



# Commodity Prices and Global Inflation

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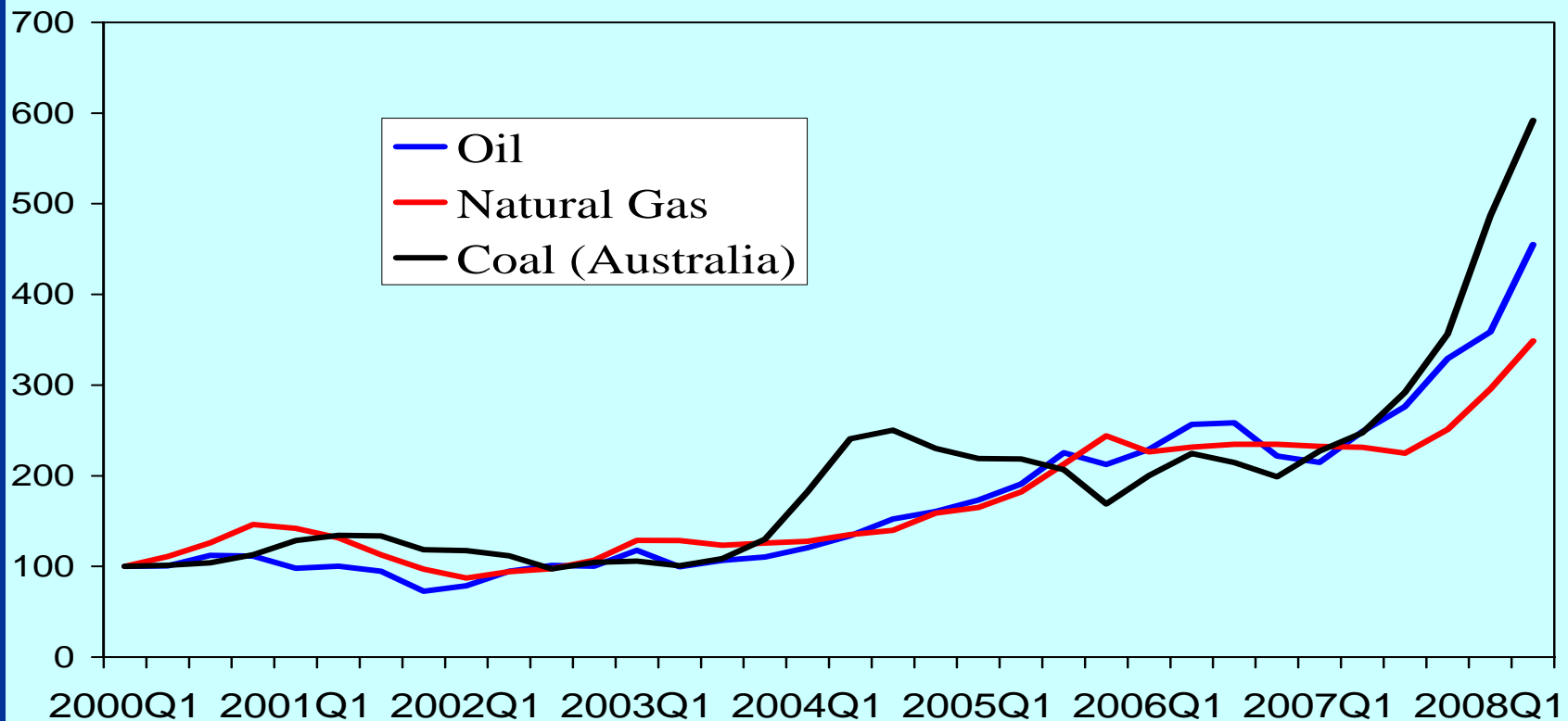
*International Monetary Fund*

