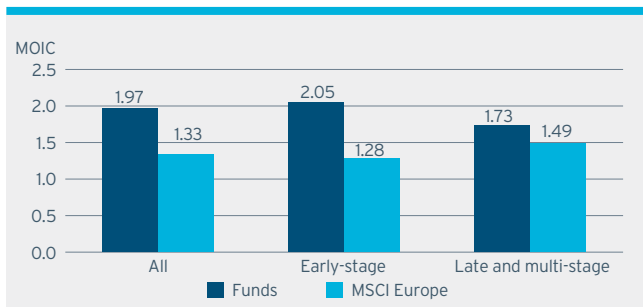
Performance analysis continued

Although both early-stage and late and multi-stage funds outperform the MSCI Europe, the former does so by a wider margin (Fig. 74) than the latter. In terms of IRR, the MSCI Europe outperforms late and multi-stage funds (Fig. 75). The timing of cash flows combined with a fairly short holding period explain such an outcome.

The analysis also confirms that new funds struggle to outperform. They trail the MSCI Europe in terms of IRR (Fig. 76) although they are slightly ahead in terms of MOIC (Fig. 77). This confirms that there is a significant learning curve when investing in VC, and that even beating the listed index is a challenge.

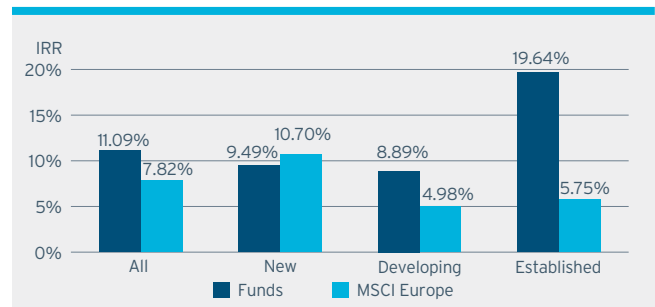
In general VC funds outperform their geographical indexes.

Fig. 74: MOIC and mPME of all, early-stage, late and multi-stage European Venture Capital funds



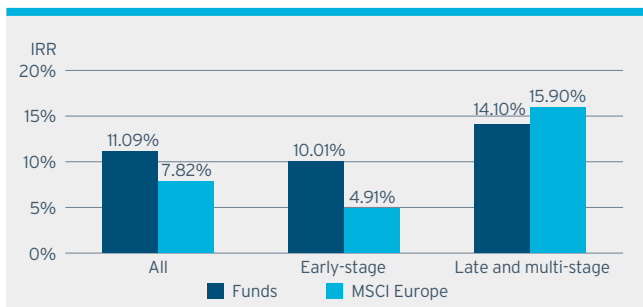
Source: Invest Europe, based on Cambridge Associates.

Fig. 76: IRR and mPME of all, new, developing and established European Venture Capital funds



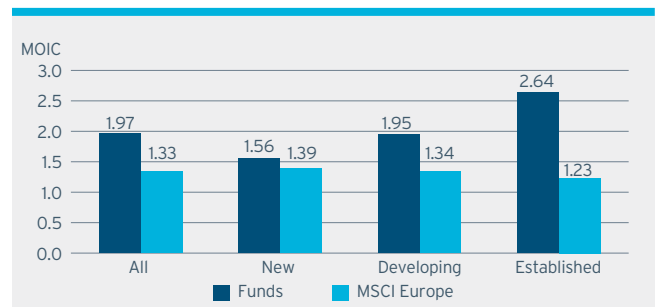
Source: Invest Europe, based on Cambridge Associates.

Fig. 75: IRR and mPME of all, early-stage, late and multi-stage European Venture Capital funds



Source: Invest Europe, based on Cambridge Associates.

Fig. 77: MOIC and mPME of all, new, developing and established European Venture Capital funds



Source: Invest Europe, based on Cambridge Associates.

Risk analysis

Although the sample includes European VC funds from as far back as the vintage year 1994, there are some gaps in the coverage. This could distort the conclusions. Moreover, the ICT bust affected this investment strategy significantly. It is important to apply some caution when drawing conclusions, to avoid analytical biases.

