

Benchmarking Private Equity Performance

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EVCA Institute – Finance & Administration Course, Nice

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- What are we measuring and why is it so difficult?
- What/how do we benchmark?
- What are the actual results for the industry?

- Increased transparency of the asset class for fund raising, fund reporting, asset allocation and fund due diligence, as well as individual transactions
- Less disclosure around individual fund returns, and impact of FOIA
- Confusion: What is the return being reported? How was it derived? How can you put it in context?
- Valuation guidelines (www.privateequityvaluation.com) being adopted and endorsed internationally, including ILPA

Part 1

What are we measuring and why is it so complicated?

Is a return of 200% good enough?

- A return of 200%?
 - 200% total return: having invested €1m, we get €2m back
 - 200% percentage change: we get €3m back (let's assume this)
- Over what time period?
 - Over two years -- great at 73% per year ($1.73^2=3$)
 - Over ten? --- hmmm!! At 11.6% per year ($1.116^{10}=3$)
- Is it return on the investments the fund made or is it the return to the investors in the fund?
- Is it the return of a single fund or the return of a portfolio of funds?
- IRR Since Inception / Investment Horizon IRR / Time-Weighted IRR / Realised Multiple / Unrealised Multiple?

Why an IRR? Why the difference with most stock indices?

- You can't just look at the value at two points in time, i.e. today and some point in the past, with no transactions or cashflows in between – it would assume that you buy and hold
- You don't invest the money all at once, and you also take money out over a period of time
- With investments either in private equity or any investment manager, if you have cashflows in and out of an investment, simple percentage change/total return calculations can no longer be done to get the true Return On Investment
- So we turn to IRR*, a form of ROI that takes the time value of money into account as it accounts for the timing of the transactions in the investment

* AIMR, GIPS, standard practice

Part 2

What/how do we benchmark?

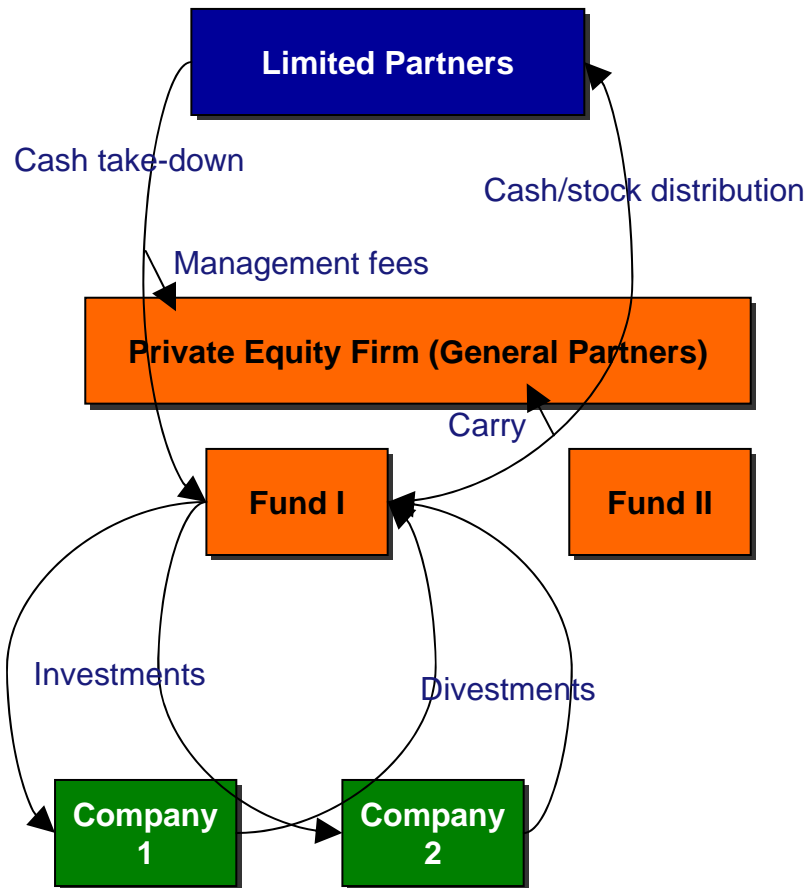
- Return is mathematical algorithm – it is an absolute measure
- Performance is a relative measure – can only be determined by comparing return to something else – for example past returns, benchmarks, etc.
- So you need a benchmark

- Investor has choice of 2 investments. Other things being equal, with no additional information, optimal allocation for naive manager is 50-50
- So any decision you make different than this should be better performance – so benchmark is performance of 50-50 allocation. You are benchmarking the decision of the allocation
- That's why public indices is used so often in stock market benchmarks – it's the naive manager decision
- Any investment decision you make different than allocation to, say, S&P500 should be better if you are worth the fees you are being paid

- Several decisions to benchmark for the LP investor
 - The allocation to private equity
 - The allocation between private equity sub asset classes
 - The timing decision of when to invest
 - The performance of your portfolio
 - The decision of one manager over the other
 - (The portfolio company investment decision of the fund)

- Several decisions to benchmark for the GP investor
 - The timing decision of when to raise a fund
 - The performance of your funds
 - The portfolio company investment decision of the fund

- Cumulative IRR
- Cumulative Realisation Multiples
- Time Weighted Return
- Investment Horizon Return
- Public Market Comparables – Index method

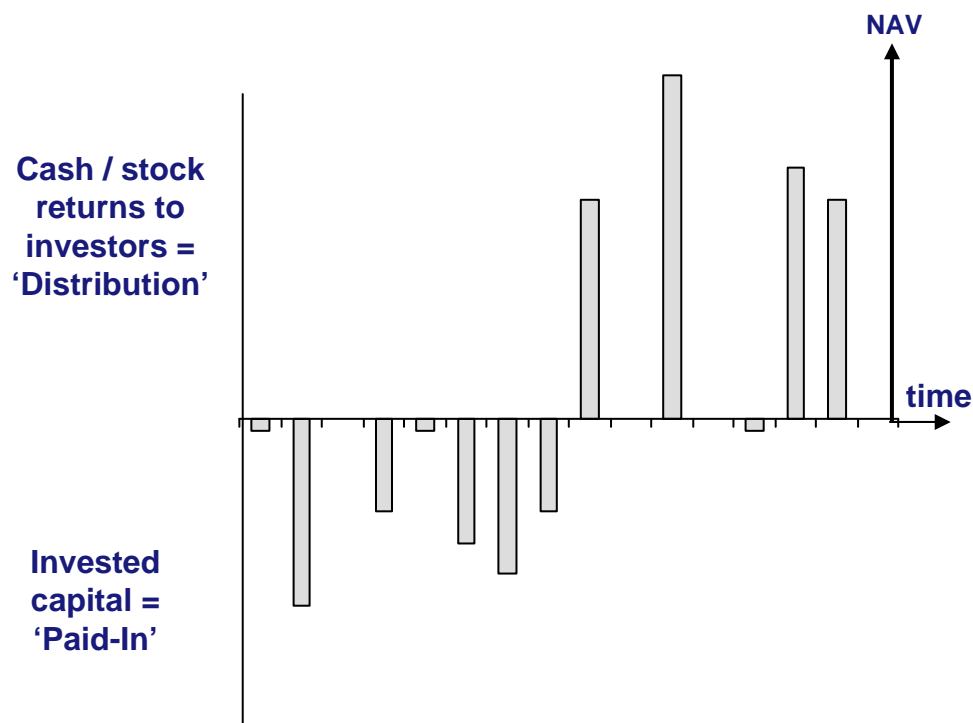


- **Takedown:** actual money paid into partnerships, a.k.a. capital calls, paid in capital
- **Distributions:** cash or stock returned to LP investors
- **NAV** (net asset value*), a.k.a. residual value: ending value of the fund for the period being measured – net of carry
- **Vintage Year:** year fund had first cash flow
- **Pooled Return:** portfolio return by pooling cashflows of several funds