*August 2008*

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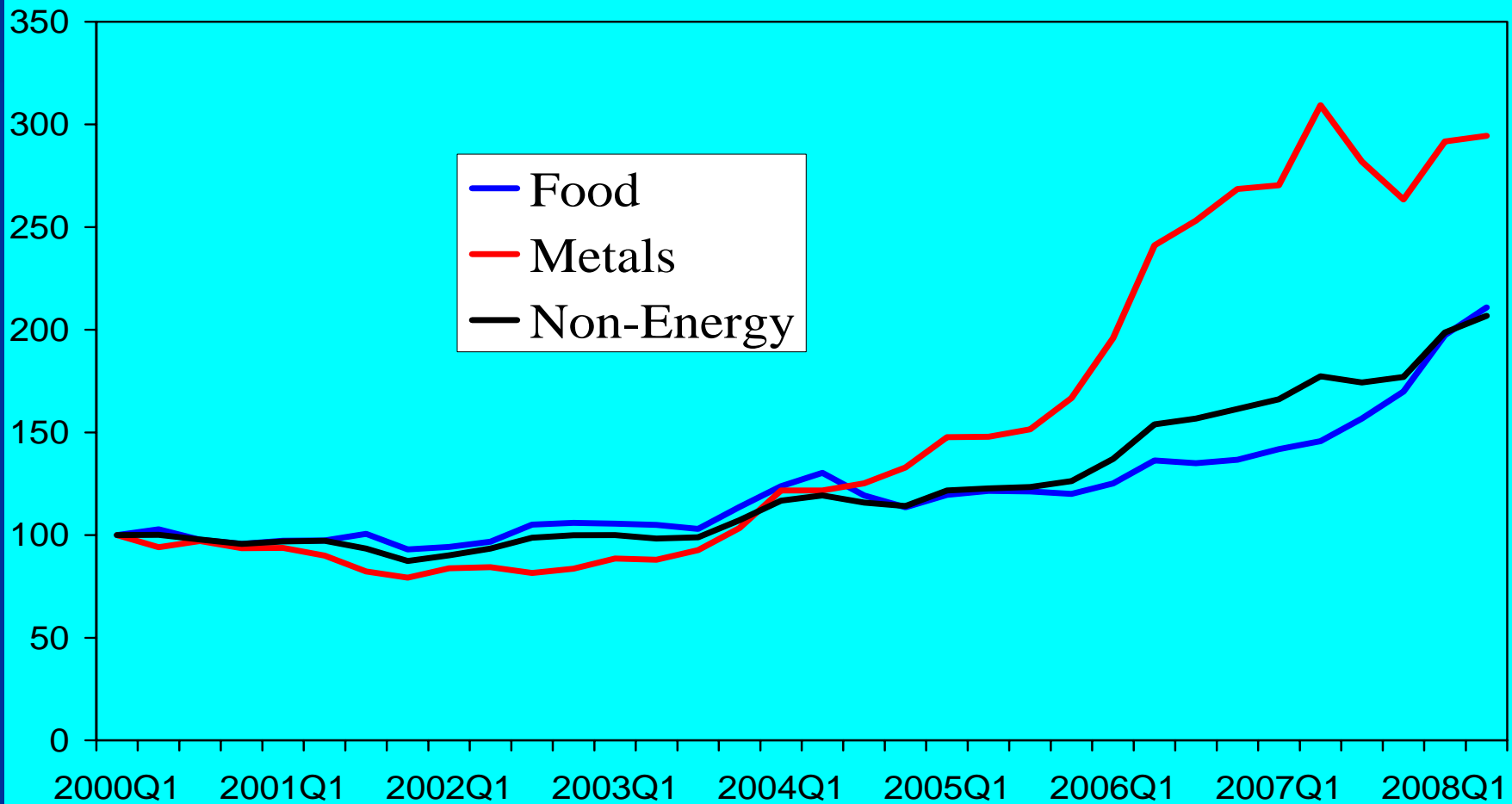
**Despite some recent correction, energy prices buoyed since 2003. Oil prices in particular have risen from \$30/barrel in early 2003 to over \$145 in early July, some 35 percent above the earlier record high in real terms in 1979.**

Energy Prices (2000 Q1=100)