Distribution of risks

Despite a heavy representation of funds affected by the ICT bust of the late 1990s, the distribution of European VC funds is skewed towards profits (Fig. 78). 26.01% of the funds record a negative IRR, and have an average MOIC of 0.60x. As a matter of comparison, the MOIC of the 73.99% which record a positive IRR was 2.29x. European VC investments tend to lead to rather polarized outcomes, with either significant losses or substantial profits.

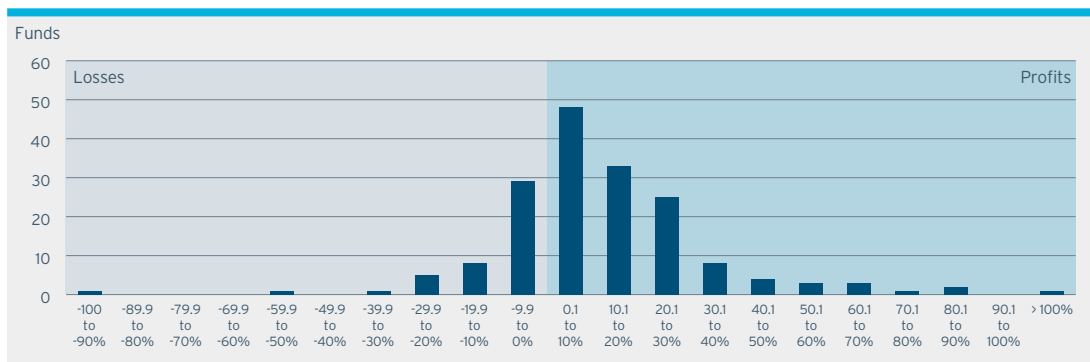
European VC funds had to face the challenge of investing during the ICT bust of the late 1990s and early 2000s. As the funds from

this period constitute the bulk of the liquidated funds, they are not surprisingly particularly affected by the losses of that period (Fig. 79). 43.40% of the funds lost capital, with an average MOIC of 0.52x. The 56.60% which recorded a profit registered a MOIC of 1.93x.

Contrasting with this snapshot, active funds (Fig. 80) tend to be skewed towards solid performances. Indeed, while the 18.33% which lost money recorded a MOIC of 0.67x, the 81.67% which are profitable booked an average MOIC of 2.4x.

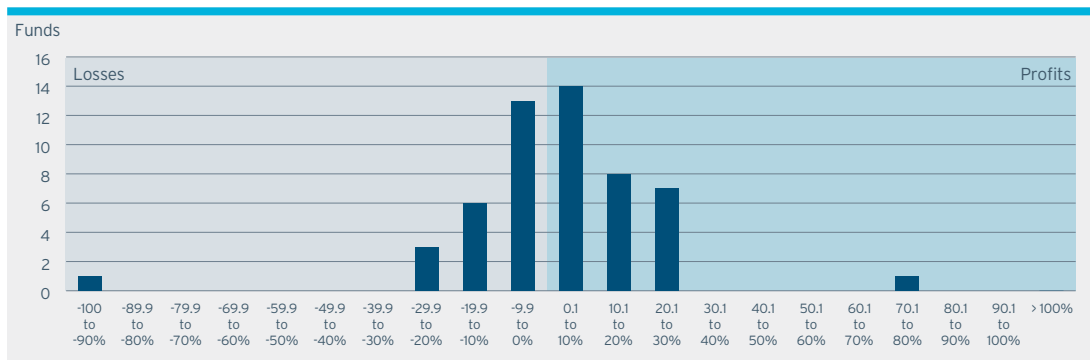
The risk of losing capital when investing in VC funds is non-negligible. The ICT bust was a particularly challenging environment, leading to a particularly high rate of loss makers and high level of losses. These conditions were exceptional. Nevertheless, in a benign environment, there is still a 20 to 30% chance of investing in loss-making European VC funds with an expected loss of 30 to 40% of the capital. Therefore, selection skills matter a lot. Savvy investors can hope to reap the reward of start-up financing, they have a 70 to 75% chance of doubling their investment.

