Replicating the Investment Strategy of Buyout Funds Based in the United Kingdom (UK) with Public-Market-Investments*

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Executive Summary

This report assesses whether it is possible to emulate the risk-return profile of buyout funds with comparable public market investments and concludes that the buyout fund sample used demonstrates a 'performance delta' over mimicked public market investment.

Our study replicates the investment strategy of a sample of buyout funds by mimicking the risk characteristics of their transactions with public index data. The sample was provided by a major private equity Fund of Funds, Pantheon, in collaboration with BVCA.

We replicate the financial risk profile of the buyout funds by measuring the return performance of four investment strategies: the buy-and-hold return on the broad public stock market index ('Passive Return'); the return on the broad public stock market index based on matched investment timing ('PME'); the return on the broad public stock market index based on matched investment timing and with additional superimposed financial leverage ('Leveraged PME'); and the return on industry-matched public stock market indices based on matched investment timing and with additional superimposed financial leverage ('Industry Match Leveraged PME').

These strategies mimic the investment approach of buyout funds by investing in public market indices, timing precisely the funds' cash inflows and outflows net of fees and carry, matching the investments by industry sector and taking into account the effect of additional leverage. This additional superimposed financial leverage replicates the typical financial risk of buyout transactions.

We compare the returns on these four investment strategies with the actual IRR performance of the buyout funds in our sample, which invested predominantly across Europe and through both rising and falling markets. We select in our sample funds that were raised before 2001 to minimise the measurement error associated with residual NAVs.

Our research shows that the mimicked public market investments fail to generate the same level of performance as the buyout funds in our sample. The buyout funds achieve performance 11.51% higher than the mimicked public market investments – a gap that we call 'performance delta'.

*For a study of the 'Alpha' of buyout funds, please see the LBS-HEC study "Private Equity Fund Level Return Attribution: Evidence from U.K. Based Buyout Funds" released in June 2010.

1. Analysis

Based on a refinement of the methodology used by Groh and Gottschalg (2009), we replicate the investment strategy of a sample of UK- based buyout funds by mimicking the risk characteristics of their transactions using public index data.

We initially compute the performance of the buyout funds in our sample to identify their actual performance to be replicated. We measure the IRR[1] of each of the funds based on the net of fees cash inflows and outflows. We consider the residual values of unrealised investments (i.e., the Net Asset Values or NAVs) as accurately reflecting the net-present-value of these investments and treat them as a final cash inflow in the IRR calculation. We select funds with vintages before 2001 to minimise the impact of the valuation assumptions underlying the NAVs on the magnitude of the returns. We call this IRR measure of the fund net cash flows the 'Focal IRR'.

We implement four investment strategies that attempt to replicate the risk profile of the above buyout funds. First, we replicate the approach used in standard industry statistics and calculate the compounded annualised passive (i.e., buy-and-hold) returns from a public market index over the period from the first cash flow to the last cash flow of each of the funds in the database. The IRR that results from this computation is the return that could be obtained by an investor who makes investments in the amount of the capital committed to each buyout fund at the day of the fund's first cash flow and liquidates this position at the day of the fund's final NAV ('Passive Return').

In a second strategy, we consider the particular timing of the buyout funds' cash flows to compute the Public Market Equivalent (PME) investment return. Similar to the approach taken by Kaplan and Schoar (2005) and Phalippou and Gottschalg (2009), we impose the observed annual net cash flows from private equity on a public market index by purchasing shares to represent negative net cash flows and selling shares to represent

[1] Regarding shortcoming of the IRR measure see, for example, Ludovic Phalippou, The Hazards of Using IRR to Measure Performance: The Case of Private Equity; http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1111796

positive net cash flows. The IRR that results from this computation is the return which could be obtained by an investor who makes investments in the broad stock market and exits these securities by mimicking exactly the timing of the private equity investments and exits.

