Oil Company Crisis

Balancing Structure, Profitability and Growth

Dr Robert Arnott
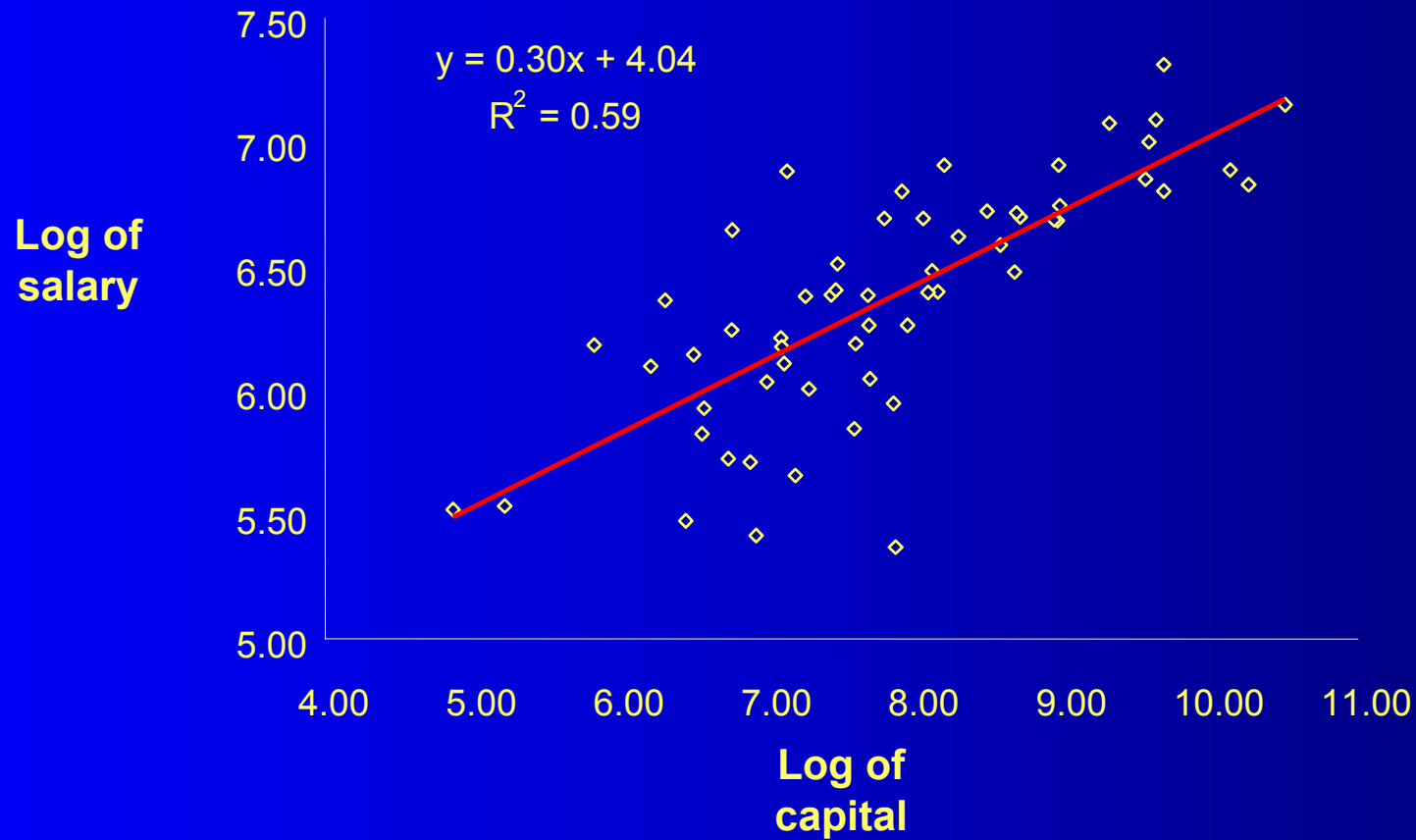
IAEE Conference Prague

7 June 2003

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Why managers want to "grow value"

CEO base salary to capital
(O&G companies, 1996-98)