Fig. 78: Distribution of all European Venture Capital funds



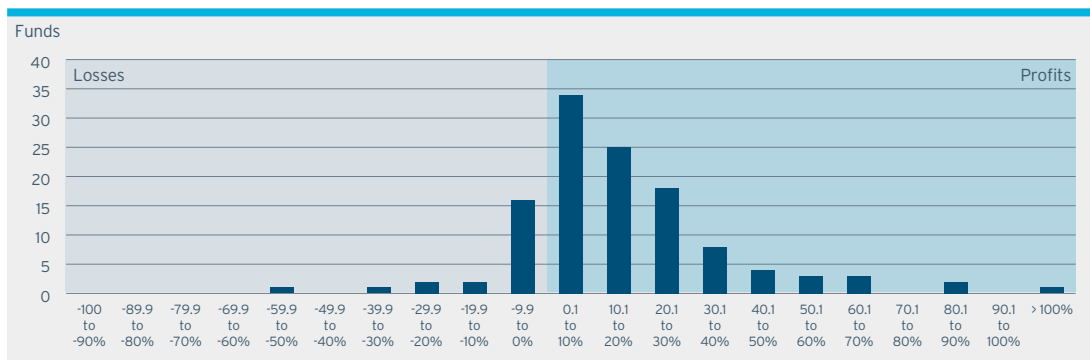
Source: Invest Europe, based on Cambridge Associates.

Fig. 79: Distribution of liquidated European Venture Capital funds



Source: Invest Europe, based on Cambridge Associates.

Fig. 80: Distribution of active European Venture Capital funds



Source: Invest Europe, based on Cambridge Associates.

European Venture Capital

Risk analysis continued

Selection risk

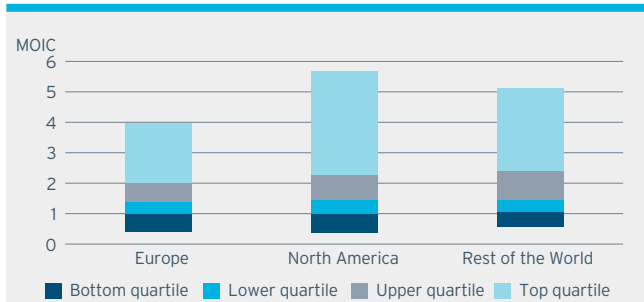
European VC funds stand out because their top quartile performance is much more limited (Fig. 81) than in comparison with their international peers. This explains the rather modest aggregate performance highlighted earlier. However, the aggregate performance of the other quartiles is fairly homogeneous across geographical regions.

The logical conclusion is that if European VC funds record a more conservative aggregate performance, this is due to a lack of outliers which skew the performance upwards, and that it counts multiple funds which suffered from the ICT bust. This is visible when looking at liquidated funds (Fig. 82).

If the top 5% is set aside, returns and selection risks are fairly similar in Europe, North America and the Rest of the World (Fig. 81). Assuming that active funds would confirm their current performance (Fig. 82), they should indeed join their international peers which will no longer benefit from exceptional conditions.

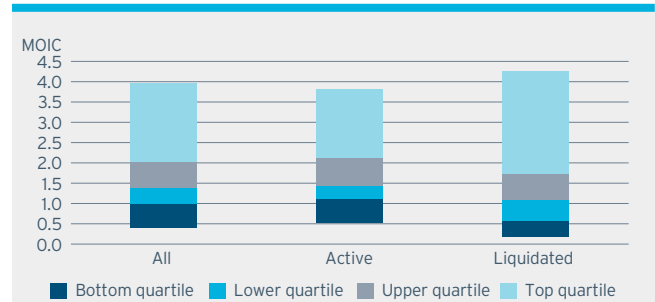
If the top 5% is set aside, returns and selection risks are fairly similar in Europe, North America and the Rest of the World.

Fig. 81: Quartile distribution of all European Venture Capital funds, by region



Source: Invest Europe, based on Cambridge Associates.

Fig. 82: Quartile distribution of all, active and liquidated European Venture Capital funds



Source: Invest Europe, based on Cambridge Associates.

Conclusion

VC funds mature comparatively more slowly than their peers active in Growth Capital and LBO financing. This has two consequences.