* as calculated and reported by the GPs

IRRs in decreasing order





- Principal metric is IRR since inception calculated net to limited partner. Beginning point is fixed, endpoint is variable
- The IRR is calculated as an annualised effective compounded rate of return using daily cash flows and annual/quarterly valuations. The IRR is the return (discount rate) that will equalise the present value of all invested capital with the present value of all returns, or where the net present value of all cash flows (positive and negative) is zero:

$$0 = \sum_{i=0}^n CF_i (1 + r)^{-i}$$

where CF_i is the cash flow for period i (negative for takedowns, positive for distributions)

- The IRR of an active fund is therefore dependent on the fund valuation

Typical Fund Cashflow - Simple Example of IRR Calculation

THE RAW DATA

Year	Takedowns	Distributions	NAV
1992	(5,201.8)		5,201.8
1993	(12,749.5)		17,300.2
1994	(15,299.4)		32,246.0
1995	(5,099.8)	7,988.0	49,128.1
1996	(5,099.8)		73,777.1
1997	(7,649.7)	30,770.5	66,416.4
1998		16,740.9	38,853.7
1999		11,484.7	25,046.8

THE CALCULATION IN MS EXCEL

	Column A
Row 1	(5,201.8)
Row 2	(12,749.5)
Row 3	(15,299.4)
Row 4	52,016.3

$$\text{IRR}_{1995} = \text{irr}(A1:A4, 0) = 28.9\%$$

THE FORMULA

$$-5.201.8 + \frac{-12,749.5}{1 + \text{IRR}_{1995}} + \frac{-15,299.4}{(1 + \text{IRR}_{1995})^2} + \frac{-5,099.8 + 7,988.0 + 49,128.1}{(1 + \text{IRR}_{1995})^3} = 0$$

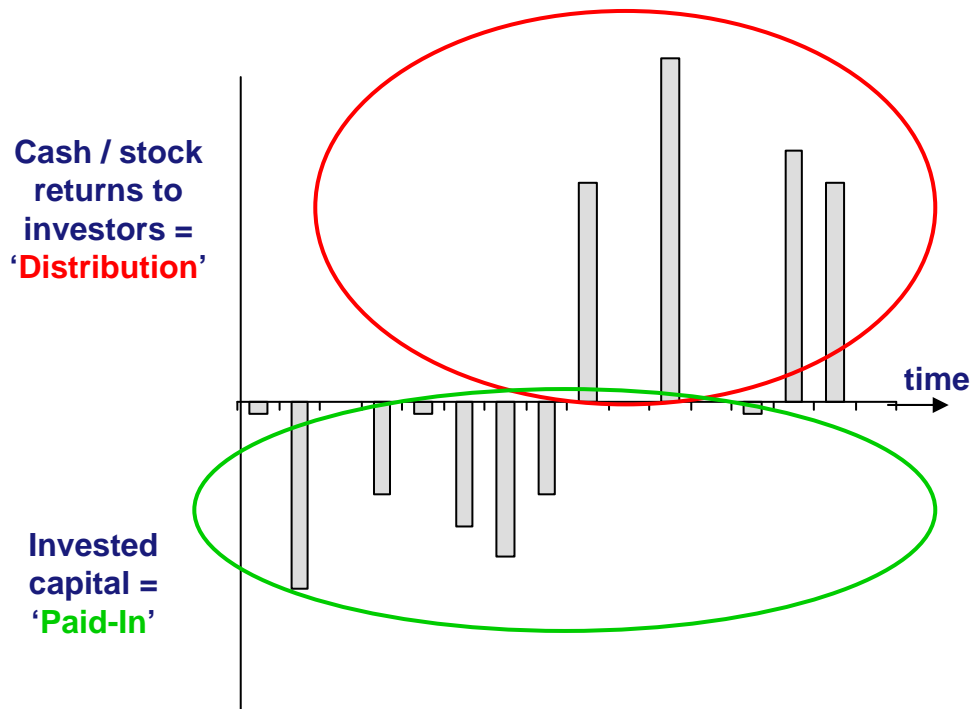
Note: in this example, we are calculating an IRR based on a net cash flow for the year rather than daily or monthly cash flows, which is a very simplistic approach and used only for illustration purposes

Cashflows for Cumulative Returns

	CF series to 1993	CF 1994	CF 1995	CF 1996	CF 1997	CF 1998	CF 1999
1992	(5,201.8)	(5,201.8)	(5,201.8)	(5,201.8)	(5,201.8)	(5,201.8)	(5,201.8)
1993	4,550.7	(12,749.5)	(12,749.5)	(12,749.5)	(12,749.5)	(12,749.5)	(12,749.5)
1994		16,946.6	(15,299.4)	(15,299.4)	(15,299.4)	(15,299.4)	(15,299.4)
1995			52,016.3	2,888.2	2,888.2	2,888.2	2,888.2
1996				68,677.3	(5,099.8)	(5,099.8)	(5,099.8)
1997					89,537.2	23,120.8	23,120.8
1998						55,594.6	16,740.9
1999							36,531.5
IRR	-12.5%	-4.4%	28.9%	32.5%	29.4%	20.7%	17.9%

17,300.2
-12,749.5

Series of actual annual cash flows with NAV added as a positive cash flow in last year



- $DPI = \text{Distributions} / \text{Paid-In Ratio}$, a.k.a. realised multiple
- $RVPI = \text{Residual Value} / \text{Paid-In Ratio}$, a.k.a. unrealised multiple
- $TVPI = \text{Total Value} / \text{Paid-In Ratio} = DPI + RVPI$

Realisation Multiples

Year	Takedowns	Distributions	NAV	Cumulative IRR	DPI	RVPI	TVPI
1992	(5,201.8)		5,201.8	0			
1993	(12,749.5)		17,300.2	-12.5%			
1994	(15,299.4)		32,246.0	-4.4%			
1995	(5,099.8)	7,988.0	49,128.1	28.9%			
1996	(5,099.8)		73,777.1	32.5%			
1997	(7,649.7)	30,770.5	66,416.4	29.4%			
1998		16,740.9	38,853.7	20.7%			
1999		11,484.7	25,046.8	17.9%			