$y = 0.30x + 4.04$

$R^2 = 0.59$

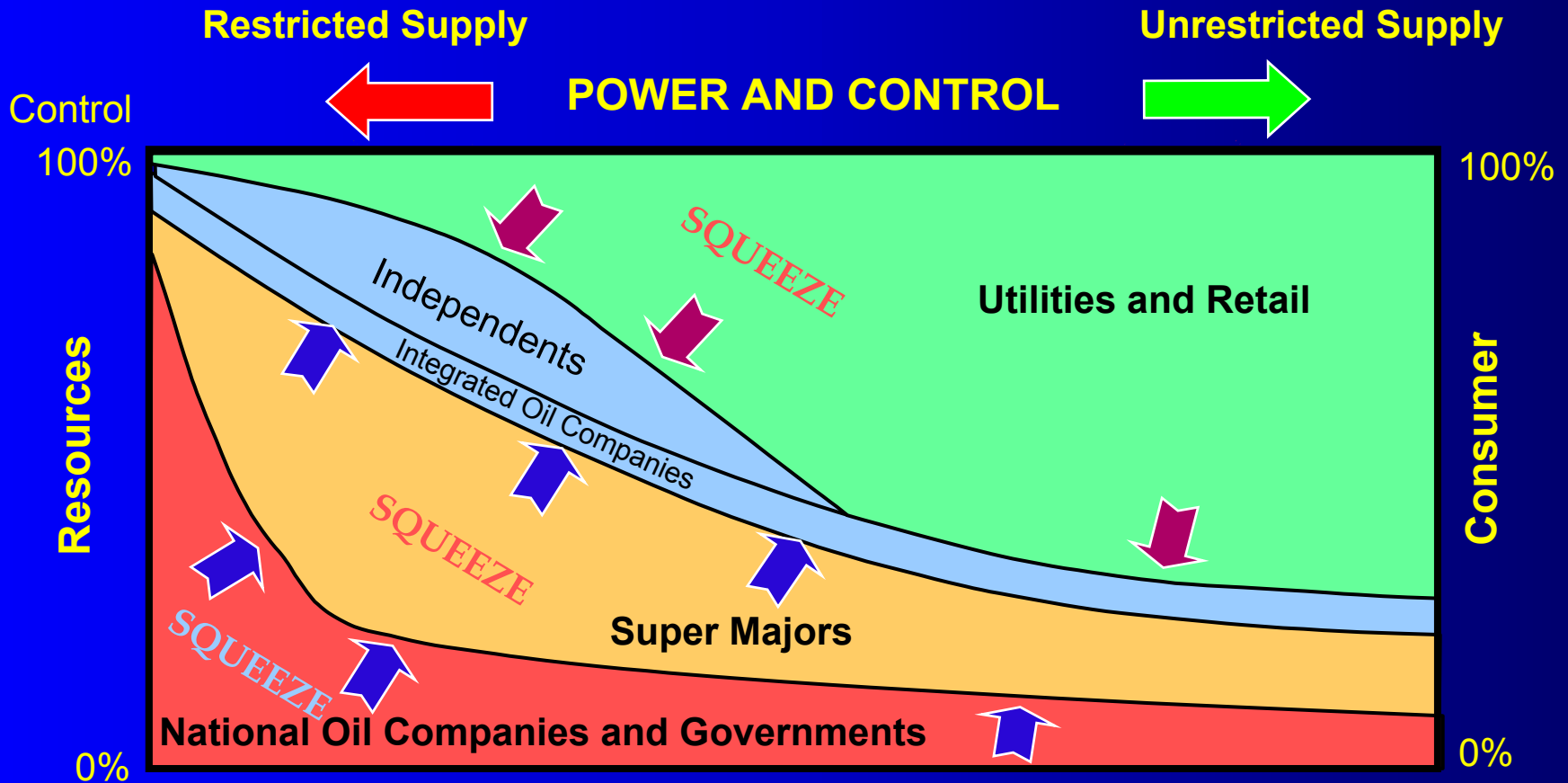Log of salary (y-axis)

Log of capital (x-axis)