First, the pool of liquidated funds is limited, and the vintage years encompassed are heavily skewed towards the ICT bust period. As a consequence, performance is negatively affected rather significantly, and European VC can appear as riskier than it actually is.

Second, the weight of active funds is particularly high, and as the NAV of funds is fairly conservatively appraised, it is difficult to draw definitive conclusions on the performance and risk of more recent funds, which were not affected by the ICT bust.

With these limits in mind, it is possible to draw some conclusions.

Key findings

On a pooled average basis, European VC funds record a 11.09% IRR and a MOIC of 1.97x. This performance is coherent with a slow burning but high return investment strategy. It includes the liquidated funds from the ICT bust and active funds with more conservatively appraised NAVs. As the industry matured, European VC funds saw their IRR increase from 9 to 11% over a 20-year to 30-year horizon to 19.70% over a 10-year horizon. The best compromise is a 15-year horizon, embedding not only active funds, but also some which are realised: the IRR is 12.83%.

It is difficult to find an appropriate benchmark for European VC funds. On aggregate, they outperform the MSCI Europe, although liquidated funds did not. The impact of the ICT bust is clearly visible.

Active funds, despite conservative NAVs, do outperform with a 2.16x multiple vs a 1.28x for the MSCI Europe.

The performance of European VC funds is fairly homogeneous in terms of multiples, notably regardless of the stage of investment. The learning curve is however steep, and established managers outperform their emerging brethren. The dispersion of fund manager performance is inferior to what it is in other regions, due to the lower performance of the top quartile. Nevertheless, the other three quartiles perform in line with the other regions, overall. In terms of capital-at-risk, liquidated funds faced challenging times but still managed to generate a profit.

Active funds are more promising so far, with more than 80% of the funds recording an aggregate profit exceeding 2.0x.

European VC funds require solid selection skills and are rewarding when investors manage such a selection. Bar another episode equivalent to the ICT bust (without the corresponding boom, which is unlikely given the maturity of the European VC industry), the performance of active funds looks attractive so far and competitive when compared to their international peers.

Section 4 Appendix

Definitions

Average returns

Simple average of the performance of individual funds in a sample.

Capital-weighted returns

Performance calculation in which each fund is weighted by its total capitalisation divided by the entire sample's total capitalisation.

Capitalisation

The capitalisation of funds is the sum of the size (total commitments) of all the funds in the sample.

Equally-weighted IRR

IRR of the sum of all cash flows for a sample, with each fund's cash flows equally weighted by committed capital. Only provided for IRR calculations.

Horizon returns

Horizon returns capture all the funds which have been active within a certain time frame. For example, 15-year Horizon returns as of December 31, 2020 would encompass all the funds from vintage years 2006 to 2020.

Growth Capital

Growth Capital funds finance profitable (or soon to be profitable) companies that exhibit organic revenue growth in excess of 10%, with no technology risk and limited market risk. Funds take a significant minority ownership stake and employ no leverage.

Internal rate of return (IRR)

The internal rate of return annualises the performance of private market investments, by processing the cash inflows and outflows of the fund. The formula is: $((\text{distributed/paid-in}) / (\text{investment duration}))^{-1}$. This annualised return takes into account the impact of time on the fund performance. The IRR can be computed net or gross of management fees and carried interest. Standard practice is to use net IRRs.

The residual value (sum of net asset values) is incorporated at its ending value. Transactions are accounted on a quarterly basis, and results are annualised. All transactions are recorded on the mid-period date (February 14, May 15, August 15, or November 15) of the quarter.

Leveraged Buy-Outs

Leveraged Buy-Out (LBO) funds purchase a majority ownership and controlling stake in business by using a combination of equity and debt. *Cambridge Associates* ranks LBO funds by capitalisation as follows (figures in million USD):

1. Small Cap:

1986 - 94: Small Cap is < or = \$100
1995 - 96: Small Cap is < or = \$200
1997 - 99: Small Cap is < or = \$250
2000 - 04: Small Cap is < or = \$350
2005-Present: Small Cap is < or = \$750

2. Mid Cap:

1986 - 94: Mid Cap is > \$100, < or = \$500
1995 - 96: Mid Cap is > \$200, < or = \$500
1997 - 99: Mid Cap is > \$250, < or = \$750
2000 - 04: Mid Cap is > \$350, < or = \$1000
2005-Present: Mid Cap is > \$750, < or = \$2000

