High Oil Prices:
A Non-OPEC Capacity Game

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"*I am disappointed about the shortfall of investments on the supply side. Large, international oil companies seem to prefer looking for oil at the NYMEX trading floor, instead of exploring for resources around the world. They have a social responsibility, but prefer to buy back their own shares*," Fatih Birol, IAE Chief Economist

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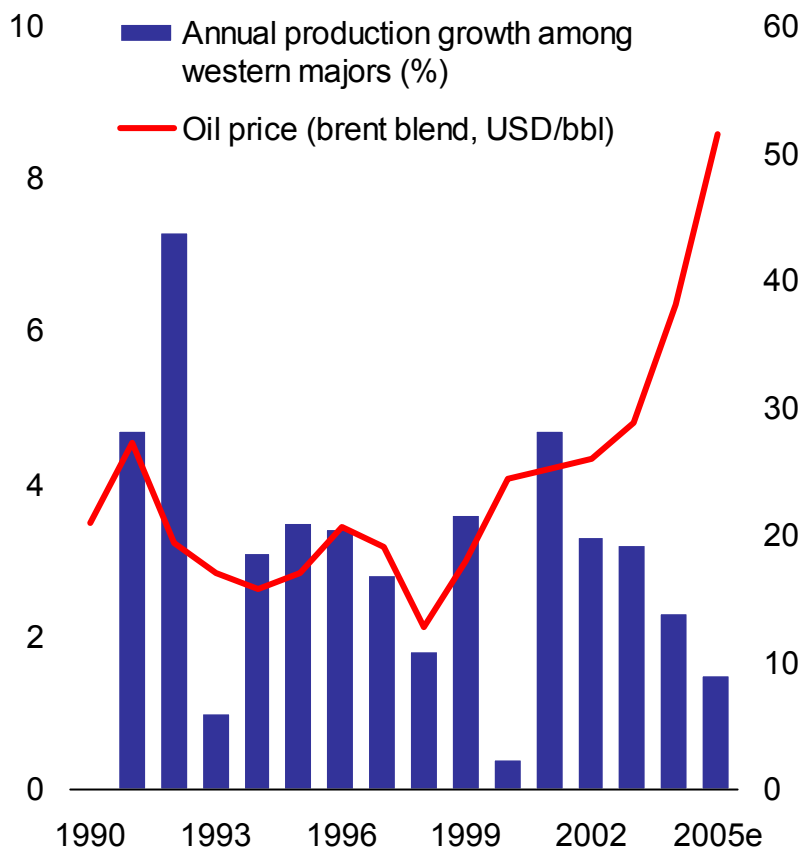
Key questions and issues

- Why hasn't non-OPEC supply responded to higher oil prices?
  - Tightened capital discipline (?)
  - Focus on performance indicators (?)
  - Tough demands from financial markets (?)

