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Russia and the Caspian States in the Global Energy Balance

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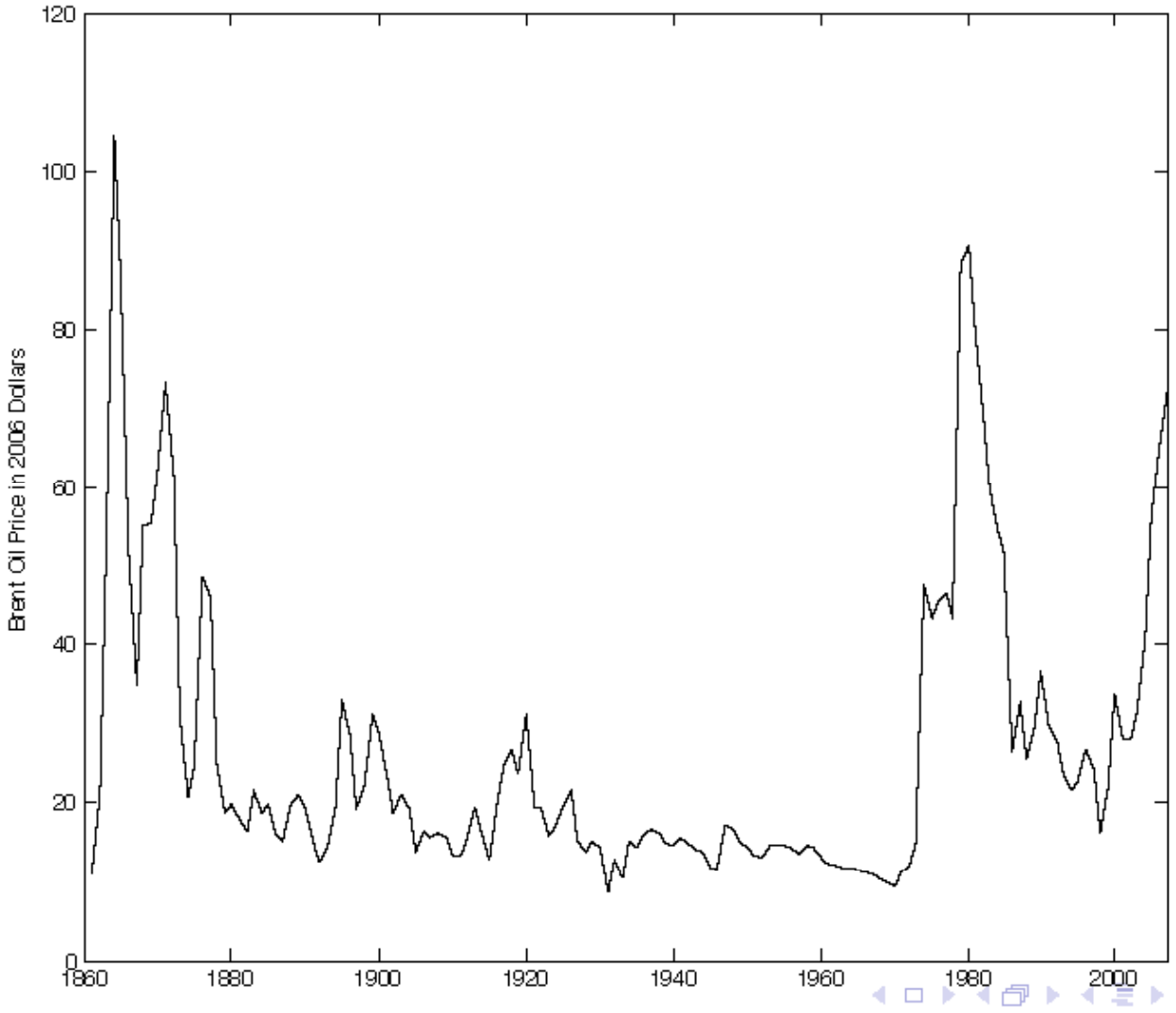
Coincidence of High Oil Prices with Financial Crises

Currency & Banking Crises Severest 1850s-70s, 1970s–



Cyclical Petrodollar Recycling and Financial Crises

- Feedback mechanism during booms

  growth (*lag*) ⇒ oil price ↑ ⇒ Petrodollar flow ↑ ⇒ interest rates ↓ ⇒ growth

- Hubris (80's: *countries don't go bankrupt;* 00's: *house prices don't fall*!)