3. For the purpose of this report, Large and Mega Cap were grouped as follows:

1986 - 94: Large and Mega Cap is > \$500
1995 - 96: Large Cap is > \$500
1997 - 99: Large Cap is > \$750
2000 - 04: Large Cap is > \$1000
2005-Present: Large Cap is > \$2000

Liquidated and active funds

Funds can be split between liquidated (realised) and active. Funds are considered as liquidated if *Cambridge Associates* considers that the funds have fully divested all investments and are no longer reporting. Otherwise, funds are considered as active.

Modified Public Market Equivalent (mPME)

The modified Public Market Equivalent (mPME) method has been designed to compare the performance of private market funds with those of other assets, notably the listed ones. The mPME method replicates the cash-flows of private market funds by buying and selling indices of assets. The method addresses the issue of the unpredictability of the duration of private market investments. The mPME helps investors to understand how the performance of private market funds has been generated, by separating the intrinsic performance of a fund manager from the general evolution of markets.

Multiple of Invested Capital (MOIC)

The performance of private market funds can be measured by dividing the distributed by the paid-in (the 'distributed to paid-in', or DPI). This is useful when funds are fully liquidated, as this is a cash-on-cash measure of performance. However, investors regularly want to check the progression of their active funds, which implies looking at the quarterly unrealised value (the 'residual value', also referred to as 'net asset value') of their funds. The residual value to paid-in (RVPI) can then be added to the distributed value to paid-in, resulting in the total value to paid-in (TVPI), also referred to as 'multiple of invested capital' (MOIC).

New, emerging and established funds

A fund is categorised as "new" if it is the first or the second of a fund manager in the given strategy. It is "emerging" when the fund is the third or the fourth. It is "established" when the fund is the fifth or beyond.

Pooled returns

Performance metric aggregating cash flows and NAV across a sample.

Up round

Operation of capital increase during which a company sees its valuation increase when compared to the previous operation.

Venture Capital

Venture Capital (VC) funds source, fund, and support young, innovative companies. Early-stage funds primarily invest in pre- or early revenue companies where the initial product is under development. Late/expansion/multi-stage funds primarily invest in established, growing, and often cash-flow positive or profitable companies. Capital is used to scale up.

Vintage year

The vintage year of a fund is determined on the basis of its first cash flows.

Geographical regions

North America

North America encompasses:

- *United States of America and Canada.*

Europe

Europe encompasses:

- **Western Europe (developed Europe):** *Belgium, Luxembourg, the Netherlands, Austria, Germany, Switzerland, Denmark, Finland, Greenland, Iceland, Norway, Sweden, Andorra, the Channel Islands, Cyprus, France, Gibraltar, Greece, Ireland, Italy, Liechtenstein, Monaco, Portugal, San Marino, Spain, the United Kingdom, Vatican City and Western European intra-regional and cross-regions funds.*
- **Emerging Europe:** *Albania, Bosnia and Herzegovina, Bulgaria, Croatia, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Macedonia, Poland, Romania, Serbia, Montenegro, Slovakia, Slovenia, Malta, and Emerging Europe intra-regional and cross-regions funds.*

Rest of the World

Rest of the World encompasses:

- **CIS countries:** *Armenia, Azerbaijan, Belarus, Georgia, Kazakhstan, Kyrgyzstan, Moldova, Russia, Tajikistan, Turkmenistan, Ukraine, and Uzbekistan.*
- *Turkey*
- *Asia/Pacific countries and Asia-Pacific intra-regional and cross-regions funds.*
- *Latin America and Caribbean countries and Latin America and Caribbean intra-regional and cross-regions funds.*

Data and indexes

Data is only a proxy for investment strategies and does not claim to be representative, merely illustrative.

Data has been retrieved from *Cambridge Associates's Optica Benchmarks*.

Data has been sourced from *Cambridge Associates*, as of December 31, 2020. The source is of the highest quality available but may suffer from upward bias due to *Cambridge Associates* being involved in manager selection for some of its clients. Between 50-60% of funds in CA's benchmarks are in at least one client portfolio.

