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Due Diligence 201: Private Equity Fund Due Diligence - Fund Dynamics

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Introduction



The Power of Fund Selection

Selection Efficiency of Actual ex-post IRR ('Chrystal Ball Selection')





Identifying Relevant Criteria Through Back-Testing



Relevant for Experience/Dealflow: All investments made by GP until focal vintage



September 29, 2010



Common Wisdom Points to a Variety of Factors to be Tested

Performance Track Record

Alternatively measured as:

- IRR
- Performance Quartile relative to a fund's same-vintage and same-stage peers
- Delta IRR (the difference between actual IRR and the average IRR of a fund's samevintage and same-stage peers)

We considered either the 'latest mature' fund or the average of all prior funds



Common Wisdom Points to a Variety of Factors to be Tested

Dealflow

- Percent of Fund Size Invested measured as of year 4 after vintage
- Variance in Number of Deals per year of the GP prior to focal fund vintage
- GP Experience
 - Number of prior funds raised by the GP
 - Number of prior investments made by the GP prior to the focal fund's vintage (includes multiple investment rounds)
- Differences between the focal and prior funds
 - Percentage Change in Fund Size between focal fund and latest mature predecessor fund in the analysis



Statistical Significance

| | Correlation Coefficient | | | | |
|---|--------------------------------|--|--|--|--|
| Latest Mature IRR | 0,111(**) | | | | |
| Latest Mature delta IRR | 0,180(**) | | | | |
| Latest Fund % Inv. Year 4 | -0,045 | | | | |
| Overall Weighted IRR | -0,008 | | | | |
| Overall Weighted Delta IRR | 0,103(*) | | | | |
| Overall Weighted Performance Quartile | 0,126(**) | | | | |
| Change in Fund Size since Latest Mature Funds | -0,066 | | | | |
| Number of Prior Funds | 0,137(**) | | | | |
| Number of Prior Deals | 0,160(**) | | | | |
| Variance in Deals per Year | -0,020 | | | | |

- ** Correlation is significant at the 0.01 level (2-tailed)
- * Correlation is significant at the 0.05 level (2-tailed)



Economic Significance of Selection Rules

Benchmark

Total Portfolio: 615 funds, USD 212B, 13,26% weighted average IRR

Rule 1

'Backing only top-quartile GPs': 216 funds, USD 99B, 16,41% weighted average IRR

Rule 2

'1st and 2nd quartile GPs' Rule: 390 funds, USD 158B, 13,66% weighted average IRR

Rule 3

'Rank funds by IRR of predecessors and invest in best x%' For example: best 28% of the proposed funds generate 26,4% weighted IRR -> 'crystal ball' upper benchmark performance is over 63% average IRR for the same number of funds

However the Efficiency of Simple Performance-Based Fund Selection is Limited: Selection Efficiency = 2%

Efficiency of Past-IRR Based Fund Selection

----- Past IRR Selected IRR ----- Crystal Ball



Source: 614 mature Private Equity funds, net of all fees, without first time funds

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The Power of Advanced Due Diligence Techniques Selection Efficiency = 36%



