

**Real Estate Investment: A Strategic Approach
Fourth Edition, 2023**

Andrew Baum

Chapter Thirteen
Fund performance measurement and attribution

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How should real estate funds perform?

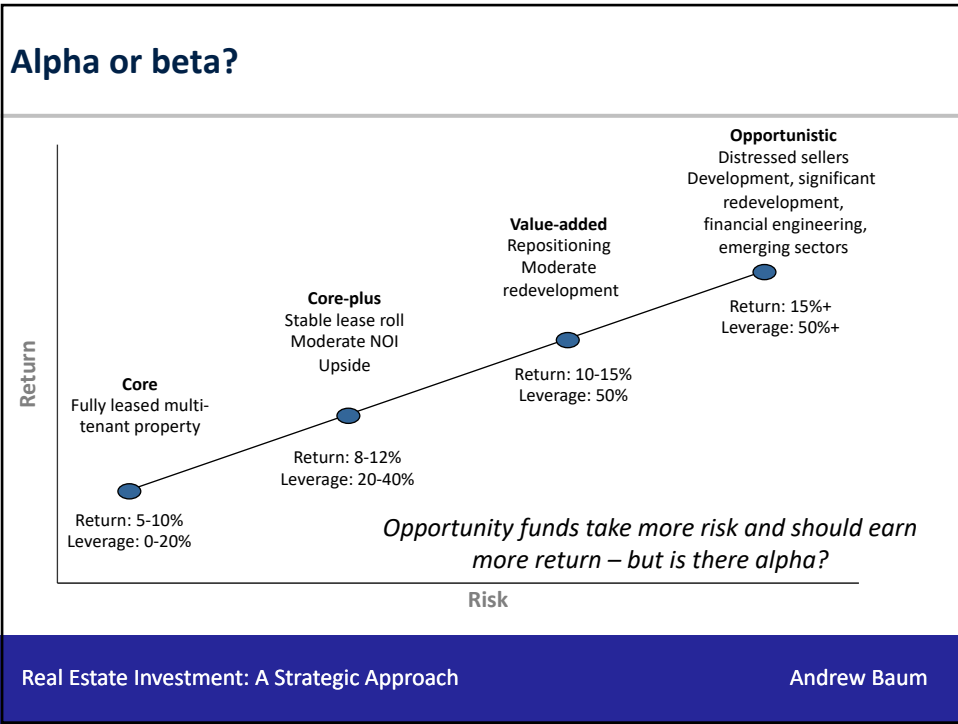
- Driven by manager skill?
 - absolute returns
 - alpha-generating
 - performance fees
 - alignment of interest through carried interest
 - leverage good

- Driven by the market?
 - relative returns
 - beta-generating
 - asset management fees
 - alignment through enterprise value
 - leverage bad

