Truths and Myths about Determinants of Buyout Performance

Bernd Kreuter, Director Private Equity, Feri Trust GmbH
Oliver Gottschalg, Assistant Professor of Strategy, HEC School of Management, Paris
Maurizio Zollo, Associate Professor of Strategy, INSEAD

Abstract

This research report discusses a number of important performance determinants in buyout transactions and contrasts common industry beliefs with results from an empirical analysis of a large sample of buyouts. Overall, the authors saw several cases in which the data supports the general view of industry experts, but some significant contradictions were found. The results are interesting as preliminary insights into the strategic logic and the value generation mechanisms of buyout transactions.

Introduction

The private equity industry, and buyouts in particular, seems to be characterised by a lack of information regarding individual investment characteristics and performance. Consequently, the complex mechanisms through which buyouts create value remain largely unknown and most existing theories on buyout performance appear to be subjective. Moreover, the multiplicity of experience has given rise to a number of unproven industry beliefs. Some of these are generally accepted, others are frequently questioned. To date, most of these beliefs have not been empirically validated across a larger sample of buyouts. Therefore, the authors have examined a number of frequently stated beliefs about determinants of buyout performance. They statistically analysed the INSEAD Buyout Database, which currently contains over 5,500 realised and unrealised buyout investments from some 350 private equity funds, to test whether these beliefs are generally valid. It is important to note, however, that the results presented here are data driven.

There are different ways of measuring the performance of buyout investments. Many practitioners prefer to focus on absolute returns in terms of multiples of invested capital. The disadvantage of this is that the length of the holding period is not taken into account. To circumnavigate this problem one can measure buyout performance alternatively as the realised gross IRR. This allows differentiating whether buyouts with long holding periods justify the longer capital commitment with a corresponding higher appreciation in value.

In the following, ten drivers of buyout performance are measured as realised gross IRR only. The factors analysed are related, for example, to the characteristics of the deal and the acquired company, such as holding period and size as well as industry environment and accounting performance. Further discussion points are GP related factors, such as experience, industry focus or the ability to generate deals proactively. In addition, the research report examines the acquisition process, such as the level of seller sophistication or the determination of the appropriate level of management equity ownership.

1. Buy-and-flip or buy-and-grow?
There are contradictory opinions among industry experts with respect to performance of buyout investments. (1) Some argue that most of the value in a buyout transaction is created upfront. If the GP is able to resell the company rapidly, returns to investors can be maximised: shorter deals of a buy-and-flip fashion will perform best. (2) On the other hand, some argue that in today’s buyout market, GPs need to differentiate themselves through fundamental value creation, and this takes time - consequently: buyouts with longer holding periods will perform better.

In an analysis of 2,469 realised buyout investments in North America and Europe, the authors found strong support for the first argument: shorter deals significantly outperform buyouts with longer holding periods. Overall, there is an inverse relationship between holding period and buyout performance: deals with a holding period below two years had an average performance of 280% IRR; deals with a holding period of between two and four years had an average performance of 54% IRR; those with a holding period of between four and six years had an average IRR of 42%; and deals of a holding period of more than six years had average gross returns of 18% IRR (see Figure A). These results support the hypothesised superiority of buy-and-flip deals.

**Figure A: Buyout performance and holding period**

<table>
<thead>
<tr>
<th>Holding Period (years)</th>
<th>Weighted IRR*</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;2</td>
<td>280.00%</td>
</tr>
<tr>
<td>2-4</td>
<td>54.00%</td>
</tr>
<tr>
<td>4-6</td>
<td>42.00%</td>
</tr>
<tr>
<td>&gt;6</td>
<td>18.00%</td>
</tr>
</tbody>
</table>

* Weighted by size and holding period
**Herfindahl-type measure of homogeneity calculated as the sum of squared percentages across 10 industry categories.
Source: INSEAD Analysis, INSEAD Buyout Database Total sample = 2,469 (excluding unrealized deals)

2. Do mega deals perform best?
A second fundamental characteristic of any buyout investment is deal size, measured as the amount of equity invested. In recent years, a worldwide trend towards increasingly large buyout funds and increasing deal size has taken place. The managers of large funds maintain that the most profitable segment of the buyout market is mega-deals. On the other hand, proponents of smaller deals point out that small businesses are the least efficient and least competitive. A private equity fund can therefore add substantial value to a small deal, which ultimately translates into superior returns.

