

Are we running out of oil? Competing views on the long-term outlook

Westminster Energy Forum
27 November 2007

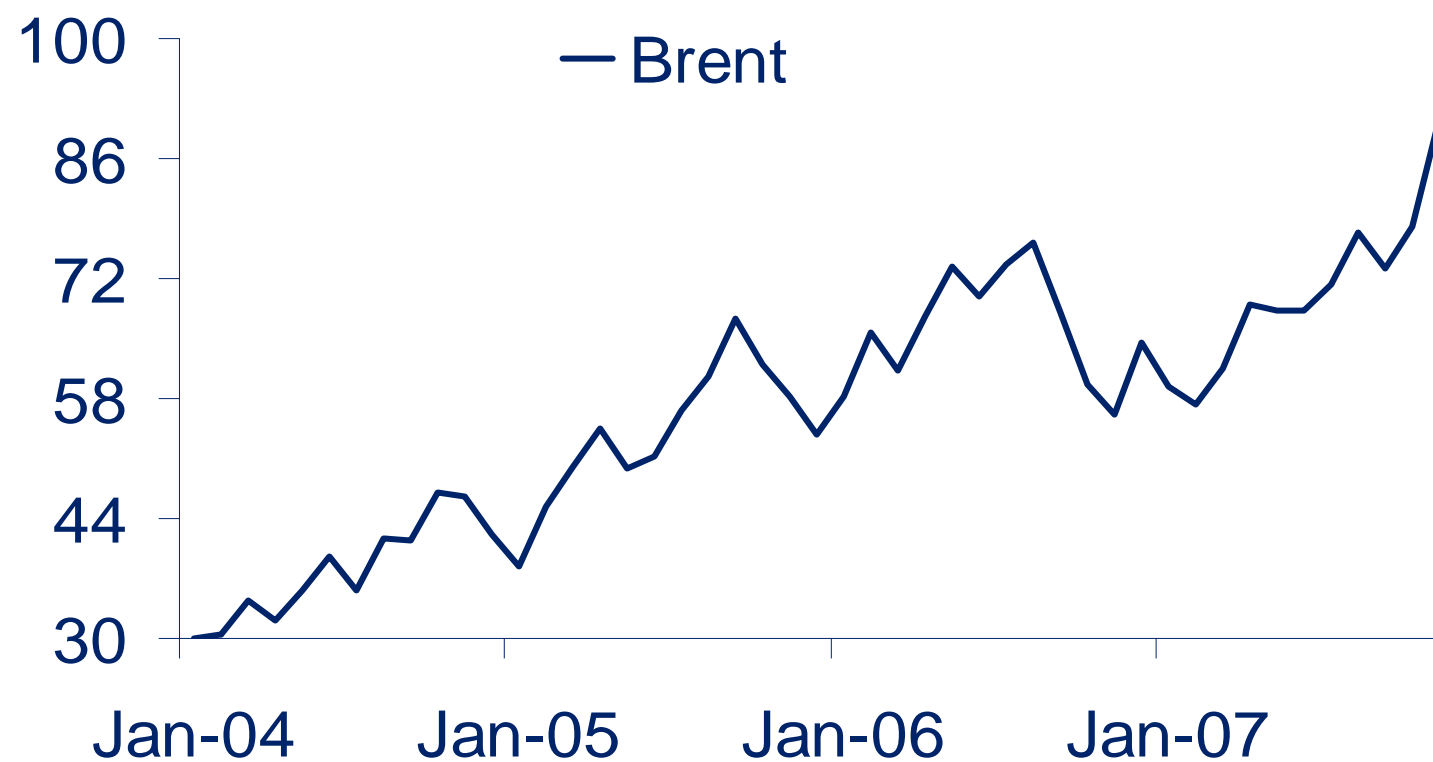


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Agenda

- What is happening now?
- The longer term-outlook: Three competing views:
 - The (simple) Economist
 - The Macro-strategist
 - The Geologist
- Conclusions