Our third investment strategy refines the Public Market Equivalent method above by considering the level of financial leverage in the investments underlying the buyout funds in our sample. Based on information of the typical degree of leverage both of publicly traded firms and of buyouts at a given point in time, we construct an investment strategy into the public market index that mimics the degree of leverage of each of the buyout funds. Specifically, we lever up when we invest in the public market index and pay off the debt when we divest the shares in the public market index according to the cash flow pattern of the buyout fund. We measure the cost of debt employed in this strategy using Dealscan, a database which captures the historical cost of leveraged loans typically used in buyout transactions. Leveraging up the fund's aggregate investments enables us to replicate to some extent the financial risk embedded in the investments of the buyout funds in our sample.[2] We call the return on this strategy Leveraged Public Market Equivalent ('Leveraged PME') returns.

Our fourth and final replication strategy improves on the previous one by additionally capturing the operating risk of the underlying investments of the buyout funds. We no longer invest in the overall market index but invest in industry-specific indices that reflect the industry mix of each buyout fund. Our investment in sector indices changes from one year to another to track any industry changes that occur at the fund level. Detailed times-series information on the industry mix is available for the funds for which we have deal-level data available. For the minority of funds for which this data is not available, we use industry mix annual averages derived from the HEC Buyout Database (see Table 3). We construct portfolio holdings in sector indices according to the industry mix at the fund level and then calculate the final value of the set of public equity sector

[2] The leveraged PME does not replicate exactly the risk profile of the private equity fund but offers the nearest practical match for the risk profile. This is due to the fact that the leverage taken by private equity funds is ring-fenced at the individual underlying company level whereas the superimposed leverage of the PME is at the overall portfolio level.

index portfolio created, based on the market value of each index on the last day of the fund (i.e., the day on which the net asset value of the fund is available). One can think of this value as being the additional final cash flow representing the liquidation value of the final public sector index portfolio.

We calculate the IRR of the industry-matched leveraged public market equivalent by using both the mimicking annual net cash flows and the final cash flow. If the final value of the industry-matched leveraged PME portfolio is positive, then this replication strategy can produce a greater return than the buyout fund whose cash flows were superimposed on the public market index. If the final value of the industry-matched leveraged PME portfolio is negative, then the replication strategy does not generate a return to match the return of the buyout fund. This Industry-Matched Leveraged Public Market Equivalent strategy ('Ind Match Leveraged PME') enables us to replicate the financial and operational risks which underlie the buyout funds' investments.

To summarise, our approach attempts to replicate the buyout funds' returns by implementing four strategies: (a) the buy-and-hold return on the broad public stock market index ('Passive Return'), (b) the return on the broad public stock market index based on matched investment timing ('PME'), (c) the return on the broad public stock market index based on matched investment timing and with additional superimposed financial leverage ('Leveraged PME'), and (d) the return on industry-matched public stock market indices based on matched investment timing and with additional superimposed financial leverage ('Industry Match Leveraged PME'). We compare the returns obtained by each of these strategies with the actual performance of the buyout fund sample in our dataset.

2. Data

Initial Dataset

- The Fund of Funds, Pantheon, shared with us an anonymous dataset of 64 buyout funds which were, or are, part of their portfolio. The Fund of Funds did not apply any qualitative filters to the dataset except requiring data availability and the

criteria that the funds must be managed by a buyout firm based in the UK. These funds cover a range of vintage years from 1988 to 2009.

In Table 1 below we present the distribution of the full set of funds by vintage year. The vintages are reasonably spread over the 21 year period although we note that there are few vintage years when the number of funds added to the portfolio was larger (2001, 2005 and 2007).

- Out of the total number of funds, 46 funds were still active at the time when the dataset was extracted and the NAV was computed. Most of the funds (41) have a pan-European investment focus, while the remaining are invested mainly in the UK.
- The dataset shared by the Fund of Funds makes available cash flow data with precise timing at the fund level. These funds were raised in three currencies: GBP, Euro and USD. We convert all the fund cash flows into GBP using historical exchange rates to remove the effect of currency fluctuations on our results. We focus our attention on the net performance, based on cash flows to and from inves*tor*s *net* of all fees charged by the buyout funds.
- Overall, these funds invested in 1,138 companies located mainly in Europe although there are few exceptions. We present in Table 2 the distribution of portfolio company investments over time. We notice a larger number of investments in years 2000, 2001 and 2005 which is a reflection of the buoyant private equity investment climate during these periods.
- The portfolio companies are in several industries which we manually classified based on prior research, into nine major and relatively homogenous industries: Finance, Food, Health, Retail, Natural Resources, Services, Transport, Industrial and High-tech. We created a catch-all category of 'Unknown' for those firms we cannot classify in any of the nine industries above.[3] We present in Table 3 the allocation of portfolio investments by industry and year. This distribution is used whenever no exact deal-level industry information is available. We highlight that a large proportion of the investments is made in low-risk industries such as Industrials and Services.

