

# Caveats when Venturing into Private Equity

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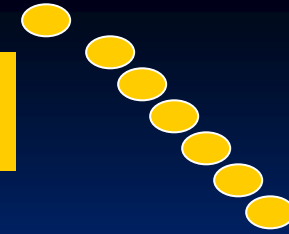


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FACULTEIT DER ECONOMISCHE WETENSCHAPPEN EN ECONOMETRIE



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### How private equity funds have fared to their investors?

- Low average performance (below that of S&P 500) for both Venture Capital Funds and Buyout Funds (= private equity funds)
- Apparently high and non-optimal compensation contracts: High fees on average (about 8% p.a.), large fees perceived even if low performance, huge fees perceived when follow passive strategy
- Use of misleading performance measures: IRR and Multiples [Provides the wrong incentives and inflate true performance]
- Use of “tricks” to inflate performance in fund-raising prospectuses

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# Datasets

- Thomson Venture Economics: Cash Flow to/from investors [2,400 funds, 1980-2003, VC and BO], Investments made by funds [60,000+ investments by 5,000+ funds, 1980-2003]; Venture Capital + Buyout.
- Private Placement Memoranda (*PPM*) from several confidential sources (see Gottschalg, Lopez-de-Silanes and Phalippou, nc wp 2007)
  - Track records (6,500 buyout investments made by 430 funds in 40 countries between 1971 and 2007; An upward bias is expected)
  - 1000 case studies (description previously made investments)
  - 50 detailed contracts
- 2,000 Contracts (VC, BO, FoF) – 700 with GP own investment



## Performance of Private Equity Funds - Literature

- Kaplan and Schoar (JF, 2005; KS): VC outperform and BO underperform [net of fees, overall is slight overperformance]
  - Phalippou and Gottschalg (RFS, 2007 forth.; PG): strong underperformance of VC and BO after some corrections
  - Starting point of PG: Compute performance following KS, *i.e.* using funds in TVE cash-flow dataset, treating final residual values as market values and weighting by capital committed
- ➔ Average profitability index is 1.01 – negligible outperformance of the S&P 500

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# Correction for sample selection bias

Dependent variable	(log) PI
(log) IPO + M&A (%)	0.28 (3.91)
Control variables	yes
N° of obs.	618
R-squared	11%
<b>PVW-average out-sample Difference In-Out (t-stat)</b>	<b>0.78 -0.14 (-3.43)</b>

Funds with performance data have a success ratio of 50%.  
Missing funds have a success ratio of 45%.

Step 1: Relate fraction of successful exit to performance (see above)

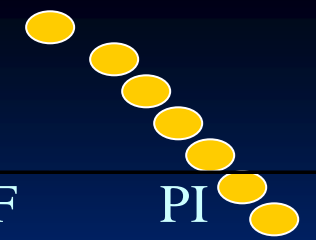
Step 2: For funds with exit information but not performance information – infer performance using the relation in step 1

Overall effect: -0.04 PI, 1% Alpha

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# Residual values: How to treat them?

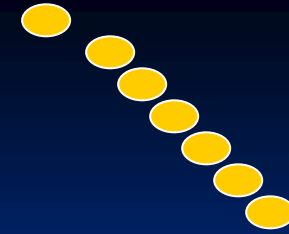


$RV_{00}-RV_{98}$	$RV_{03}-RV_{00}$	$RV_{03}-RV_{98}$ ÷ $RV_{00}-RV_{98}$	% RV	Have CF % RV	PI without RV	PI with RV
= 0	= 0		0.40	0.00	0.58	0.71
< 0	= 0		0.15	0.00	0.69	0.87
> 0	= 0		0.16	0.00	0.70	0.89
< 0	< 0		0.12	0.77	1.19	1.24
> 0	< 0	<0%	0.03	0.08	1.50	1.57
> 0	< 0	50%>.>0%	0.01	0.02	0.88	1.08
> 0	< 0	>50%	0.02	0.32	0.70	0.88
< 0	> 0		0.02	0.76	0.81	1.02
> 0	> 0		0.09	0.08	0.35	0.82
Total			1.00			
PVW-Average					0.83	0.97

Selected funds are supposed to be liquidated, hence their RVs are likely to be worthless. Looking at the funds with non-zero RVs, it is clear that most of the RVs come from most inactive and worst performing funds. For simplicity/transparency, write-off RVs - Overall effect: -0.07 PI, 2% Alpha



## Performance Net-of-fees (conclusion)



- After correcting for sample selection bias, writing-off residual values, and weighting funds by value invested, the average PI goes down to 0.87 ( $=1.01-0.04-0.07-0.02$ ), which is statistically significantly below 1
- A PI of 0.88 means that private equity funds have lost 12% of the value invested in present value terms (= average alpha of -3% p.a.)
- Both venture capital funds and buyout funds underperform significantly the S&P 500



