PRIVATE EQUITY STUDY: FINDING ALPHA 2.0

A study by Prof. Oliver Gottschalg (HEC) and Golding Capital Partners on the relative performance of private equity

Frankfurt, 7 November 2011
The aim of the study is to provide an annual scientific investigation of private equity’s alpha

### Background to the study

- The claim that private equity can provide a sustainably higher return than publicly listed shares is regularly called into question.
- A common criticism is the use of debt (leverage and financial engineering).
- To date there has only been limited scientific analysis of whether private equity really adds value to the companies acquired.
- The first Alpha study by Golding Capital Partners and HEC in 2010 addressed some of the common prejudices and criticisms.
- Building on the Alpha study 2010, a number of additional questions were asked this year.

### Questions posed

1. Can private equity continue to achieve an excess return compared with publicly quoted shares based on the more recent data.
2. Does the updated data set confirm the anticyclical character of a private equity investment?
3. What are the main factors explaining the excess return of private equity?
4. What implications do these results have for the private equity allocation of institutional investors?

Extensive data set and scientific approach open up a new perspective
AGENDA

1. Finding Alpha 2.0

2. Implications of Finding Alpha 2.0 for institutional investors
The study by HEC and Golding Capital Partners analyses alpha at three different levels.

<table>
<thead>
<tr>
<th>Analysis level</th>
<th>Question posed</th>
<th>Alpha analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Analysis level</td>
<td>Can private equity generate alpha compared with shares?</td>
<td>There is no alpha</td>
</tr>
<tr>
<td>2. Analysis level</td>
<td>What are the drivers of the alpha?</td>
<td>Alpha-driver 1</td>
</tr>
<tr>
<td>3. Analysis level</td>
<td>What are the features of the main alpha drivers?</td>
<td>Feature 1</td>
</tr>
</tbody>
</table>
The challenge: returns from shares and from private equity are not directly comparable

Necessary adjustments

- A simple comparison between private equity returns and the stock market return over the fund life (buy and hold) produces misleading results.
- To make the returns comparable, the following main adjustments are necessary:
  1. Timing of each cash flow
  2. General performance of the sector
  3. Use of debt (leverage)
- The private equity return is calculated at the transaction level, not aggregated across a fund or a number of funds

Private equity returns must be compared with an appropriate benchmark
A new benchmark had to be found to compare returns correctly

<table>
<thead>
<tr>
<th>Adjustment</th>
<th>Timing Effect</th>
<th>Sector Effect</th>
<th>Leverage Effect</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Passive stock market index (buy and hold)</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>Annualised returns from passive investments (buy and hold) in a broad stock market index for the same period as a private equity investment</td>
</tr>
<tr>
<td>Active stock market index</td>
<td>☑</td>
<td>☐</td>
<td>☐</td>
<td>Ongoing buying and selling of a broad share index in line with capital calls and distributions from private equity investments</td>
</tr>
<tr>
<td>Active sector index</td>
<td>☑</td>
<td>☑</td>
<td>☐</td>
<td>Ongoing buying and selling of a share index composed of companies within the same sector as the private equity investment</td>
</tr>
<tr>
<td>Active sector index adjusted for leverage</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
<td>Additional alignment of the publicly held companies to reflect debt ratios similar to those of the private equity companies</td>
</tr>
</tbody>
</table>

The chosen benchmark mirrors a comparable investment in shares as exactly as possible
**Alpha is the excess return of a private equity investment above a comparable investment in shares**

The adjustments are important in order to make the asset classes comparable.
Golding Capital Partners' transaction database is the basis for the analysis

### Illustrative data sample:

<table>
<thead>
<tr>
<th>Transaction</th>
<th>Industry Sector</th>
<th>Business Description</th>
<th>Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Distribution / Retail</td>
<td>Supplier of frozen foods</td>
<td>Europe</td>
</tr>
<tr>
<td>B</td>
<td>General Industrials</td>
<td>Purification &amp; recycling equipment for oil products</td>
<td>North America</td>
</tr>
<tr>
<td>C</td>
<td>Consumer Goods</td>
<td>Animal nutrition products</td>
<td>Europe</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Holding Period</th>
<th>Capital Invested</th>
<th>Realized Proceeds</th>
<th>Total Value</th>
<th>Gain</th>
<th>Gross MoM</th>
<th>Gross IRR</th>
</tr>
</thead>
<tbody>
<tr>
<td>4,3</td>
<td>-434,642.000</td>
<td>1,451,908.881</td>
<td>1,451,908.881</td>
<td>1,017,266.881</td>
<td>3.3x</td>
<td>32.6%</td>
</tr>
<tr>
<td>7,4</td>
<td>-815.000</td>
<td>240,000</td>
<td>240,000</td>
<td>-575,000</td>
<td>0.3x</td>
<td>-15.0%</td>
</tr>
<tr>
<td>4,5</td>
<td>-131,374.158</td>
<td>285,668.971</td>
<td>285,668.971</td>
<td>154,294.813</td>
<td>2.2x</td>
<td>19.6%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Transaction</th>
<th>Holding Period</th>
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<th>Gross MoM</th>
<th>Gross IRR</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>MM.MJ</td>
<td>-434,642.000</td>
<td>-100,000,000</td>
<td>344,606,726</td>
<td>1,007,302,155</td>
<td>-283,003,419</td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>MM.MJ</td>
<td>-815.000</td>
<td>-105,870</td>
<td>-96,702,922</td>
<td>-34,565,366</td>
<td>2,665,552</td>
<td></td>
</tr>
</tbody>
</table>