Again, an analysis of 2,469 realised buyout investments in North America and Europe, measuring IRR only, was performed. A convex relationship between deal size and performance exists: very small buyouts and mega-deals significantly outperform mid-size investments (see Figure B). The
smallest deals generate even slightly higher returns than the mega-deals: 70% average weighted gross IRR for equity investments of less than $10 million, versus 67% average weighted gross IRR for equity investments of more than $100 million. Medium-sized deals performed substantially lower: 49% IRR for equity investments of $10-50 million, and 40% IRR for equity investments of $50-100 million.

The sample only contains buyout equity investments, not venture capital funds. Therefore, an additional analysis has been conducted to verify whether the performance of small investments may have been driven by smaller start-up type investments made during the period between 1998 and 2001. The authors found, however, that the general trend of high-performing small investments existed prior to 1998. In addition, it can be found in the sub-samples of both North American and European buyouts. In summary, the results of this approach only partly support the argument that mega-deals perform best, since the highest returns seem to exist in the small-cap segment of the market.v

Figure B: Buyout performance and deal size

3. Are buyout returns driven by stock market performance?
Both GPs and LPs are interested in the relationship between market trends and returns from buyout investments. GPs generally seek to understand how a favourable or unfavourable market environment affects deal returns. LPs on the other hand have to consider the interaction between buyout returns and public stock markets when making portfolio allocation decisions across different asset classes.

In the past, LPs have frequently appreciated buyout fund investments for their diversification properties. Such investments seemed commonly believed to generate cash flows that were uncorrelated or even negatively correlated with the returns on investments in public stock markets. This aspect has been repeatedly emphasised to justify investing in buyout funds, even if their risk-adjusted performance did not always outperform public market investments.vi
The authors compared the returns from 1,109 realised buyouts with the returns investors would have generated had they invested in a portfolio of publicly traded companies of the same industry category and over the same period of time. In the results, a statistically significant (at a 99% level) positive correlation between the two returns can be observed. This suggests that buyout returns and public market returns of the same industry category move, over time, in the same direction.

It seems that buyout fund investments may be a less suitable hedge against the volatility of public markets than once thought, in fact it seems to even contradict this notion. This also makes sense intuitively, as valuations of portfolio companies at entry and exit are closely related to M&A multiples, which are influenced by stock market valuations. Furthermore, the exit valuations for portfolio companies that are sold through an IPO depend directly on the public markets. However, the coefficient of correlation between buyouts and public markets is below 0.5, which indicates that some level of portfolio diversification can indeed be achieved through a mix of public equity and buyout investments. Consequently, GPs and LPs should pay close attention to macroeconomic trends.

4. What are the right industry characteristics for a successful buyout?
Some practitioners have argued that certain characteristics make some industries more attractive for buyout investments than others. Largely, these characteristics are stability, high margins, strong operating cash flows, industry-wide revenue growth and expected overall efficiency improvements. Using a sample of 205 realised European buyouts, the authors tested the relationship between buyout returns and three fundamental characteristics of the industry in which the buyout took place: (1) the industry average EBITDA margin at the time of the entry; (2) the average industry growth in revenues over the holding period; and, (3) the change in the industry average EBITDA margin over the holding period.

The findings support the view that initial strong cash flow, as captured by the industry average EBITDA margin at the time of entry, is a strong determinant of buyout returns. Successful buyouts tend to take place in industries with high EBITDA margins. On the other hand, results did not produce any evidence of a systematic relationship between industry revenue growth or EBITDA margin improvements over the holding period and buyout performance. This is not to say that industry growth may not help the performance of individual buyouts, but on average, successful buyouts are as likely to occur in growing as in shrinking industries.

In a follow-on analysis, the authors also looked at the accounting data for 70 out of the initial 205 deals for which data was available. They found that portfolio companies with low EBITDA margins at the time of the entry performed better. Additionally, they discovered that companies that were the subject of successful buyouts experienced negative revenue growth over the holding period. This suggests a pattern: Successful buyouts of companies that operate in high-margin industries underperformed in terms of EBITDA margin at the time of the entry. Over the holding period, on average, these companies were moderately shrinking to profitability.

5. Does the GP really make a difference?
GPs typically justify their fees and carried interest with their unique ability to contribute to value creation in buyouts. Also, many LPs would agree: Buyout success and failure fundamentally depends on the ability of the GP to add value beyond just finding the right target company; hence, one needs to carefully select the right fund managers.
While it can be assumed that performance will vary across GPs, it is interesting to analyse whether such performance differences are driven by the type of deals undertaken or by the GPs themselves. To address this question, the authors first quantified the performance impact of a variety of deal-specific characteristics, such as: timing of entry and exit, deal size, holding period, public market returns during the holding period and industry sector. In addition to what could be explained through these deal-specific characteristics, the authors then analysed the degree to which the performance of an individual buyout investment is influenced by the involvement of a given GP.

