

Crude Oil Price Forecast

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Presentation at East Asia Summit – 7th Energy Cooperation Task Force Meeting
International Seminar “Energy Future: Turning Challenge into Opportunity,” June
27, 2008, Seoul, Korea

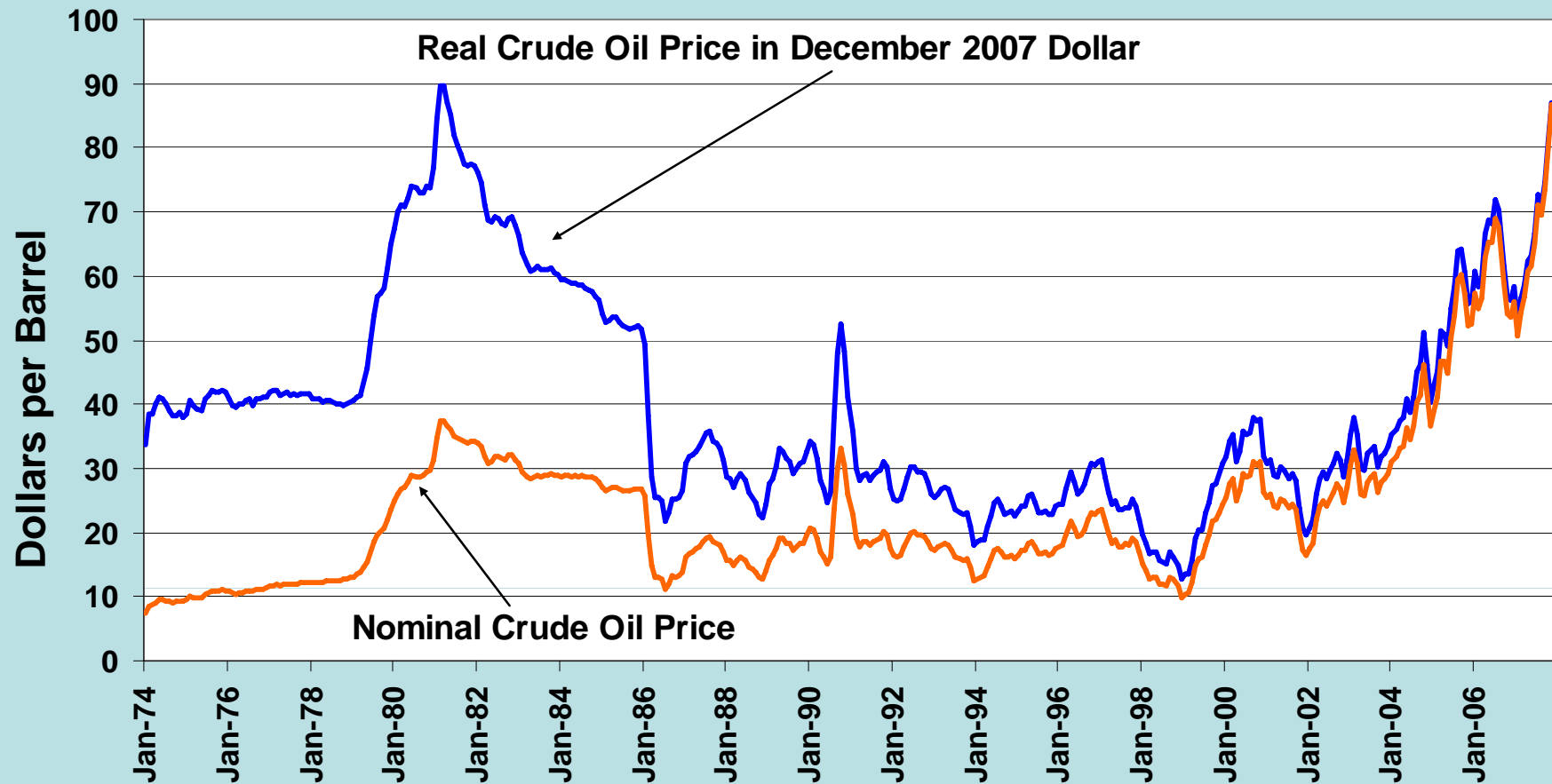
Features of Today's Talk

- It is non-technical based on technical efforts
- It focuses on short-run forecasting with some discussions on medium to long-runs