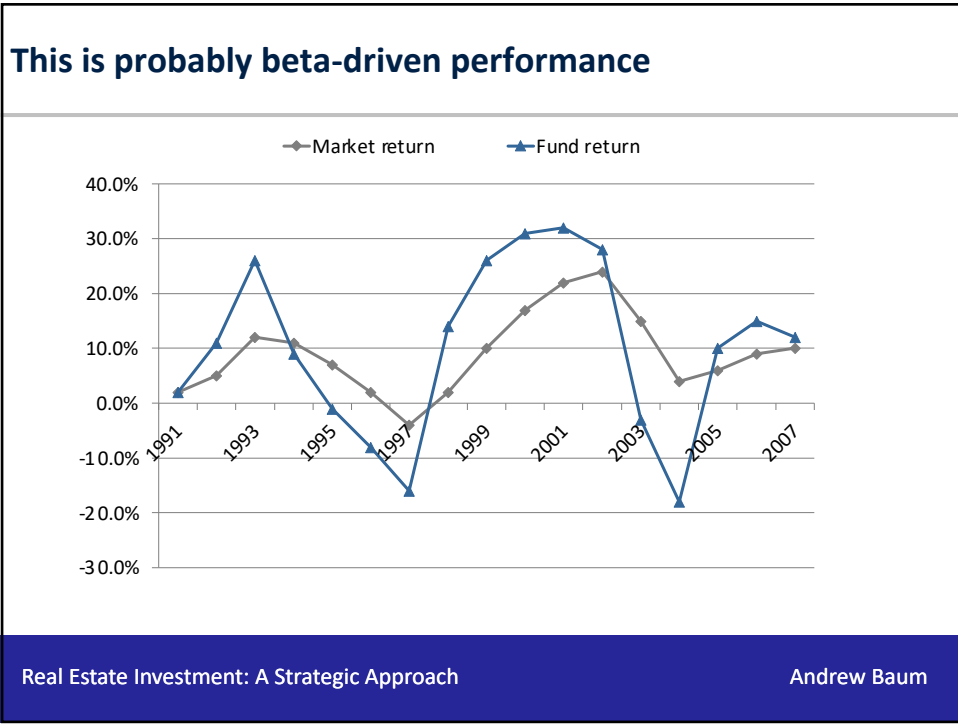
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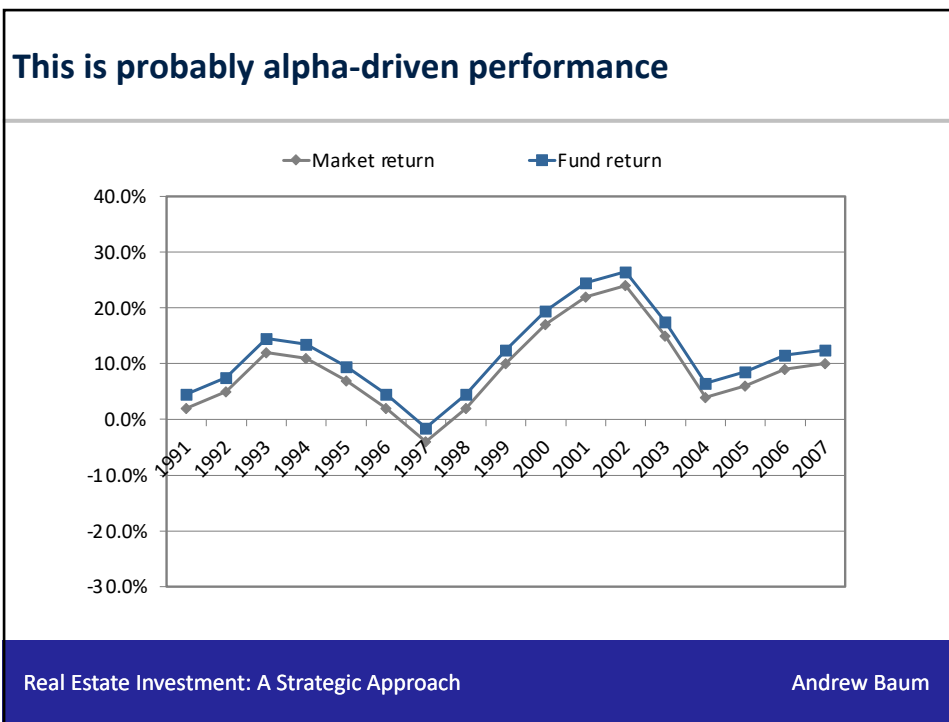
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A single beta model

$$y = a + b_1x_1$$

y = fund total return
a = alpha (level of over/under performance)
b₁ = direct market beta co-efficient (relative risk)
x₁ = total return on the direct market

What return should be expected from a typical fund given the market return?

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A two-beta model

$$y = a + b_1x_1 + b_2x_2$$

y = fund total return
a = alpha (level of over/under performance)
b₁ = direct market beta co-efficient (relative property risk)
x₁ = total return on direct market
b₂ = leverage beta co-efficient (sensitivity to gearing)
x₂ = fund debt as a % of GAV

What return should be expected from a typical fund given its leverage and the market return?