The results give strong support for the existence of a GP effect. Especially, buyout performance seems to vary in many cases according to who does the deal. And while for some GPs this effect can be strongly positive, we found others to be consistently related to poorer performance. This result highlights the importance for LPs to carefully select GPs when making commitments to buyout funds.

6. Is GP experience a crucial determinant of buyout performance?
Following the findings presented above, the next step is to identify the determinants of whether GPs are indeed able to positively contribute to buyout value creation. During their due diligence, LPs pay much attention to the experience of a GP’s management team. This is based on the belief that GPs develop important skills through prior buyout investment activity. This hypothesis was tested on the authors' data. They found indeed a positive relationship between a buyout's performance and the number of buyouts previously managed by the same GP. This confirms that GPs are indeed able to gain knowledge with each deal made. Moreover, the number of prior deals can be considered, on average, a valid predictor of future success. It can therefore be said that a general positive learning-curve effect does exist. While this may seem quite intuitive, it contrasts with the findings of similar studies on corporate M&A activity: acquisition performance does not increase as companies gain experience in managing acquisitions.

7. Do focused GPs perform better?
Another important way GPs differentiate themselves is their approach to select industry segments. Some GPs favour a diversified strategy as the best way to achieve the highest fund returns as it limits the exposure to any single industry segment. Others believe, however, that focusing on one single or a select few industry segments will achieve highest returns as value creation is linked to industry knowledge.

Using data of 2,091 realised buyout investments in North America and Europe, the authors calculated the degree of industry focus of all prior investments on a scale from 0 (largely diversified) to 1 (single industry focus) and calculated the average performance of buyout investments as a function of this industry focus (see Figure C). They found strong support for the belief that GPs following an industry-focused strategy perform better. Interestingly, the greatest returns are realised by GPs that follow a moderately diversified approach, focusing not only on one, but on a select few industry segments. It can be assumed that a focused strategy may more easily fall victim to industry cycles, while a moderately diversified approach allows for temporarily shifting away from depressed industries.
8. Does proactive deal flow origination lead to better returns?

The ability to generate solid deal flow, ideally with access to a large number of proprietary transactions, is frequently mentioned as a clear indicator of GP quality. The question is whether this belief is supported by quantitative data. To this end, the authors compared the average performance of buyouts from four different sources: (1) public deals known to the entire industry and with a large number of potential bidders; (2) deals proposed to a GP by a third-party intermediary; (3) deals accessed through a GP's network (either through personal contacts or organisational relationships); and finally, (4) deals initiated in a proactive fashion by a GP, e.g. by approaching potential companies within a specific sub-sector.

The analysis of data on 205 realised European buyouts is clearly indicating support for the importance of proactive deal origination. Buyouts from this source had substantially higher average performance than all other types of deals. Also, public deals with a large number of potential bidders had the lowest average performance of all four categories. Surprisingly, buyouts that were sourced through a GP's industry network performed slightly worse than buyouts proposed by an independent third-party intermediary. This observation supports the notion that there may be a potential conflict of interest between the GP's mandate to maximise its investors' returns and its relationship with, and private objectives of, its network (see Figure D).
9. How to get management incentives right?

LPs are commonly looking to pick good GPs based on their ability to intensify portfolio company management. A GP's ability to structure management incentives is frequently mentioned as one of the core competencies of buyout fund managers. As part of this, equity ownership is seen as a key part of the package, while the appropriate level of incentives is also fundamental.

Out of 205 realised European buyout investments, data on management equity ownership was available for 85 deals. On this basis the relationship between buyout performance and the percentage of equity owned by the portfolio company management was analysed. The findings suggest a concave (or inversely U-shaped) pattern, implying that buyouts with minimal (less than 5%) or very large (greater than 20%) levels of management equity ownership underperformed buyouts with a medium level (5-10% category and 10-20% category). On this basis, it can be argued that a moderate level of equity ownership is a key motivation for portfolio company management. After all, portfolio company managers should be motivated to enhance the value of their equity stake as a result of their work.