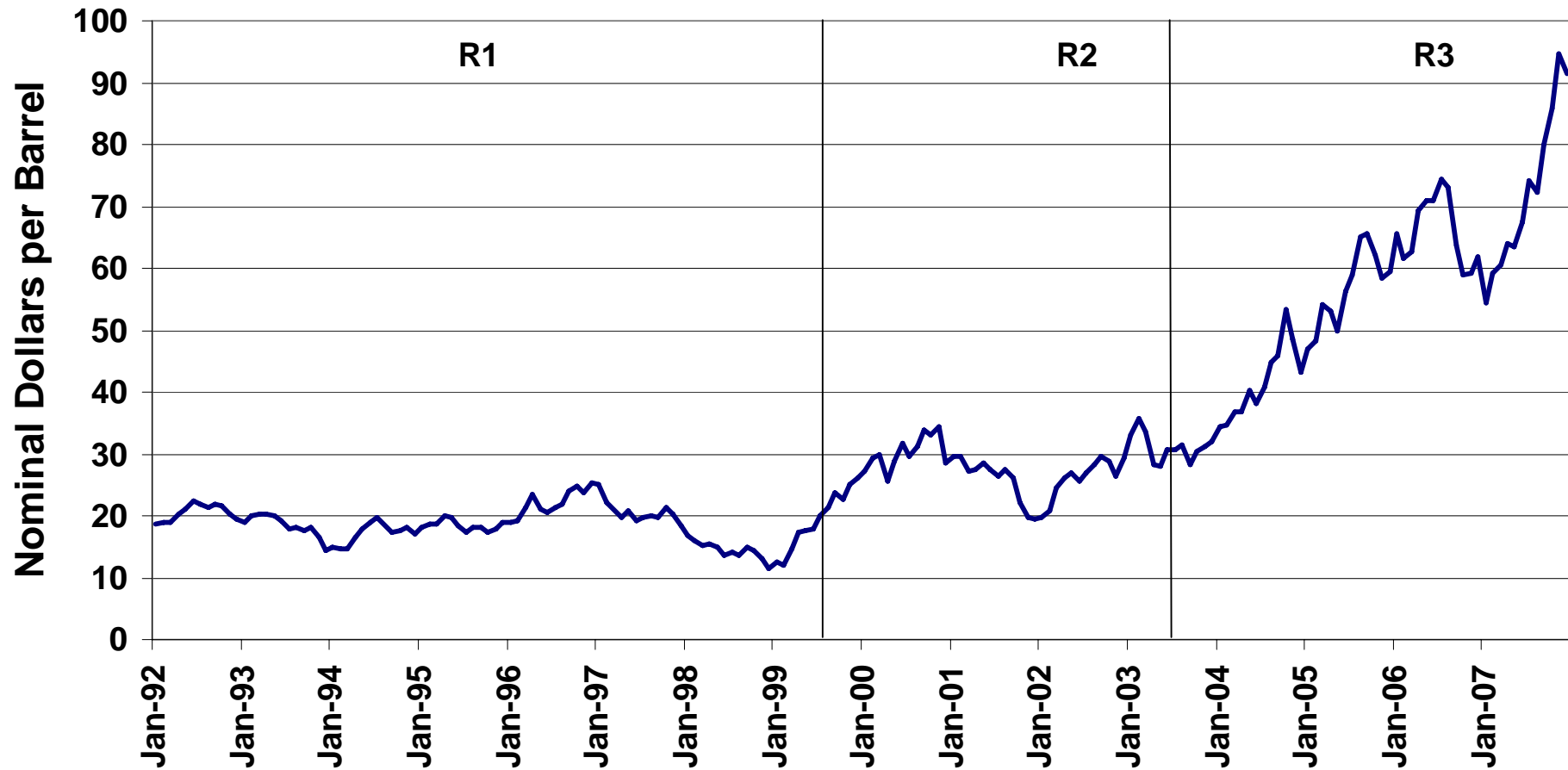
Highlights of Today's Talk

- Different regimes in crude oil market
- Inventories and excess production capacity; and their changing relations with crude oil price
- Key reasons for recent high prices
- A short-run crude oil price forecast modeling
- Other possible short-run factors
- Medium to long-run factors

Crude Oil Since 1974



Crude Oil Price in the Three Regimes from Early 1990s to Present



Petroleum Market Regimes

- R1: January 1992 to June 1999, when the market was viewed as being in equilibrium.
- R2: July 1999 to May 2004, when OPEC reestablished control of the market with excess production capacity for crude oil.
- R3: June 2004 to present, where there is practically no excess production capacity for crude oil.