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The Challenge

- A decade of earnings growth has been achieved largely through cutting costs

- The mega-mergers of the late 1990s represent the end of this process

- Companies have not delivered growth expectations

- Vertical disintegration is widely proposed

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Changing Market Pressures

Restricted Supply — Unrestricted Supply

POWER AND CONTROL

Control 100% ... 0%

Resources

Consumer

Independents

Integrated Oil Companies

SQUEEZE

Utilities and Retail

SQUEEZE

Super Majors

SQUEEZE

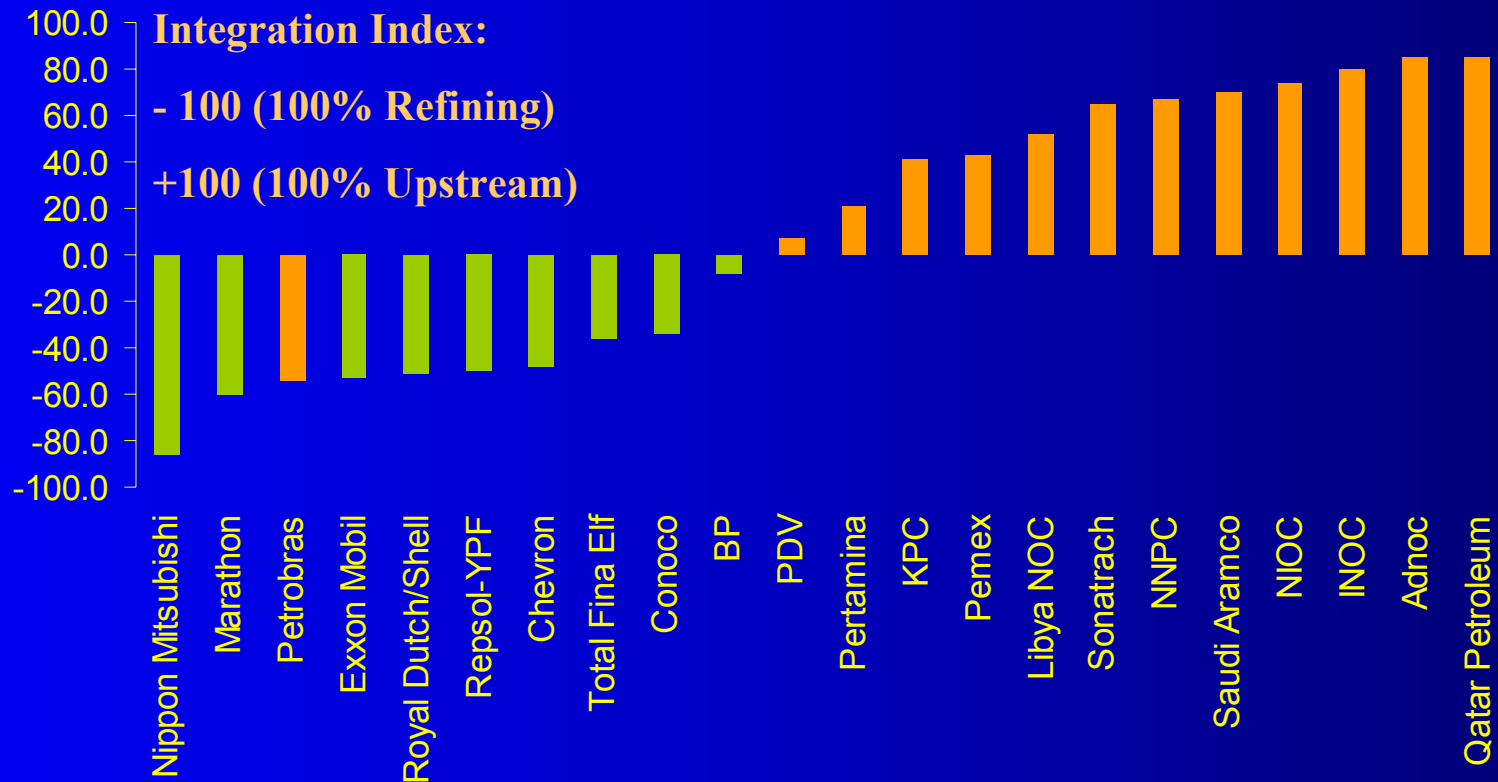National Oil Companies and Governments
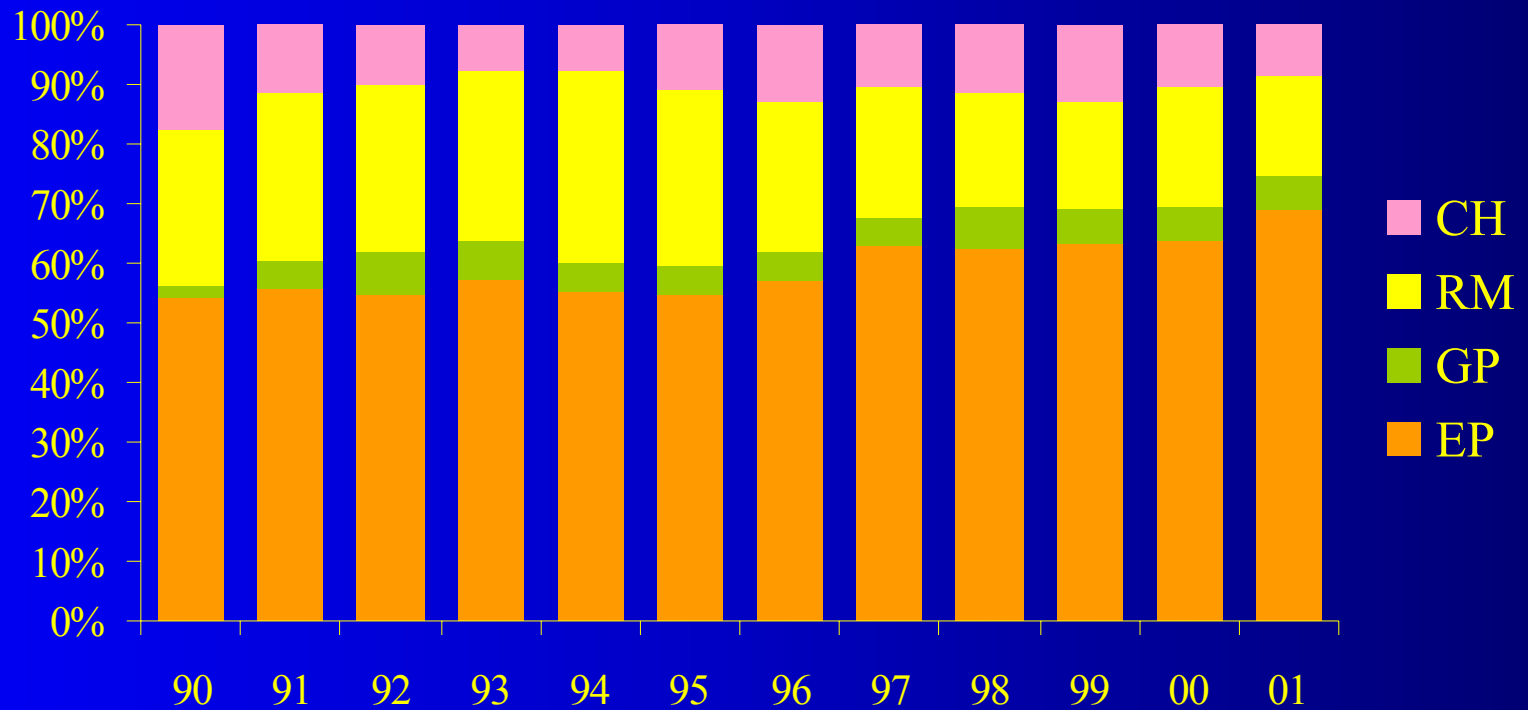
100% ... 0%

Energy Supply Chain

What do we mean by integration?