DPI = Distributions / Paid In Ratio, a.k.a. realised multiple
 RVPI = Residual Value / Paid In Ratio, a.k.a. unrealised multiple
 TVPI = DPI + RVPI

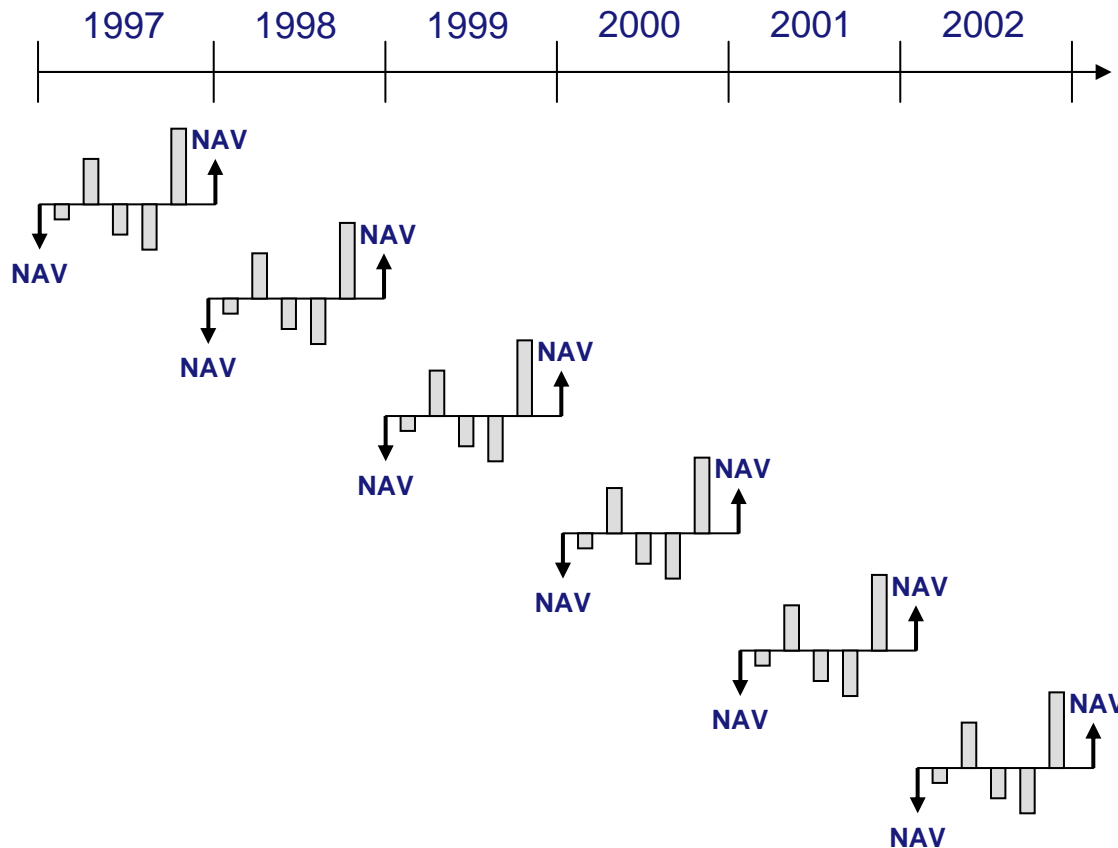
- 1) What is the DPI as of 31/12/1995?
- 2) What is the RVPI as of 31/12/1996?

Realisation Multiples

Year	Takedowns	Distributions	NAV	Cumulative IRR	DPI	RVPI	TVPI
1992	(5,201.8)		5,201.8	0	0.00	1.00	1.00
1993	(12,749.5)		17,300.2	-12.5%	0.00	0.96	0.96
1994	(15,299.4)		32,246.0	-4.4%	0.00	0.97	0.97
1995	(5,099.8)	7,988.0	49,128.1	28.9%	0.21	1.28	1.49
1996	(5,099.8)		73,777.1	32.5%	0.18	1.70	1.88
1997	(7,649.7)	30,770.5	66,416.4	29.4%	0.76	1.30	2.06
1998		16,740.9	38,853.7	20.7%	1.09	0.76	1.85
1999		11,484.7	25,046.8	17.9%	1.31	0.49	1.80