[3] Less than 3% of the companies are classified in this category.

Table 1. Distribution of the Full Set of Funds By Vintage

(full sample of 64 buyout funds)

Year	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1988	1	1.56	1	1.6
1989	1	1.56	2	3.1
1994	3	4.69	5	7.8
1995	2	3.13	7	10.9
1996	3	4.69	10	15.6
1997	5	7.81	15	23.4
1998	1	1.56	16	25.0
1999	2	3.13	18	28.1
2000	5	7.81	23	35.9
2001	7	10.94	30	46.9
2002	2	3.13	32	50.0
2003	4	6.25	36	56.3
2004	2	3.13	38	59.4
2005	9	14.06	47	73.4
2006	5	7.81	52	81.3
2007	8	12.5	60	93.8
2008	3	4.69	63	98.4
2009	1	1.56	64	100.0

Table 2. Distribution of Portfolio Companies by Year of Investment (full sample of 64 buyout funds)

Year	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1988	11	0.97	11	0.97
1989	17	1.49	28	2.46
1994	49	4.31	77	6.77
1995	51	4.48	128	11.25
1996	80	7.03	208	18.28
1997	99	8.70	307	26.98
1998	11	0.97	318	27.94
1999	93	8.17	411	36.12
2000	105	9.23	516	45.34
2001	196	17.22	712	62.57
2002	49	4.31	761	66.87
2003	57	5.01	818	71.88
2004	36	3.16	854	75.04
2005	156	13.71	1010	88.75
2006	61	5.36	1071	94.11
2007	57	5.01	1128	99.12
2008	9	0.79	1137	99.91
2009	1	0.09	1138	100.00

Table 3. Allocations of Investments by Industry and Year (Source: HEC Buyout Dataset)

Year	Finance	Food	Health	High-tech	Industrial	Natural resources	Retail	Services	Transport
1990	1%	16%	9%	10%	21%	0%	6%	31%	7%
1991	6%	12%	2%	15%	14%	4%	5%	36%	6%
1992	5%	11%	1%	9%	39%	14%	1%	15%	5%
1993	24%	25%	6%	6%	21%	1%	3%	8%	6%
1994	4%	5%	2%	28%	19%	8%	13%	9%	12%
1995	7%	4%	9%	5%	24%	4%	12%	21%	14%
1996	15%	1%	7%	9%	27%	4%	4%	19%	14%
1997	9%	7%	20%	13%	17%	3%	10%	17%	5%
1998	7%	9%	4%	8%	26%	4%	7%	29%	5%
1999	7%	4%	7%	17%	27%	3%	2%	26%	6%
2000	3%	15%	6%	20%	28%	5%	3%	9%	13%
2001	3%	4%	15%	12%	28%	6%	3%	22%	6%
2002	7%	13%	11%	2%	22%	3%	3%	16%	23%
2003	4%	7%	3%	29%	19%	3%	8%	15%	12%
2004	4%	1%	10%	8%	33%	3%	13%	12%	15%
2005	12%	3%	10%	16%	32%	5%	3%	14%	6%
2006	1%	5%	7%	25%	17%	6%	6%	24%	9%
2007	3%	0%	5%	6%	28%	5%	12%	32%	9%
2008	1%	5%	7%	25%	17%	6%	6%	24%	9%
2009	1%	5%	7%	25%	17%	6%	6%	24%	9%

Dataset used in the analysis

Because the buyout funds realise the proceeds from investments primarily during the second half of their life, the performance of a given private equity fund can only be measured with reasonable accuracy towards the end of its life. At that stage, most of the investments are exited and the residual net asset values are small relative to the size of the fund's investments.