- **Operational integration**
  - Integrated chain
  - Lower transaction costs
- **Financial integration**
  - Ability to fund projects cheaply
  - Manage cash flows
- **The difference**
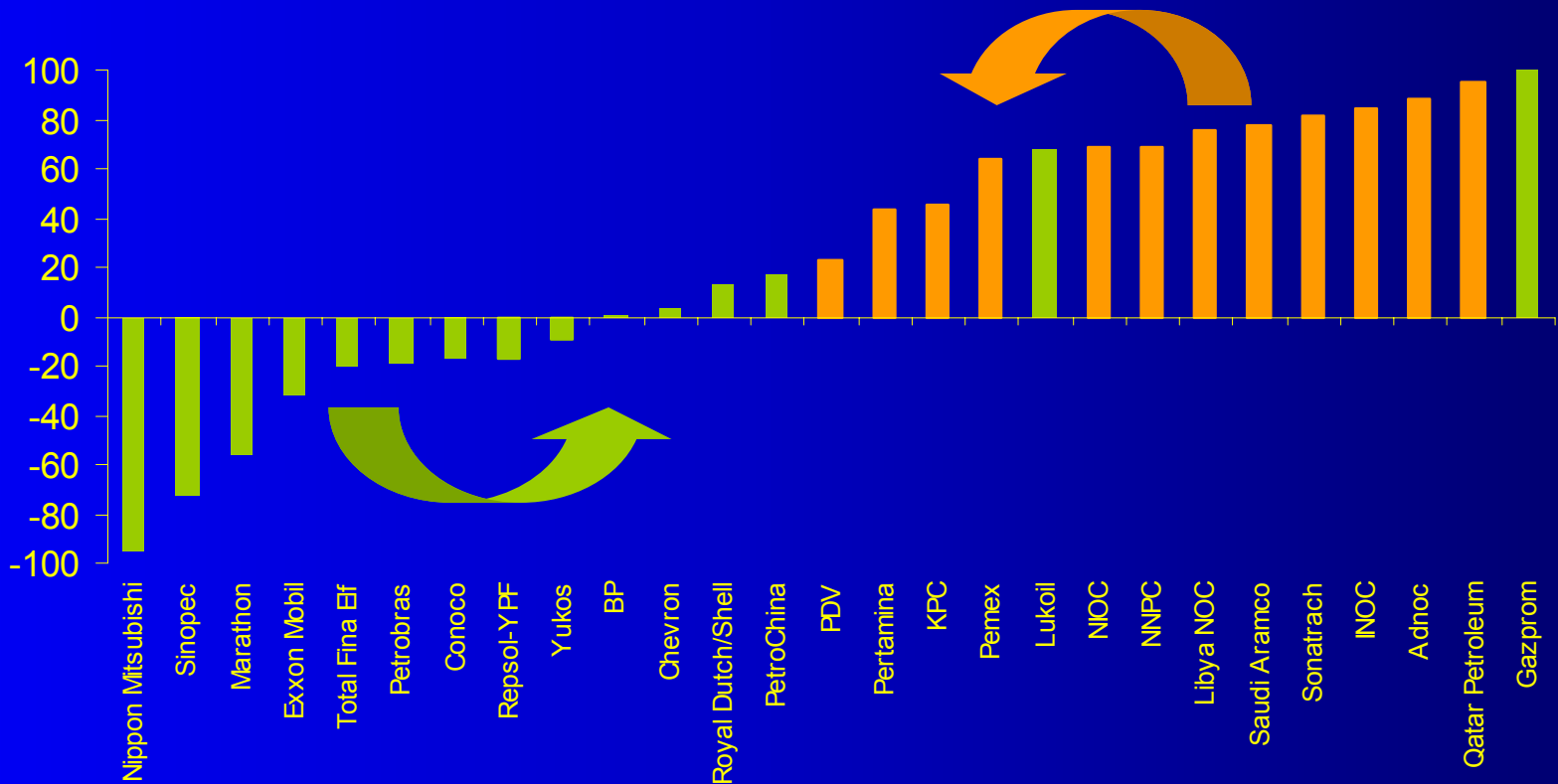 - Related to funding, rather than to operations

Operational Integration in 1991

Integration Index:

- 100 (100% Refining)

+100 (100% Upstream)

Chart values (vertical axis from -100.0 to 100.0):

Company	Integration Index
Nippon Mitsubishi	-86
Marathon	-62
Petrobras	-55
Exxon Mobil	-55
Royal Dutch/Shell	-50
Repsol-YPF	-50
Chevron	-48
Total Fina Elf	-36
Conoco	-33
BP	-8
PDV	7
Pertamina	21
KPC	40
Pemex	42
Libya NOC	52
Sonatrach	65
NNPC	67
Saudi Aramco	70
NIOC	74
INOC	80
Adnoc	85
Qatar Petroleum	85

Capital Rotation 1990-2001

Current State of Integration

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So why disintegrate?

In a perfect world:

- – Focussed businesses are allegedly better managed
- – Industry maturity has reduced transaction costs to an irrelevancy
- – Investors can construct balanced portfolios for themselves
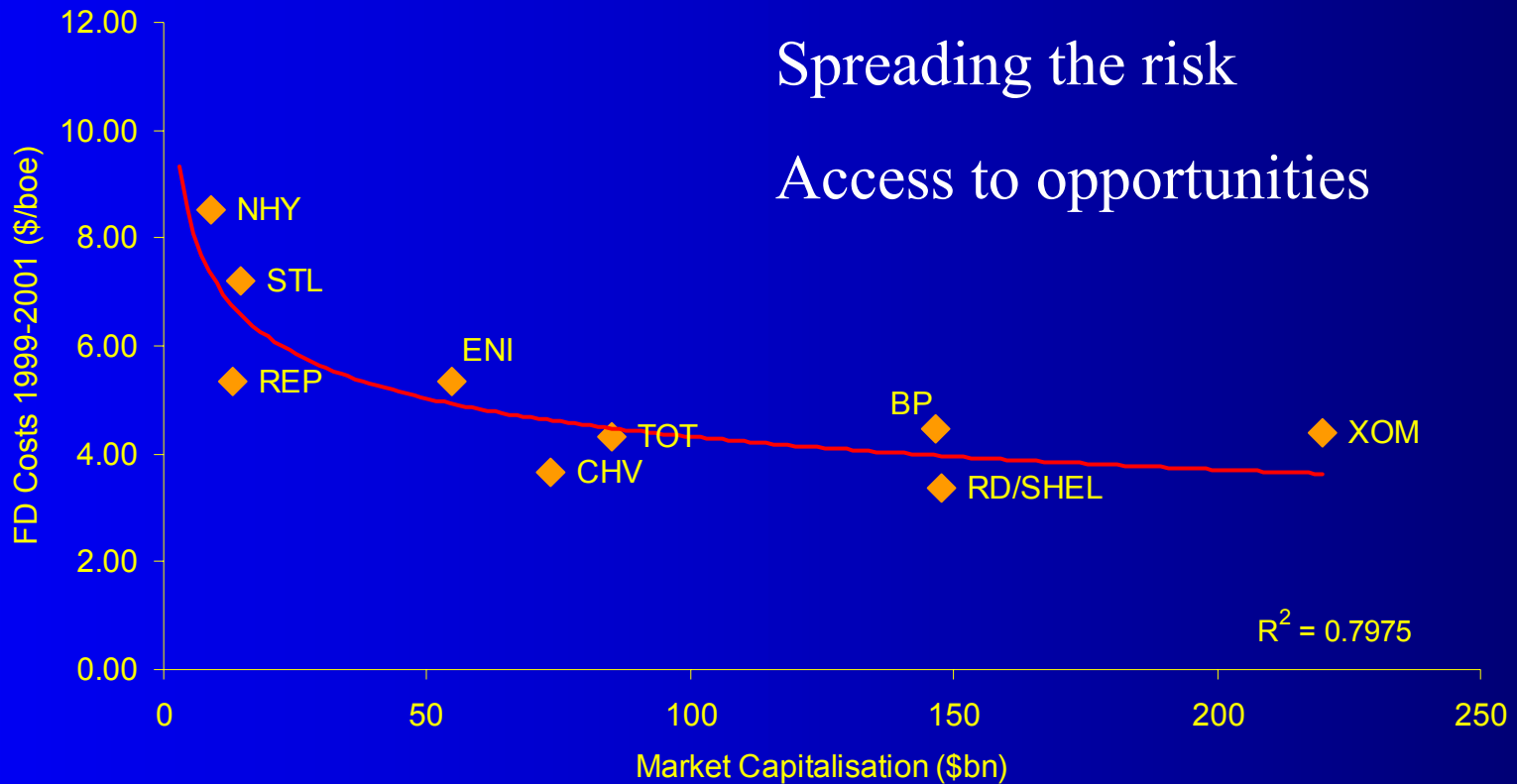
But, markets are not perfect!