# Performance gross-of-fees

Invest. phase	0%	2% Kcom	2% Kcom	2% Kcom	2.5% Kcom	2.5% Kcom		
Post-Invest. Phase	0%	1 % Kcom	2% NAVs	2% Kcom	2.5% NAVs	2.5% Kcom	<i>Delta</i>	
<b>Alpha</b>								
Carry	Hurdle							
0%	NA	-2.26	1.11	1.33	1.68	2.22	2.64	-2.12
20%	8%	0.14	3.30	3.45	<b>3.80</b>	4.33	4.71	0.00
20%	0%	0.52	3.58	3.82	4.12	4.64	5.04	0.32
	<i>Delta</i>	-3.66	-0.50	-0.35	0.00	0.53	0.91	

+3.8% performance gross of fees (base sample)  
 (+3% after sample bias correction)

→ 6% p.a. of fees



# Fees

- Management fees are charged on capital committed
  - ➔ Management fees on **capital invested** end up being, respectively, 10% in the first year, 5% in the second year, 3.3% in the third year, 2.9% in the fourth year, and 2.5% in the fifth year [for a typical draw down schedule and 2% management fees]. Overall, they are about 4% per year
- Incentive fees are basically/often 20% of returns above 0%
  - ➔ Even with a performance in line with the S&P 500, incentive fees are about  $10\% * 20\% = 2\%$  per year



# Incentive Fees for doing nothing

Consider a closet index fund dressed as a buyout fund

A buyout fund takes private one randomly selected S&P 500 firm every year during its investment period and sells it back to the market 5 years later; using leverage (75% D/A) or not (40% D/A)

Year	IRR TVE bench		IRR - levered		Fees (loss in alpha)			IRR - unlevered	
	Top Q.	Median	Net	Gross	Mngt	Carry	Tot. fees	Net	Gross
1984	30.5	23.9	14.7	20.4	2.4	2.8	5.2	7.6	12.1
...	...	...	...	...	...	...	...	...	...
1995	12.7	6.4	35.4	45.1	2.9	5.2	8.1	9.3	15.0
Mean	21.9	14.2	23.9	30.6	2.5	3.6	6.1	9.3	14.0

Other assumptions:

- Transaction occurs at market price and that the probability of choosing a given firm equals its weight in the S&P 500 index, so that the expected return is the same as investing in an index fund.
- Transaction costs are ignored

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## And there are some extras

- i) Expenses related to the purchase, holding and sale of portfolio investments,
- ii) Expenses related to proposed but unconsummated investments,
- iii) Taxes, expenses of accountants, litigation, counsel, annual meetings,
- iv) Advisory, monitoring and director fees,
- v) Management fee is payable semi-annually in advance
- vi) Expenses incurred in the formation of the fund (legal, travel, accounting, filing, capital-raising and other expenses)
- vii) Proceed received by the fund are transferred to the investors within 3 months
- viii) Withdrawal and transfer fees
- ix) Distribution prior to the termination of the fund may only take the form of cash. Upon termination of the fund, distributions may also include marketable securities

Note:

Part of the advisory, monitoring and transaction fees may be partially refunded

These fees are witnessed mainly in buyout funds (rare for venture capital) and great variation exists across funds