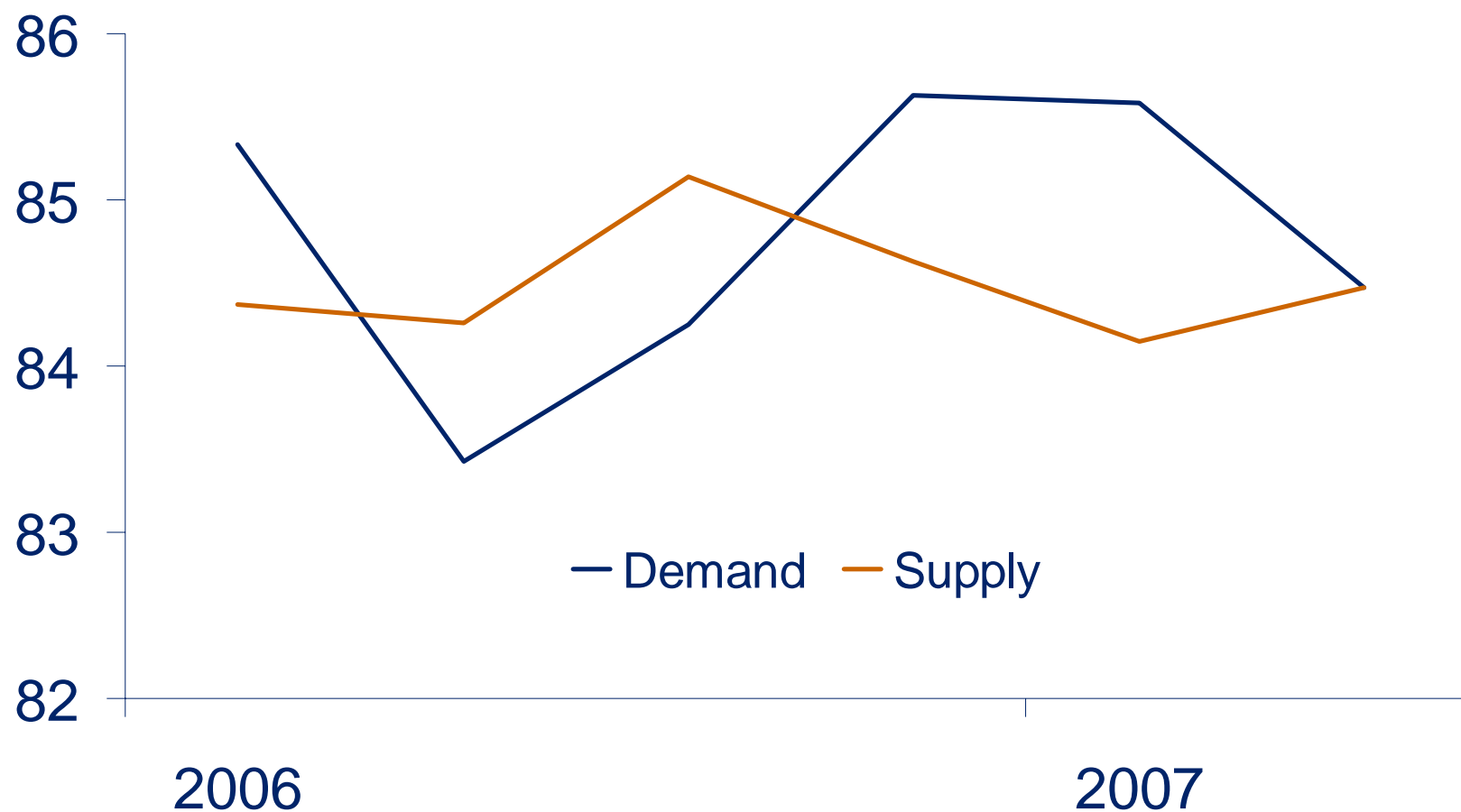
Oil prices have rallied



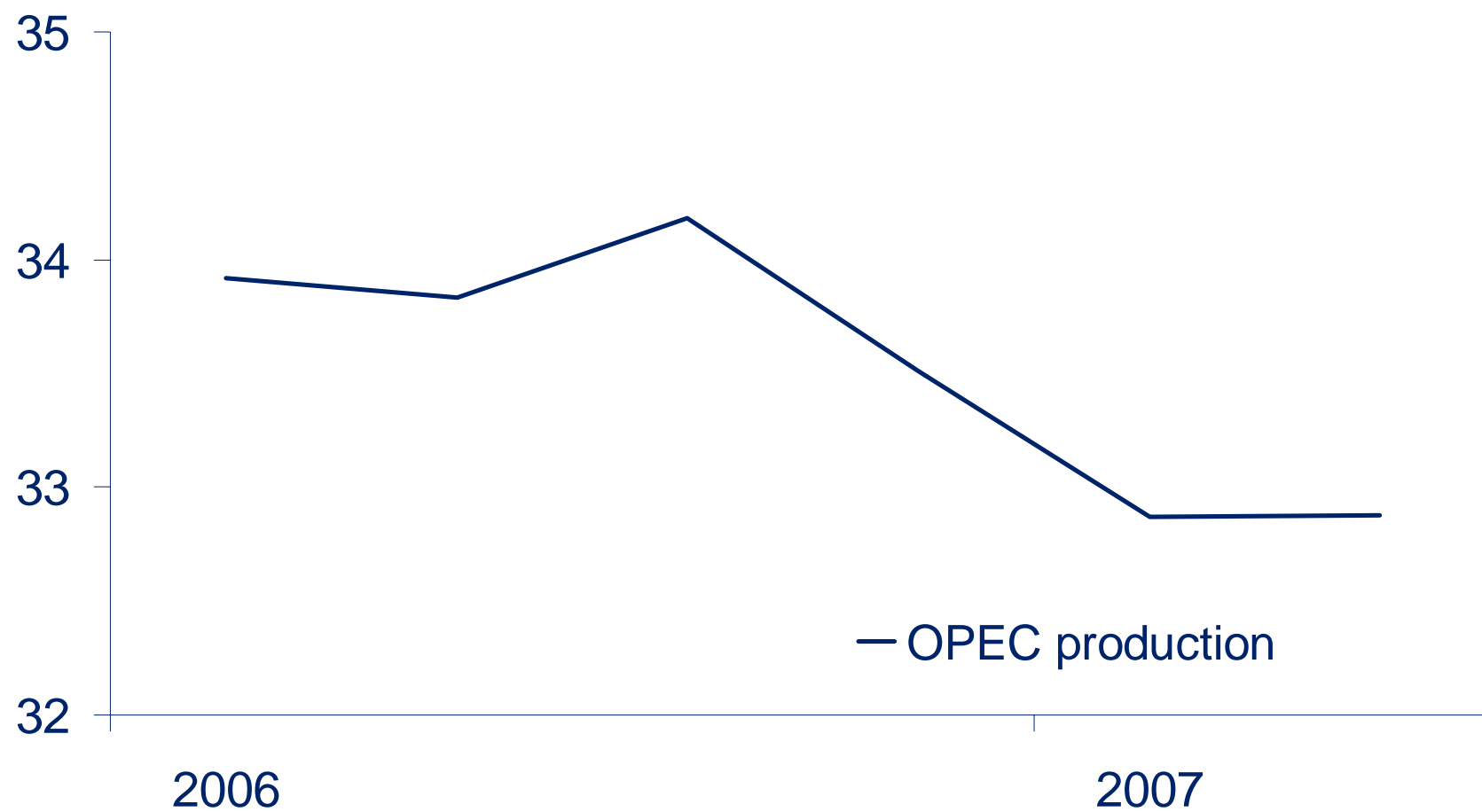
Reasons for the rally

- Demand and supply fundamentals