Exploiting the inefficiencies

- Political
  - issues of access, differing terms, embargos
- Institutional
  - OPEC, cartelisation
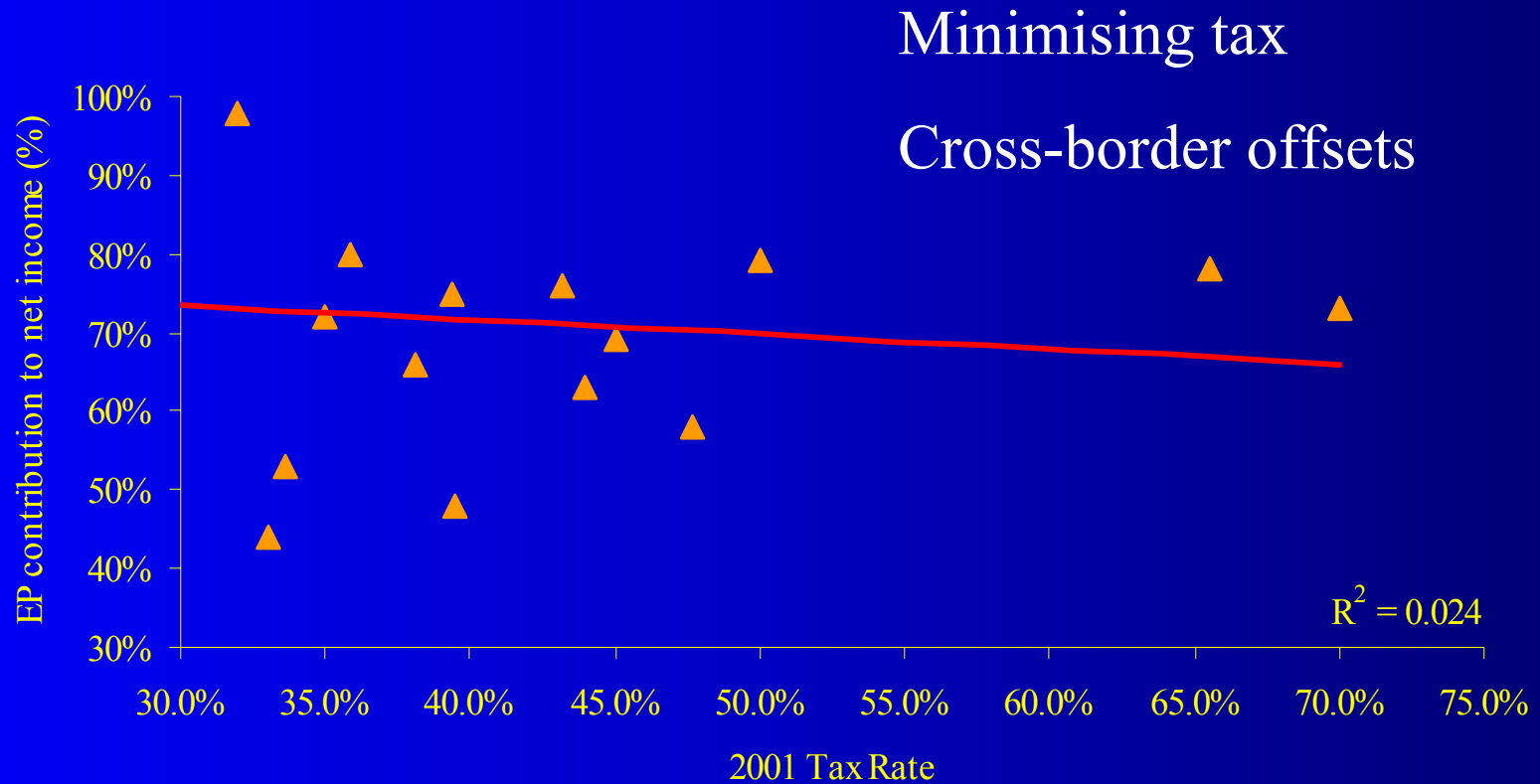- Economic
  - pricing issues, investment