Oil price and production growth



Source: Deutsche Bank

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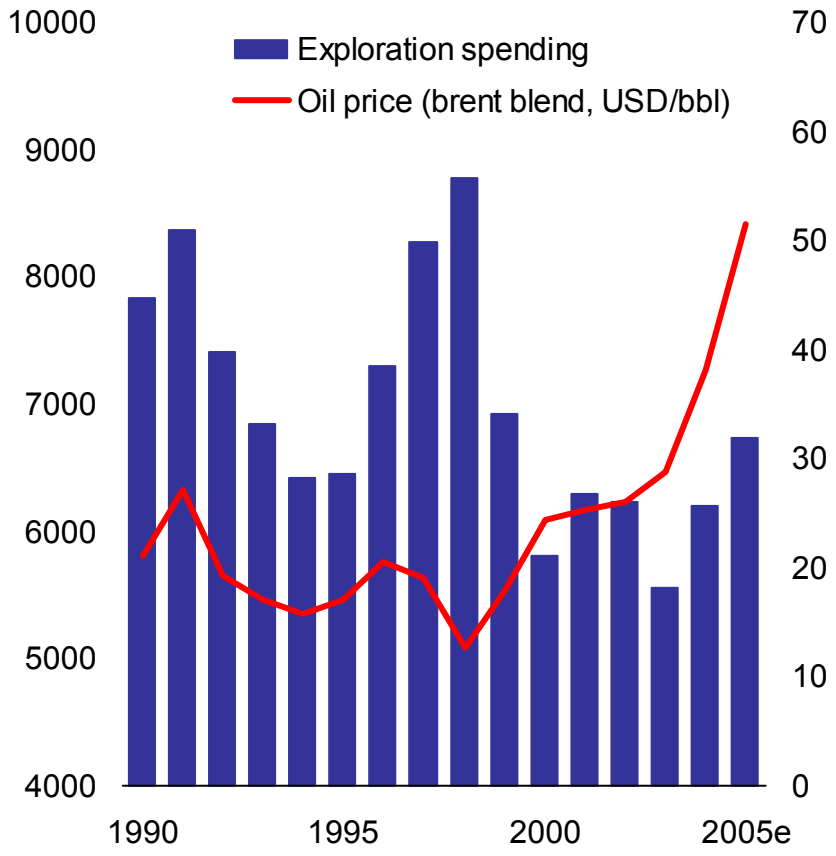
Sluggish long-term investments

- Exploration spending has fallen
- A more myopic industry?
- A new investment equilibrium?

Exploration spending and oil price



Source: Deutsche Bank

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Oil industry dynamics in the 1990s

- Globalisation
  - Politics, economics, technology, communication, financial markets
- Deregulation and liberalisation
  - Privatisation of former NOCs
  - Business principles gained ground in oil and gas
  - The investment universe expanded
- Pressure from financial markets
- Massive restructuring and corporate improvement

Short-term financials at centre stage

Common key performance indicators

Clear and transparent targets

Financial and operational indicators and targets

STATOIL

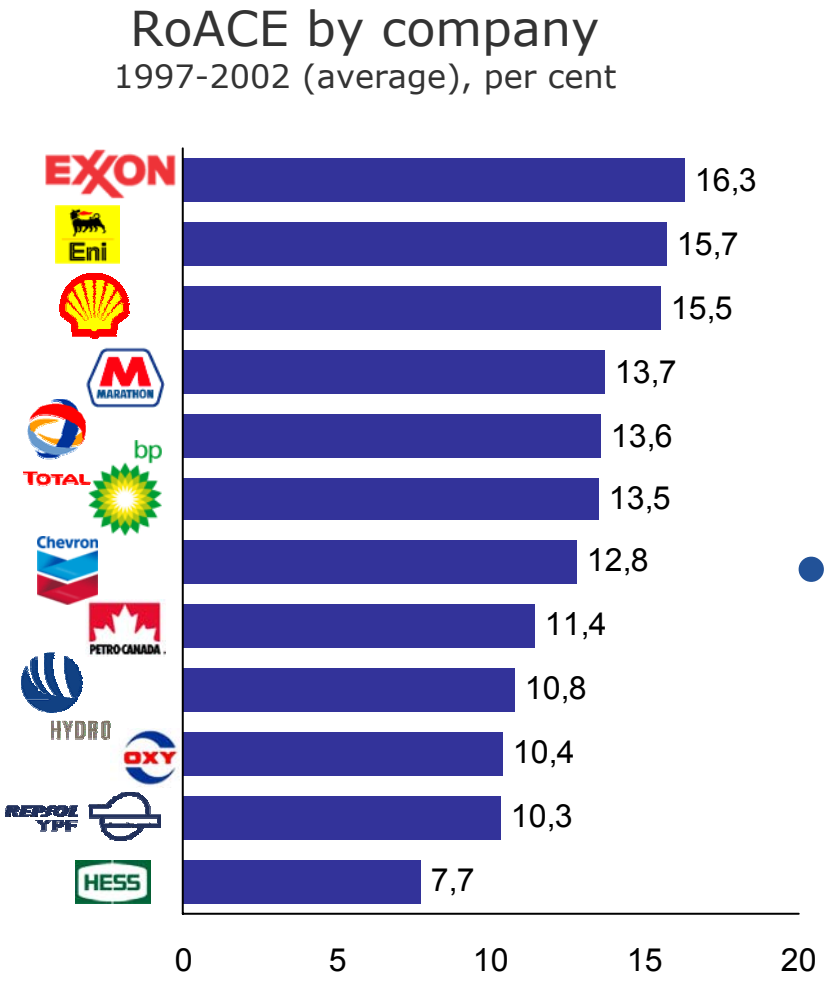
	2001	2002	2003	2004	2004 target
• RoACE (normalised)[1]	9.4%	10.8%	12.4%	12.3%	**12%**
• Production (1 000 boepd)	1 007	1 074	1 080	1 093	**1 120**
• Reserve replacement rate[2]	0.68	0.78	0.95	1.01	**> 1.0**
• Finding & dev. cost[2] (USD/boe)	9.1	6.2	5.9	8.47	**< 6.0**
• Production cost[1] (USD/boe)	3.00	2.94	2.77	2.96	**< 2.7**