  Petrodollars ↑ ⇒ interest rates ↓, asset prices ↑ ⇒ leverage ↑ ⇒ asset prices ↑

- Eventually (Minsky moment; Ponzi finance)

  high cost ⇒ slowdown ⇒ bad loans ⇒ Crisis, interest rates ↑ ⇒ recession

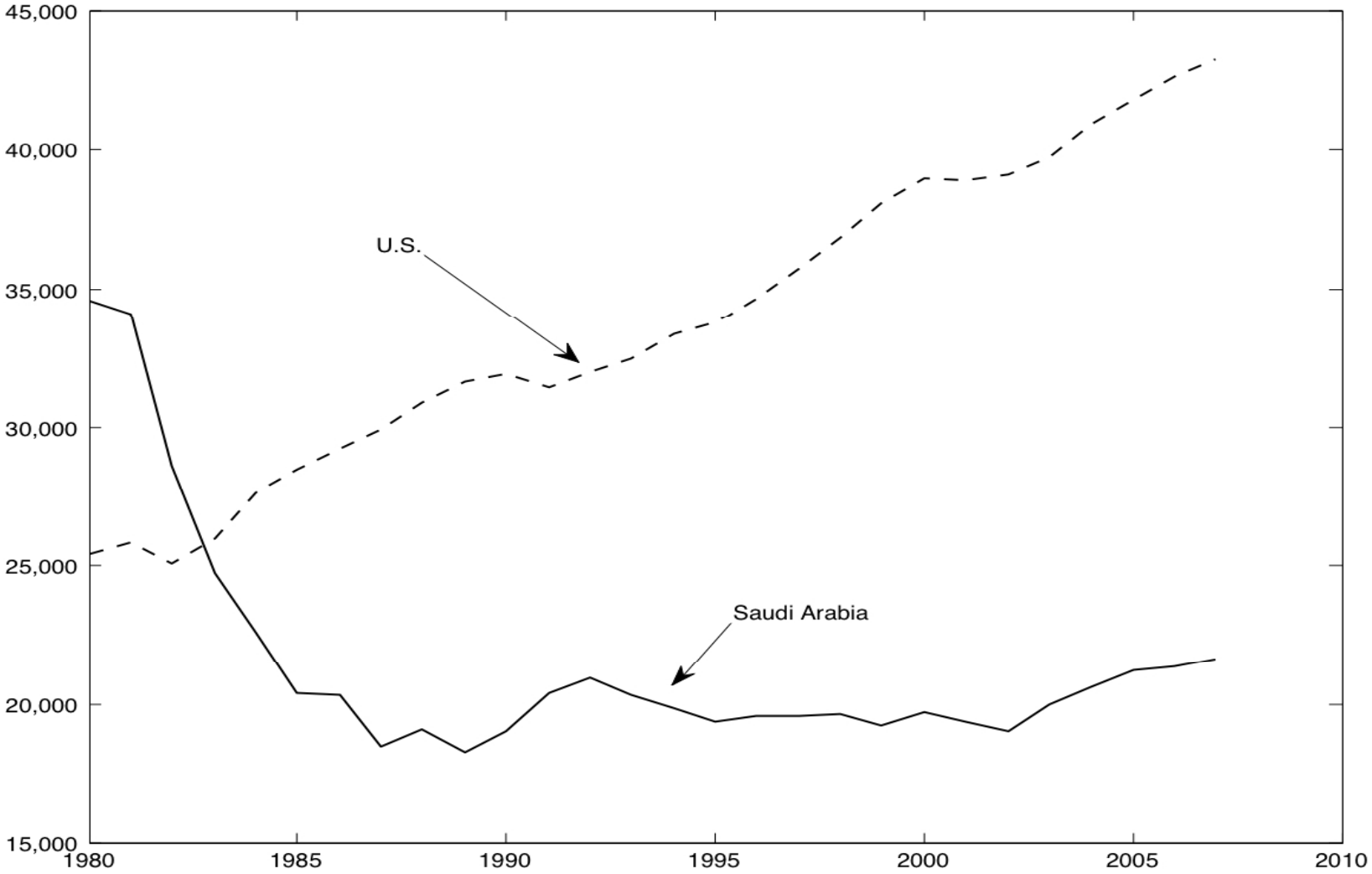
- Feedback mechanism during busts

  recession ⇒ oil price ↓ ⇒ Petrodollar flow ↓ ⇒ interest rates ↑ ⇒ recession

- Low cost of production + monetary and fiscal policies (*lag*) ⇒ economic growth + geopolitical strife (*lag*) ⇒ oil price ↑