Price Determinants in Regimes 1&2

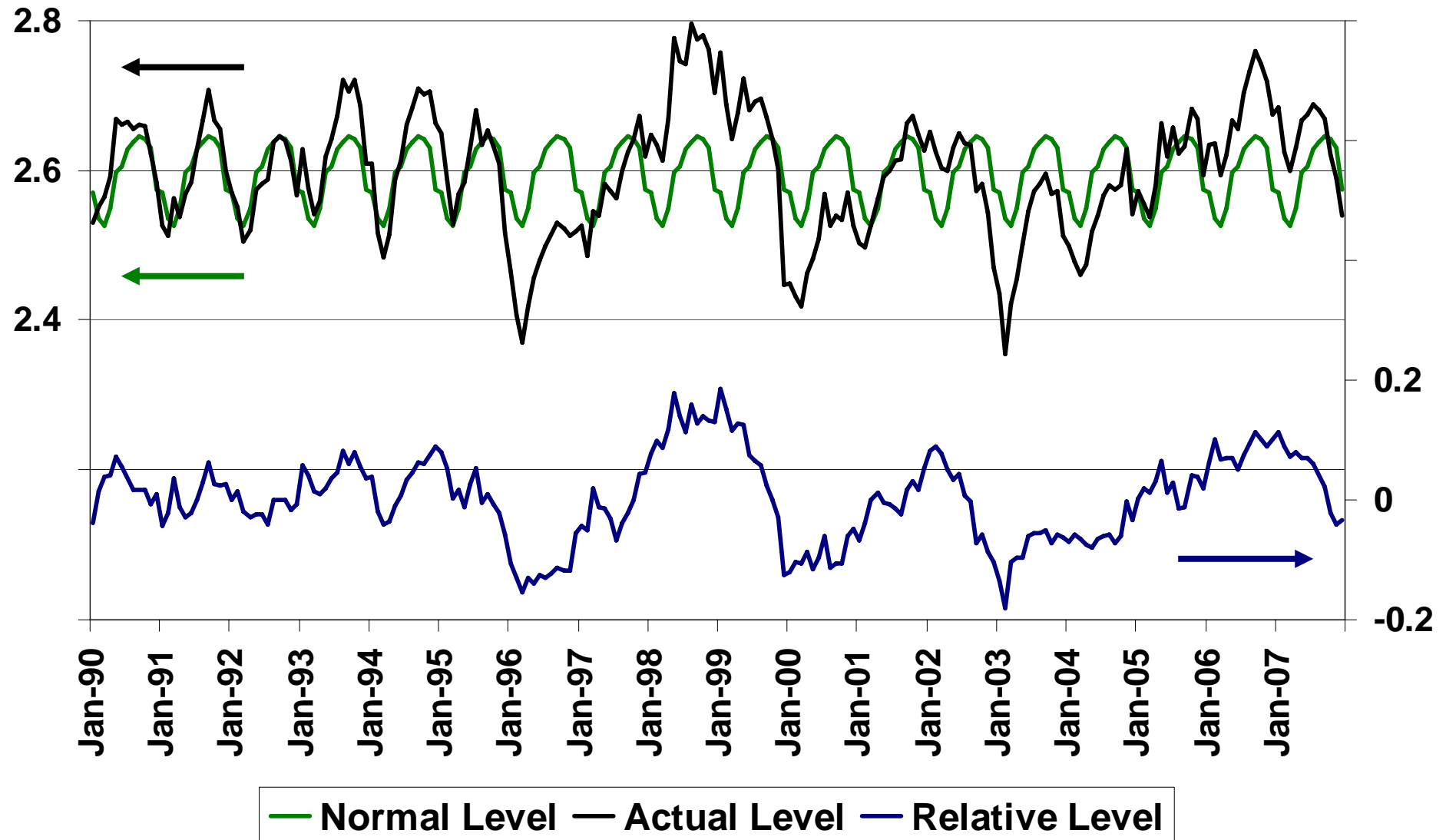
- **Inventory**

- Captures expected seasonality and general trends in production and demand as well as unexpected supply or demand shifts.
- Provides immediate “supply” when needed and can become a precautionary demand to cushion fears of a shortage.