$$\frac{7,988.0}{5,201.8 + 12,749.5 + 15,299.4 + 5,099.8} = 0.21$$

$$\frac{73,777.1}{5,201.8 + 12,749.5 + 15,299.4 + 5,099.8 + 5,099.8} = 1.70$$

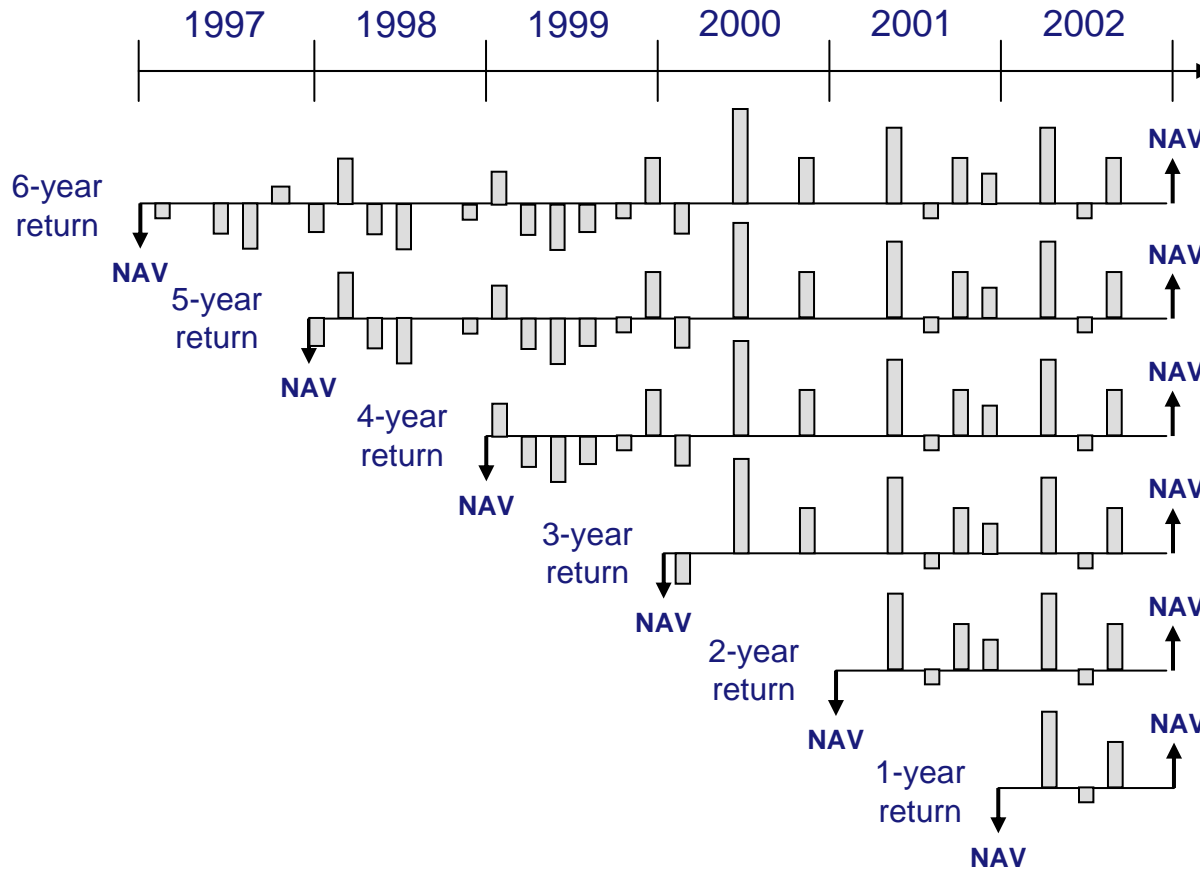


- Time weighted return calculates a return for each period – quarterly, annually
- Beginning point is variable, endpoint is variable
- Calculate using net asset value at beginning and end of period and cashflows between periods
- Calculate IRR for each period and then compound together
- Shortfalls
 - Creates aberrations:
 - $100 + 20\% = 120$
 - $120 - 20\% = 96$
 - Returns heavily dependent on valuations. Wrong valuations affect future returns
 - Assumes money can come and go freely at the beginning and end of each period

Cashflows for Time Weighted Returns

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7
1992	(5,201.8)						
1993	4,550.7	(17,300.2)					
1994		16,946.6	(32,246.0)				
1995			52,016.3	(49,128.1)			
1996				68,677.3	(73,777.1)		
1997					89,537.2	(66,416.4)	
1998						55,594.6	(38,853.7)
1999							36,531.5
TWR	-12.5%	-2.0%	61.3%	39.8%	21.4%	-16.3%	-6.0%

32,246.0
-15,299.4



- Calculates backwards – what is the return over the last year, 3 years, etc.
- Came about because some funds are quick out of the gate but LPs want to know – what have they done for me lately
- Indicates what impact overall market is having most recently
- Beginning point is variable and endpoint is fixed
- IRR is calculated for each “investment horizon”
- IRR is calculated net to limited partner
- Composites are calculated on a “pooled” basis as if from one investment

Cashflows for Horizon Returns

	1-year	2-year	3-year	4-year	5-year	6-year	7-year
1992							(5,201.8)
1993						(17,300.2)	(12,749.5)
1994					(32,246.0)	(15,299.4)	(15,299.4)
1995				(49,128.1)	2,888.2	2,888.2	2,888.2
1996			(73,777.1)	(5,099.8)	(5,099.8)	(5,099.8)	(5,099.8)
1997		(66,416.4)	23,120.8	23,120.8	23,120.8	23,120.8	23,120.8
1998	(38,853.7)	16,740.9	16,740.9	16,740.9	16,740.9	16,740.9	16,740.9
1999	36,531.5	36,531.5	36,531.5	36,531.5	36,531.5	36,531.5	36,531.5
	-6.0%	-12.2%	1.6%	11.9%	22.5%	19.2%	17.9%

11,484.7
+25,046.8

Series of actual cash flows during the period, with NAV at the end added as a positive cash flow in last year, and NAV at the beginning added as a negative cash flow at beginning

- Maintained by Venture Economics (now Thomson Financial) since 1988, online since 1991
- Available online in VentureXpert and Thomson ONE, where you can define your own performance sample (by country, vintage, size, focus, etc.)
- 1833 US funds formed 1969-2006, in partnership with NVCA
- 1141 European funds formed 1979-2006, in partnership with EVCA
- 170 Canadian funds formed 1981-2006, in partnership with CVCA
- 135 Asia-Pacific funds formed 1980-2006
- 81 funds of funds

Thomson ONE

Profile Lookup

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Ownership

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Profiles

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Tools

Benchmark Summary

*Reports for US primary market are calculated in US dollars. Reports for European Primary market are calculated in Euro's.

Select Report Criteria

Frequency

Quarterly Annually

From Date

31/12 1975

To Date

30/06 2006

Calculation Type

- Cumulative Internal Rate of Return since Inception (IRR)
- Cumulative Internal Rate of Return since Inception (IRR)
- Cumulative Distribution to Paid-in Ratio since Inception (DPI)
- Cumulative Residual Value Paid-in Ratio since Inception (RVPI)
- Cumulative Total Value to Paid-in Ratio since Inception (TVPI)
- Paid-in to Committed Capital (PICC)
- Distributions to Committed Capital (DCC)
- All Calculation Types

Primary Market

Private Equity Type

Firm/Fund Details

Location	First Time Fund?
Fund Size	IRR Range
Investor Type	Liquidated Funds
Investment Focus	Evergreen Funds
Fund Year	Venture Association Memberships
Fundraising Status	Industry Preference
Quartile Position	