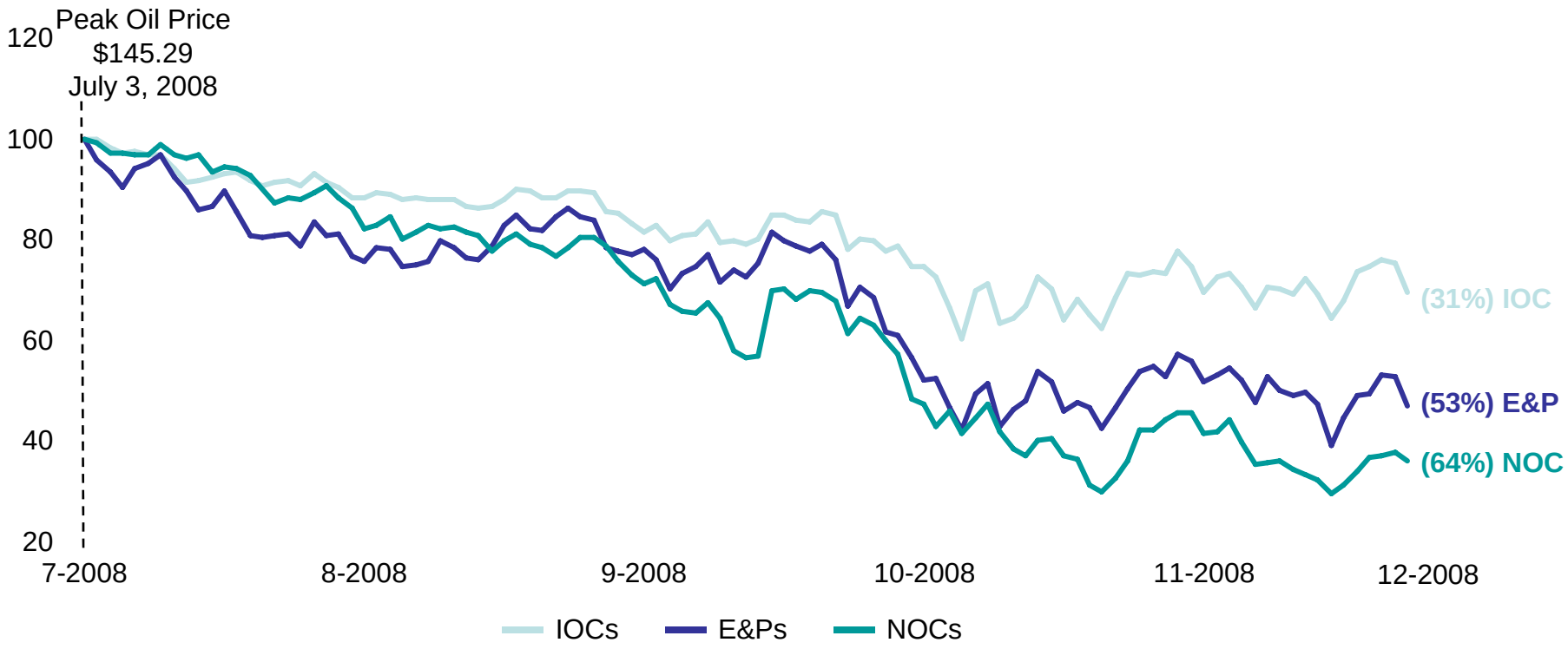
Source: Mahmoud A. El-Gamal and Amy Myers Jaffe. GEM Working Paper, May 2008

Per Capita income results of oil boom-bust cycle favors consuming countries, not producers



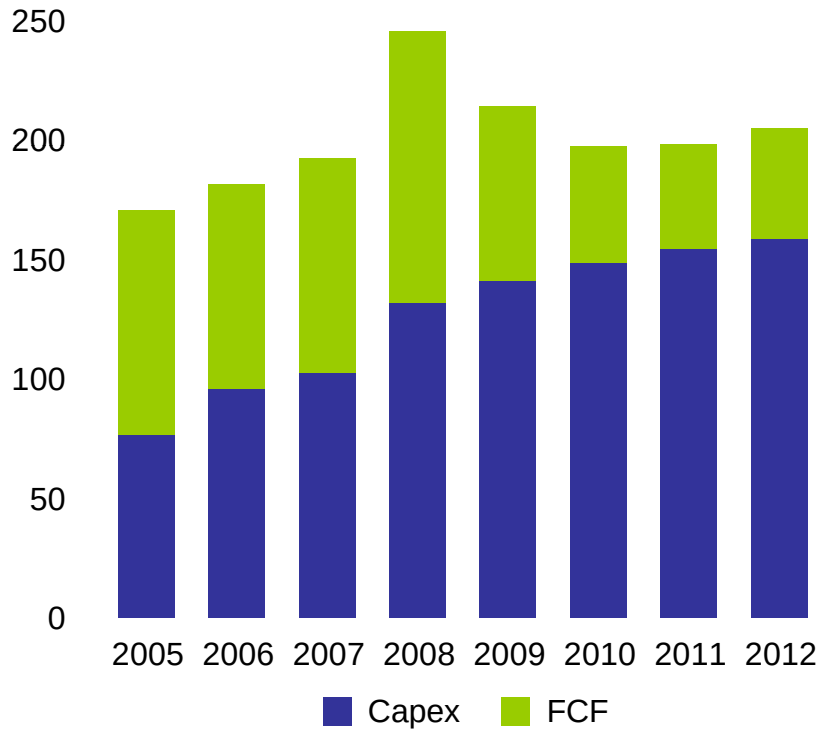
Majors lost less ground in price fall than NOCs, reversing capitalization trends of recent years