This restricts our ability to assess the performance of private equity relative to the public markets for funds that have been raised recently. As a result, we have decided to focus on all funds that were raised before 2001. We expect the measurement error associated with the residual NAV values to have a lower impact on the level of performance that we measure since they are closer to the end of their life and are expected to have realised most of their viable investments by the end of our sample period.[4] We present a list of this sub-sample of 20 buyout funds in Appendix A. As expected, the NAVs of these funds (last column) are very small relative to their size. Most funds were raised in Sterling and Euro except one fund which was raised in US Dollars.

- In Table 4 we report the distribution of this sub-sample of funds by vintage year. In Table 5 we report the distribution of these funds by size as reported in the original dataset received (due to confidentiality agreements, the Fund of Funds could only share ranges of fund sizes with us). While there is significant variation in the sizes of these funds, 55% of them are funds with a size under 500 million.
- In Appendix B we present detailed descriptive statistics on the portfolio investments made by the pre-2001 vintage funds. The buyout funds made a total of 455 investments. The average size of an investment is 49 million sterling and the largest investment made in our sample is 395 million sterling. As expected - given the UK focus of the funds in our sample- approximately 60% of the portfolio companies are located in the UK. The second and third largest groups are in Germany (11.43%) and U.S (5.49%). Most investments are made in Sterling (49%) and Euro (45.71%).

[4] As a sensitivity check, we run our results for alternative vintage year cut-offs. The results we obtain are qualitatively very similar to the ones we report for samples of funds that were raised before 2000, 2002 or 2003.

Table 4. Distribution of Funds Used in the Analysis By Vintage Year

(analysis sample of 20 buyout funds)

Vintage Years	Frequency	Percent	Cumulative Frequency	Cumulative Percent
Before 1996	5	25.00%	5	25.00%
1996	3	15.00%	8	40.00%
1997	5	25.00%	13	65.00%
1998	1	5.00%	14	70.00%
1999	2	10.00%	16	80.00%
2000	4	20.00%	20	100.00%

Table 5. Distribution of Funds Used in the Analysis By Fund Size
(analysis sample of 20 buyout funds)

Buyout Fund Size	Frequency	Percent	Cumulative Frequency	Cumulative Percent
less than 300 mil.	8	40.00%	8	40.00%
300 mil. - 500 mil.	3	15.00%	11	55.00%
500 mil. - 1000 mil.	2	10.00%	13	65.00%
1000 mil. - 3000 mil.	5	25.00%	18	90.00%
more than 3000 mil.	2	10.00%	20	100.00%

Other relevant data used in the analysis

- In order to implement our market mimicking strategy, we compute several variables with data from independent sources.
- We retrieve cost of debt financing measures in Europe from the Loan Pricing Corporation's Dealscan database. This database provides spreads over standard benchmarks (mainly LIBOR) for leveraged syndicated term loans used in buyout transactions throughout Europe. We aggregate this borrower-specific loan data and use time-varying measures of cost-of-debt buyout financing in our analysis. More specifically, we compute annual averages for the interest rates demanded by banks in these loan contracts.
- We retrieve Debt/Equity ratios for leveraged buyout transactions in Europe from a combined Incisive Media and Capital IQ dataset. These two datasets are expected to cover a very large percentage of the buyout transactions in Europe and are thus representative of the leveraged debt market conditions. We compute averages of these ratios by industry and year.

- We retrieve similar Debt/Equity ratios for public companies in Europe from Datastream. We aggregate these ratios into averages by industry and year.
- We start the leveraged PME investing strategy with levels of leverage similar to the debt/equity ratios specific to buyout transactions in Europe. We linearly deleverage the PME investments such that, by the end of the funds' life, the mimicking public portfolio converges to levels of leverage specific to public firms in Europe.
- For the two portfolio mimicking strategies which involve leverage (i.e., Leveraged PME and Industry Match Leveraged PME), we adjust the returns for 100bp in transactions costs.
- We retrieve daily EU overall market and industry specific indices from Global Financial Data. We use these Stoxx market and sector daily indices as market benchmarks in our analysis.[5]
- We retrieve daily exchange rates from the historical exchange dataset provided by Global Financial Data in order to convert the non-sterling denominated cash flows of all funds into sterling.
- We retrieve annual average levels of buyout fund investments by industry from the HEC Buyout Database. This distribution is used whenever no exact deal-level industry information is available in our data.