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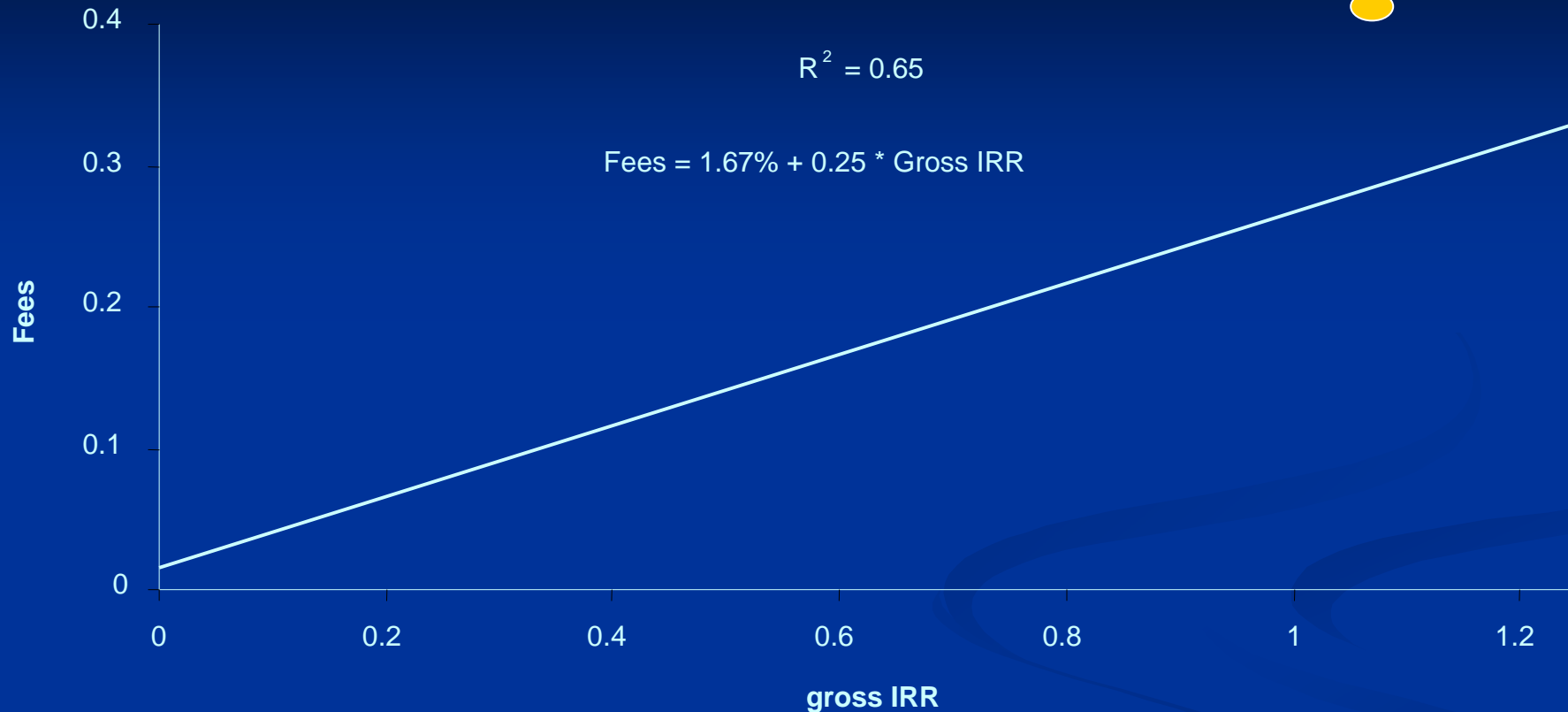
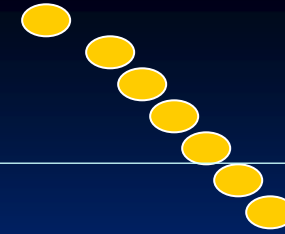
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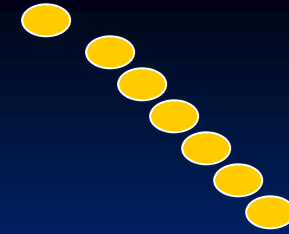
# Annual fees as a fraction of IRR



The relation between the fees and the gross IRR is close to perfectly linear



# Why investors increase their allocation to buyout funds?



- Side benefits

Certain investors might have an objective other from maximizing benefits (advisory work and underwriting services.) Ljungqvist and Richardson recount that the investor who provided them with data invests in private equity funds to establish a commercial relation with fund managers.

- Mislead by industry performance reports (e.g. comparison between IRR and average stock returns is misleading)

- Are they misled by fund raising prospectuses?



# Grouping funds arbitrarily & IRR

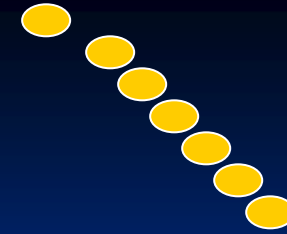
Date	Fund 1	Fund 2	Fund 3	Fund 1&2	Fund 1&2&3
1980	-10			-10	-10
1981	-10			-10	-10
1982	100			100	100
1983	-10	-10		-20	-20
1984	-10	-10		-20	-20
1985	10	10		20	20
1986	10	-10	-10	0	-10
1987	10	-10	-10	0	-10
1988	10	10	-10	20	10
1989	10	10	-10	20	10
1990		10	-10	10	0
1991		10	10	10	20
1992		10	10	10	20
1993			10		10
1994			10		10
1995			10		10
<b>IRR</b>	<b>163%</b>	<b>11%</b>	<b>0%</b>	<b>155%</b>	<b>154%</b>

Grouping funds strategically can bias performance dramatically.

50% of PE firms pool all their deals



# Missing poor performance figures

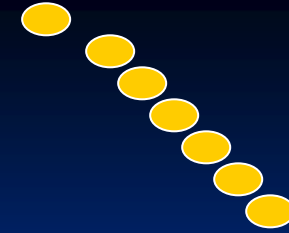


Multiple range	All	All
	% miss.	Nobs
(0.0 – 0.1]	0.81	166
(0.1 – 0.5]	0.76	367
(0.5 – 1.0]	0.60	402
(1.0 – 2.0]	0.21	1458
(2.0 – 5.0]	0.10	1539
(5.0 – ...	0.10	715
All	0.26	4647

Funds tend not to report IRRs when they are negative. A potential explanation is that investors pay mostly attention to IRRs.