- Monetary and financial factors
- Geopolitics

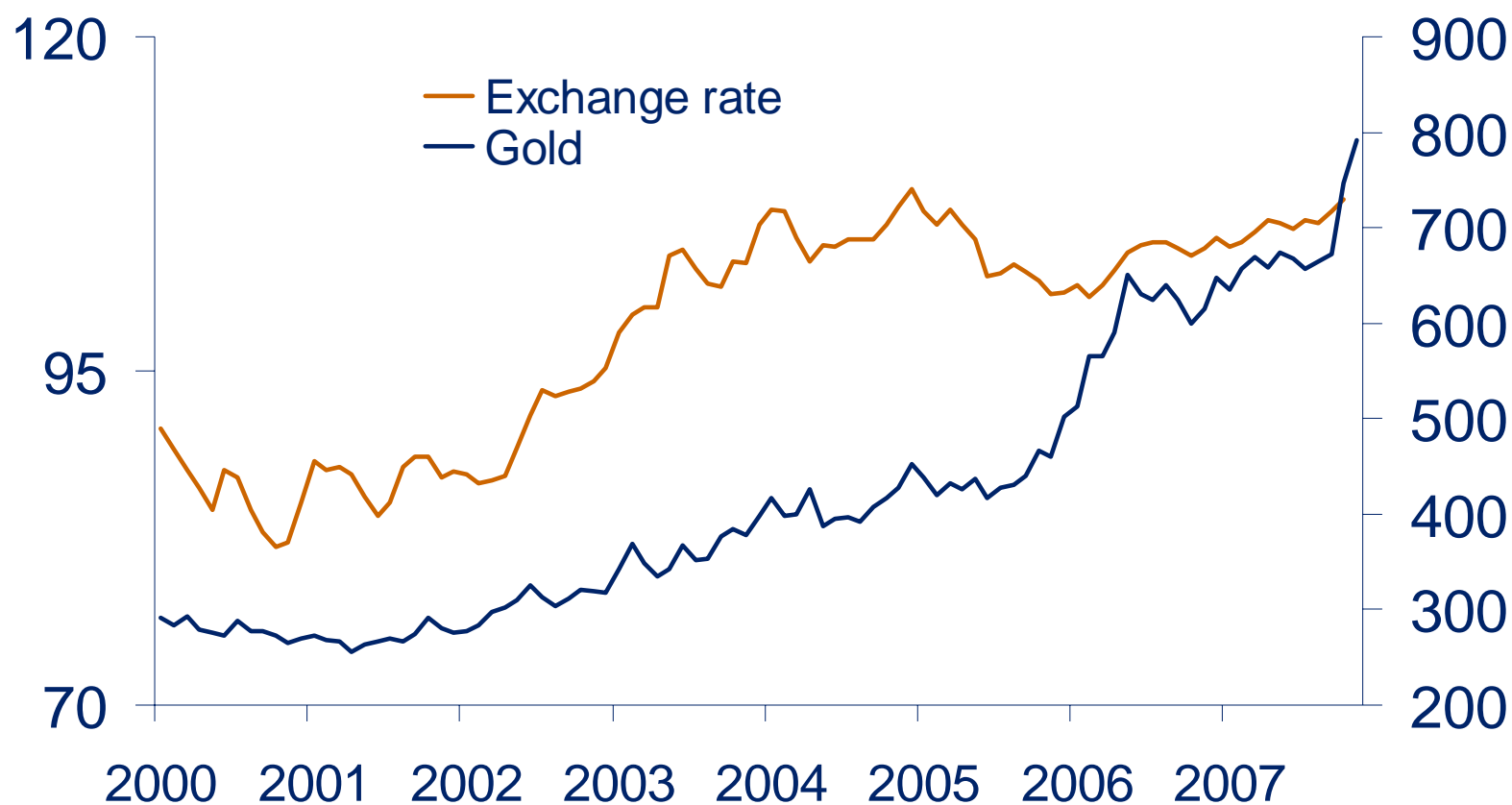
Demand growth has outpaced supply additions