Current Search Criteria

Remove Criterion

Open a Saved Search

Start New Search

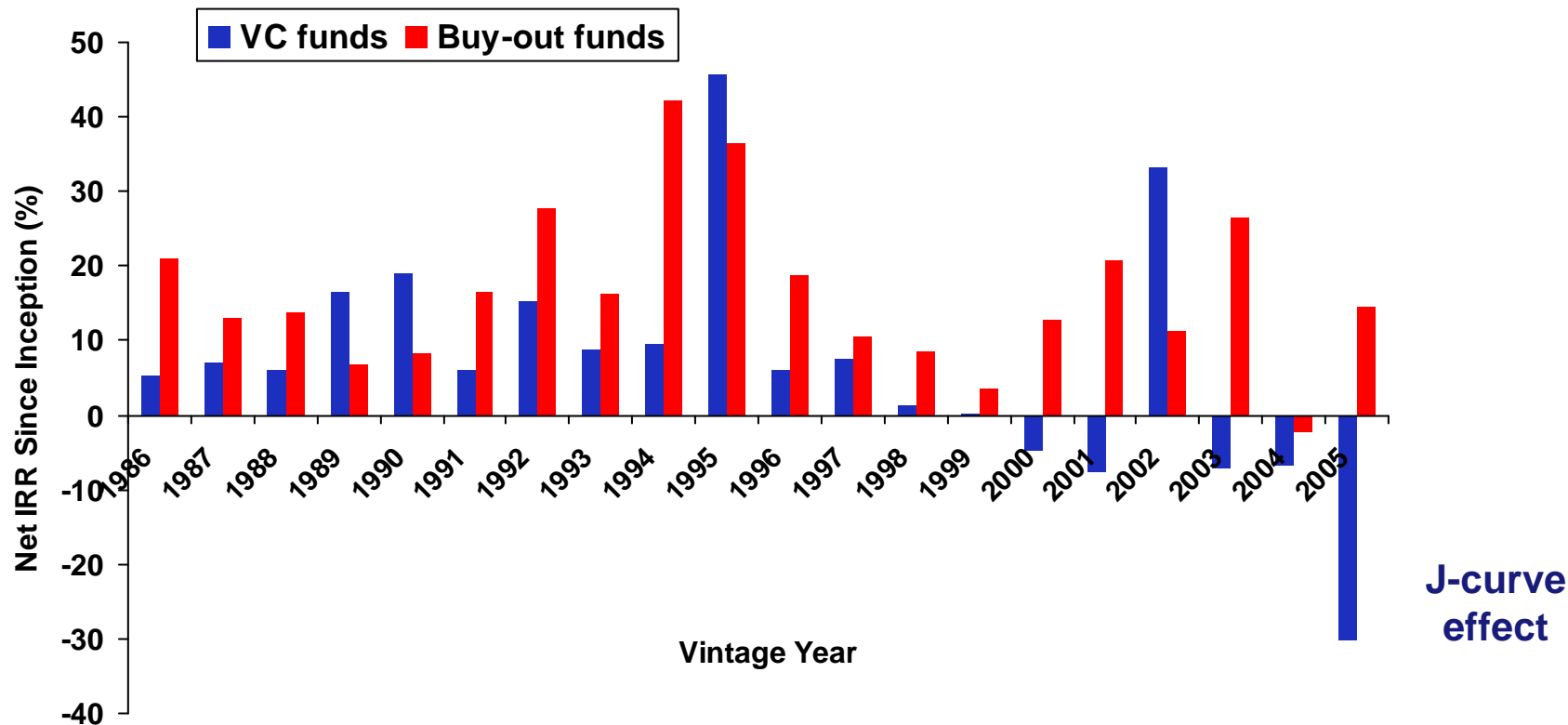
Save Your Search

- ~50% from GPs upon request from LPs who contract our benchmarking services
- ~50% from GPs who need data for their own benchmarking and fund raising needs
- Since we get data from LPs in addition to GPs there is not a consistent or significant self reporting bias
- We calculate IRR ourselves (we do not use self-reported IRRs) based on the underlying cashflows, and we verify against general partner financial reports to LPs
- We treat confidentiality very carefully – all data reported is strictly anonymous

Part 3

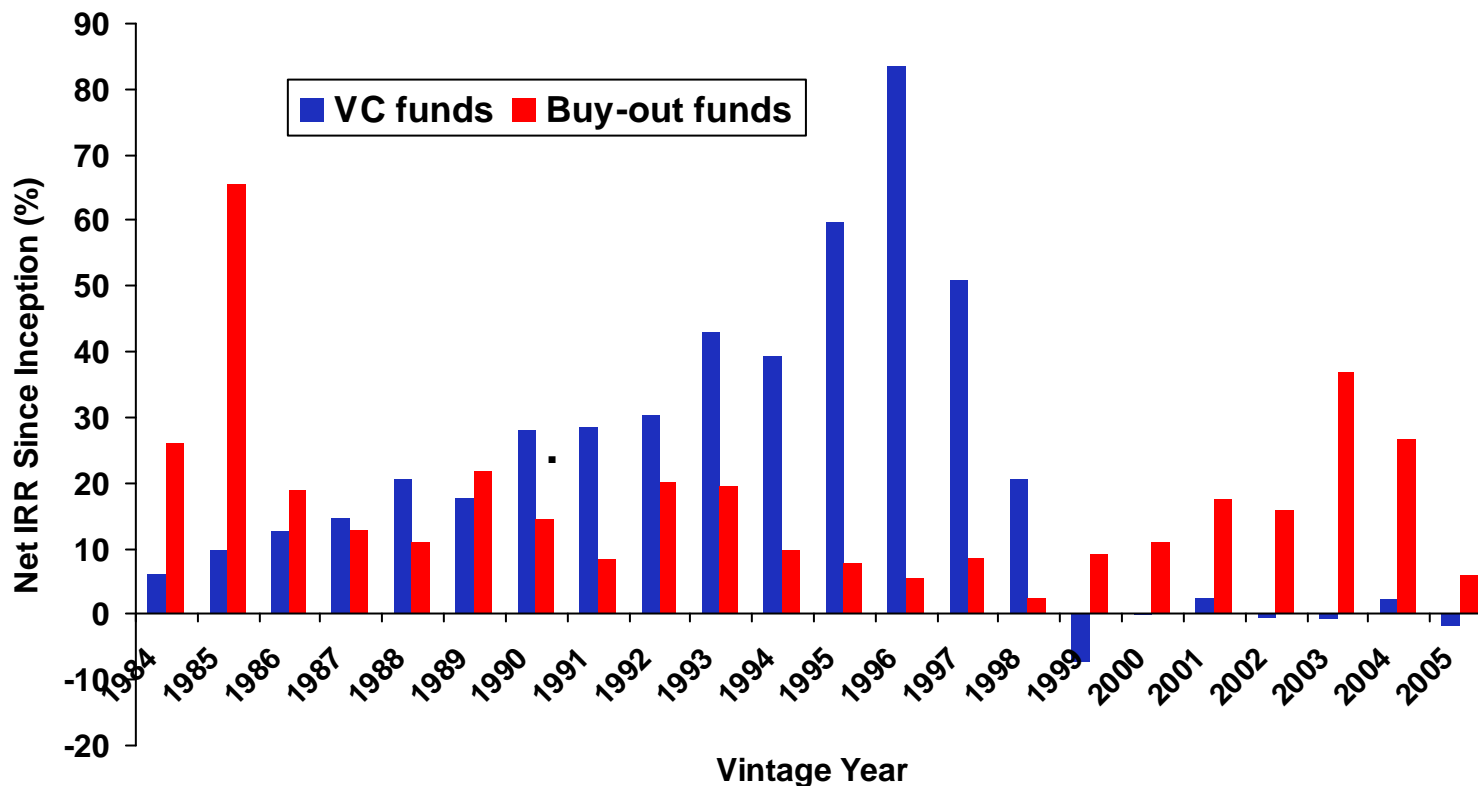
What are the actual results for the industry?