## Missing relevant information



- Duration information is rarely provided (month and year of entry and exit) in more than a third of the cases.
- Basically impossible to benchmark performance figures
- There is no standard to determine ‘accounting’ valuations
- Sample bias: Good track records are shown more often, Potentially selected track record (explicit or implicit for new funds)
- IRR misleading with re-investment assumption (top quartile performance is halved when using MIRR instead of IRR; see Gottschalg and Phalippou, HBR, Nov 07)

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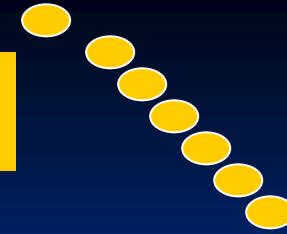
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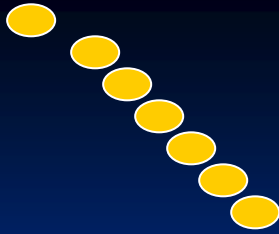




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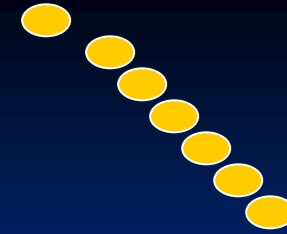




# Extra Slides If Questions



# Measuring performance



**Profitability Index (PI)** is the present value of the cash flow received by investors divided by the present value of the capital paid by investors. Discount rates are the realized S&P 500 rate of return. A PI above 1 thus indicates out-performance.

**Alpha** is defined as a constant that should be added to the realized return of the S&P 500 to obtain an NPV of zero. This assumes a CAPM model for fund returns with a beta of 1. The correspondence between PI and Alpha is close to perfectly linear when alpha is close to 0 ( $PI = 1 + duration * Alpha$ ).

Used in practice: IRR and multiple



# Incentive fees are charged on the profits beyond a 0% return

## . Carried interest:

- 100% goes to the investor until the cumulative distribution equals an IRR of 8% per year, compounded annually on the following sum (i+ii):
  - i. Capital contribution used to acquire all realized investments plus the (proportional) write-downs of unrealized investments
  - ii. All expenses (incl. management fees) allocated to the realized portfolio investments
- (Catch up provision) then, 100% goes to the fund until the fund has received 20% of the difference between total amount distributed and the sum (i+ii)
- Then, 80% of the difference mentioned above goes to investors

. Claw-back: Upon termination, if the final due carried interest is lower than what perceived, the excess amount is returned to investors. In no case the refund can exceed the carried interest net of income taxes

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## Example

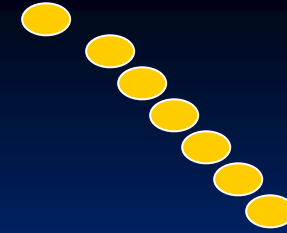
Let us assume that a \$200 buyout fund has made 2 investments of \$100 each and let us assume that it exits the first one at the end of the first year for an amount  $X$ . If  $X$  is less or equal to \$108 (hurdle rate) then all the money goes to the investors and no carry is paid. Investors get an 8% return. If  $X$  is above \$108 – let's say \$150 – then a so-called “catch-up” provision kicks in and the fund managers get 20% of \$50 profit and not of \$42 (the profit above the hurdle rate). This leaves investors with \$140 and the fund gets \$10 of carried interest.

A so-called “claw-back” provision specifies that investors get the incentive fees back. Often, it is done without any interest payment and minus the income taxes fund managers had to pay on the incentive fees they received. This means that the ex-post actual hurdle rate is negative since the fund has earned interests on the \$10 over these 9 years hence *did* receive an incentive fee despite a negative return

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# Buyout fund contracts

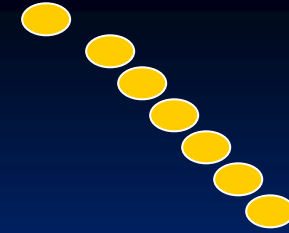


## Other elements of a typical Terms and Condition section

- . The fund can draw down capital until the 6th anniversary of the fund (end of investment period). Main exception: make a follow-on investment in existing portfolio companies with a maximum of 20% of total capital commitments
- . Capital commitments are drawn down with at least a 10 day notice
- . Reinvestment is possible. Main case: During the investment period, for capital realized on investments held for less than 18 months
- . Co-investment opportunities can be offered to some investors



# Optimality of contracts



## Incentives to exit too early

The possibility of re-investment may provide incentive for funds to exit too early

Performance is judged on IRR, which can be inflated by distributing large dividends early

## Other

Fees charged on portfolio companies may create conflict of interests

Fund managers are in control of the portfolio companies but are minority shareholders