3. Results

- We present the distribution of the four benchmark returns described above in Table 6. The buyout funds' returns are consistently higher than the returns on all replication benchmarks and, in particular, the industry-matched leveraged PME, across all statistics (mean, median, and the top and bottom quartile). The industry-matched leveraged PME benchmark is similar to the buyout funds in

[5] EuroStoxx Total Return Index and EuroStoxx Sector indices are compiled by Dow Jones, in conjunction with the Paris SBF, the Frankfurt Deutsche Borse and the Zurich Stock Exchange. For most sector indices the daily coverage starts in 1986 while for the Total Return Index the coverage starts in 1951. We use the following Stoxx sector indices: Financials, Food, Healthcare, Retail, Basic Resources, Services, Transportation, Industrials, and Technology.

terms of operational and financial risks. The positive differences are also statistically significant at conventional levels.

The difference which we call 'Performance Delta' illustrates the gap in performance between our sample of buyout funds and the equally risky public-market investments. It shows that the mimicking investments fail to generate the same level of performance. One needs to keep in mind that part of this 'Performance Delta' is attributable to the amplifying role of the increased leverage in buyouts.[6] While the industry-matched leveraged PME replicates the level of buyout-leverage, leverage has, by design, a non-linear and multiplicative effect on performance. Its impact is greater on the buyout funds with greater fundamental (i.e. unleveraged) performance than on the simple PME with their lower performance. For a study of the 'Alpha' of buyout funds that deals with this issue, please see the LBS-HEC study "Private Equity Fund Level Return Attribution: Evidence from U.K. Based Buyout Funds" released in June 2010.

Table 6. Distribution of Buyout Funds' Returns and the Levered Benchmarks

Statistic	Passive Return	PME	Leveraged PME	Industry Matched Leveraged PME	Buyout Return
Simple Mean	3.82%	16.87%	17.39%	14.63%	22.21%
25th percentile	1.38%	1.54%	1.12%	-1.00%	5.55%
50th percentile	2.93%	8.51%	10.28%	1.03%	16.17%
75th percentile	6.82%	14.42%	16.12%	14.55%	28.30%

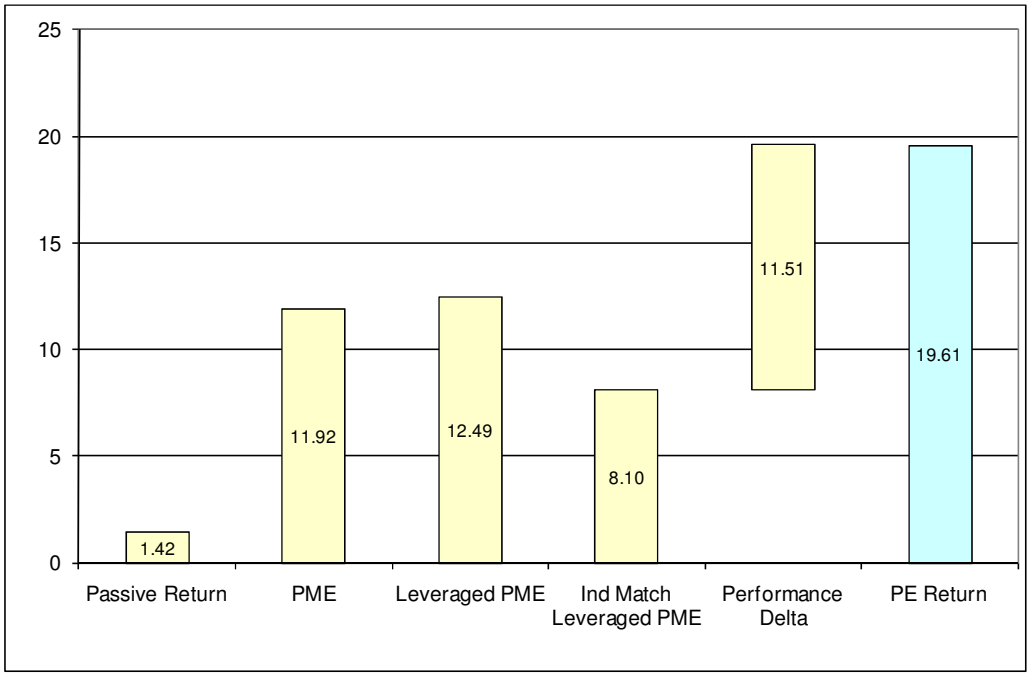
- The fact that the level of performance of the leveraged PME is consistently above the Industry Matched Leveraged PME reflects the fact that the buyout funds on average invest in sectors that have a lower risk profile than the public market overall.
- Given the large variation in fund sizes, we aggregate the overall performance of the buyout funds in our sample by computing a fund size-weighted average of