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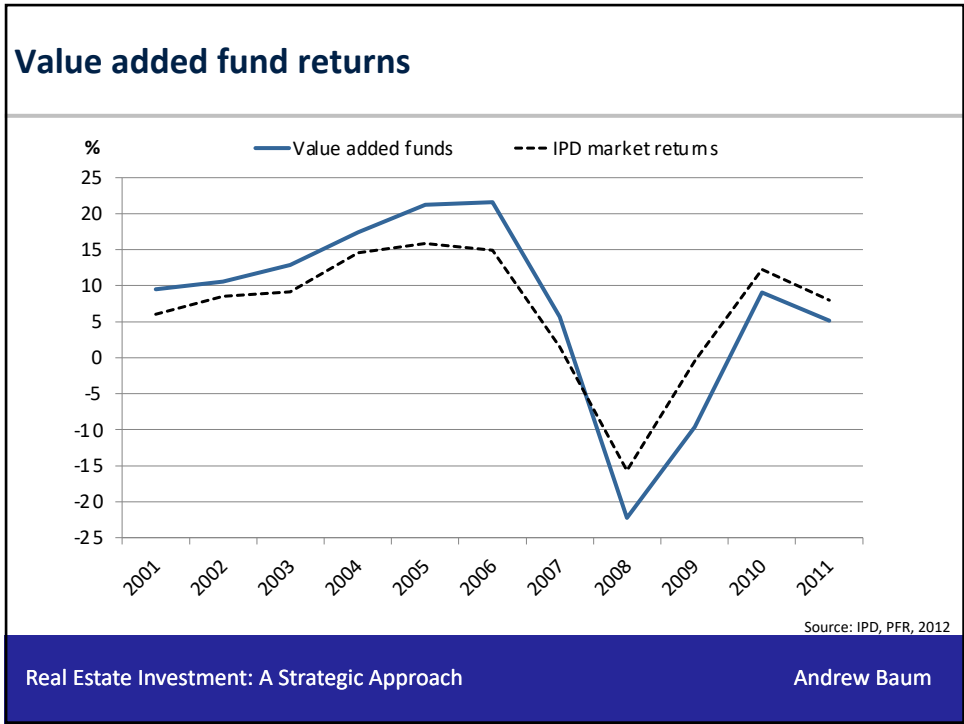
Core fund returns

Year	Core funds (%)	IPD market returns (%)
2001	7	6
2002	9	8
2003	10	10
2004	16	16
2005	16	16
2006	16	16
2007	0	0
2008	-17	-18
2009	-2	2
2010	9	12
2011	6	8