Share Price Performance Since 3-Jul-08 (Source: Morgan Stanley)

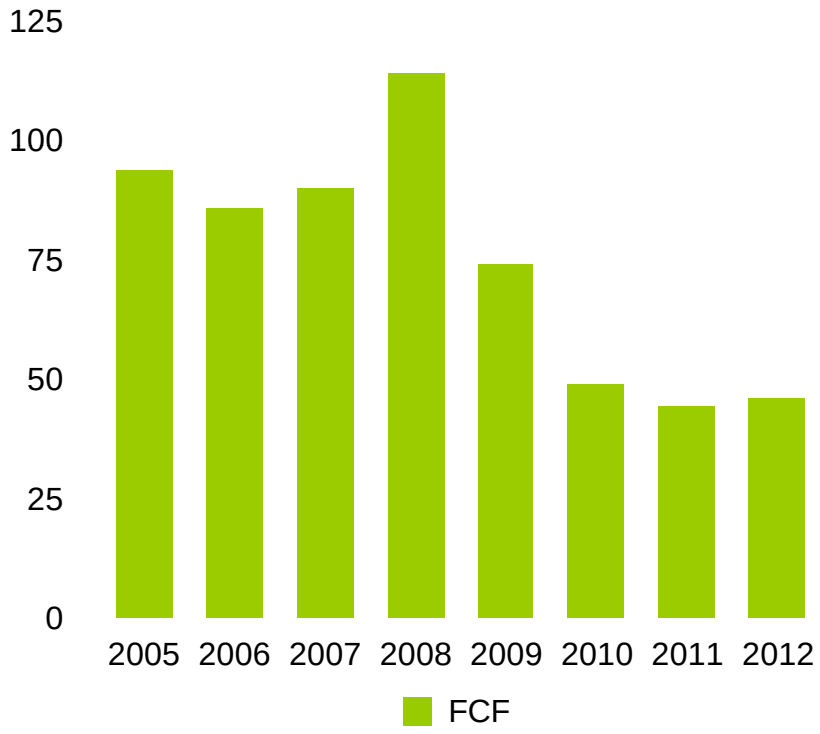


IOCs may have less cash available but share buy backs, not exploration, likely to be cut: Still shopping for attractive assets

Spending Capacity of IOCs (2005 – 2012)



Free Cash Flow of IOCs (2005 – 2012)

