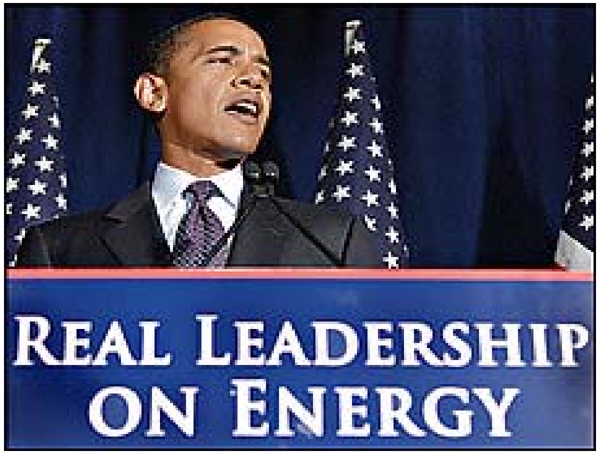
Amy Myers Jaffe
James A. Baker III
Institute for Public Policy,
Rice University



USAEE Luncheon

April 8, 2010

Continuation of Middle East geopolitical conflicts driven by self-perpetuating arms races funded by petrodollars

Façade of political and social stability in Middle East made possible by government spending on security during high oil price period masks significant threats in the region.

Nuclear arms race, conventional armed conflicts, sectarian strife, increasing income inequality, and failure to diversify economies driving the forces of future instability.

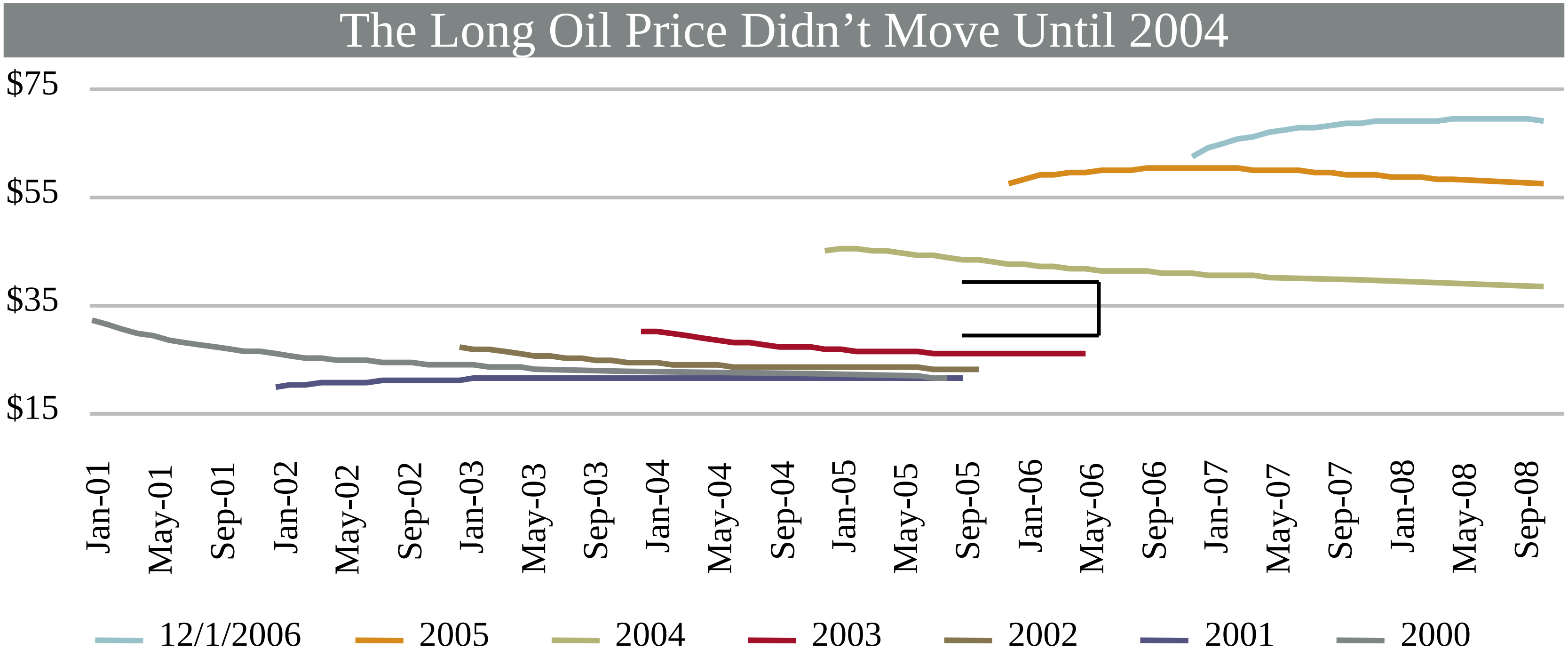
US plays into the pattern by selling arms and then trying to contain conflict through economic sanctions.