Exploiting the inefficiencies

- Financial
  - tax, cost of capital, risk mitigation, default risk, markets
- Operational
  - local monopolies, supply chains, project skills, reputation
- Technical
  - information transfer, cost of information

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Upstream Efficiency

Spreading the risk

Access to opportunities

$R^2 = 0.7975$

Chart axes: FD Costs 1999-2001 ($/boe) vs Market Capitalisation ($bn)

Data points: NHY, STL, REP, ENI, CHV, TOT, BP, RD/SHEL, XOM

Taxation

Minimising tax

Cross-border offsets

$R^2 = 0.024$

EP contribution to net income (%)

2001 Tax Rate

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Financial Markets

Access to equity markets

Higher risk focussed entities

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Cost of Capital

Lower cost for larger companies

Access to capital a barrier

$R^2 = 0.804$

Weighted Average Cost of Capital (vertical axis): 10.0%, 9.5%, 9.0%, 8.5%, 8.0%, 7.5%, 7.0%

Market Capitalisation ($mm) (horizontal axis): 0, 50000, 100000, 150000, 200000, 250000

Access to Capital

Cyclical industry financing

Invest through the cycle?

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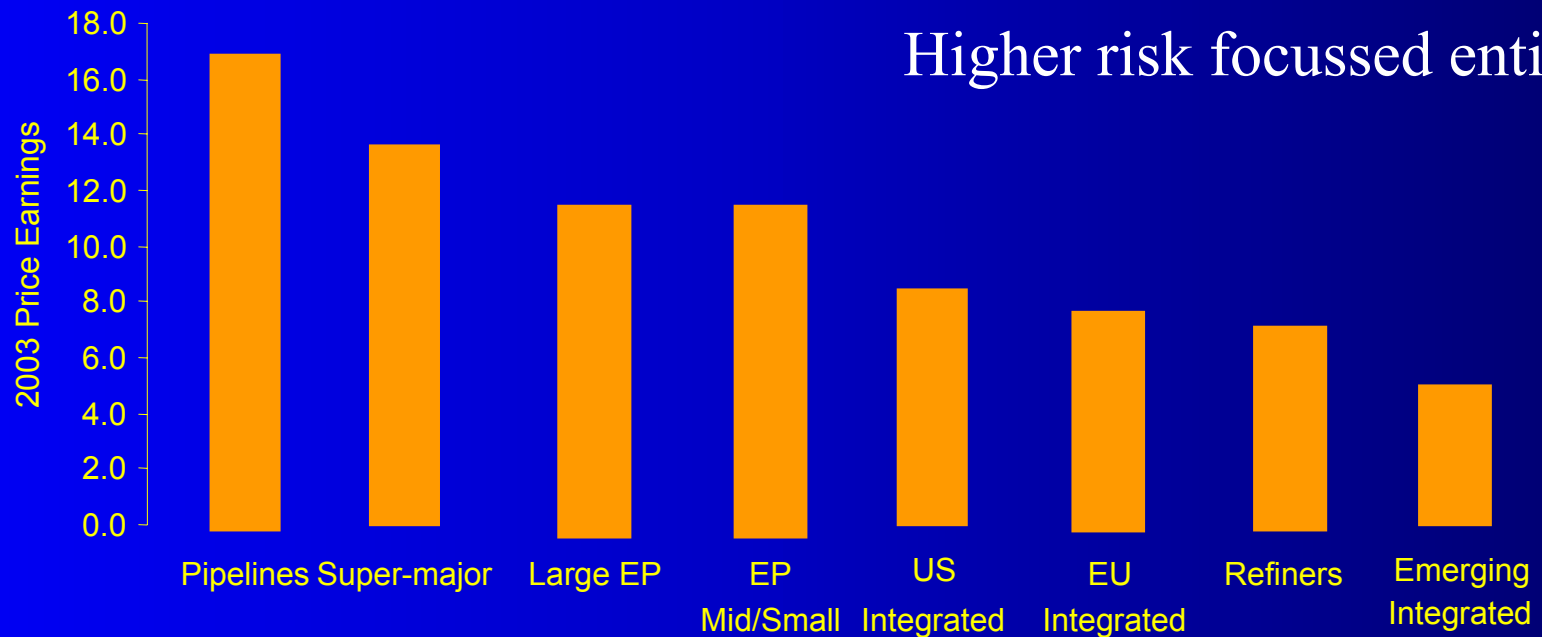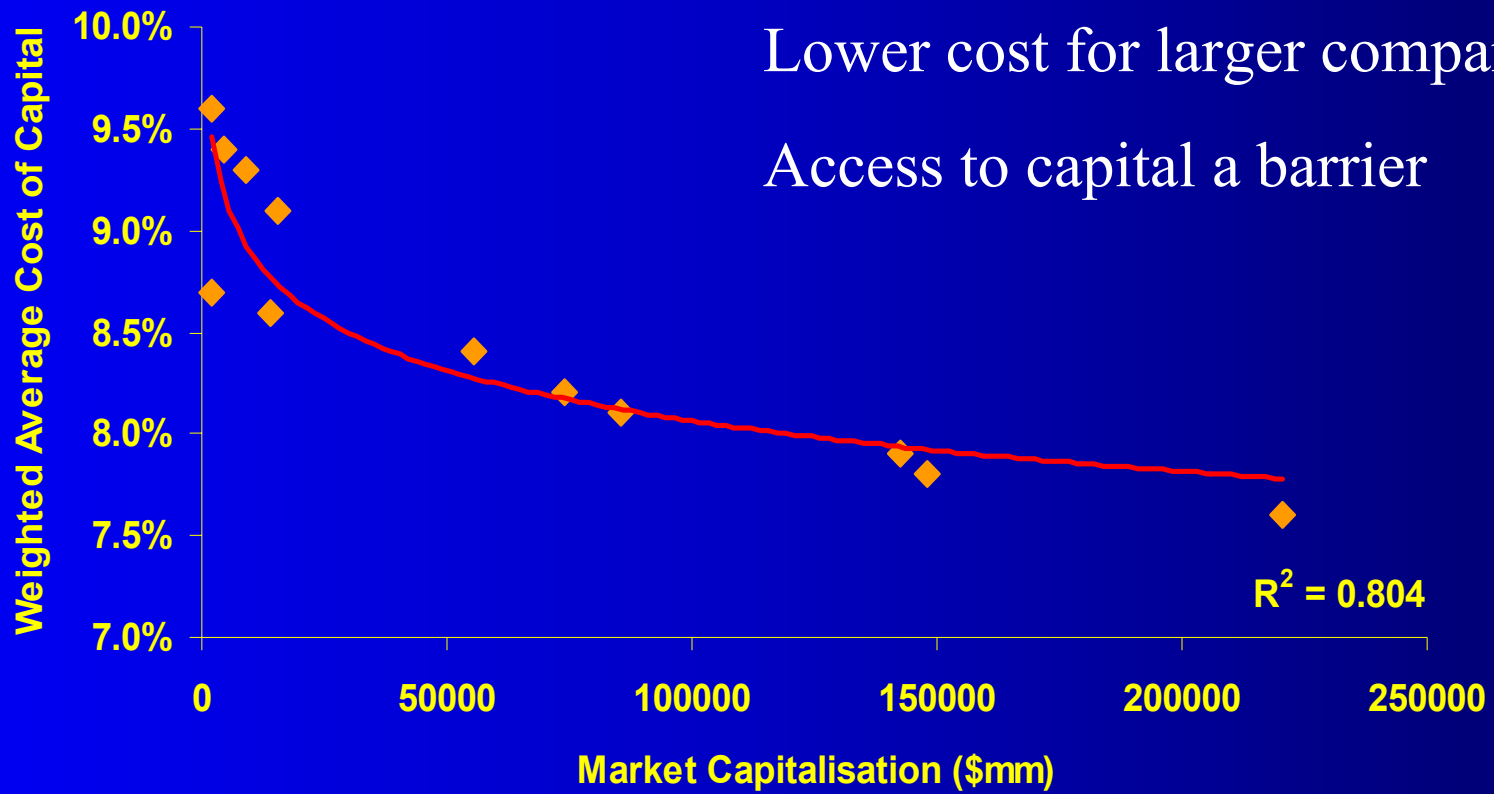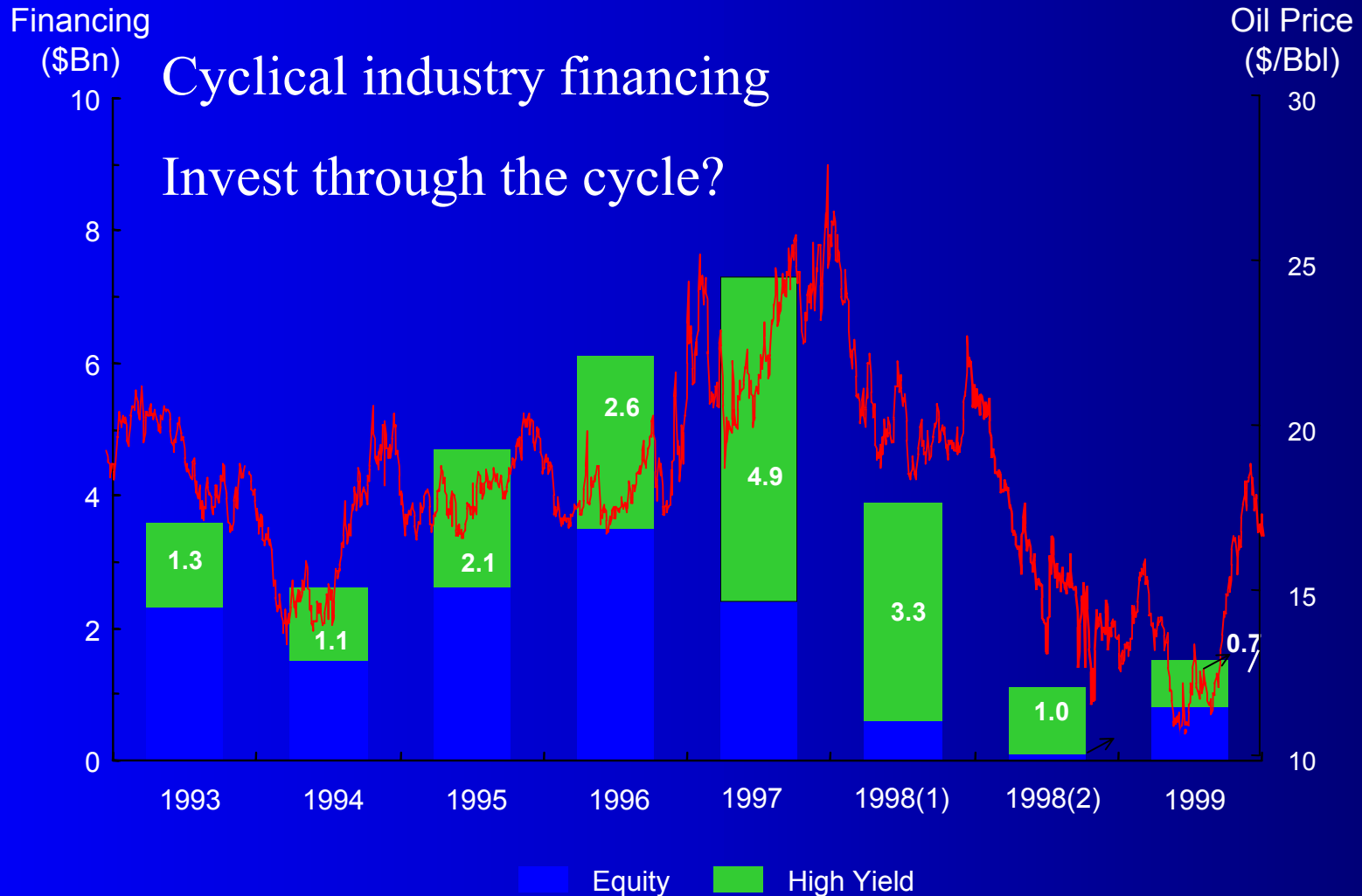
Muddled Thinking in the Gas Chain