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Fund Dynamics

Partners association

Spotting Strengths, Weaknesses and Strategies

| Deal name | Country | Acquisition date | Exit date | IRR | Equity invested | Status | Unrealised value | Realised value | Role | Lead mgr | Exit type | Industry category | Final revenues | Final EBITDA | Final net debt | Final enterprise value | Final equity |
|--------------|---------|---------------------|------------|---------|-----------------|------------|------------------|----------------|---------|----------|-------------|-------------------|----------------|--------------|----------------|------------------------|--------------|
| | IUS | 1997-01-31 | 2000-03-26 | 65.00% | 40,820,000 | Realised | - | 197,740,845 | Lead | Williams | Went Public | Services | 1,770,908 | 171,829 | 86,261,915 | 517,571,488 | 431,309,573 |
| : | BUS | 1997-11-23 | 2004-01-03 | 33.65% | 41,836,000 | Realised | - | 246,490,652 | Lead | Jones | LBO | Transport | 1,287,411 | 139,630 | 49,298,130 | 295,788,782 | 246,490,652 |
| 4 | ŧUS | 1998-03-11 | 2003-02-01 | 21.86% | 54,325,000 | Realised | - | 143,077,276 | Lead | Smith | Went Public | Finance | 1,151,344 | 114,101 | 28,615,455 | 171,692,731 | 143,077,276 |
| ŧ | SUS | 1998-04-15 | 2002-03-13 | -2.89% | 42,145,000 | Realised | - | 37,581,209 | Co-load | Smith | Acquisition | Transport | 985,505 | 97,700 | 7,516,242 | 45,097,450 | 37,581,209 |
| 6 | SUS | 1998-08-08 | 1999-06-22 | 6.04% | 32,914,590 | Realised | - | 34,639,310 | Co-load | Smith | LBO | Retail | 1,045,455 | 108,203 | 6,927,862 | 41,567,172 | 34,639,310 |
| 8 | BUS | 1998-09-19 | 1999-06-22 | 33.74% | 19,688,730 | Realised | - | 24,529,130 | Lead | Williams | LBO | Retail | 1,236,821 | 133,362 | 4,905,826 | 29,434,956 | 24,529,130 |
| | us | 1999-01-16 | 2001-09-15 | -16.43% | 47,928,900 | Realised | - | 29,705,872 | Lead | Jones | LBO | Household | 879,540 | 85,375 | 5,941,174 | 35,647,046 | 29,705,872 |
| 10 | us | 1999-02-05 | 2005-12-01 | 32.00% | 82,988,000 | Unrealised | 551,939,005 | - | Lead | Jones | Active | Leisure | 1,112,272 | 130,068 | 110,387,801 | 662,326,806 | 551,939,005 |
| 11 | IUS | 1999-06-06 | 2005-12-01 | 18.99% | 37,263,000 | Realised | - | 115,249,575 | Lead | Smith | LBO | Finance | 1,187,149 | 115,072 | 23,049,915 | 138,299,490 | 115,249,575 |
| 12 | 2US | 1999-06-09 | 2002-05-17 | 10.31% | 10,917,000 | Realised | - | 14,568,587 | Co-load | Smith | LBO | Wholesale | 1,048,133 | 109,790 | 2,913,717 | 17,482,304 | 14,568,587 |
| 13 | BUS | 1999-09-08 | 2004-05-13 | 7.02% | 12,875,000 | Realised | - | 17,688,226 | Co-load | Smith | Acquisition | Services | 1,049,550 | 103,727 | 3,537,645 | 21,225,871 | 17,688,226 |
| 14 | tus | 2000-04-15 | 2005-12-01 | 2.57% | 16,019,000 | Realised | - | 18,483,862 | Synd | Smith | LBO | Industrial | 1,010,893 | 100,895 | 3,696,772 | 22,180,635 | 18,483,862 |
| 15 | SUS | 2000-08-12 | 2001-08-12 | 29.74% | 136,790,100 | Realised | - | 177,471,543 | Lead | Williams | LBO | Finance | 1,183,496 | 117,340 | 35,494,309 | 212,965,852 | 177,471,543 |
| 16 | SUS | 2000-11-08 | 2005-02-12 | 16.36% | 23,350,000 | Realised | - | 44,558,115 | Lead | Jones | Acquisition | Natural resources | 1,079,851 | 124,264 | 8,911,623 | 53,469,738 | 44,558,115 |
| 18 | BUS | 2000-11-10 | 2001-11-10 | 69.97% | 32,914,590 | Realised | - | 55,946,126 | Lead | Smith | LBO | Health | 1,620,263 | 173,366 | 11,189,225 | 67,135,351 | 55,946,126 |
| 19 | us | 2000-12-17 | 2004-02-20 | 25.55% | 29,533,090 | Realised | - | 60,862,888 | Co-load | Smith | Went Public | Health | 1,179,355 | 125,266 | 12,172,578 | 73,035,465 | 60,862,888 |
| 20 | us | 2001-01-22 | 2002-09-21 | 54.84% | 32,914,590 | Realised | - | 68,101,735 | Co-load | Smith | LBO | Health | 1,379,694 | 135,378 | 13,620,347 | 81,722,082 | 68,101,735 |
| 2' | IUS | 2001-03-16 | 2005-10-16 | 23.48% | 40,604,000 | Realised | - | 106,879,180 | Synd | Smith | LBO | Finance | 1,114,626 | 134,831 | 21,375,836 | 128,255,017 | 106,879,180 |
| 22 | 2US | 2001-05-10 | 2003-03-13 | 9.66% | 32,914,590 | Realised | - | 39,004,970 | Lead | Williams | LBO | Retail | 1,090,457 | 103,695 | 7,800,994 | 46,805,964 | 39,004,970 |
| 24 | 4US | 2001-06-10 | 2005-12-01 | 12.52% | 13,685,000 | Realised | - | 23,214,677 | Lead | Jones | LBO | Finance | 1,062,869 | 109,975 | 4,642,935 | 27,857,613 | 23,214,677 |
| 25 | SUS | 2001-07-26 | 2003-08-30 | 27.69% | 23,461,200 | Realised | - | 39,160,936 | Lead | Smith | LBO | Household | 1,209,289 | 119,659 | 7,832,187 | 46,993,123 | 39,160,936 |
| 26 | SUS | 2001-08-16 | 2003-10-12 | 69.95% | 48,240,000 | Realised | - | 151,366,786 | Co-load | Smith | Went Public | Wholesale | 1,670,688 | 136,630 | 30,273,357 | 181,640,143 | 151,366,786 |
| 27 | 7US | 2001-10-19 | 2002-10-19 | 74.78% | 32,914,590 | Realised | - | 57,527,786 | Co-load | Smith | LBO | Household | 1,563,008 | 201,600 | 11,505,557 | 69,033,343 | 57,527,786 |
| 28 | sus | 2001-11-09 | 2002-05-17 | 36.73% | 21,834,000 | Realised | - | 25,673,179 | Synd | Smith | LBO | Wholesale | 1,179,303 | 154,485 | 5,134,636 | 30,807,815 | 25,673,179 |
| 29 | JUS | 2001-11-23 | 2002-11-23 | 27.41% | 32,914,590 | Realised | - | 41,936,920 | Lead | Williams | LBO | Finance | 1,224,400 | 129,637 | 8,387,384 | 50,324,304 | 41,936,920 |
| 3 | IUS | 2002-01-18 | 2004-11-20 | 59.82% | 12,709,000 | Realised | - | 48,158,343 | Lead | Jones | LBO | Household | 1,292,061 | 188,748 | 9,631,669 | 57,790,012 | 48,158,343 |
| 32 | 2US | 2002-02-08 | 2004-05-21 | 26.52% | 32,914,590 | Realised | - | 56,298,412 | Lead | Smith | LBO | Industrial | 1,224,167 | 126,349 | 11,259,682 | 67,558,094 | 56,298,412 |
| 33 | BUS | 2002-03-15 | 2004-05-21 | 30.84% | 65,829,190 | Realised | - | 118,476,503 | Co-load | Smith | LBO | Finance | 1,091,534 | 109,029 | 23,695,301 | 142,171,804 | 118,476,504 |
| 34 | tUS | 2002-04-05 | 2005-12-01 | 27.00% | 32,914,590 | Unrealised | 78,947,530 | - | Co-load | Smith | Active | Household | 1,117,010 | 116,418 | 15,789,505 | 94,737,027 | 78,947,523 |
| 35 | sus | 2002-04-10 | 2003-12-14 | 47.17% | 40,456,000 | Realised | - | 77,413,499 | Synd | Smith | LBO | Transport | 1,386,135 | 150,997 | 15,482,700 | 92,896,199 | 77,413,499 |
| 36 | sus | 2002-06-11 | 2003-06-11 | 11.45% | 32,914,590 | Realised | - | 36,681,740 | Lead | Williams | LBO | Retail | 1,096,762 | 111,373 | 7,336,347 | 44,018,083 | 36,681,736 |
| 37 | 7US | 2002-06-12 | 2004-08-17 | 20.56% | 78,342,000 | Realised | - | 117,840,660 | Lead | Jones | LBO | Finance | 1,182,236 | 121,555 | 23,568,132 | 141,408,794 | 117,840,662 |
| 38 | BUS | 2002-10-25 | 2005-12-01 | 33.00% | 32,914,590 | Unrealised | 79,769,626 | - | Lead | Jones | Active | Industrial | 1,240,067 | 136,091 | 15,953,924 | 95,723,542 | 79,769,619 |
| 40 | us | 2002-11-03 | 2003-09-25 | 8.26% | 15,705,500 | Realised | - | 16,859,400 | Co-load | Smith | Acquisition | Health | 1,062,439 | 105,865 | 3,371,880 | 20,231,283 | 16,859,402 |
| 4 | lus | 2002-12-26 | 2005-12-01 | 39.77% | 13,900,500 | Realised | - | 37,130,750 | Co-load | Smith | LBO | Industrial | 1,352,553 | 141,700 | 7,426,149 | 44,556,895 | 37,130,746 |