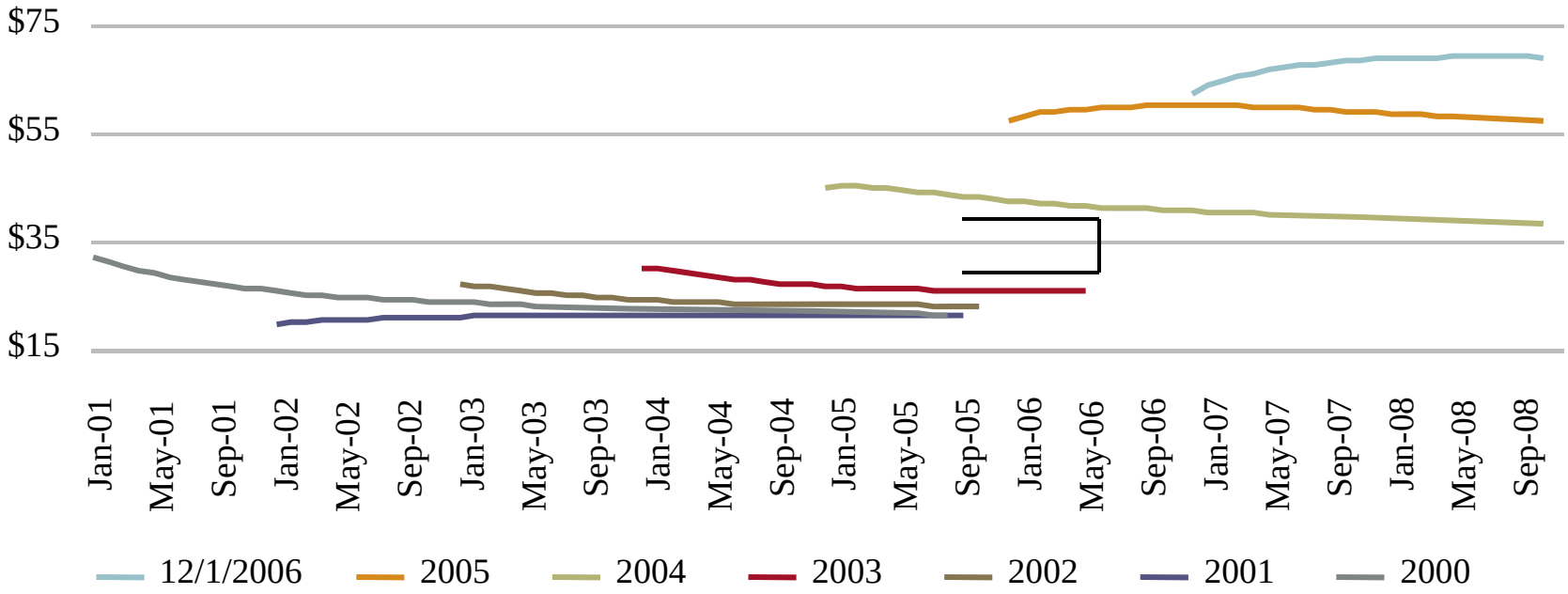


Long oil price moved upwards but now is coming back down…how low will depend on Saudis and US economy…

Why did the long oil price move upwards?

- Pessimism about NOC investment in new capacity
- Access restrictions for/lack of spending by IOCs
- Terror Premium created permanent change in attitudes about price floors
- F&D cost inflation
- China demand "story"

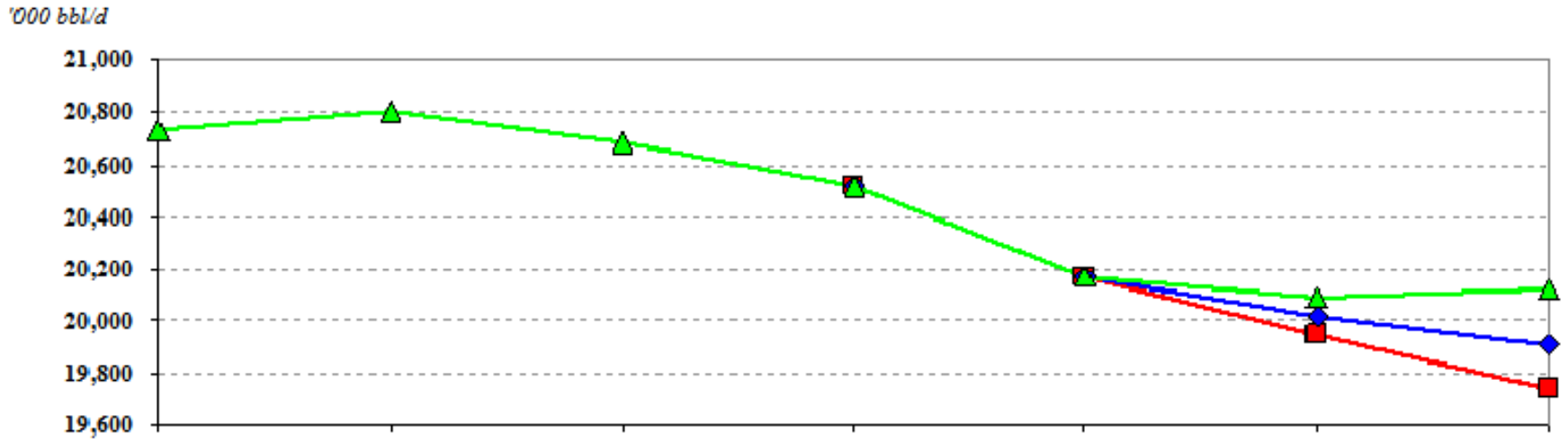
The Long Oil Price Didn't Move Until 2004



1. *Forward curve on December 1, every year.*

US Oil Demand

- Demand is influenced by a number of factors.
  - Income, Price, Weather (heating load), Vehicle efficiency
  - Short run elasticities estimated as:
    - Price = -0.0508 ... Thus, a 1% increase in price would result in a decline in demand of 0.05%.
    - Income = 0.3518 ... Thus, a 1% decline in GDP would result in a decline in demand of 0.35%.
    - Fuel Efficiency = -0.7906 ... Thus, a 1% increase in efficiency would result in a decline in demand of 0.79%.
    - HDD = 0.1654 ... Thus, a 1% increase in HDD (colder weather) would result in an increase in demand of 0.17%.
    - Majority of adjustment occurs within a decade (lag coefficient = 0.4567)
- The last four years and what we might expect for 2008-2010...