Economic disappointment during down part of cycle drives discontent, terrorism and radicalism.

Long oil price increased and perception of the "floor" price changed

Why did the long oil price move upwards?

- Pessimism about level of NOC investment in new capacity
- IOC opportunities seen as constrained
- Terror Premium, Iranian nuclear aspirations created permanent change in attitudes about price floors
- F&D cost inflation
- China, India demand "story"
- Financial players consider oil as an attractive asset class investment vehicle to hedge against the dollar, treasuries and traditional equities



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

Active Geopolitical Risks

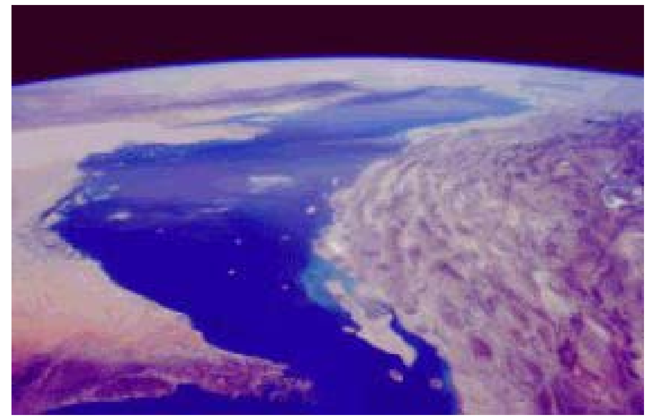
- Iranian Revolution X 2
- Democracy Movement in Middle East: Will democracy stifle upstream investment?
- Regime Change Usually Equals Supply Disruption
- Saudi Succession Issues
- Yemen War
- Proxy Flight between Saudi and Iran for supremacy

RICE UNIVERSITY

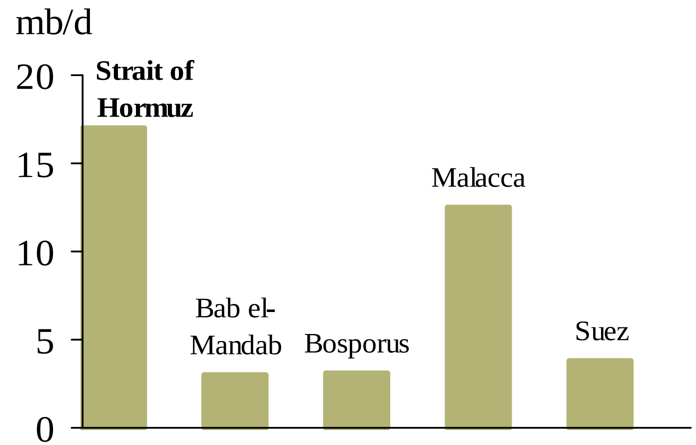
Iran is a lingering risk issue

Iran’s nuclear ambitions still a factor to be managed

- Israel increasingly focused on the strategic risk from Iran. Growing imperative to use military force: oil consequences possible…damage possible to Iran’s key export terminal at Kharg Island…
- Changing Gulf Arab Responses, Israel an ally? Oil and dollar options…
- 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?
- Other Iranian retaliation options: Saudi targets?
- What if we see a repeat of 1979 and Iran’s government is overthrown?