Even in small portfolios it is easy to get lost in the detail



Analyse by Entry Year, not Just Vintage Year



Entry Year



Industry Analysis



Industry Group



Manager Performance





Return Sensitivity: Absolute Performance





Return Sensitivity: Benchmarked Performance





Return Sensitivity

Overall Portfolio Performance is 18% IRR

How sensitive is this figure to major home-runs and strike-outs?

What if ...

- ... we remove the best deal:
- ... we remove the two best deals:
- ... we remove the worst deal:... we remove the two worst deals:

Performance drops to 16.5% Performance drops to 12.5%

Performance increases to 24.1% Performance increases to 56.2%



Return Sensitivity

Weighted IRR





Return Sensitivity



The further away from the diagonal, the greater the performance sensitivity



Cash Flow Patterns

Questions:

- What does the fund's J-curve look like?
- How rapidly and steadily has the committed capital been invested?
- How rapidly and steadily has the committed capital been returned?



Takedown and Distribution Patterns



Fund Committed Capital: USD 500.0m



Cash Flow Patterns: The J-Curve



GP Committed Capital: USD 2.8b



Further Application of Superior Due Diligence Techniques

- Understanding strengths and weaknesses of the existing portfolio of PE fund investments
 - Example: Proven track record of GPs in a downturn
 - Example: Dependence of GPs on leverage effect
- Decision support and valuation for possible secondary transactions
 - Buy-side
 - Sell-side





- Any questions?
 - Improved Benchmarking, Value Driver Analysis and Qualitative Insights through Quantitative Analyses
 - Explain why deal-level analysis may serve to produce an improved benchmark
 - Describe how various alternative benchmarks may or may not match the investment characteristics of a Private Equity fund and why
 - Calculate and interpret the Leverage Effect, the Revenue Effect, the Margin Effect, and the Multiple effect as contributions to the IRR of a Private Equity deal
 - Describe how different value drivers may reflect different strategies
 - Use aggregated deal-level performance benchmarks to derive Qualitative Insights about fund manager strengths and weaknesses
- If you have follow-up questions, please contact me at <u>oliver.gottschalg@peracs.com</u>
- Thank you