OPEC has rediscovered discipline



The dollar weakens



The (simple) economist's view

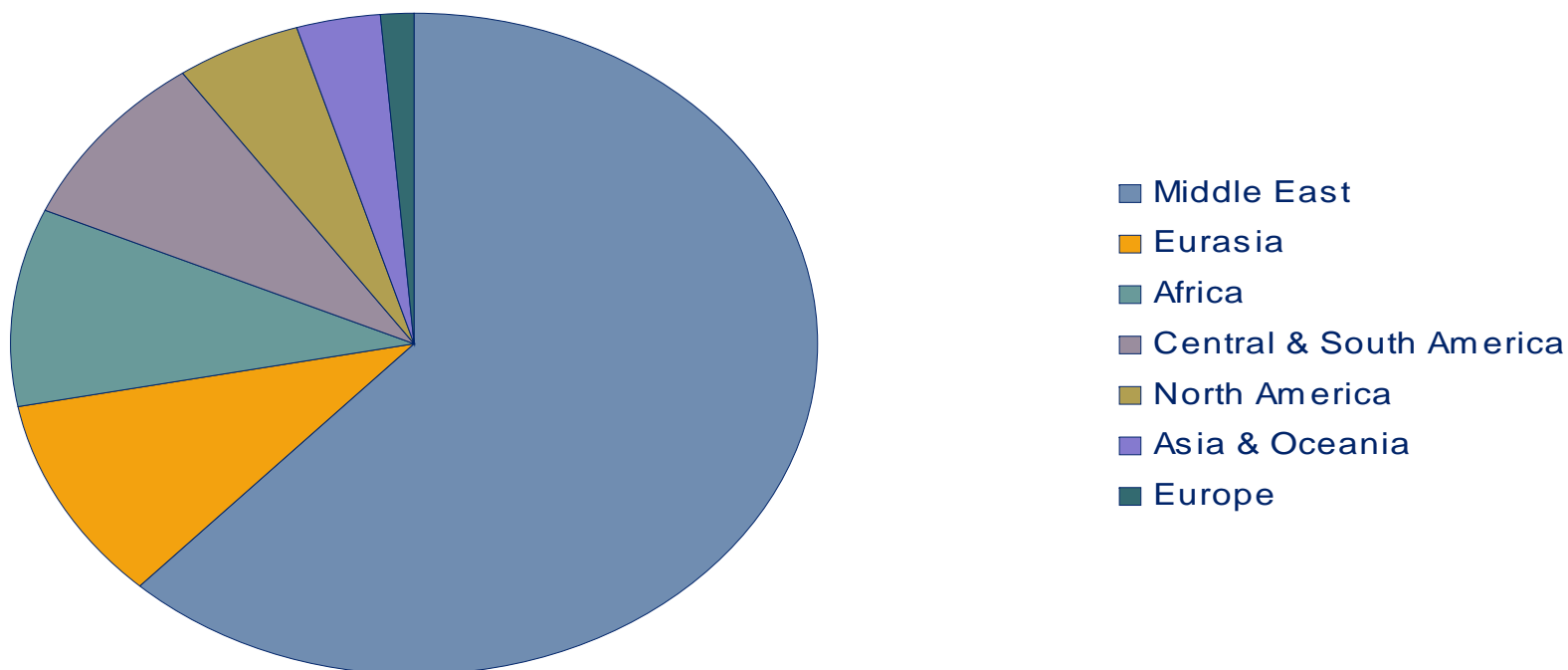
- In a competitive environment, marginal cost determines price.
- Marginal cost is the cost of the most expensive barrel supplied to meet demand.
- Technology reduces long-term marginal costs, but maturing fields increase marginal costs.
- Long term marginal barrel is roughly \$25, but there may be short-term deviations because of cyclical fluctuations. Currently, a shortage of skills and equipment is driving marginal costs up.

The macroeconomic-strategic view

- Marginal costs don't matter because of the risk premium.
 - Reserves are located mainly in politically volatile regions .
 - Emerging resource-nationalism deters much needed foreign investment.
 - National oil companies (OPEC) restrict output in order to boost prices and ultimately revenues.
 - Spending on social concerns may undermine investment by state-owned companies.
 - Political meddling may undermine the local skills base.