	2004	2005	2006	2007	2008	2009	2010
GDP growth ...	3.64%	2.94%	2.78%	2.03%	0.5%	0.5%, -0.5%, -1.5%	2%, 0.5%, -0.5%
Price	$ 33.80	$ 44.56	$ 51.78	$ 56.77	$ 90.79	$ 45.00	$ 50.00
HDD	4290	4315	3996	4255	4463	4463	4463
Fuel Eff	17.1 mpg	17.1 mpg	17.2 mpg	17.4 mpg	17.5 mpg	18.3 mpg	18.4 mpg

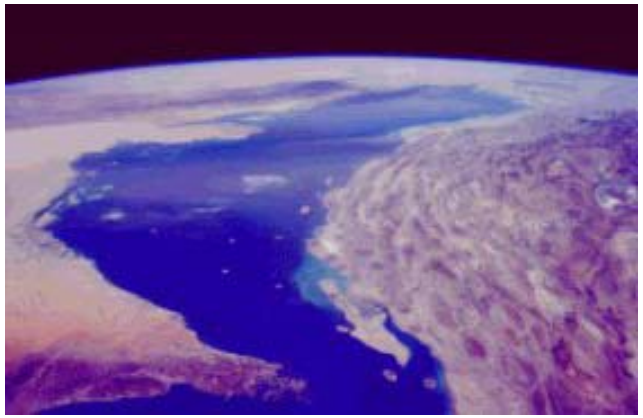
Arab Gulf Economic and Geopolitical Interests

- Meet Budget Requirements
- New Attitudes that Financial Surpluses Might be Squandered or Mis-invested Anyway
- Ensure long term demand for oil
- Slow down shift to more fuel efficient cars, discourage massive investments in alternative energy
- Protect dollar asset holdings and promote a shallow and short recession
- Protect geopolitical influence through power in oil market, playing an important role in stabilizing global financial crisis
  - Saudi Arabia: 4th largest asset holder in the world at $575 billion
  - Largest current account surplus and trade surplus in the Middle East at $150 billion, ranking it in surplus terms in the top 5 worldwide
  - Saudi Arabia is among the top five largest creditors to the international financial system
- Reduce the influence of Russia, Iran and Venezuela –Will Saudis take a punitive 1986 style strategy with oil prices?

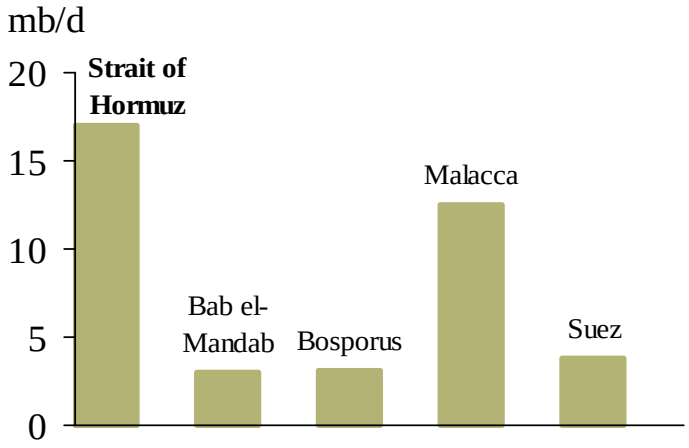
Iran is a lingering energy market risk issue