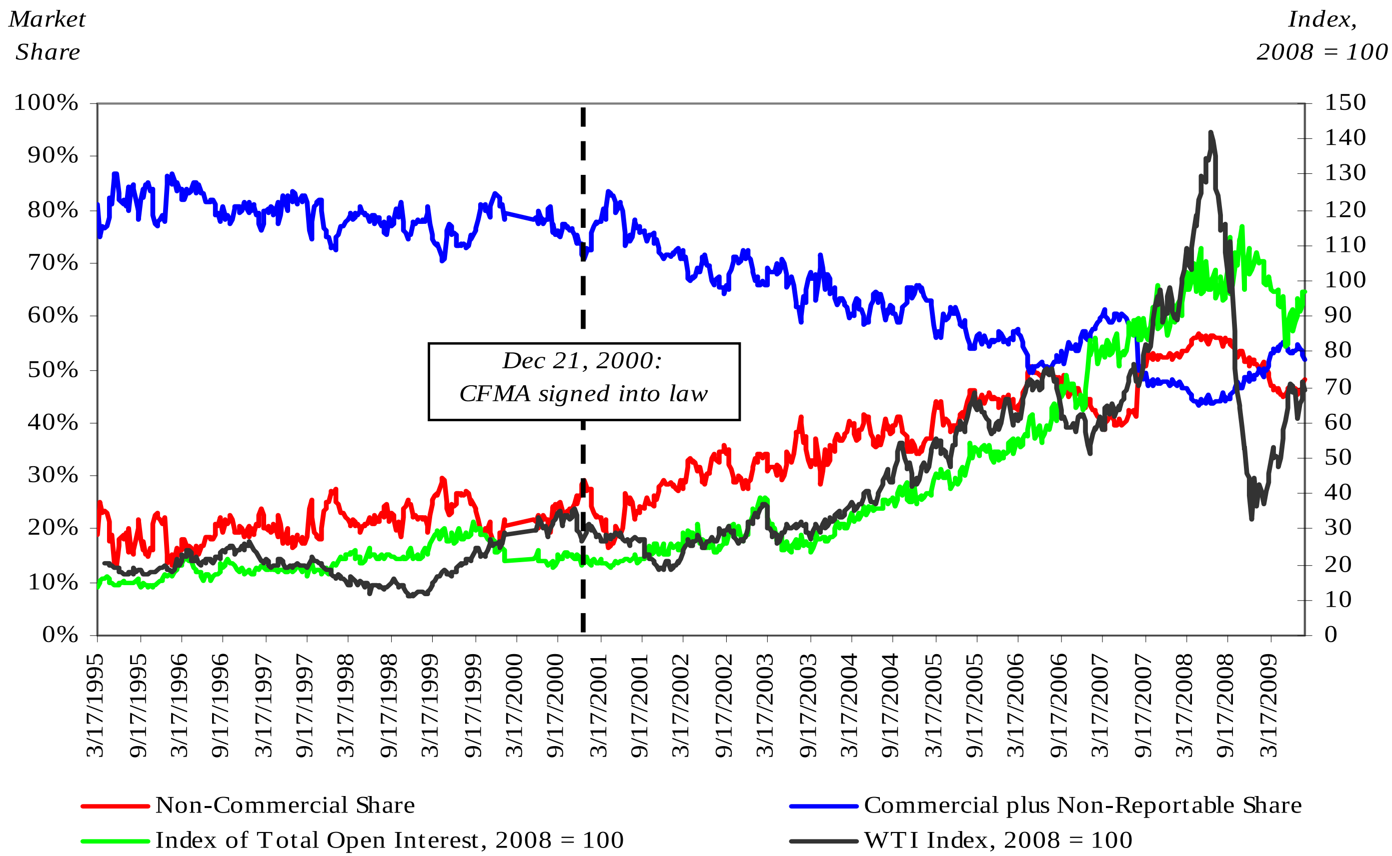
Strait of Hormuz is a key chokepoint



RICE UNIVERSITY

Growth of Financial Players in Crude Oil Futures

- Market composition changed after the Commodity Futures Modernization Act (CFMA) was passed with financial players increasing from 20% to over 50% of open interest.