Most reserves are in politically volatile regions

Share of total by region, source BP Statistical Review



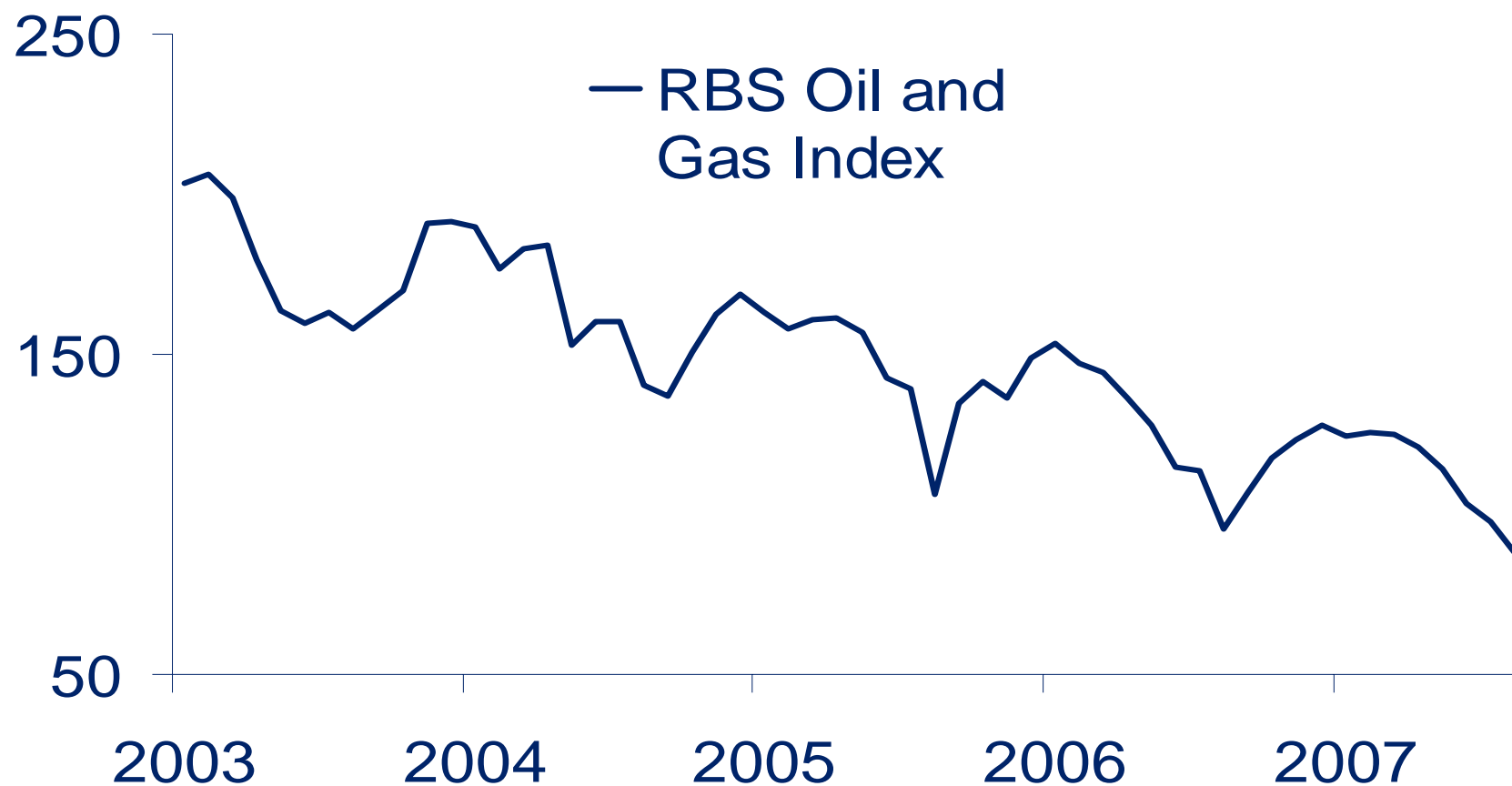
Major producers have attracted attention in the past