[1] Normalised, [2] 3-year average.

STATOIL

Source: Statoil

RoACE by company
1997-2002 (average), per cent

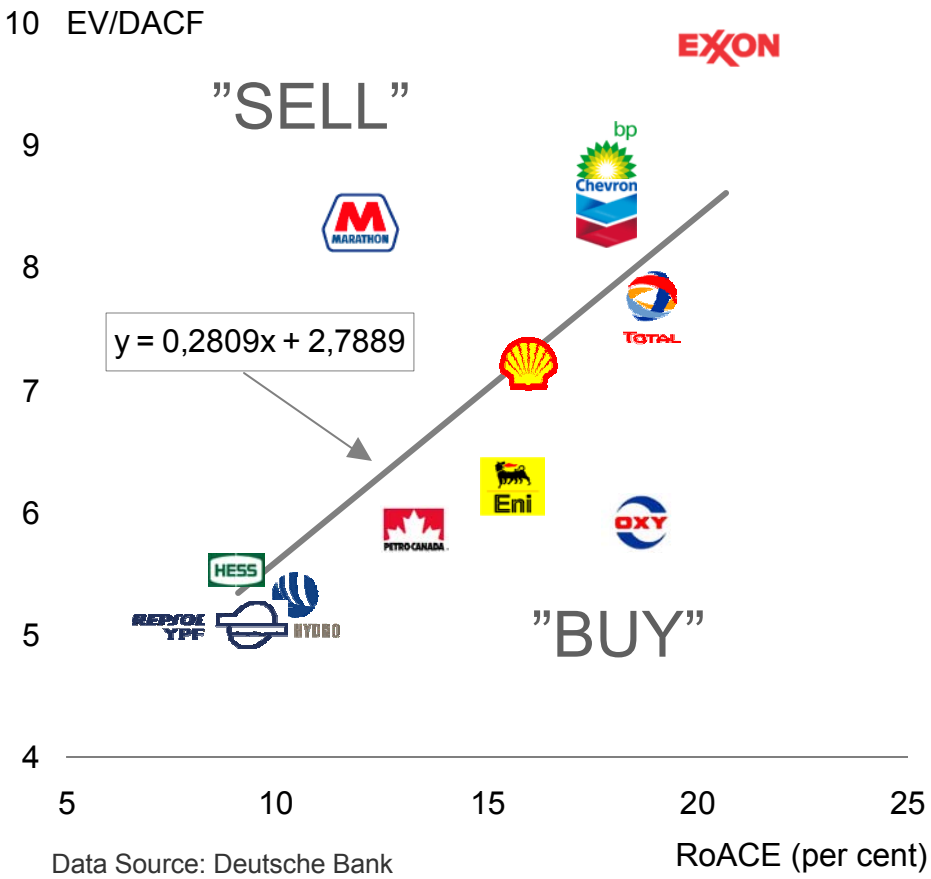


- Source: UBS Warburg
  - ”Integrated Oils Analyser”

Valuation rewards from RoACE (?)