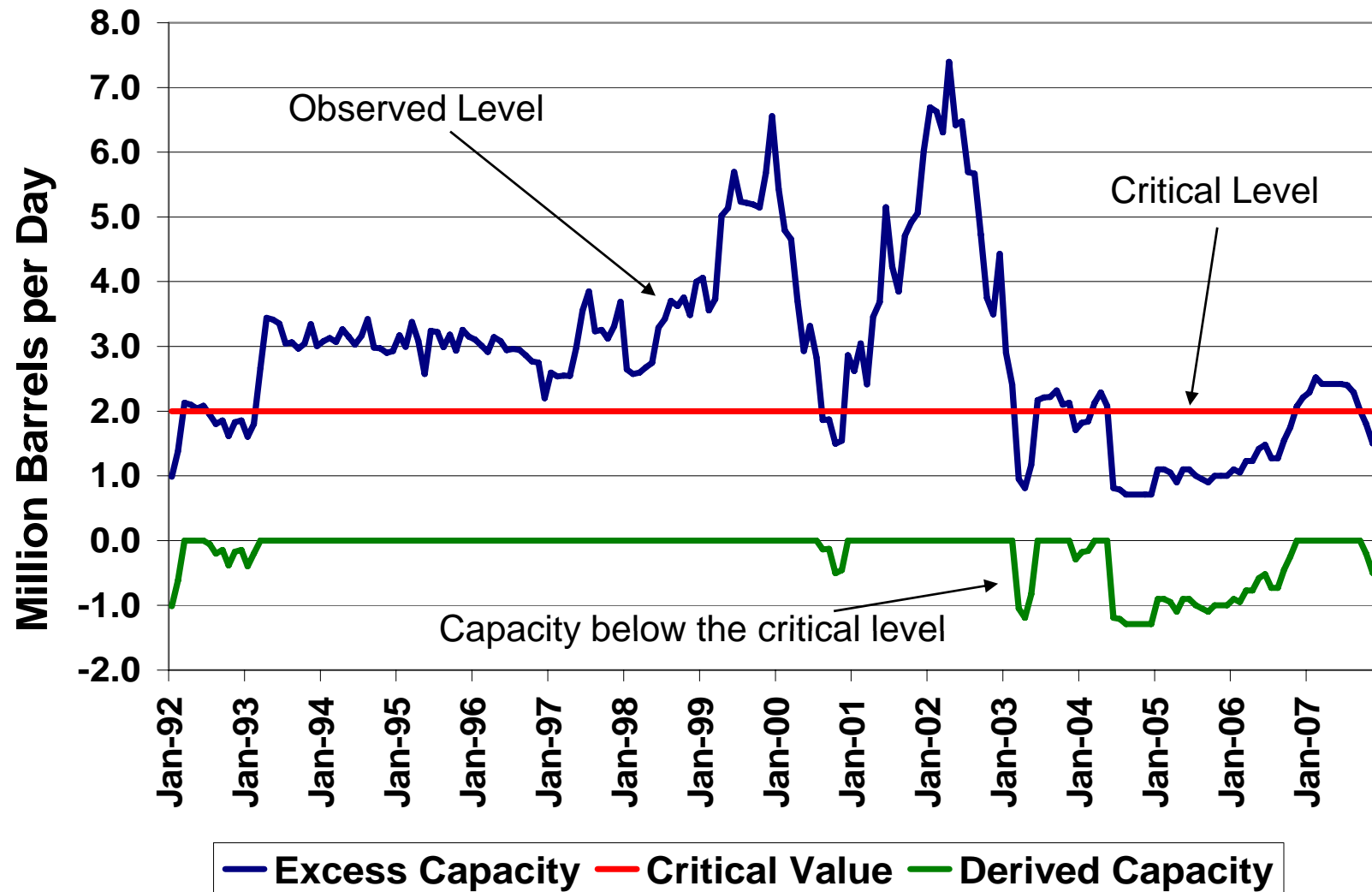
- **Excess Production Capacity**

- Has operational as well as psychological impacts on prices
- Impacts inventory management behavior.