[6] While leverage can enhance the buyout funds' returns during periods of rising markets, it also amplifies the losses during periods of market downturns. Further, regardless of the overall market performance, leverage amplifies buyout funds' transaction costs.

the individual funds' IRRs. Similarly, we aggregate the performance on the four benchmarks above.

- As can be seen in the Figure 1 below, the fund size weighted IRR is 19.61%, which is lower than its simple mean. The weighted average passive return is 1.42% while the PME return is 11.92 indicating that taking into account the precise timing of funds' cash flows has a significant impact on performance. The leveraged PME return is 12.49%, only 0.57% higher than the PME return which indicates the minimal effect of the additional leveraged structure on the performance of the benchmark. Finally, the industry-matched leveraged PME provides a weighted average return of 8.10%, about 4.39% lower than the leveraged PME.
- To assess the magnitude of the buyout funds' performance relative to the public market benchmarks we compare the buyout return (19.61%) with the industry-matched levered PME return for which the weighted average is 8.10%. The buyout funds' incremental return (i.e., performance delta) of 11.51% is significantly greater than zero (see Figure 1). Therefore, even if we factor out the effect of operational risks (by taking into account the industry mix) and the effect of additional leverage, the buyout funds in our sample still create value beyond the return that could be obtained by replicating the private equity investments in the public markets.

Figure 1. Components of Buyout Funds' Returns based on Levered Benchmarks



4. Conclusions

This report has addressed the question of whether it is possible to emulate the risk-return profile of UK- based buyout funds based on comparable public market investments. We analysed the performance of a subset sample of 20 buyout funds based in the UK with vintages before 2001 whose investments are mainly in Europe based on a refined public-Market-Equivalent (PME) methodology. This methodology replicates the risk-profile of buyout funds in four distinct steps by investing in public market indices and mimicking their approaches such as timing precisely the funds' cash inflows and outflows net of fees, matching the investments by industry sector and/or taking into account the effect of additional leverage.

Our study demonstrates that that, in our sample, the buyout funds' returns are significantly higher than all four benchmarks. Our finding provides evidence that it is not possible to replicate the returns of these buyout funds with equally risky and timely public market investments.

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Appendix A

Table A.1: Characteristics of the 20 buyout funds in the analysis sample[7]

Fund	Fund Size	Vintage	Fund Currency	Fund NAV (in mil.)
Fund 1	less than 300 mil.	1995	GBP	0.00
Fund 2	300 mil. - 500 mil.	1997	GBP	0.37
Fund 3	1000 mil. - 3000 mil.	1998	EUR	0.00
Fund 4	more than 3000 mil.	2000	EUR	18.57
Fund 5	300 mil. - 500 mil.	1994	GBP	0.00
Fund 6	1000 mil. - 3000 mil.	1997	GBP	0.02
Fund 7	less than 300 mil.	1988	GBP	0.00
Fund 8	1000 mil. - 3000 mil.	1997	USD	6.52
Fund 9	less than 300 mil.	2000	GBP	0.42
Fund 10	1000 mil. - 3000 mil.	1999	EUR	5.81
Fund 11	500 mil. - 1000 mil.	1997	EUR	0.14
Fund 12	more than 3000 mil.	2000	EUR	4.59
Fund 13	less than 300 mil.	1994	GBP	0.42
Fund 14	less than 300 mil.	1996	GBP	0.11
Fund 15	300 mil. - 500 mil.	2000	GBP	0.00
Fund 16	less than 300 mil.	1996	GBP	0.00
Fund 17	less than 300 mil.	1996	GBP	0.00
Fund 18	1000 mil. - 3000 mil.	1999	EUR	1.38
Fund 19	less than 300 mil.	1997	GBP	0.11
Fund 20	500 mil. - 1000 mil.	1995	GBP	0.00

[7] Note that the fund size ranges and the NAVs in the table are expressed in the currency indicated by the Fund Currency column.