Iran's nuclear ambitions could still lead to use of force

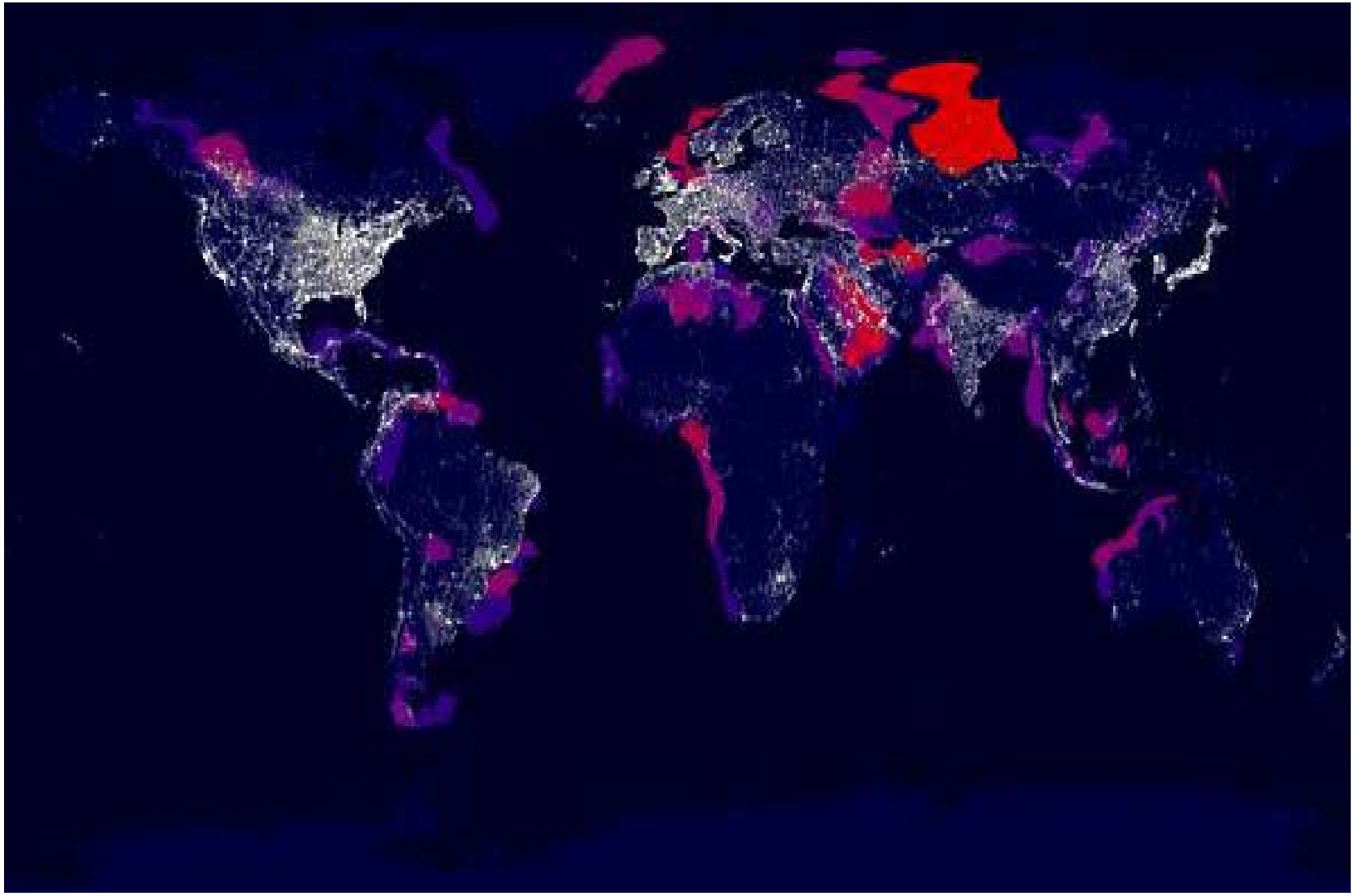
- Israel increasingly focused on the strategic risk from Iran. Growing imperative to use military force with consequences to oil markets
- U.S. options to head off a possible conflict are diplomacy and tighter sanctions, perhaps a cutoff of gasoline imports.
- Can Iran effectively block the 17m b/d Strait of Hormuz, through which 90% of Persian Gulf Exports flow?
- A role for Saudi spare capacity?