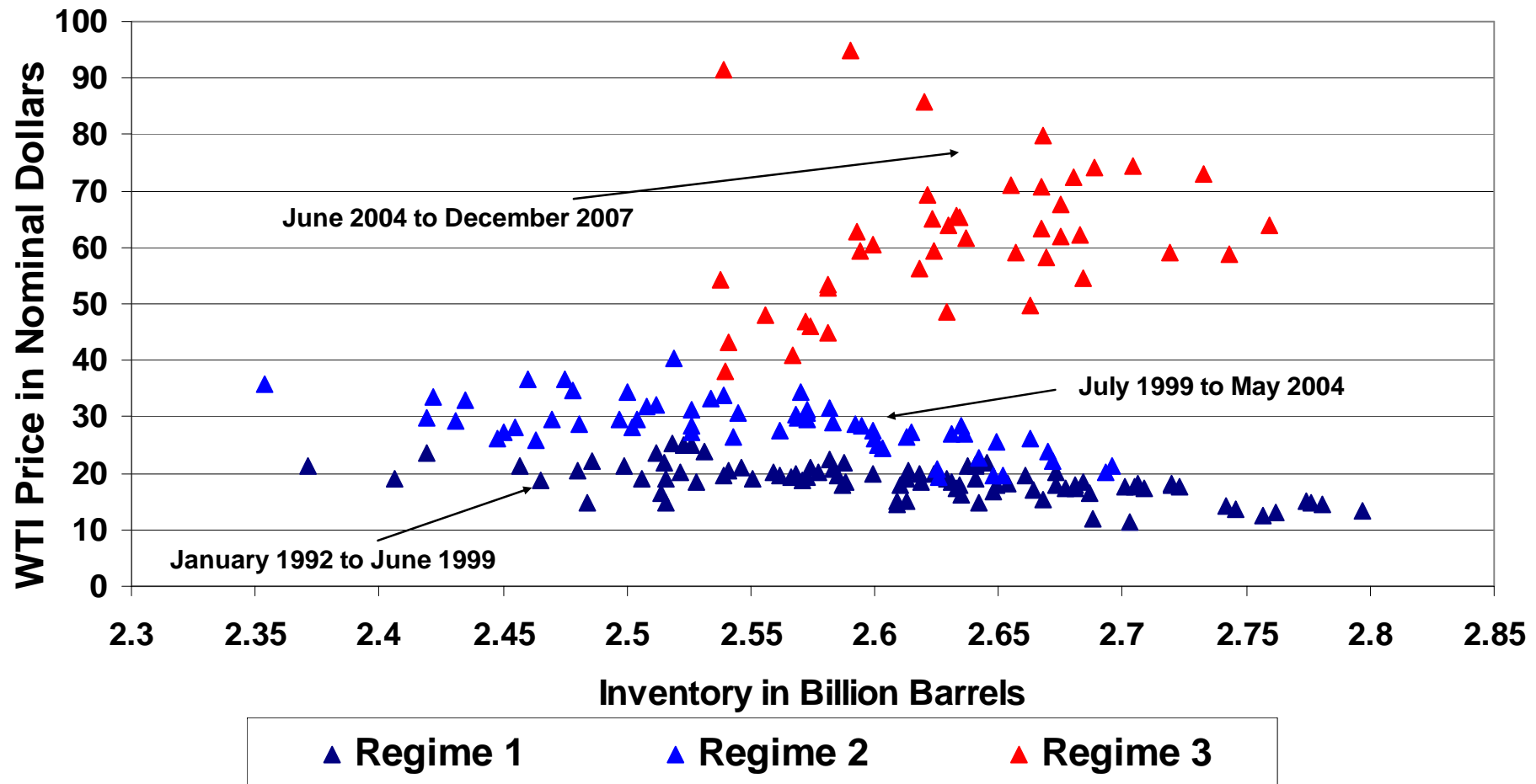
OECD Petroleum Inventory (in Billion Barrels)