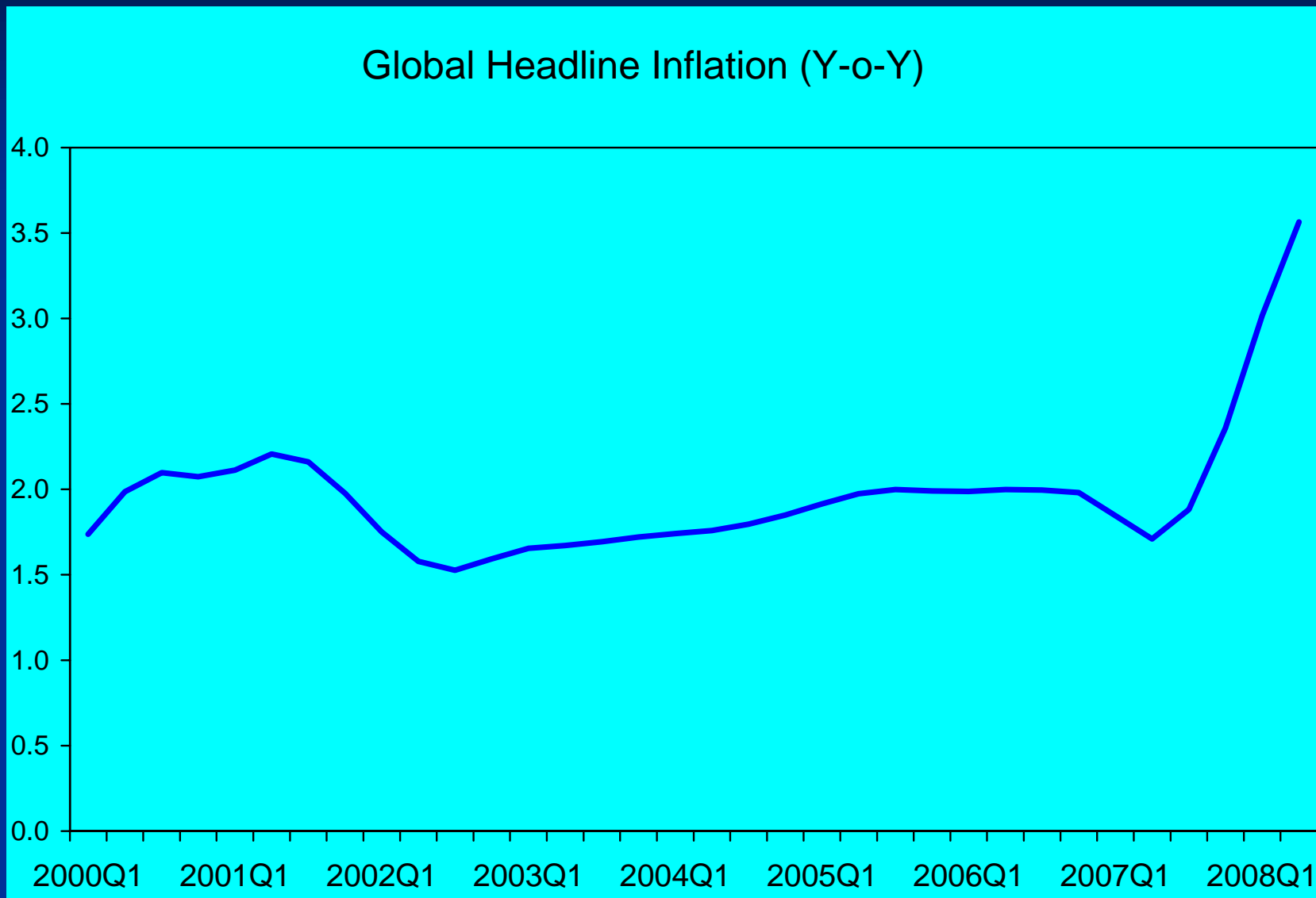


**Partly reflecting higher energy prices, other non-fuel commodity prices, also surged, although they moderated somewhat recently.**

Non-Energy Prices (2000=100)



# At the same time, inflationary pressures around the world have intensified.



# **This presentation will discuss:**

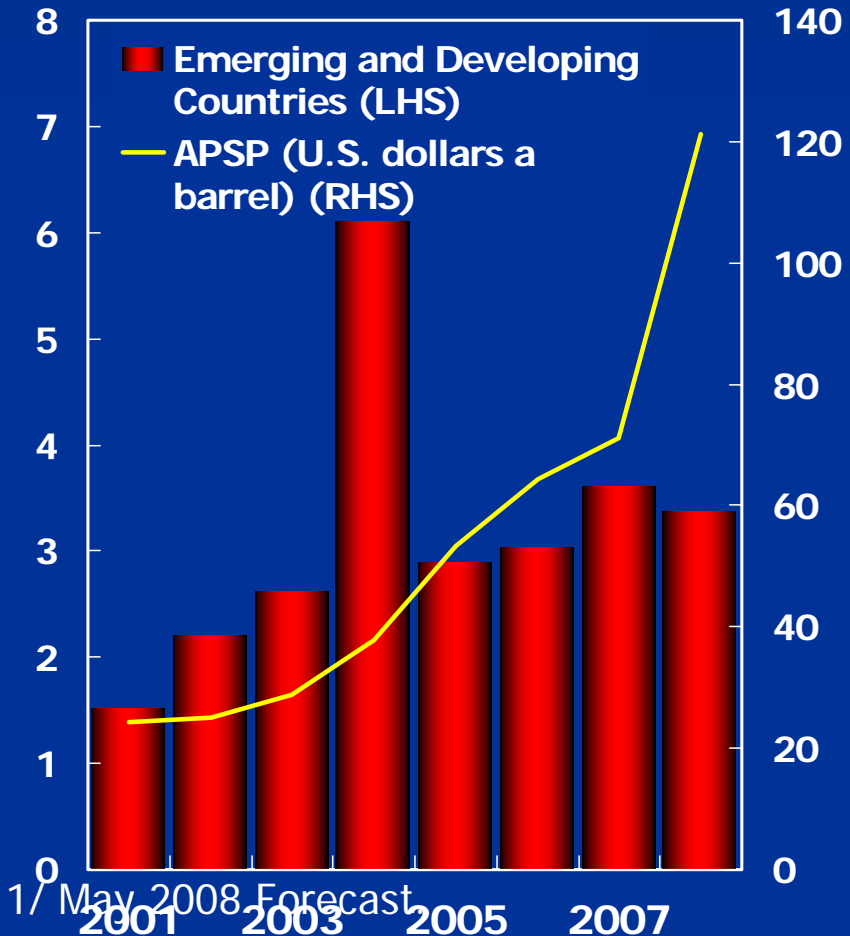
- **What are the causes of surging energy prices and other commodity prices?**
- **What is their likely impact on inflation across the globe?**
- **What are the policy implications?**