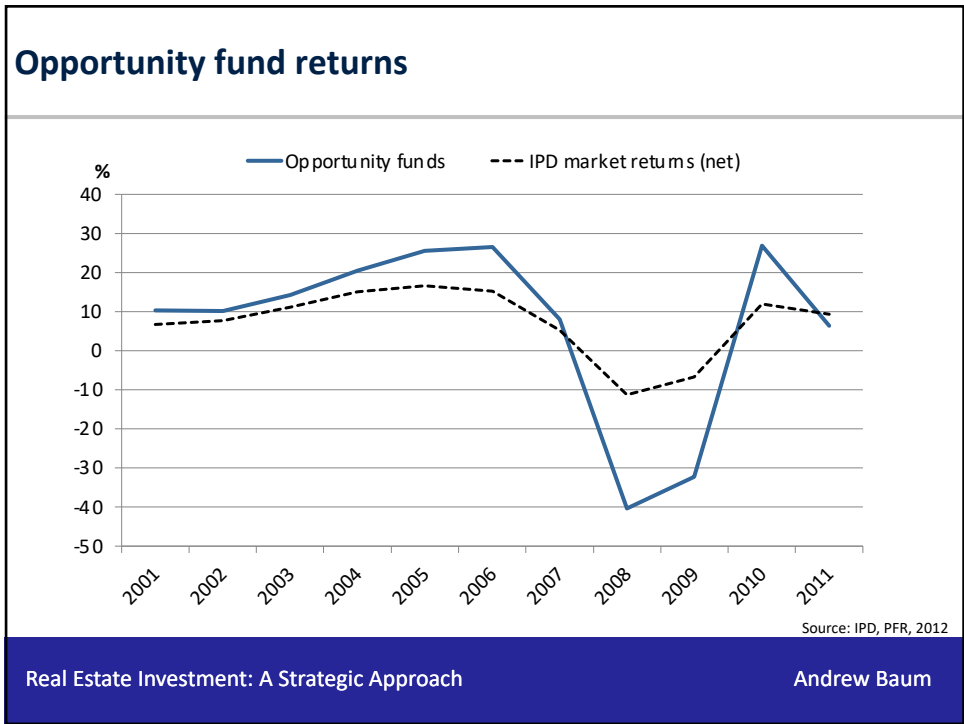
Source: IPD, PFR, 2012

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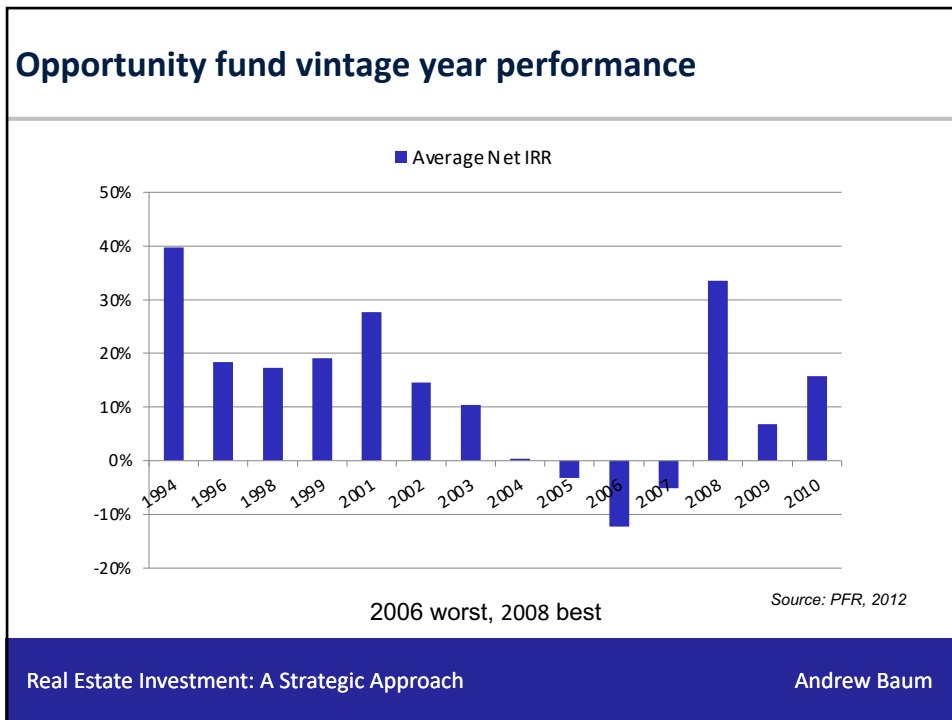
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Single beta ranking

	Alpha	β_1	t-stat (α)	t-stat (β_1)	R ²
Core	-0.72	0.98	-2.02	34.19	72%
Value added	-2.88	1.35	-3.84	21.85	60%
Opportunity	-10.29	2.11	-5.68	14.09	59%

Risk rises as expected but alpha falls

Source: PFR, 2012

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Two beta ranking

	Alpha	β_1	β_2	t-stat (α)	t-stat (β_1)	t-stat (β_2)	R ²
Core	-0.07	0.95	-0.11	-0.15	29.15	-3.66	72%
Value added	4.42	1.30	-0.20	3.13	21.21	-6.12	65%
Opportunity	2.05	2.05	-0.22	0.29	11.27	-2.00	45%

Property risk rises as expected, and leverage damage rises
Evidence of alpha (after leverage) for value-added

Source: PFR, 2012

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Returns (time-weighted)

	2001-2011	2001-2006	2007-2011
Core	5.93	12.49	-1.43
Value-added	6.37	15.53	-3.67
Opportunity	4.14	17.68	-10.06

Core out-performed during the downswing
Opportunity out-performed during the upswing

Value-added out-performed during the full period

Source: PFR, 2012

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How should real estate funds perform?

- Driven by the market, not by managers
- Betas are all significant
- No significant alpha – unless we strip out leverage
 - value added funds show positive and significant alpha after gearing
- The impact of leverage is negative
- Sub-market selection
 - geography: country/region
 - sector
- Transaction and development skills
- Asset management expertise
- Leverage
- Vacant buildings
- Developments

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IRR is easily manipulated

Year	Out	In	Net
0	-250		-250
1		100	100
2		100	100
3		100	100
IRR			9.70%

Year	Out	In	Net
0	0		0
1	-250	100	-150
2		100	100
3		100	100
IRR			21.53%

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Equity multiple and IRR

Year/Cash Flow	1	2	3	4	5	6	7	8	9	10
0	-100000	-100000	-100000	-100000	-100000	-100000	-100000	-100000	-100000	-100000
1	150000	10000	10000	10000	10000	10000	10000	10000	10000	10000
2		150000	10000	10000	10000	10000	10000	10000	10000	10000
3			150000	10000	10000	10000	10000	10000	10000	10000
4				150000	10000	10000	10000	10000	10000	10000
5					150000	10000	10000	10000	10000	10000
6						150000	10000	10000	10000	10000
7							150000	10000	10000	10000
8								150000	10000	10000
10									150000	10000
Hold period	1	2	3	4	5	6	7	8	9	10
IRR	50%	28%	21%	18%	16%	15%	14%	13%	13%	12%
Equity multiple	1.5	1.6	1.7	1.8	1.9	2.0	2.1	2.2	2.3	2.4

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What is alpha?

- Sub-market selection
 - geography: country/region
 - sector
- Transaction and development skills
- Asset management expertise

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What is beta?