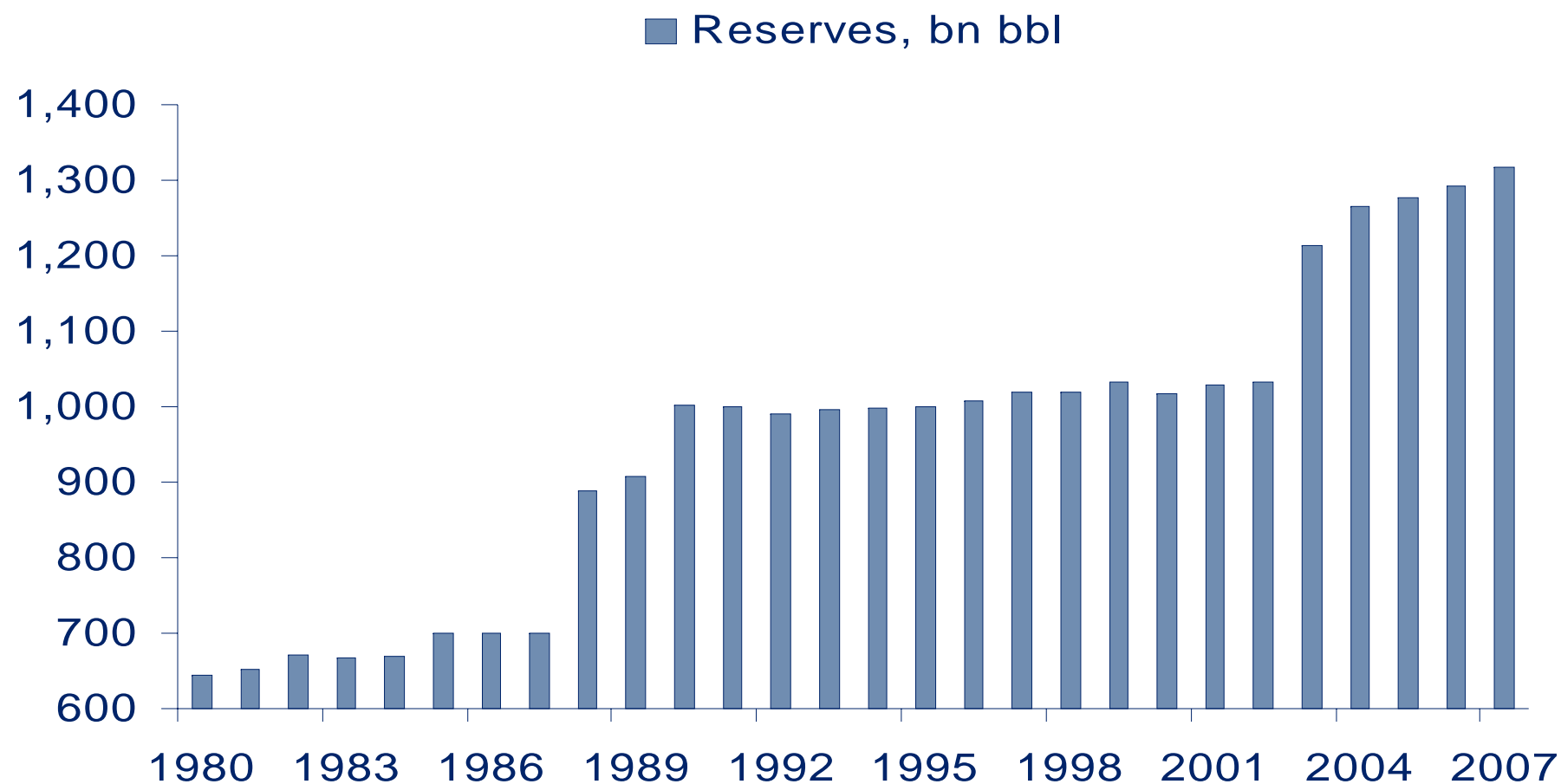
Some (retired) geologists' view (peak-oil)

- Global oil reserves are finite.
- The peak of global oil production is imminent.
- After the peak, there will be a sharp decline in production; crude oil prices will rise sharply, there will be a shortfall of oil with possibly severe adverse consequences for the global economy.

Production in the UKCS has peaked,...



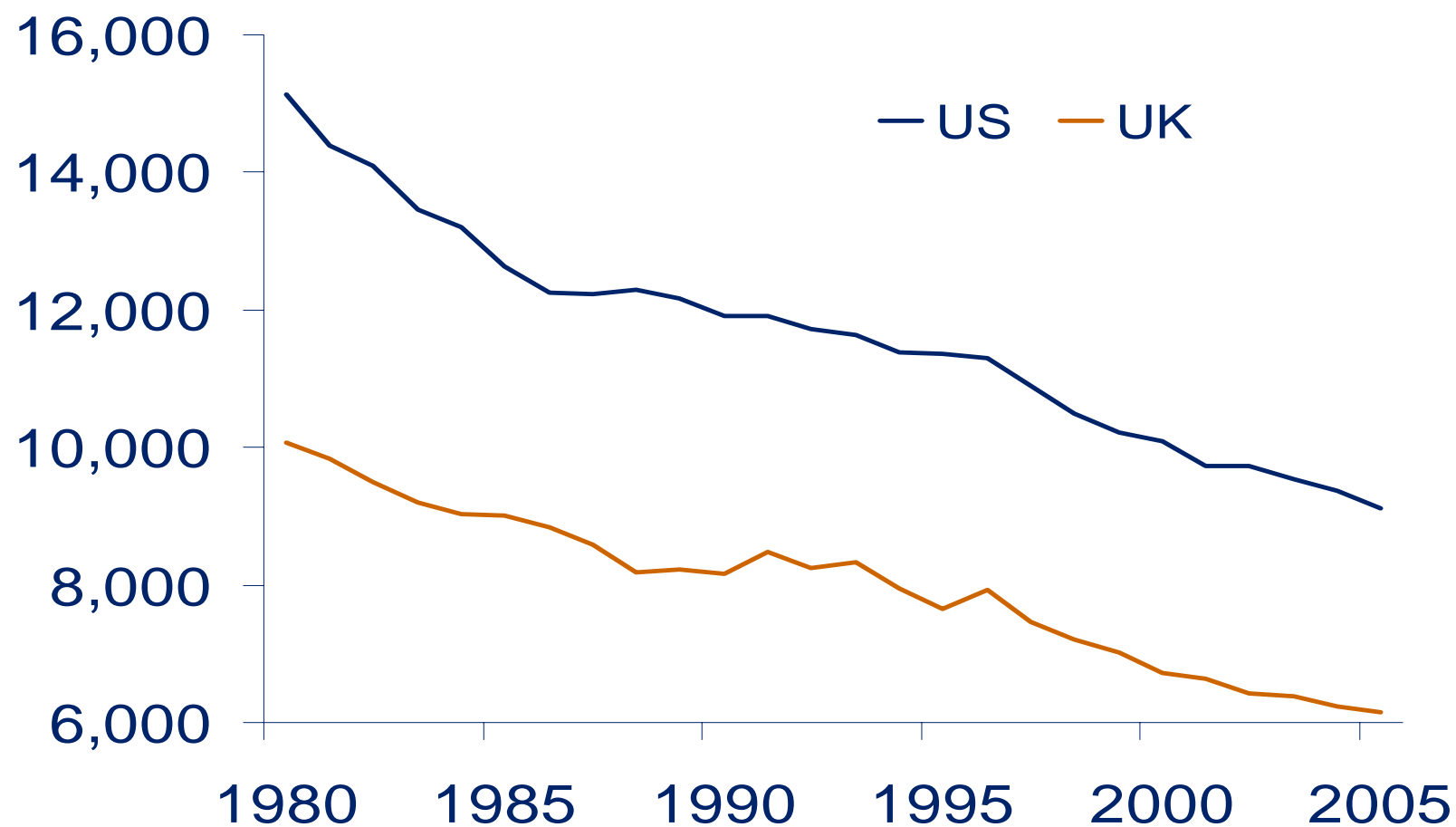
...but global proven reserves continue to rise