# Part I:

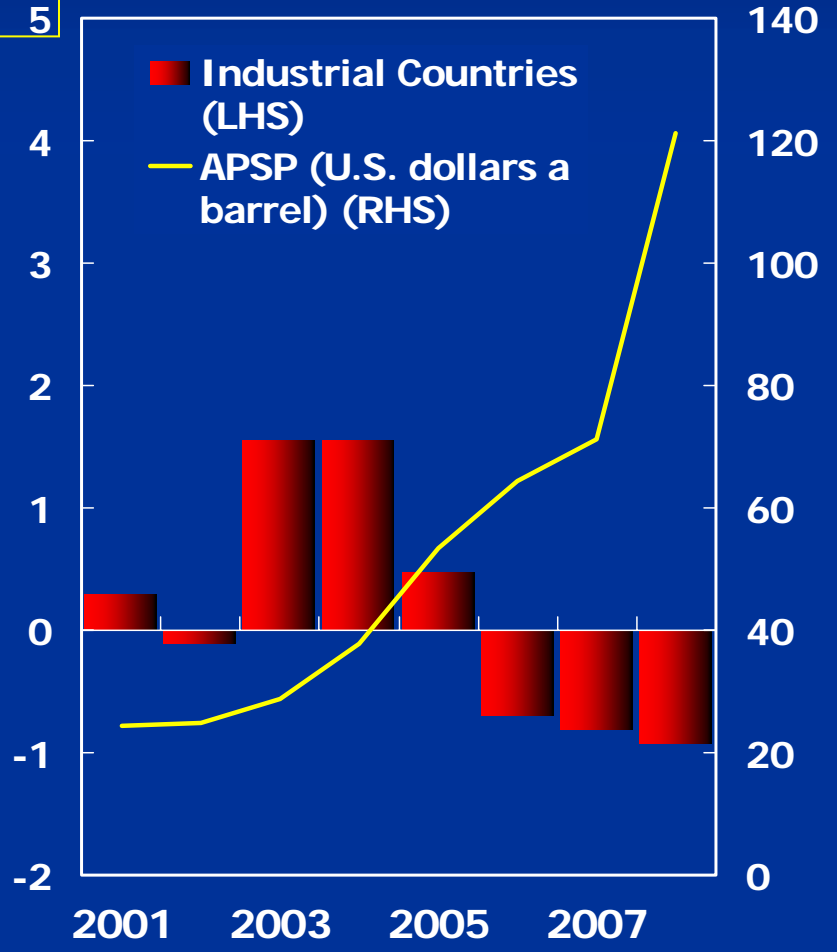
**Why are energy and other commodity prices so high?**

# Emerging Economies have been the main source of growing demand for commodities.

**Oil Demand Growth in Emerging and Developing Countries accelerated due to their industrialization take-off and energy-intensive and commodity-intensive economic growth.**