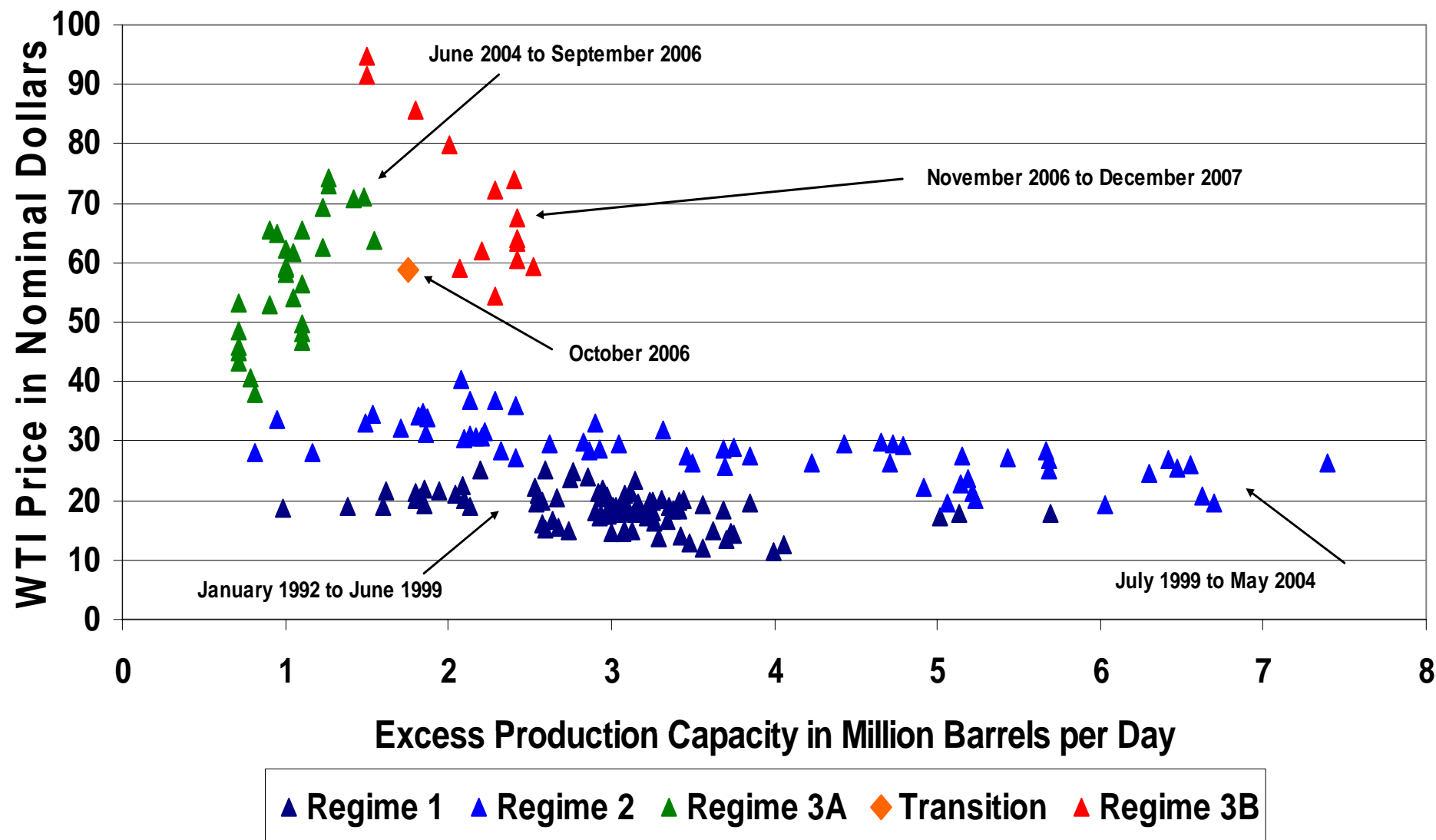
Excess Production Capacity



The Changing Relationship between Crude Oil Price and Inventory



Changing Relationship between Crude Oil Price & Excess Production Capacity



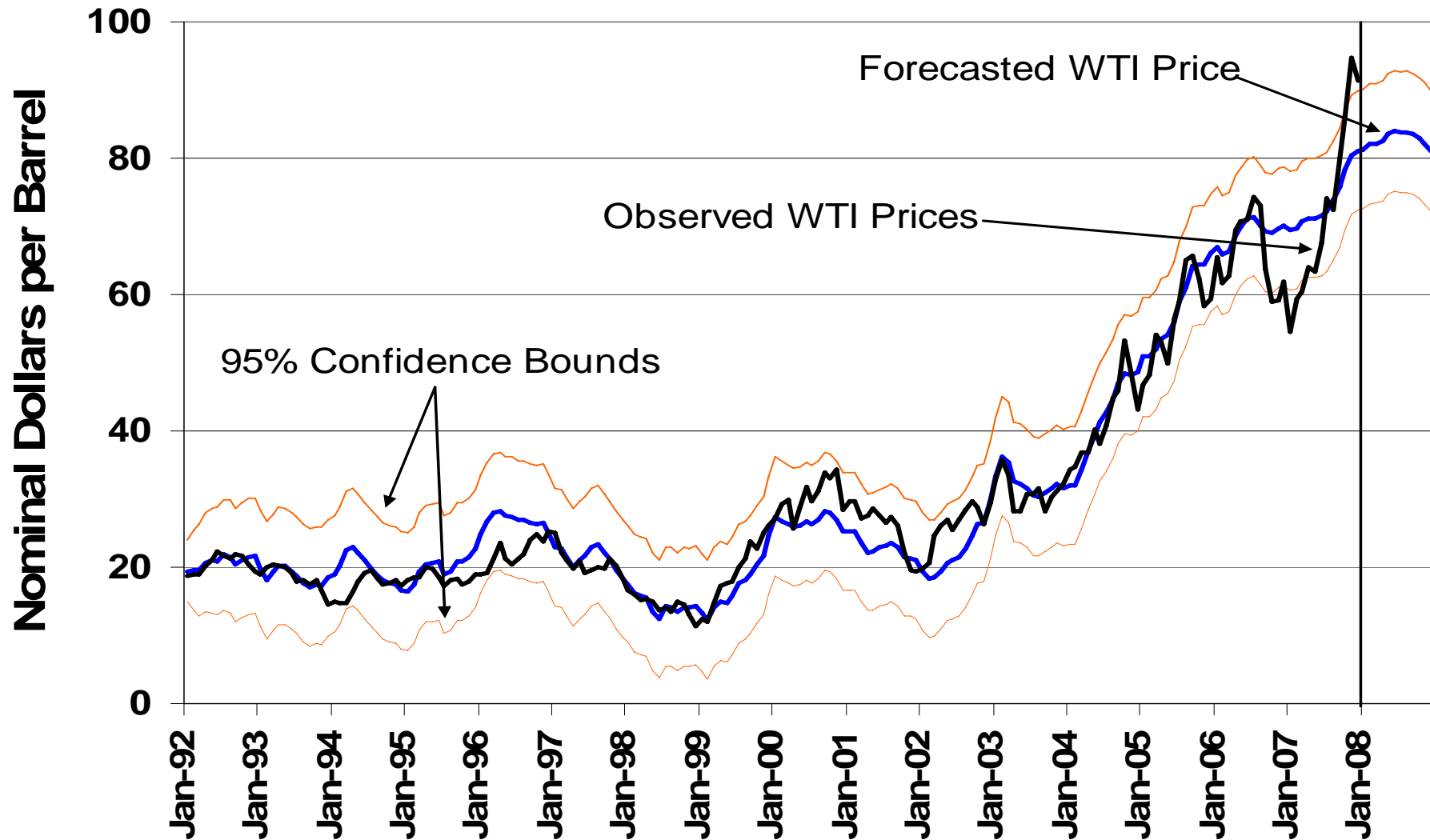
Reasons for High Prices in Regime 3

- OPEC is unwilling and/or unable to increase production capacity
- Non-OPEC producers are unable to add more production capacity timely
- End users seem to be willing and able to accept the high prices

A Short-Run Forecast Model

- Relative inventory
- Excess production capacity
- A variable reflecting users' acceptance and OPEC's accommodation of high prices