European Private Equity Cumulative IRRs by Vintage Year as of 31-Dec-06



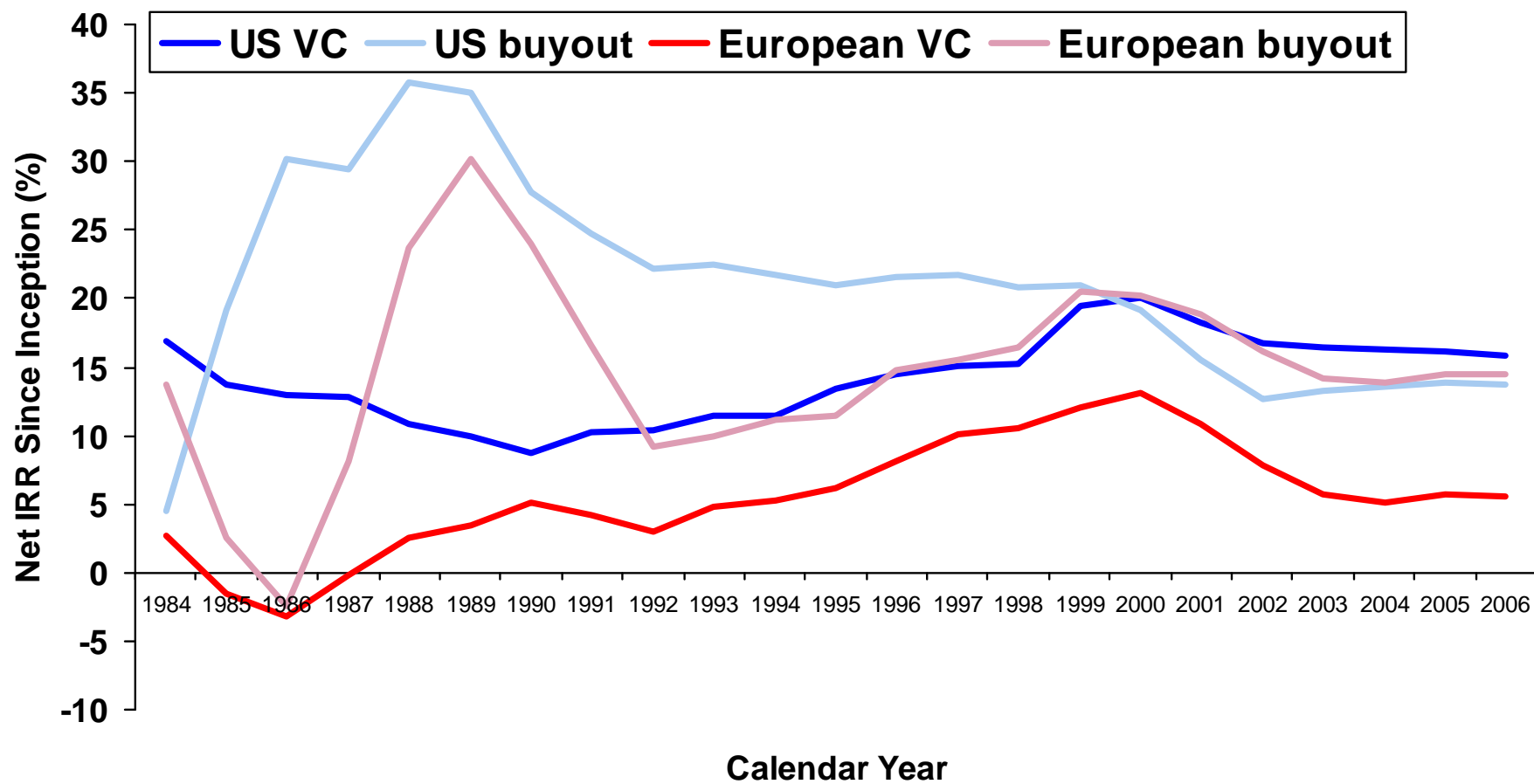
Source: Thomson Financial / EVCA

US Private Equity Cumulative IRRs by Vintage Year as of 31-Dec-06



Source: Thomson Financial / NVCA

European vs. US Private Equity Cumulative IRR Since Inception by Calendar Year



Note: returns calculated with cash flows in US dollars for US funds, and with cash flows in Euros for European funds

Source: Thomson Financial / NVCA / EVCA

European Private Equity Funds Formed 1980-2006

Returns Since Inception Net to Investors as of 31-Dec-2006

Stage	Number	Pooled IRR	Average DPI	Standard Deviation
Early Stage	309	-0.1%	0.40	24.3%
Balanced	175	7.7%	0.78	37.8%
Development	193	8.4%	0.78	30.8%
All Venture Funds	677	5.5%	0.63	30.4%
Buy-outs 0-\$250m*	244	12.0%	1.02	25.4%
Buy-outs \$250m-\$500m	47	17.6%	1.23	26.0%
Buy-outs \$500m-\$1bn	38	20.0%	1.11	31.8%
Buy-outs \$1bn+	39	12.2%	0.70	24.5%
All Buy-Out Funds	368	14.4%	0.87	26.1%
Generalist	96	9.7%	0.99	18.1%
All Private Equity Funds	1141	10.8%	0.84	28.5%

* fund size

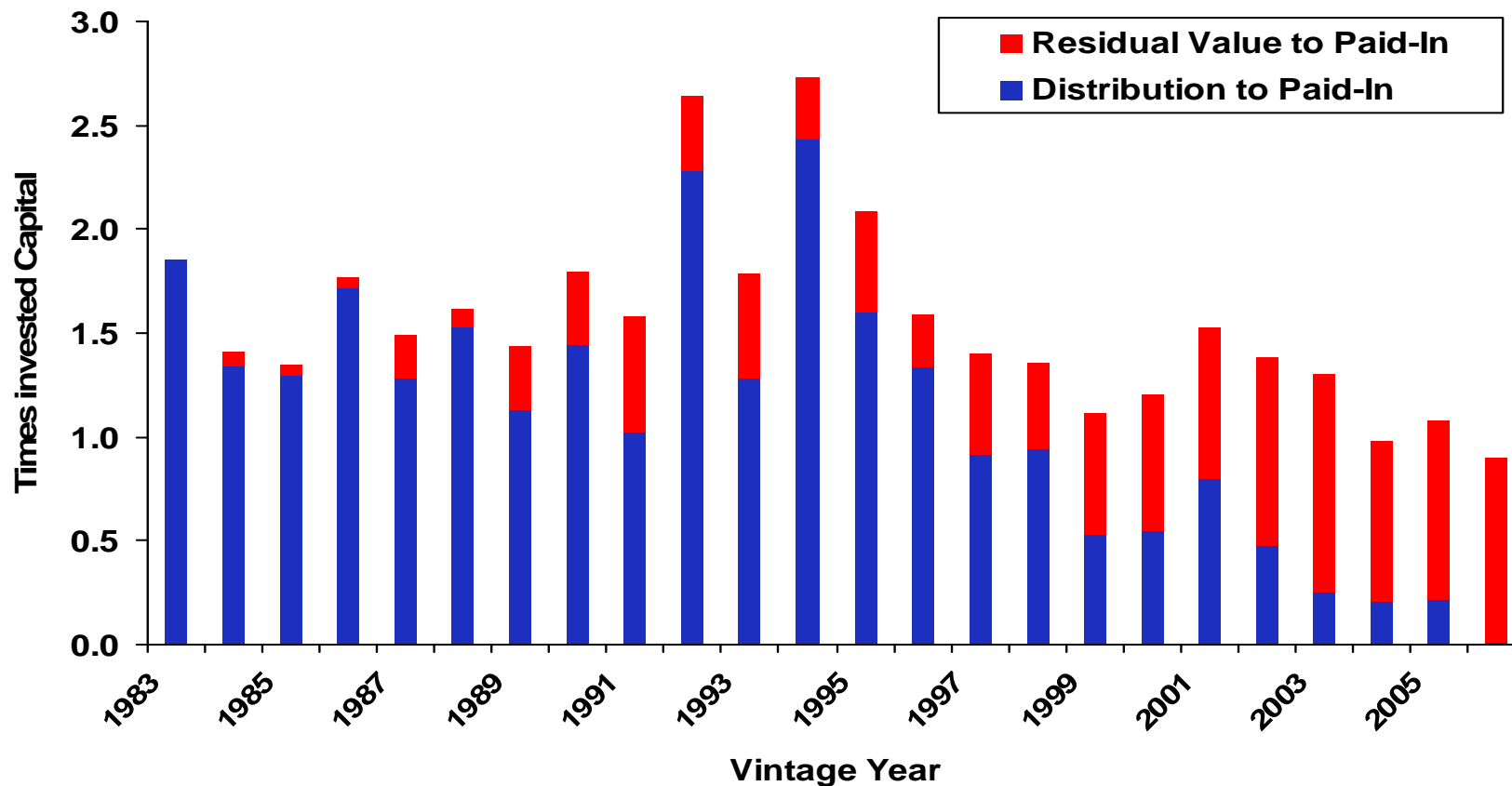
US Private Equity Funds Formed 1969-2006