- RoACE – Return on Average Capital Employed
- EV – Enterprise Value
- DACF – Debt-Adjusted Cash Flow

RoACE and EV/DACF 2005



Data Source: Deutsche Bank

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Accounting for financial multiples

$$EV = \frac{FCF}{WACC - g} \Rightarrow \frac{EV}{FCF} = \frac{1}{WACC - g}$$

$$FCF = DACF - I$$

where

$$DACF = EBIT \cdot (1 - t) + DD\&A$$

$$I = LTI + \Delta WC$$

Hence,

$$\frac{EV}{DACF} = \frac{1 - \frac{I}{DACF}}{WACC - g}$$

EV-Enterprise value
FCF-Free cash flow
WACC-Weighted average capital cost
DACF-Debt-adjusted cash flow
EBIT-Earnings before interest and tax
DD&A-Depreciation, depletion and amortisation
LTI-Long-term investments
WC-Working capital
I-Total investments

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Return on Average Capital Employed

- ROACE=Net income/average capital employed
- ACE= shareholder funds and net interest bearing debt
- It is of key interest with respect to the oil companies that ROACE can be increased by reducing capital spending
- And ROACE or EV/DACF are often part of managements incentive schemes

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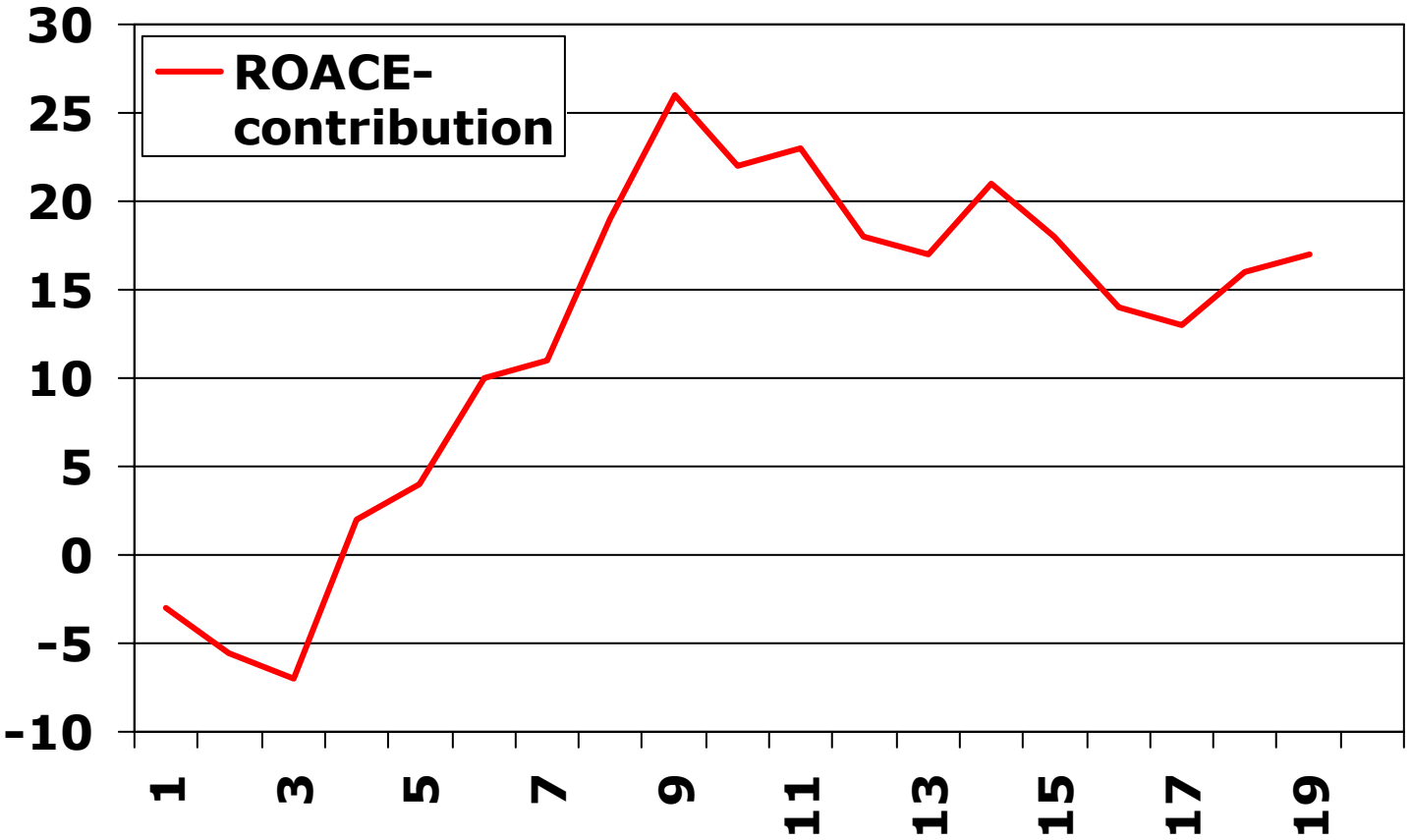
Illustration of ROACE contribution in % over a project's life cycle