- Leverage
- Vacant buildings
- Developments

Alpha and beta in property investment

- Alpha and beta originate from structure and stock selection
- Stock alpha
 - Cost control, leasing, asset enhancement, acquisitions, dispositions
 - Asset management and transaction skills
- Structure alpha
- Higher than benchmark allocations to outperforming markets and sectors
- Risk classes constant
- Stock beta
 - Continuum from ground rents to speculative developments
- Structure beta
 - More volatile sectors, higher risk geographies

Performance attribution for property funds

```

    graph TD
      A["(Excess) IRR"] --> B["Alpha"]
      A --> C["Beta:"]
      B --> D["Structure"]
      B --> E["Stock"]
      B --> F["Timing (IRR - TWRR)"]
      C --> G["Fund structure"]
    
```

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Example: fund cash flows

- Closed-ended fund
- UK wide mandate but segment focus
- (4/12 UK segments, 55% in one)
- £99mn GAV / £26mn equity
- 65-70% LTV
- 22 assets
- £4.5m average lot size
- 2.5 year average hold period
- Transaction skills
- Capital distributed back quickly
- Delivered a 31% net IRR to investors
- But what was behind this?

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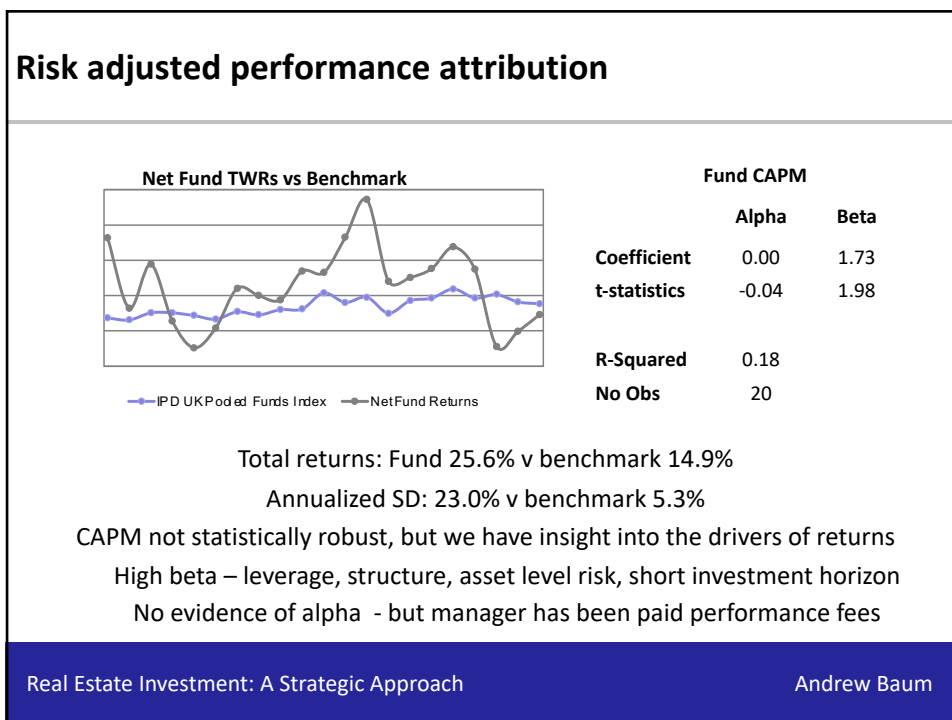
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Case study: attribution

	2002	2003	2004	2005	2006	5 year
Property Level						
Property TWR	12.6%	10.5%	23.7%	25.5%	8.8%	16.0%
Benchmark TWR	9.2%	10.5%	17.4%	19.1%	18.5%	14.9%
Relative	3.1%	0.0%	5.4%	5.4%	-8.2%	1.0%
Structure	-3.3%	-3.7%	-3.2%	0.8%	-0.2%	-1.9%
Selection (2 Comp)	6.1%	3.4%	8.4%	4.7%	-8.0%	2.8%
Selection (3 Comp)	-6.3%	-7.0%	-2.9%	-11.5%	-13.8%	-8.4%
Interaction	12.4%	10.4%	11.3%	16.2%	5.8%	11.2%
Fund Level						
Gross TWR	15.7%	20.1%	73.1%	52.3%	5.1%	31.0%
Net TWR	11.8%	16.7%	57.6%	40.1%	8.7%	25.6%
IM Fee Reduction (%)	25.0%	17.1%	21.1%	23.3%	-70.1%	17.2%
Net Fund Structure	-0.8%	6.2%	34.0%	14.6%	-0.1%	9.7%
Net Fund MWR						29.9%
Timing						4.3%

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