Returns Since Inception Net to Investors as of 31-Dec-2006

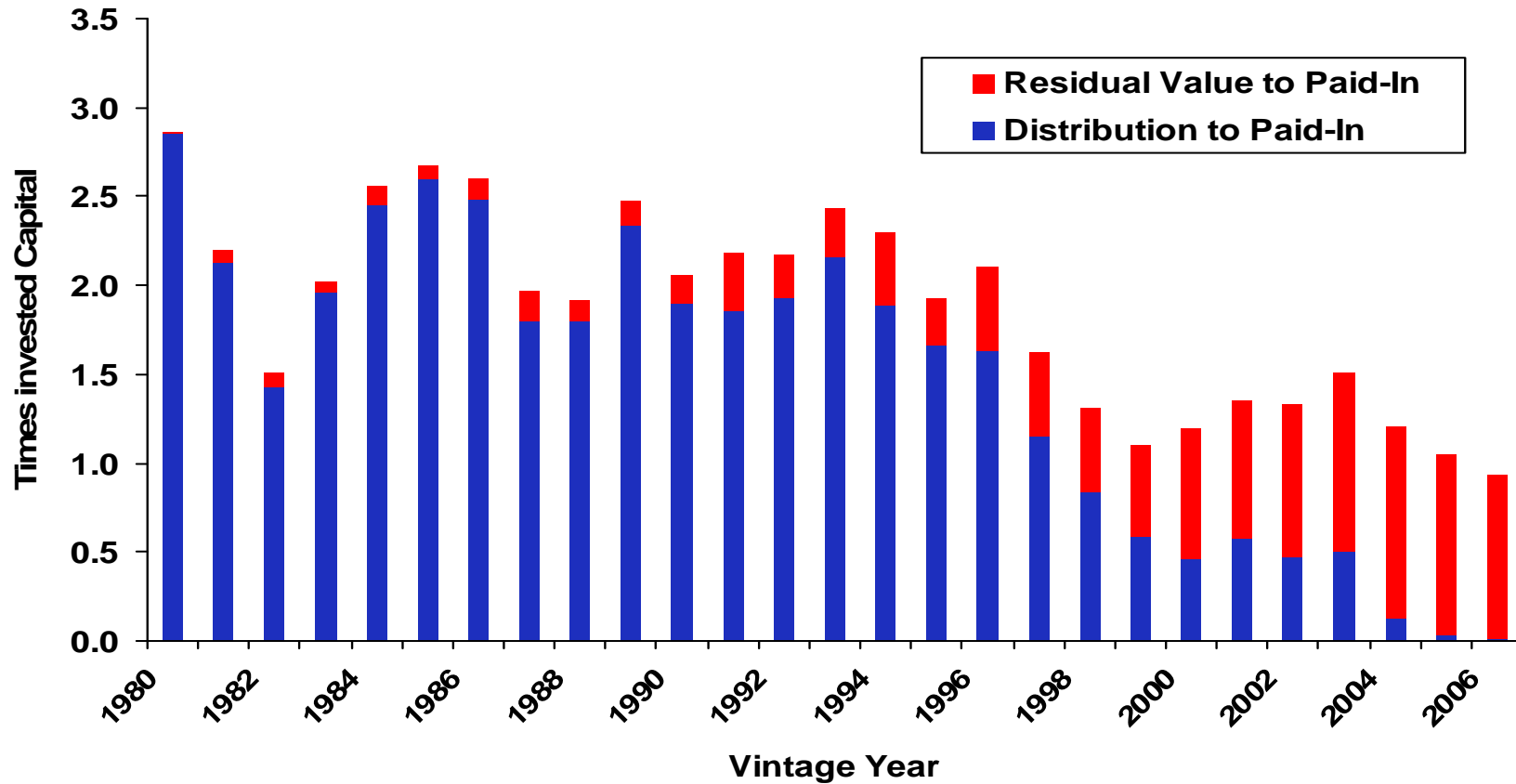
Stage	Number	Pooled IRR	Average DPI	Standard Deviation
Seed Capital	65	9.6%	1.04	34.0%
Early Stage	494	20.3%	1.20	62.7%
Balanced	444	14.3%	1.17	24.8%
Later Stage	188	13.7%	1.12	27.9%
All Venture Funds	1191	15.9%	1.17	38.8%
Buy-outs 0-\$250m*	174	24.4%	1.34	28.8%
Buy-outs \$250m-\$500m	108	17.7%	1.18	23.3%
Buy-outs \$500m-\$1bn	91	12.5%	1.01	21.4%
Buy-outs \$1bn+	109	11.8%	0.82	18.3%
All Buy-Out Funds	482	13.7%	0.92	24.3%
Generalist	35	9.3%	0.43	15.0%
Mezzanine	70	8.9%	0.88	11.9%
All Private Equity Funds	1833	14.2%	0.97	38.8%

* fund size

European Private Equity Realisation Multiples (DPI/RVPI) by Vintage Year as of 31-Dec-2006