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A capacity game in the oil industry?

		Company 2	
		Passive	Explore
Company 1	Passive	125, 125	75, 150
	Explore	150, 75	100, 100

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Valuation research

Harris, T. And Ohlson (1987) AR. ”Accounting discolosures and the Market’s Valuation of Oil and Gas Properties”

Berry and Wright (2001). JBFA ”Disclosures: An Assessment of the Market’s Perception of Firm’s effort and ability to Dicover Reserves”

Quirin *et al.* (2001). JBFA. ”A Fundamental Analysis Approach to Oil and Gas Firm Valuation”

Cormier and Magnan (2002). IAAT. ”Performance Reporting by Oil and Gas Firms: Contractual and Value Implications”

Bryant (2003). RAS. ”Relative Value-Relevance of the Successful Efforts and Full Cost Accounting Methods in the Oil and Gas Industry”

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How well do ROACE explain EV/DACF?

- RoACE is significant, but wrong sign
- This is true in all cases with more variables then the ROACE and the oil price in the regression

The full estimated model

Oil price, KPIs and fixed effects

Variable	Coefficient	t-value
OP	- 0.0994	- 1.10
RoACE	- 20.413	- 2.34
PROD	0.0006	0.56
FDC	- 0.0168	- 0.82
UPC	- 0.802	- 1.84
RRR	0.170	0.36
Fixed effects		
Amerada Hess	13.279	6.09
BP	17.470	5.59
Chevron	16.129	5.26
ENI	14.658	6.98
Exxon	18.152	3.88
Hydro	12.974	7.94
Marathon	14.255	6.88
Occidental	15.886	7.90
PetroCanada	13.117	7.38
RD/Shell	15.687	6.25
Repsol YPF	15.874	7.25
Total	15.687	6.25
R^2	0.98	

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Concluding remarks

- Increased capital dicipline is a possible explanation for reduced production growth and exploration spending
- Can be thought of as a capacity game of the prisoner dillemma type
- The game is noncooperative, but where the capital dicipline can influence the outcome and in a way work as a coordination device

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Concluding remarks

- Is it a problem that accounting information has become more relevant in valution of oil companies?
- May be more important for manager's actions then actual company valuation
- The cooperative soulution is nonstable