### Description

- The basis for the analysis is Golding Capital Partners' transaction database, which contains over 4,200 relevant transactions across multiple cycles (1977-2010).
- The data set is significantly larger than for comparable studies.
- The database encompasses principally Europe and the United States; covering a broad range of industries and transaction sizes.
- The database cannot capture the entire market and the sample for the analysis excludes in particular unrealised transactions.

Detailed performance data is available for all underlying transactions.
The data set is significantly broader than for comparable studies

Over 4,200 transactions from different segments and years were analysed
The data set showed a clear excess return over share investments.

The established private equity fund managers on which this study is based delivered on average a positive alpha of 5% with their transactions.

The private equity managers in this data set therefore achieved a positive excess return relative to the public stock markets.

The data set showed on average a positive alpha.
The relative performance of private equity follows an anticyclical trend to that of stock markets

The alpha of private equity across the capital market cycle

<table>
<thead>
<tr>
<th>Economic environment</th>
<th>Boom</th>
<th>Moderate growth</th>
<th>Stable environment</th>
<th>Recession</th>
</tr>
</thead>
<tbody>
<tr>
<td>Performance of stock market index</td>
<td>&gt; +15% p.a.</td>
<td>+5% to +15% p.a.</td>
<td>-5% to +5% p.a.</td>
<td>&lt; -5% p.a.</td>
</tr>
</tbody>
</table>

**Explanation**

- Alpha from private equity is on average higher during difficult market phases.
- Private equity performs particularly well when companies are in greatest need of support.
- The private equity model can better absorb downturns and is therefore a sensible addition to a portfolio.

Private equity's alpha is negatively correlated with the performance of capital markets.
What are the drivers of the alpha?

<table>
<thead>
<tr>
<th>Driver</th>
<th>Question posed</th>
<th>Influence on alpha¹</th>
<th>¹) Statistical significance of 99%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Segment</td>
<td>Can a higher alpha be achieved with investments in small, medium and large companies?</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>2 Region</td>
<td>Are there differences between the regions USA and Europe?</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>3 Industry</td>
<td>Does it make a difference in which industry investments are made?</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>4 Investment year</td>
<td>Is the year of investment decisive for a high alpha?</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>5 Fund manager</td>
<td>Does the fund manager make the difference?</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

The selection of the right fund manager is the most important driver of private equity's alpha.
Selecting the right manager is vital for generating alpha.

The top half of fund managers weighted by investment volume achieved an alpha of 18%.

*Weighted by investment volume, only fund managers with at least 10 realised transactions.*
What are the features that characterise a good fund manager and do they have an influence on alpha?

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<th>Driver</th>
<th>Definition</th>
<th>Question posed</th>
<th>Influence on alpha¹</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Experience</td>
<td>Number of fund manager’s previous transactions</td>
<td>Does a manager’s experience affect the alpha?</td>
<td>No</td>
</tr>
<tr>
<td>2 Industry specialisation</td>
<td>Industrial concentration in the fund manager’s portfolio</td>
<td>Is a high degree of industrial specialisation advantageous?</td>
<td>Yes</td>
</tr>
<tr>
<td>3 Deal flow</td>
<td>Number of investments 6 months before and after the analysed transaction</td>
<td>Is strong deal flow a decisive feature of a good manager?</td>
<td>Yes</td>
</tr>
<tr>
<td>4 Expertise and skills</td>
<td>Fund manager’s alpha to date</td>
<td>What effect do the expertise and skills have?</td>
<td>Yes</td>
</tr>
</tbody>
</table>

¹) Statistical significance of 99%

A fund manager's specialisation, deal flow and expertise drive the alpha of a fund
The alpha of 5% is determined by the fund manager and their industry specialisation, deal flow and expertise.

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<td>What are the features of the main alpha drivers?</td>
<td>Experience</td>
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</table>
AGENDA

1. Finding Alpha 2.0

2. Implications of Finding Alpha 2.0 for institutional investors
What role does private equity play today for institutional investors in Germany?