- Despite losing faith in oil chains, oil companies are keen to integrate vertically into gas and power

- They should instead concentrate on two motives:
  - focusing on their strengths
  - exploiting market inefficiencies

  This may or may not require integration

Structure Conclusions

- Companies should identify and quantify market inefficiencies – operational and financial

- Companies should identify the risks that would accrue from de-integration

- Corporate capabilities are not merely energy-specific: they may comprise financial skills or customer franchise

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3/23/2004

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Profitability, Growth and Value

- Companies have concentrated internal and external attention on one metric: ROACE

- Even if accurate, ROACE is too limited, as any growth at above WACC adds value

- Accounting measures compound the problem: they overstate the profitability of old assets and understate the profitability of new ones

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Case Study: Pipeline Economics

Year	0	1	2	3	4	5	6	7
Cash flow model:								
Investment	(1,000)							
Cash flow from operations		200	210	221	232	243	255	268
Free Cash Flow	(1,000)	200	210	221	232	243	255	268
Internal Rate of Return	*13.1%*							
Accounting results:								
Opening Capital	0	1,000	857	714	571	429	286	143
Depreciation	0	(143)	(143)	(143)	(143)	(143)	(143)	(143)
Closing Capital	1,000	857	714	571	429	286	143	0
Profit	0	57	67	78	89	100	112	125
Return on Opening Capital		*5.7%*	*7.8%*	*10.9%*	*15.5%*	*23.4%*	*39.3%*	*87.6%*
Economic results:								
Opening NPV	0	1,000	931	844	734	599	435	237
Impairment of value	0	(69)	(88)	(110)	(135)	(164)	(198)	(237)
Closing NPV	1,000	931	844	734	599	435	237	0
Profit		131	122	111	97	79	57	31
Economic ROCE (opening)		*13.1%*	*13.1%*	*13.1%*	*13.1%*	*13.1%*	*13.1%*	*13.1%*

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Integrating DCF Analysis with Management Accounts

- Investments are originally justified with DCFs, but subsequent performance is monitored and presented using conventional accounts

- Two alternative approaches are improvements: CFROI and adjusted EVA$_{TM}$

- Both permit investment and performance measurement to be related seamlessly

Method: Adjusted EVA$_{TM}$

Accounting Method

NOPAT:	
Operating Profit (EBIT)	1,700
Notional Tax	(500)
Net Operating Profit After Tax	1,200

Opening Capital Employed:	
Net Debt	2,000
Minority Interests	500
Shareholders' Equity	7,500
Capital Employed	10,000

Return on Capital Employed	*12.0%*

Adjusted EVA$_{TM}$ Method

Ann. change in NPV of reserves	250
Ann. net investment in reserves	(200)
Unrealised gains/losses	50

Accounting NOPAT	1,200
Unrealised gains/losses	50
Adjusted NOPAT	1,250

Opening Capital Employed	10,000
Book value of reserves	(4,000)
Net Present Value of reserves	8,000
Adjusted Opening Capital Emp.	14,000

Accounting ROCE	*12.0%*
Adjusted ROCE	*8.9%*

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Oil Company Historical Performance

- We have used a modified EVA_{TM} – the main adjustment being substitution of net present value for book upstream values, and the inclusion of net changes in these to profit

- The key finding is that the profitability of the industry drops from around 12% to around 9%, slightly above its WACC

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Case Study: Oil Company Performance

	1997	1998	1999	2000	2001	Average
Book return on capital						
NOPAT	35,560	18,257	25,900	57,650	43,810	36,236
Opening book capital employed including goodwill	248,506	258,487	267,086	351,233	351,538	295,370
Return on capital employed including goodwill	**14.30%**	**7.10%**	**9.70%**	**16.40%**	**12.50%**	**12.00%**
Adjusted return on capital employed						
Adjusted NOPAT	-37,867	-42,333	141,346	145,775	-109,907	19,403
Adjusted opening capital employed	294,191	277,023	225,033	424,443	511,146	346,367
Adj return on adj opening capital employed	**-12.90%**	**-15.30%**	**62.80%**	**34.30%**	**-21.50%**	**9.50%**
Realised profit/adj opening capital employed	**12.10%**	**6.60%**	**11.50%**	**13.60%**	**8.60%**	**10.50%**

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Why does this matter?

- If investors are misled as to likely future profitability, they will react adversely

- If managers set too high a hurdle rate of return they will under-invest

- If the profitability of the upstream is overestimated then such investment as is made will be skewed

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Case Study: Royal Dutch/Shell

- The CFROI approach yields very similar results but the detail of the adjustments make it difficult to aggregate across the sector

- The following slide shows calculations made for Royal Dutch/Shell

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CFROI Case Study: Shell

Summary 1999-2001

	Current IRR
Upstream	13.0%
Downstream	5.7%
Chemicals	4.4%
Gas and Power	1.5%
Weighted Average	9.1%

Profitability Conclusions

- It is essential to develop an internal management accounting system that integrates DCF analysis with performance measurement

- This should be transparent enough for presentation to investors

- The financial technology for this is already well developed

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