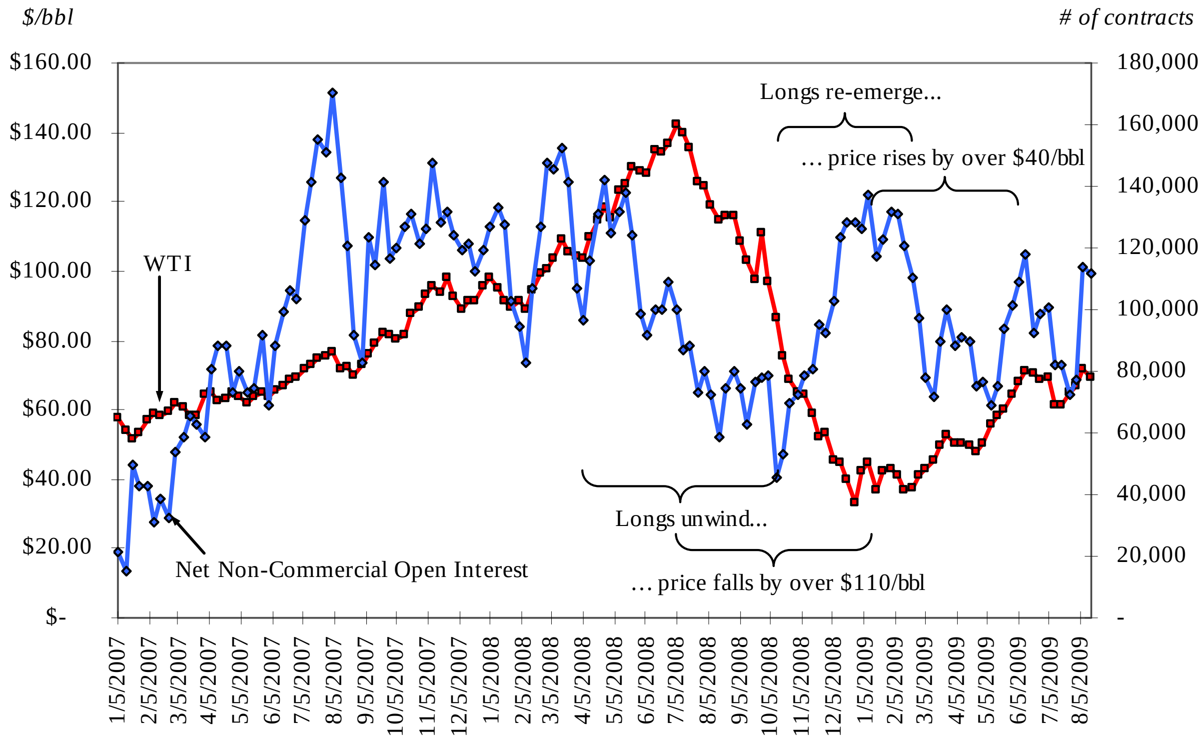


Source: CFTC COT Reports – CRUDE OIL, LIGHT SWEET - NYMEX

- Some financial players enter and exit the market based on relative returns to other commodities, financial instruments and equities

"Speculation and the Price of Oil"

- Non-commercials have been consistently net long, as a group, for the past few years.
- The net long position shows evidence of leading oil price.
  - Tests of bivariate Granger causality reveal this to be the case. Omitted variables bias render this suggestive rather than definitive. For example, changes in physical market indicators could lead market positions and oil price. A more complete multivariate analysis is being conducted.



Source: CFTC COT Report - 'CRUDE OIL, LIGHT SWEET' - NYMEX

Nuclear vs Natural gas in Iran

- 2 nuclear plants (1,360 MW) will free up 200 mmfc/d of natural gas (2.07 bcm/yr)
- Phasing out domestic natural gas subsidies would reduce the need for 13,800 MW of electricity or 2 bcf/d of natural gas (20.8 bcm/yr). (long run electricity demand of -0.4, doubling of price would result in a 40% drop in annual growth rate to about 2 percent a year
- Savings from reorganizing price subsidies could be as much as the equivalent of building fourteen 1,000 MW plants
- Iran also has substantial geothermal power potential