Appendix B

Table B.1: Distribution of portfolio company investments by Fund

Fund	Frequency	Percent	Cumulative Frequency	Cumulative Percent
Fund 1	36	7.91	36	7.91
Fund 2	32	7.03	68	14.95
Fund 3	11	2.42	79	17.36
Fund 4	19	4.18	98	21.54
Fund 5	14	3.08	112	24.62
Fund 6	8	1.76	120	26.37
Fund 7	11	2.42	131	28.79
Fund 8	13	2.86	144	31.65
Fund 9	18	3.96	162	35.60
Fund 10	21	4.62	183	40.22
Fund 11	26	5.71	209	45.93
Fund 12	20	4.40	229	50.33
Fund 13	24	5.27	253	55.60
Fund 14	36	7.91	289	63.52
Fund 15	15	3.30	304	66.81
Fund 16	38	8.35	342	75.16
Fund 17	6	1.32	348	76.48
Fund 18	72	15.82	420	92.31
Fund 19	20	4.40	440	96.70
Fund 20	15	3.30	455	100.00

Table B.2: Distribution of portfolio companies by year of investment (59 companies do not have this information available)

Year	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1994	9	2.27	9	2.27
1995	23	5.81	32	8.08
1996	26	6.57	58	14.65
1997	31	7.83	89	22.47
1998	46	11.62	135	34.09
1999	77	19.44	212	53.54
2000	95	23.99	307	77.53
2001	17	4.29	324	81.82
2002	20	5.05	344	86.87
2003	10	2.53	354	89.39
2004	16	4.04	370	93.43
2005	14	3.54	384	96.97
2006	12	3.03	396	100

Table B.3: Distribution of portfolio companies by country

COUNTRY	Frequency	Percent	Cumulative Frequency	Cumulative Percent
Austria	2	0.44	2	0.44
Canada	1	0.22	3	0.66
Denmark	6	1.32	9	1.98
Finland	4	0.88	13	2.86
France	20	4.4	33	7.25
Germany	52	11.43	85	18.68
Greece	1	0.22	86	18.9
Ireland	1	0.22	87	19.12
Israel	6	1.32	93	20.44
Italy	15	3.3	108	23.74
Japan	1	0.22	109	23.96
Luxembourg	1	0.22	110	24.18
Netherlands	7	1.54	117	25.71
Norway	2	0.44	119	26.15
Rep.of Ireland	1	0.22	120	26.37
Romania	1	0.22	121	26.59
Spain	6	1.32	127	27.91
Sweden	17	3.74	144	31.65
Switzerland	4	0.88	148	32.53
UK	271	59.56	419	92.09
USA	25	5.49	444	97.58
Unknown	11	2.42	455	100

Table B.4: Distribution of portfolio companies by sector

Sector	Frequency	Percent	Cumulative Frequency	Cumulative Percent
Finance	15	3.3	15	3.3
Food	9	1.98	24	5.27
Health	66	14.51	90	19.78
High-tech	148	32.53	238	52.31
Industrial	78	17.14	316	69.45
Natural resources	7	1.54	323	70.99
Retail	25	5.49	348	76.48
Services	83	18.24	431	94.73
Transport	11	2.42	442	97.14
Unknown	13	2.86	455	100

Table B.5: Distribution of portfolio companies by currency of investment

CURRENCY	Frequency	Percent	Cumulative Frequency	Cumulative Percent
CHF	1	0.22	1	0.22
EUR	208	45.71	209	45.93
GBP	223	49.01	432	94.95
SEK	3	0.66	435	95.6
USD	20	4.4	455	100