Source: Thomson Financial / EVCA



Source: Thomson Financial / NVCA

European Private Equity Funds Formed 1980-2006

Net Investment Horizon Return as of 31-Dec-2006

	1-year	3-year	5-year	10-year	20-year
Early Stage	5.7%	2.3%	-4.7%	-1.1%	0.0%
Balanced	35.3%	6.6%	-1.8%	7.9%	8.1%
Development Stage	2.4%	6.9%	1.2%	7.1%	8.5%
All Venture Funds	17.2%	5.0%	-2.0%	4.1%	5.6%
Buy-outs 0-\$250m*	32.7%	6.8%	3.5%	11.0%	12.2%
Buy-outs \$250m-\$500m	34.6%	16.3%	9.2%	22.1%	17.6%
Buy-outs \$500m-\$1bn	7.3%	0.9%	-2.6%	19.4%	20.0%
Buy-outs \$1bn+	31.4%	21.2%	12.8%	12.2%	12.2%
All Buy-Out Funds	29.6%	15.3%	8.3%	14.3%	14.4%
Generalist	98.6%	15.8%	5.9%	10.0%	9.8%
All Private Equity	36.1%	13.0%	5.4%	11.0%	11.0%

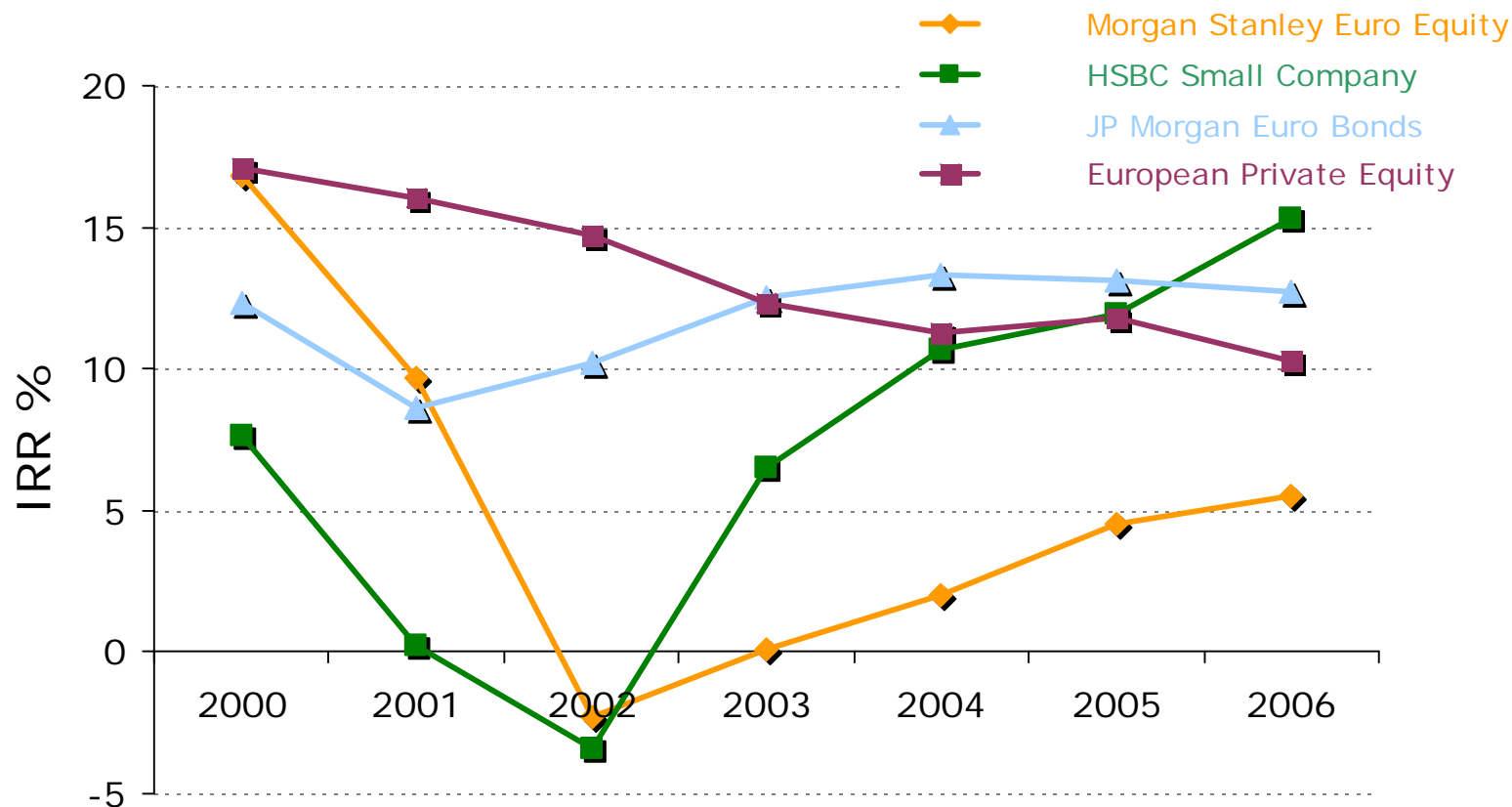
US Private Equity Funds Formed 1969-2006

Net Investment Horizon Return as of 31-Dec-2006

	1-year	3-year	5-year	10-year	20-year
Seed/Early Stage	10.2%	6.6%	-2.9%	36.5%	20.5%
Balanced	24.6%	12.3%	4.4%	17.8%	14.6%
Later Stage	27.8%	9.6%	3.8%	9.1%	14.0%
All Venture Funds	19.0%	9.4%	1.2%	20.4%	16.6%
Buy-outs 0-\$250m*	16.3%	8.6%	5.9%	5.6%	22.4%
Buy-outs \$250m-\$500m	32.4%	13.4%	7.4%	10.6%	13.9%
Buy-outs \$500m-\$1bn	26.8%	14.5%	9.4%	7.3%	12.2%
Buy-outs \$1bn+	23.5%	15.5%	11.6%	8.9%	11.8%
Buy-Out Funds	24.2%	14.8%	10.5%	8.5%	12.9%
Mezzanine	13.0%	5.0%	4.1%	6.2%	8.5%
All Private Equity	22.5%	12.8%	7.6%	11.0%	14.0%

Source: Thomson Financial / NVCA

10-Year Rolling IRR for 2000-2006



*Comparators are Internal Rates of Return (IRR). IRRs for public market indices are calculated by investing the equivalent cash flows that were invested in private equity into the public market index. Then an equivalent IRR is calculated for each index.

Source: Thomson Financial

- VentureXpert, the most complete private equity database globally (www.venturexpert.com)
 - Profiles and directories (LPs, firms & funds, portfolio companies)
 - Analytics (includes investments, divestments, fund raising, fund performance)
 - Also integrated in Thomson ONE
- david.bernard@thomson.com, +44 20 7336 1930
- Data contributions & surveys: rosette.tyers@thomson.com, +44 20 7014 1203
- www.thomsonfinancial.com

Thank you