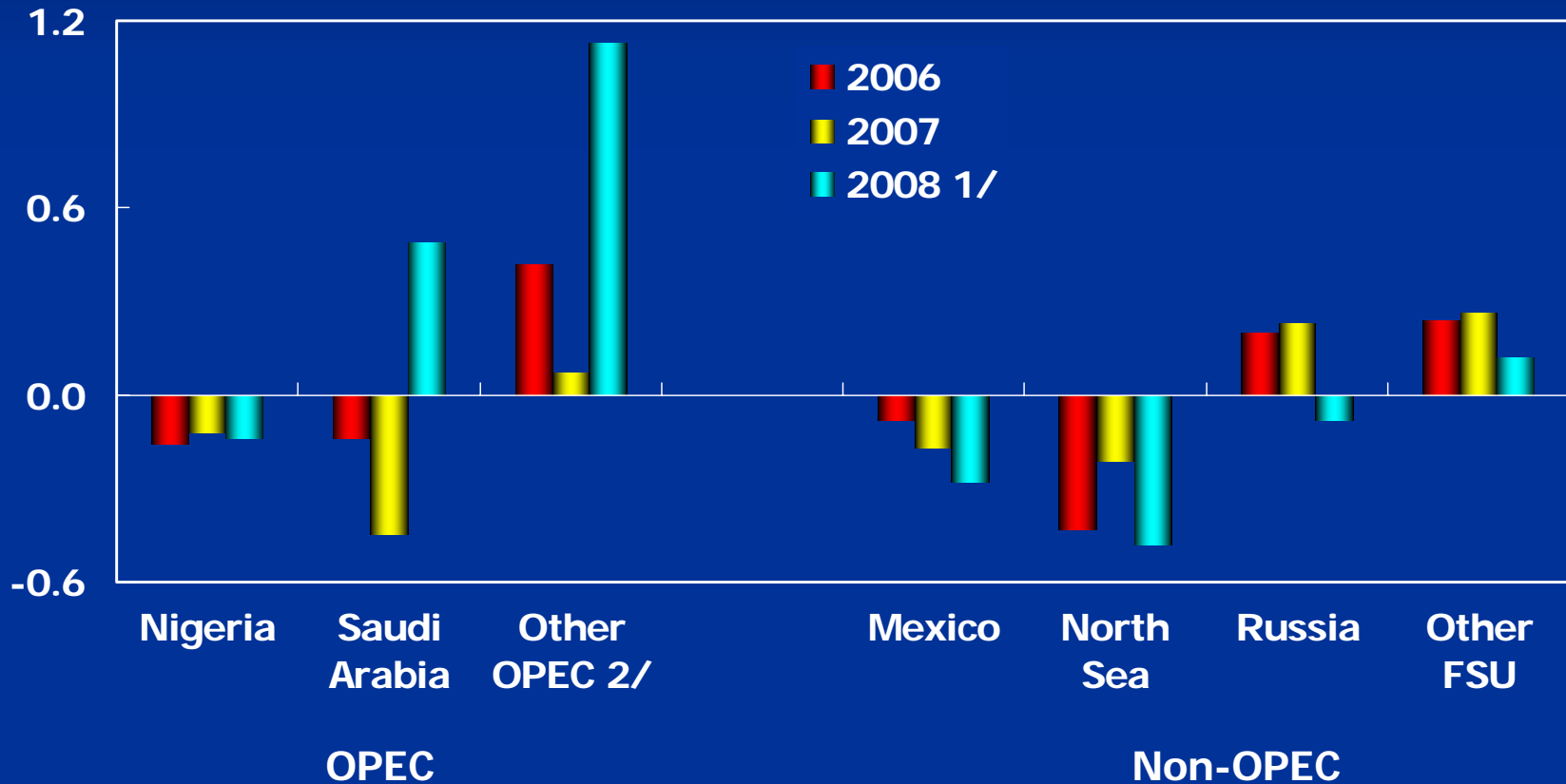
**Oil Demand Growth in Industrial Countries declined**



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The rate of capacity expansion outside OPEC has been disappointing over the past three years, reflecting lack of past investment, soaring investment costs, technological and geological, as well as policy constraints.