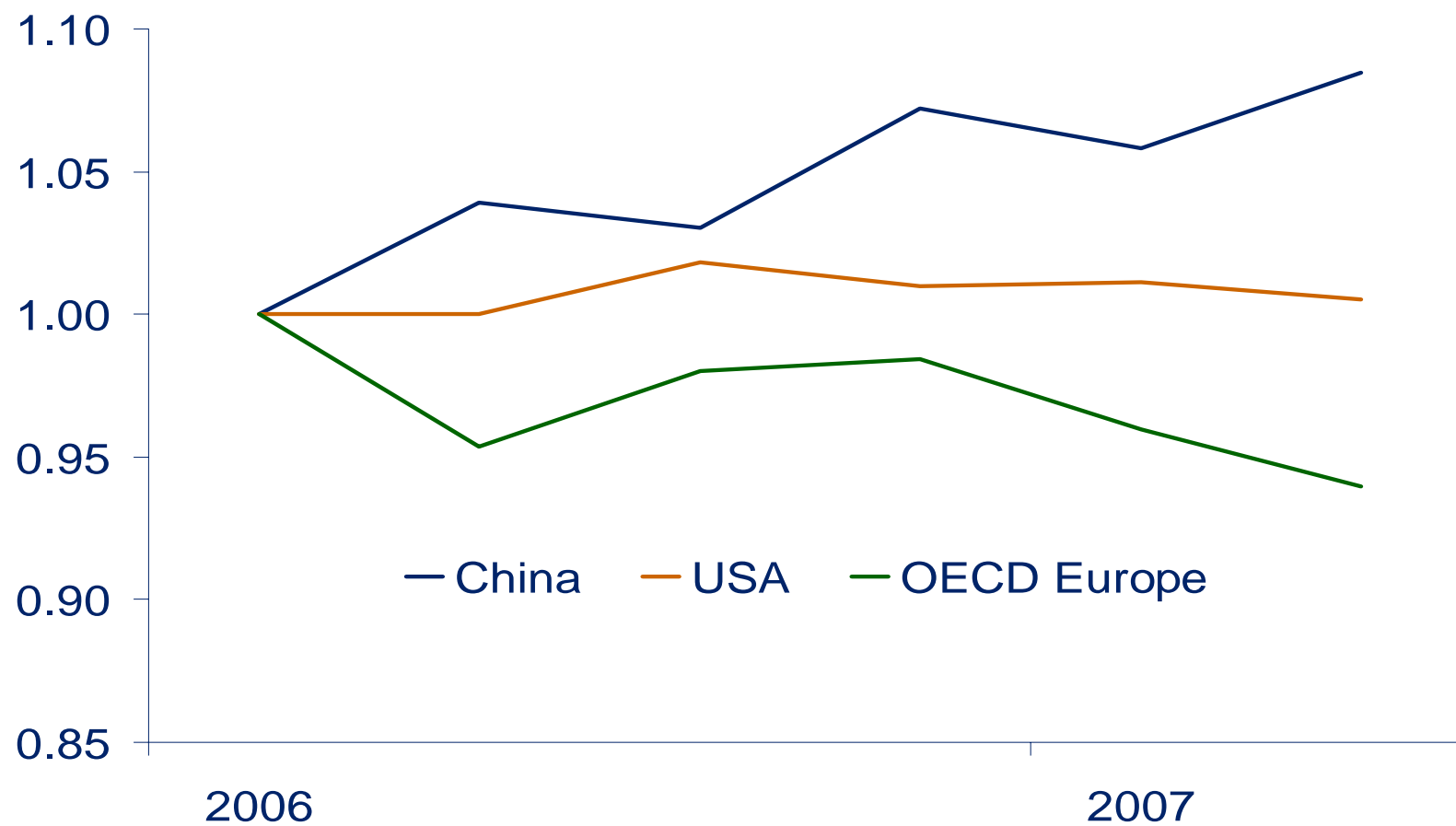
The winners are the economist and the macro-strategist