In a second step, the authors looked at the distribution of the same 85 investments across four different categories of management equity stakes (ranging from less than 5% to over 20%). Surprisingly, the majority of the analysed deals offered suboptimal equity stakes to the management. In fact, in 22 of the deals the management held equity stakes of less than 5%, while in another 35 deals the management owned more than 20%. In only 24 of the 85 buyouts the management owned equity stakes in the advantageous medium range of 5-20%, for which the highest performance was observed. This second finding challenges the widespread belief that GPs are consistently able to set the right level of incentives for the managers of their portfolio companies (see Figure E).
10. Are returns influenced by the degree of seller sophistication?
Many practitioners seem to agree with the prediction from academic theory that buyout performance is inversely related to the degree of seller sophistication. The argument is that professional and sophisticated sellers make it more difficult for buyout investors to generate value through financial arbitrage or information advantages. According to this reasoning, one would expect secondary buyouts to yield low returns, whereas buyouts of previously state-owned entities should generate the greatest returns.

The authors compared the influence of seller characteristics on buyout performance for 205 realised European buyout investments. Four categories of deals have been analysed: (1) privatisations, (2) public-to-private transactions, (3) buyouts of privately held or family-owned businesses (excluding secondary buyouts), and (4) secondary buyouts. The results are generally consistent with the above state view. On average, privatisation buyouts greatly outperform the rest of the sample, while the performance of secondary buyouts remains below the other three categories. Public-to-private transactions perform similar to, but slightly worse than, buyouts of privately held or family-owned businesses.

In addition, the authors compared these four categories with respect to the volatility of returns, i.e. the statistical variance in buyout performance. Here, they found that the performance of privatisation buyouts and public-to-private transactions is more volatile than those of privately held or family-owned businesses. The performance of secondary buyouts, on the other hand, seems to be quite stable. This is particularly interesting given the recent rise in secondary buyouts. While it must be suspected that these deals generate lower average returns, the variance in their returns and, especially, the risk of capital losses seems to be somewhat limited (see Figure F).
Conclusion
The analysis of hundreds or thousands of individual buyout investments can only show an average performance impact of a given characteristic, while leaving all other characteristics invariable. The reader may want to note that in specific situations, the opposite effect may be true. Consequently, he should consider the insights of this research report to be only complementary to the experience-driven expertise of professionals in the buyout industry.

Nevertheless, the analysis presented in this research report constitutes a first step towards a comprehensive understanding of the full complexity of buyout value generation. Particularly since, due to the general lack of representative empirical insights into the determinants of buyout performance, analysts are only beginning to discover the full range of mechanisms through which buyouts can create value.\textsuperscript{ix}

However, the analysis still suffers from a number of limitations and the reader has to be cautious when interpreting the results: The sample size for some of the presented analyses is limited. Consequently, it is possible that the findings cannot be generalised to the entire population of buyouts. In addition, due to data limitations and the methodology used for this research report (comparison of performance averages, bivariate and multivariate regression analysis) only one or a few determinants of buyout performance could be analysed at a time. The authors are also yet unable to explore potential interaction effects between the determinants. It is possible that such a comprehensive analysis yields slightly different results with respect to the marginal performance impact of each variable.

The INSEAD Buyout Research Group and Feri Trust, a German LP, have joined forces in a research project set out to analyse detailed information on a large sample of buyout investments. Their goal is to develop a better understanding of the factors that ultimately determine success and failure of buyouts. The authors would like to invite all GPs and LPs sharing an interest in better
understanding the strategic logic and value creation mechanisms of buyouts to join the INSEAD Buyout Research Initiative. For further information, please contact the authors at oliver.gottschalg@insead.edu; maurizio.zollo@insead.edu or visit www.buyoutresearch.org. Financial support from the Wharton-INSEAD Alliance for Global Research is gratefully acknowledged.

2 In this article, the terminology of the private equity industry is used. Thus, investors in buyout funds are referred to as Limited Partners (LP) and buyout fund managers are referred to as General Partners (GP), so defined by their legal roles in the limited liability partnership through which equity investments are made.
3 Note: the same data sample was analysed with respect to absolute returns only. In the result, the second statement is backed. Buyouts categorised in medium to long holding periods return more money than transactions with short holding periods: holding periods of four to six years performed best, followed by holding periods of two to four years, under two years and, with the lowest performance, above six years. Therefore, according to this approach buy-and-grow strategies are performing better, if the holding period does not extend more than six years.
5 Note: the same data sample was analysed also with regard to absolute returns. The results of this approach do not support the argument that mega-deals perform best. Interestingly, small buyouts again performed best. If deals are grouped by the amount of equity invested the following results have been produced: equity investment below $10 million performed best, followed by equity investments of $50-100 million, equity investments of $10-50 million and finally equity investments of above $100 million.