**Market data**
- PE investments by German institutional investors come to approx. €24 billion
- Share of invested capital: 0-3%

**Private equity investments by German institutional investors**

<table>
<thead>
<tr>
<th>Category</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Versicherungen</td>
<td>58%</td>
</tr>
<tr>
<td>Banken</td>
<td>15%</td>
</tr>
<tr>
<td>Pensionskassen</td>
<td>12%</td>
</tr>
<tr>
<td>Sparkassen</td>
<td>5%</td>
</tr>
<tr>
<td>Family Offices</td>
<td>4%</td>
</tr>
<tr>
<td>Stiftungen</td>
<td>4%</td>
</tr>
<tr>
<td>Corporates</td>
<td>1%</td>
</tr>
<tr>
<td>Genossenschaftsbanken</td>
<td>1%</td>
</tr>
<tr>
<td>Others</td>
<td>1%</td>
</tr>
</tbody>
</table>

Source: GCP Research, updated 05/2011

**Positive opinions**
- "A very good return contribution from private equity investments for invested capital"
- "The detailed investment screening paid off; we are generating returns of more than 15% p.a."
- "Private equity is the only way I can gain access to non-listed companies."

**Negative opinions**
- "The promised returns have not materialised."
- "I can't benchmark the PE funds, there are no complete databases, it's all too opaque."
- "PE accounts for 1% of my invested capital, but I need nearly 20% of my working time for the operational handling."

By international standards German investors have a very low private equity allocation
**What role will private equity play in future for institutional investors in Germany?**

**Challenges for investors**
- Capital markets are characterised by a high degree of uncertainty and volatility
- Medium-term economic growth in Europe and USA of around 1-2%
- Institutional investors must generate a minimum return of around 4%
- Investors' earnings reserves have been largely used up
- Regulatory demands are increasing, e.g. Solvency II, Basel III

**Implications for investors**
- Investors seek asset classes with return potential
- Capital investments should be as diversified as possible
- The Alpha Study 2.0 confirms private equity's alpha of 5% over shares and its excess return in market phases of moderate growth
- Private equity therefore constitutes an important component in investors’ asset allocation
- A long-term private equity strategy should be established before investments are made
- The subsequent selection of fund managers will remain the most significant factor in future as well

**Major institutional investors dedicate considerable resources to private equity**
In Europe alone there are more than 400 active fund managers to be analysed regularly.

**Challenges of private equity investments**

1. Large, opaque market
2. Systematic market screening
3. Professional due diligence
4. Analysis of fund manager’s portfolio
5. Suitable investment route

**The private equity market is large and opaque**

**Pan-European**
- Alpha
- Avea Private Equity
- Barclays Private Equity
- Bridgesprint
- Change Capital
- Doughtry Hanson
- Duke Street
- Englefield
- ECT
- GMT
- G-Square
- Hg Capital
- Ik
- Lion Capital
- Montagu
- Palamon
- Riverside
- Silverfleet
- Striling Square
- Summit Partners
- Syntegra
- TDR Capital
- Triton
- Vixian

**UK**
- Alchemy
- August Equity
- Baird Private Equity
- Benchmark
- Center Equity
- Partners
- CBPE Capital
- Darsein
- Dunicin
- ECI Partners
- Exponent
- Graphite
- Gresham
- Memmory

**Scandinavia**
- Accenta
- Altor
- Avstral
- CapMan
- Danske
- EQT
- FSN
- Hellukers
- Ik
- LD Equity
- Litorina Capital
- MB
- Nordic Capital
- Norgersinvestor
- Novastor
- Orca
- Polaris
- Privex
- Procuritas
- Reiten
- Segulah
- Sponsor Capital
- Triton
- Verdana Capital
- Sonica

**Benelux**
- Alchemi
- Ahold
- Aiken Capital
- Arcadia
- Argante
- Auctus
- Augur
- Balgo
- Beaufort
- BPE
- Bridgheaus
- Capitn
- Capvis
- Cornerstone
- DBAG
- ECM
- Equita
- Equiwest (CBR)
- Fisicam
- Finatex
- Findos
- Frankfurt Capital
- Granville Bardin
- German Capital
- Haldor
- Hannover Finanz
- MCH
- Nordwind
- Odevald
- Orlando
- Paragon
- PDE
- Perusa
- Pinova
- Quatagga
- Steam Ltd
- Sud PE
- Ventiz

**France**
- 21 Centrale
- Aherex
- Activa
- Apax France
- Argos Sodetic
- Astorg
- Atria
- Azulis
- Butler
- Chequers

**Germany**
- 21 Investimenti
- Atos Partners
- BB Private Equity
- Clessidra
- PE Partners
- Synergia
- Wise
- Investindustrial