- We believe in the flexibility of the market.
- Supply (including technology) and demand will determine price.
- But the industry is not perfectly competitive.
- The geopolitical risk premium and the OPEC premium due to output constraints and underinvestment will remain with us.
- Oil prices comprise a marginal cost component and a risk premium.

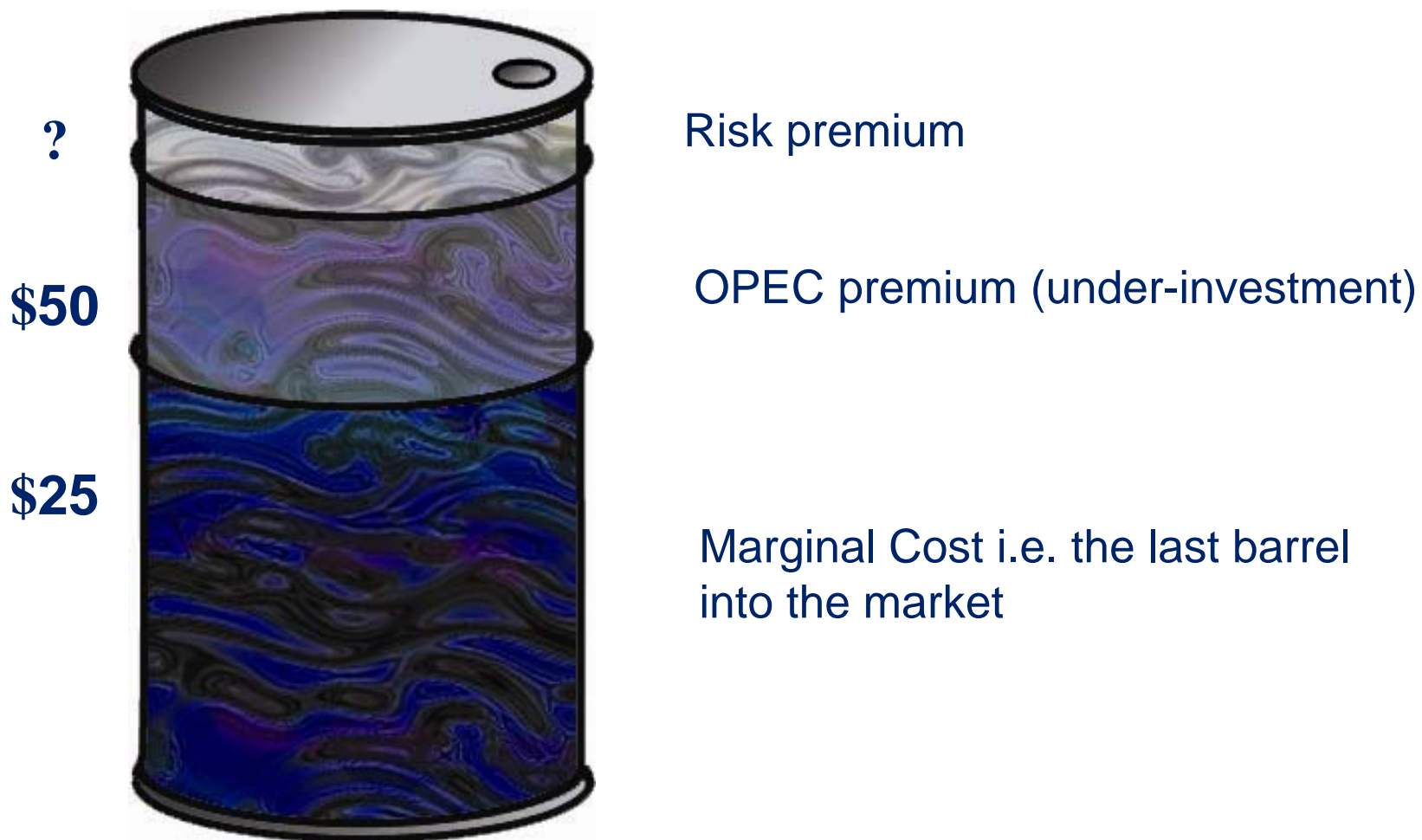
Long-term energy efficiency will improve



Demand destruction visible



Basic building blocks of a medium to long term price



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