Listed market indexes chosen are the MSCI World, the MSCI Europe, the S&P 500 and the Wilshire 5000. They provide time span long enough to match the history of vintage years.

Alternative indexes such as the STOXX Europe 600 are unfortunately too limited in time to support mPME calculations.

Appendix

Methodology

Indexes

MSCI Europe: launched in Q1 1986, this index captures 434 large and mid-cap companies based in *Austria, Belgium, Denmark, Finland, France, Germany, Ireland, Italy, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland* and *the UK*. It covers approximately 85% of the free float-adjusted market capitalisation across the European Developed Markets equity universe.

MSCI World: launched in Q1 1986, this index captures 1,562 large and mid-cap companies based in *Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Hong Kong, Ireland, Israel, Italy, Japan, the Netherlands, New Zealand, Norway, Portugal, Singapore, Spain, Sweden, Switzerland, the UK and the US*. It covers approximately 85% of the free float-adjusted market capitalisation in each country.

NASDAQ Composite: launched in Q4 1970, this index captures all the securities listed on the Nasdaq stock market. It is capital weighted.

S&P 500: launched in Q1 1957, this index captures 500 large companies listed on stock exchanges in the US.

S&P Europe Small Cap Growth: launched in Q3 1989, this index is a subset of the S&P Developed Broad Market Index (BMI). It covers the lowest 15% of all publicly listed equities in the BMI within a given country with float-adjusted market values of U.S. \$100 million or more and annual dollar value traded of at least U.S. \$50 million in all included countries. S&P Europe Small Cap Growth Index represents approximately 883 small-cap companies from Europe that exhibit strong growth characteristics. The index is unmanaged, and it is not possible to invest directly in it.

Wilshire 5000 Total Market Index: launched in Q1 1971, this index is a capital-weighted index of the market value of all the stocks actively traded in the United States. As of December 31, 2020 it contained 3,463 constituents.

Important note

Besides the methodological note at the end of this report, the reader can refer to:

The Invest Europe Research definitions:
www.investeurope.eu/research/about-research/methodology

The Glossary of the professional handbook of Invest Europe:
www.investeurope.eu/industry-standards/professional-standards

List of abbreviations

DPI	Distributed to Paid-In
GC	Growth capital
IRR	Internal Rate of Return
LBO	Leveraged buy-out
MCC	Multiple of Committed Capital
MIRR	Modified Internal Rate of Return
MOIC	Multiple of Invested Capital
NAV	Net asset value
PME	Public Market Equivalent
RVPI	Residual Value to Paid-In
TVPI	Total Value to Paid-In
VC	Venture capital

Performance analysis

For the purpose of this report, three measures of performance are used:

- the net internal rate of return (IRR)
- the net multiple of invested capital (MOIC, also often referred to as total value to paid-in or TVPI)
- and the modified public market equivalent (mPME), based on net cash-flows and NAVs

We refer to Invest Europe's report: '**Benchmarking Public & Private Markets with the Public Market Equivalent (PME)**' for a detailed description and in-depth analysis, notably in their pros and cons, of these instruments.

Maturity analysis

The maturity of a set of funds is determined by the ratio between distributed and total value.

Time-to-liquidity analysis

The time-to-liquidity measures the average time between a cash outflow from a fund and an equivalent cash inflow.

It is a proxy for the holding period of funds, with the limitation that this measure does not differentiate an actual exit from a dividend recapitalisation.

The latter consists in increasing the debt contracted for the acquisition of a company in an LBO and distributing the proceeds to the fund. A dividend recapitalisation is a cash inflow without an exit (the sale or IPO of the company). The formula is $\ln(\text{MOIC})/\ln(1+\text{IRR})$.

Credits

This report has been independently prepared by Cyril Demaria for Invest Europe to benchmark the performance, risk, maturity and time-to-liquidity of European private equity funds. Venture capital, growth capital and LBO funds have been assessed with data from Cambridge Associates as of December 31, 2020.

Invest Europe would like to thank Cyril Demaria for his work on this report.

We also thank Rich Carson and Jad Stella from Cambridge Associates for their cooperation.

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