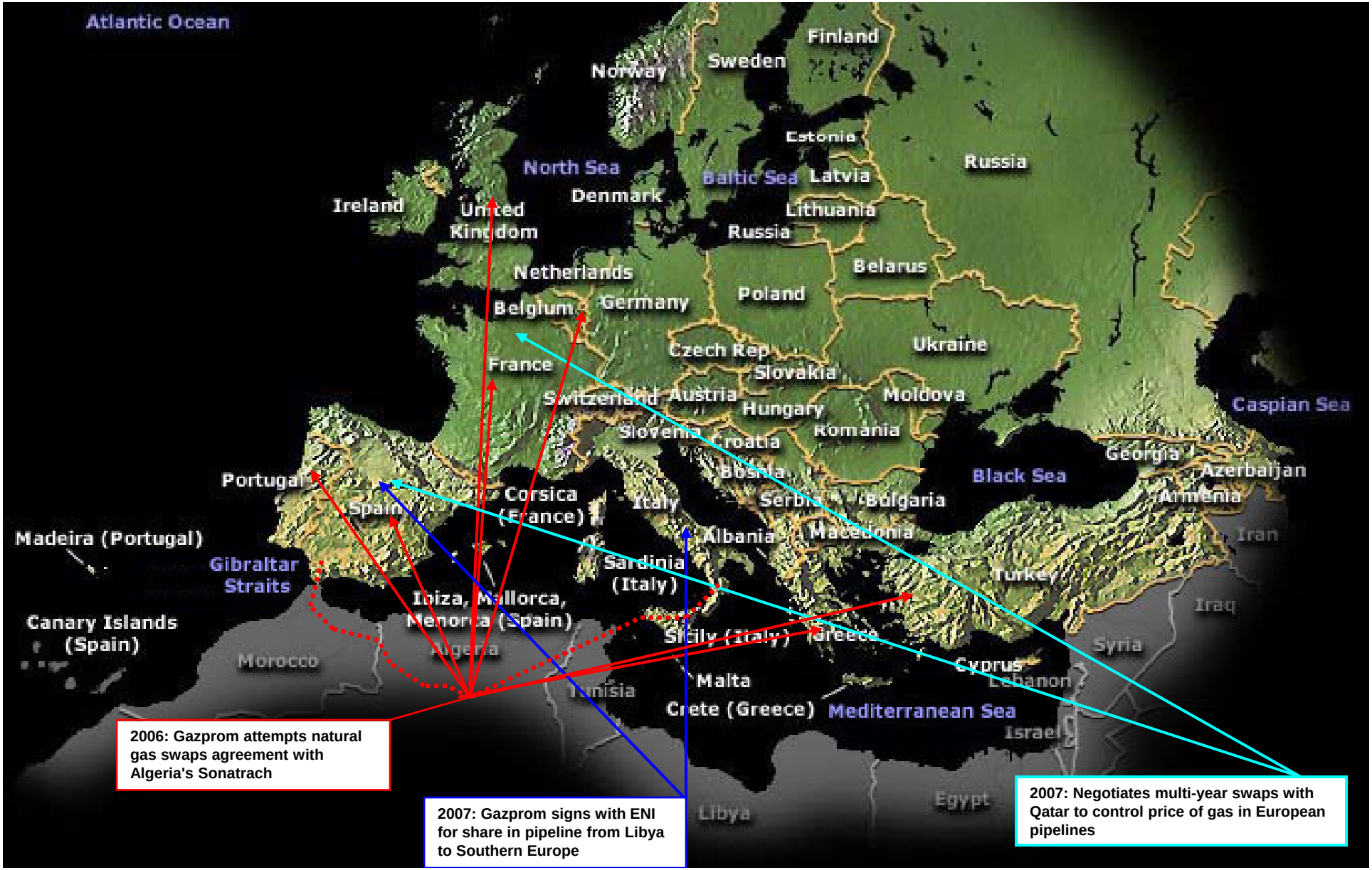
Strait of Hormuz is a key chokepoint



Global Gas Markets:Concentrated Resources but Large Competitive Fringe



Gazprom Cornering Distribution?

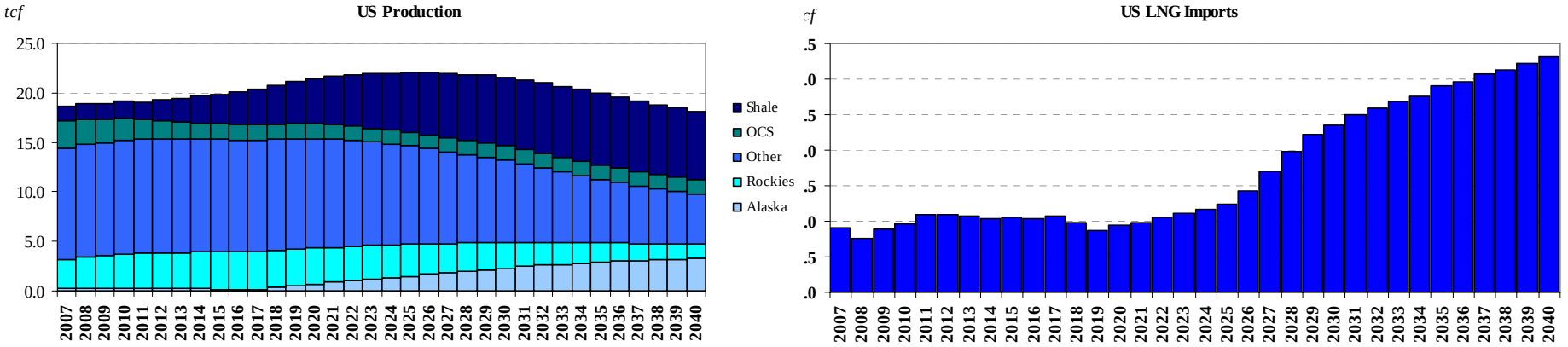


Geopolitical context to energy

- Iran and Russia natural competitors for European energy sales
- Iraq natural competitor to both Iran and Russia
- IEA has role to play in nat gas markets
- History of Saudi counterweight to challengers
- US policy changing the dynamics of demand growth, making Saudi spare capacity all the more “effective”

Higher prices triggered
Ample New Finds of U.S. Domestic Natural Gas

- U.S. shale assessment has been expanded by 145 trillion cubic feet to total of 284 tcf
- Shale forecast to be an increasing share of U.S. supply
- U.S. LNG import rates could flatten for a decade or more



New U.S. Efficiency Standards Will Reduce U.S. Oil Demand

- Green advocates are influential in the Obama administration and are focused first and foremost on fuel efficiency improvements (ala state of CA)
- Similar trends hold in many countries. Obama Administration may push auto efficiency as part of global climate agreement
- Policy can be multi-pronged in its approach
  - A technological breakthrough, such as with plug-in hybrid vehicles, could push demand lower into the future. Once these alternatives are adopted, the market is forever changed
  - Biofuels can induce even further reductions in demand