Forecast of Crude Oil Prices Given 1st Two Month Prices in 1992



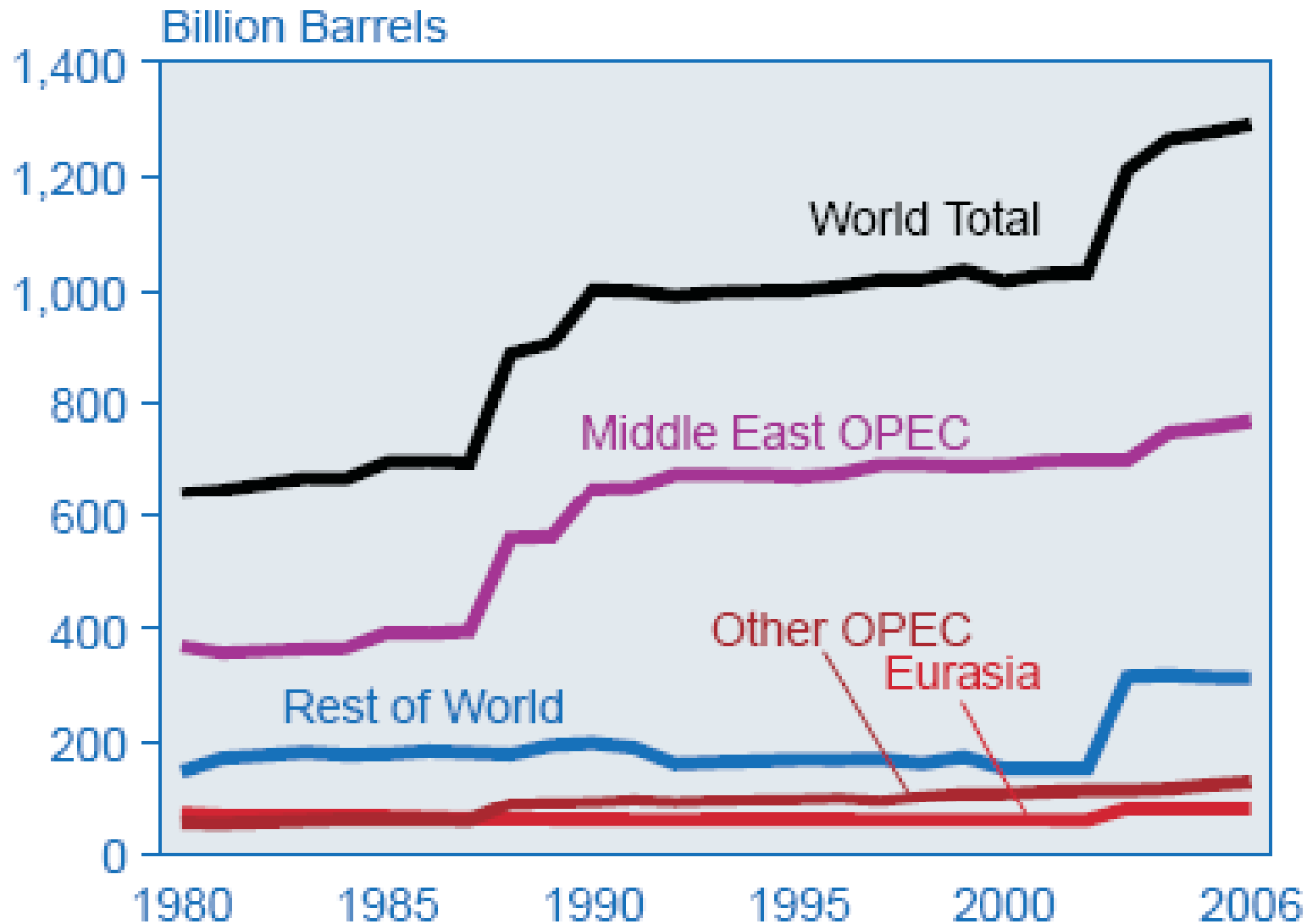
Other Possible Short-Run Factors

- Exchange rate (dollar depreciation)
- World economy, especially economies in Asia
- Short-run interest rate
- Non-commercial positions

Medium to Long – Run Factors

- OPEC and Non-OPEC's willingness and ability to increase production capacity
- World economies' responses
- Unconventional liquid fuels: biofuels, oil sands, and CTL
- Crude oil reserves

World Crude Oil Reserves



Long-Run Projections