**Crude Oil Output by Major Producers**  
*(Annual change in million barrels a day)*

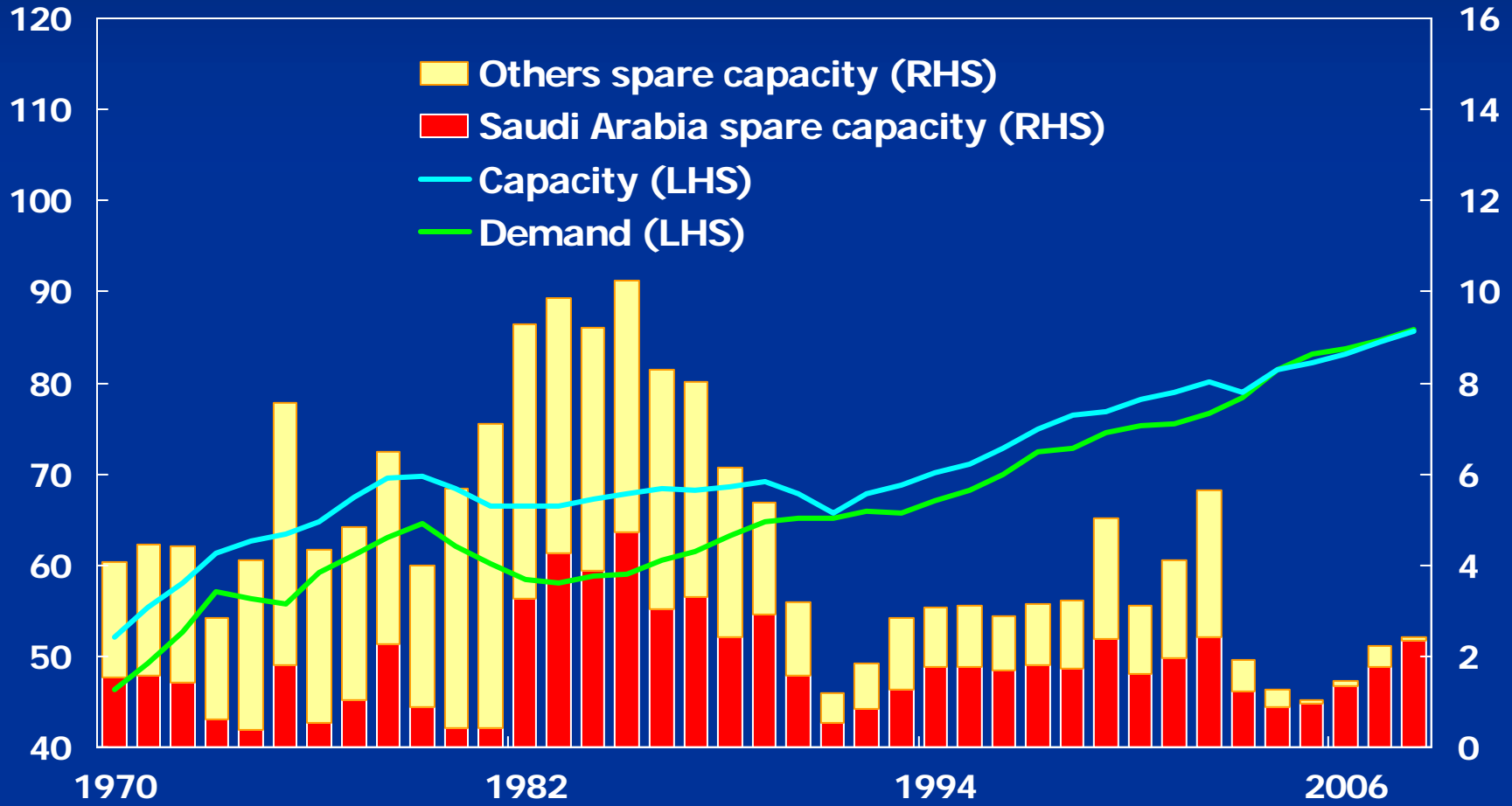


1/ The change between first 5 month averages of 2008 and 2007

2/ OPEC current composition.

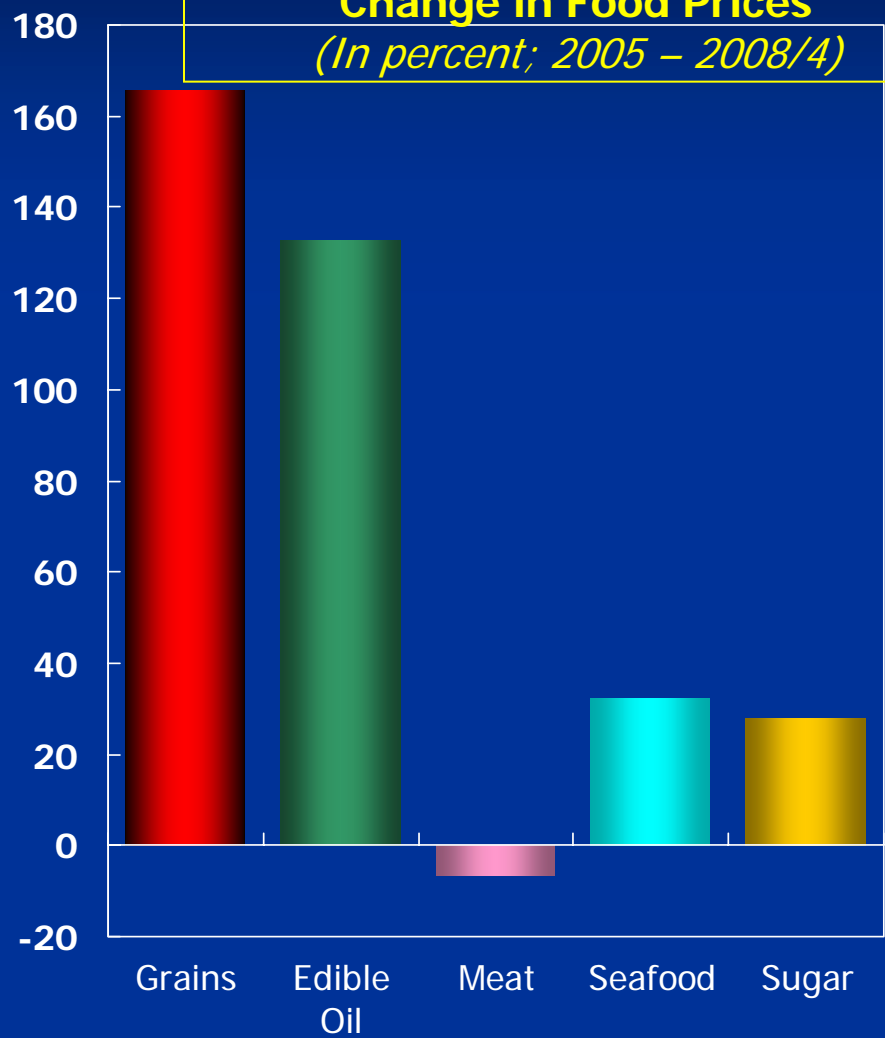
Consequently, supply growth lags behind demand growth,<sup>8</sup> resulting in a tighter market balance.