**Spain/Portugal**
- Ahorron
- Corporacion
- Barabera
- Iberia
- Capital Alianza
- Corfin Capital
- Diana Capital
- GED Iberian Private Equity

**Italy**
- Ibassulzas
- Investindustrial
- Impresa Capital
- Partners
- Magnum Capital
- Industrial
- MCH Private Equity

Qualified monitoring of the market is the foundation for successful fund selection.
Categorising funds by region and size enables an initial classification; further analyses are required.
The most important task of due diligence is to provide a holistic assessment of the fund manager

<table>
<thead>
<tr>
<th>Challenges of private equity investments</th>
<th>Focus of due diligence</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Large, opaque market</td>
<td>Team</td>
</tr>
<tr>
<td>2 Systematic market screening</td>
<td></td>
</tr>
<tr>
<td>3 Professional due diligence</td>
<td>Strategy</td>
</tr>
<tr>
<td>4 Analysis of fund manager’s portfolio</td>
<td></td>
</tr>
<tr>
<td>5 Suitable investment route</td>
<td></td>
</tr>
</tbody>
</table>

**Team**
- Organisational structure
- Individual experience & background
- Stability, levers, succession plan
- Incentives and alignment of interests
- References from other investors

**Strategy**
- Market positioning
- Consistency
- Differentiated approach to deal flow
- Professional investment and portfolio monitoring process

**Focus of due diligence**

<table>
<thead>
<tr>
<th><strong>Team Development for Time</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Date</td>
</tr>
<tr>
<td>Februar 01</td>
</tr>
<tr>
<td>Portfolio tracking well apart from expected write off</td>
</tr>
</tbody>
</table>

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Rigorous due diligence process supported by IT and databases improves decision-making quality
Analysis of company transactions at portfolio level provides detailed information about the fund manager’s performance.

<table>
<thead>
<tr>
<th>Challenges of private equity investments</th>
<th>Analysis of fund manager’s portfolio</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Large, opaque market</td>
<td>Detailed analysis of all a fund manager’s transactions</td>
</tr>
<tr>
<td>2. Systematic market screening</td>
<td></td>
</tr>
<tr>
<td>3. Professional due diligence</td>
<td></td>
</tr>
<tr>
<td>4. Analysis of fund manager’s portfolio</td>
<td></td>
</tr>
<tr>
<td>5. Suitable investment opportunities</td>
<td></td>
</tr>
</tbody>
</table>

All the data for the individual transactions are entered into a database.
**There are different investment opportunities depending on the level of the PE allocation, PE know-how and resources**

<table>
<thead>
<tr>
<th>Challenges of private equity investments</th>
<th>Different investment opportunities depending on the type of investor</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Large, opaque market</strong></td>
<td><em>PE novice</em></td>
</tr>
<tr>
<td><strong>Systematic market screening</strong></td>
<td>Private equity allocation</td>
</tr>
<tr>
<td><strong>Professional due diligence</strong></td>
<td>In-house private equity know-how</td>
</tr>
<tr>
<td><strong>Analysis of fund manager’s portfolio</strong></td>
<td>Number of staff in PE team</td>
</tr>
<tr>
<td><strong>Suitable investment route</strong></td>
<td>In-house resource requirement (IT, databases, etc.)</td>
</tr>
<tr>
<td></td>
<td>In-house investment decisions</td>
</tr>
</tbody>
</table>

**Optimal investment route**
- Fund of funds
- Managed Account
- Single funds Co-investments

Focus of investors' PE-investments is on fund of funds or managed accounts
<table>
<thead>
<tr>
<th>Question posed</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Can private equity continue to achieve an excess return compared with publicly quoted shares based on the more recent data.</td>
<td>- The established private equity fund managers on which this study is based generate a positive alpha of 5% over the comparable stock market return with their transactions.</td>
</tr>
</tbody>
</table>
| Does the updated data set confirm the anticyclical character of a private equity investment? | - The alpha of private equity is anticyclical; it is particularly high at times of economic difficulty and declining capital markets.  
- Private equity funds are capable of supporting their companies to the greatest effect when they are in the most need of assistance. |
| What are the main factors explaining the excess return of private equity?    | - Fund managers are the most important driver of alpha – the selection of the right fund managers can increase the return from a private equity portfolio substantially.  
- On the basis of the available data an investment in the top 50% of fund managers weighted by investment volume would have generated an alpha of 18%.  
- The fund manager’s alpha is particularly affected by their industry specialisation, deal flow and expertise/skills. |
| What consequences do these results have for the private equity allocation of institutional investors? | - Private equity is part of every portfolio and increases the return and the stability of the overall portfolio.  
- The foundation for an investment is to draw up a private equity strategy and to obtain a complete market overview of the fund managers in the individual segments.  
- A professional selection process to identify the best fund managers must form the core of every investment strategy. |
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