**World Oil Demand, Production Capacity and Spare Capacity**  
*(million barrels a day)*

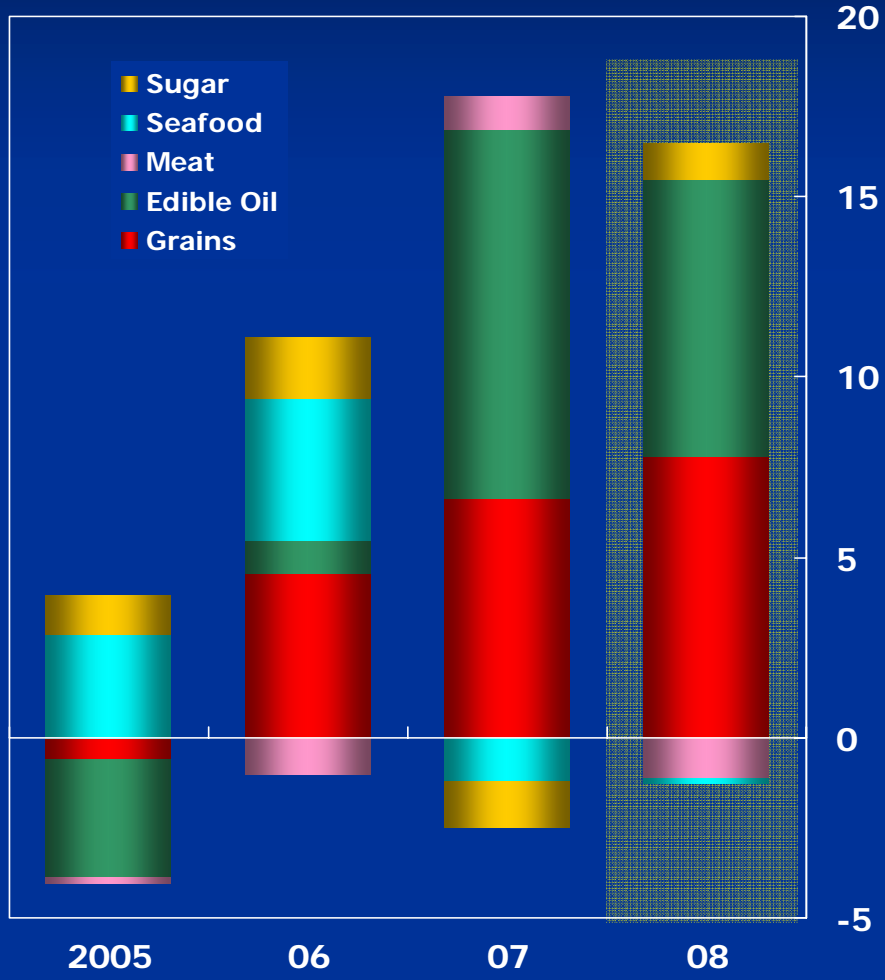


Equally important to inflation management, food prices have also surged, partly reflecting higher biofuel demand and higher fuel cost.

**Change in Food Prices**  
*(In percent; 2005 – 2008/4)*



**Contribution to Food Price Increases**  
*(In percent; based on annual averages)*



1/ Edible oils include soybeans and soybean meal.

**Apart from real factors, financial conditions have also temporarily added upward price pressures.**

- Two variables have particularly affected prices of oil and other commodities through their impact on physical supply and demand: interest rates and exchange rates.

# How do interest rates affect commodity prices?

- Rapid expansion of commodity financial markets → more direct exposure to various macro-financial shocks, particularly interest rates and the US dollar exchange rate.
- Low interest rates → spur aggregate demand → increase the demand of commodities
- Low interest rates → more liquidity → asset demand for commodity increases (particularly because the yield of treasury bills declines)
- Low interests → incentives for inventory holding increase as holding costs decline.

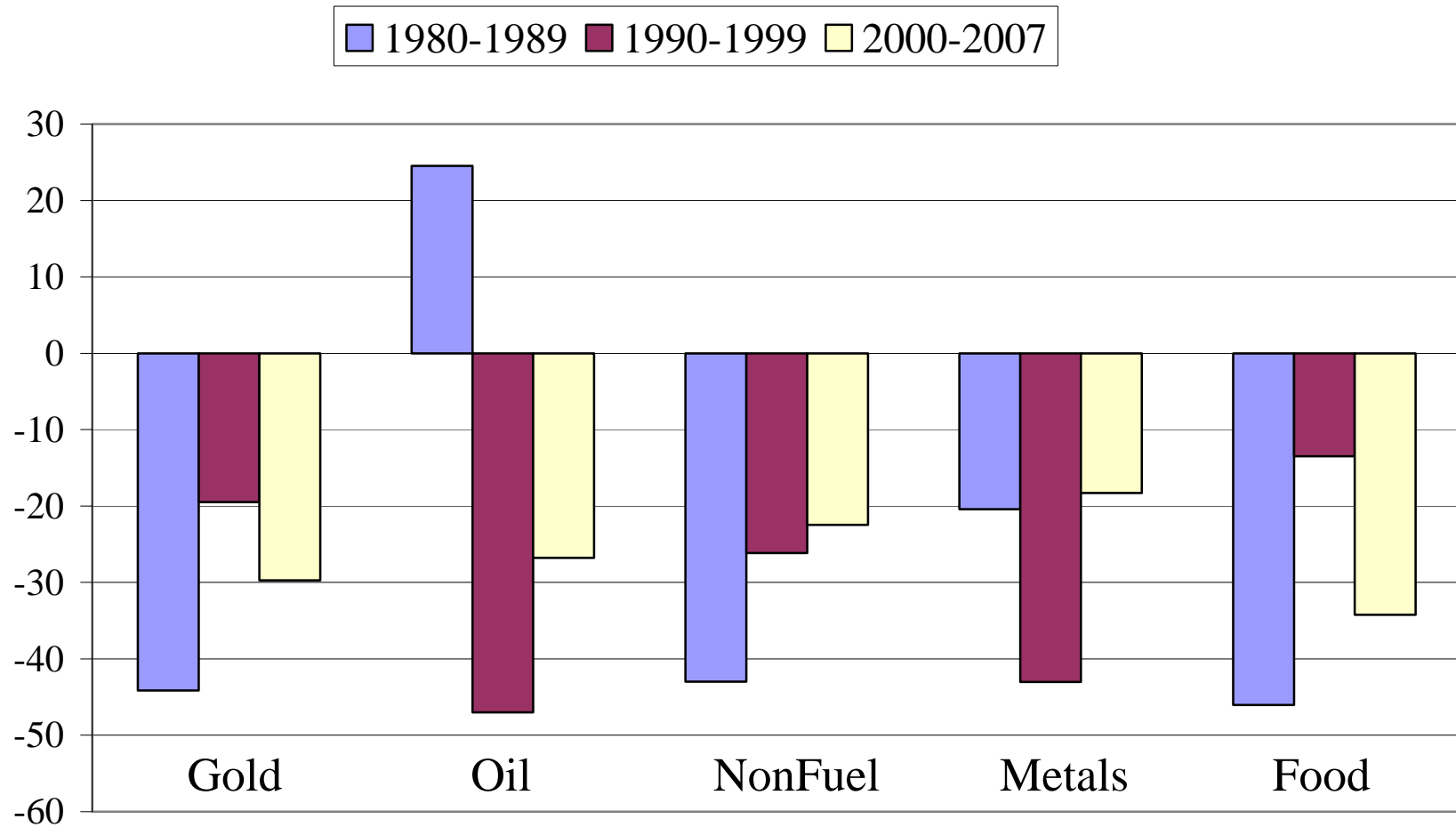
# How do exchange rates affect commodity prices?

At least three channels:

- **Purchasing power and cost channel:** US\$ depreciation makes commodities less expensive for consumers outside dollar area, increasing their demand. On the supply side, the declining profits in local currency for producers outside the dollar area put upward price pressures.

- **Asset market channel:** Anticipated US\$ depreciation reduces the returns on dollar-denominated financial assets, making commodities a more attractive class of “alternative assets” to foreign investors.
- **Other channels:** Depreciating US\$ → monetary easing in other economies with pegs to USD → increasing aggregate demand, including commodity demand.

## Correlations between Commodity Prices and US Exchange Rate in Nominal Terms, 1980-2007



Note: Correlations based on cyclical components using a Hodrick-Prescott filter.

# Impact of a 1 percent nominal effective US\$ depreciation on nominal commodity prices.

Months after the shock	1	4	12	24	60
	In Current Dollars (based on U.S. NEER)				
Gold	1.17	1.22	1.30	1.36	1.39
Oil	0.89	0.97	1.13	1.27	1.43
NonFuel Commodity Index	0.48	0.47	0.47	0.47	0.46
Aluminum	0.53	0.53	0.53	0.52	0.52
Copper	1.11	1.02	0.80	0.55	0.18

# Impact of a 1 percent real effective US\$ depreciation on real commodity prices.

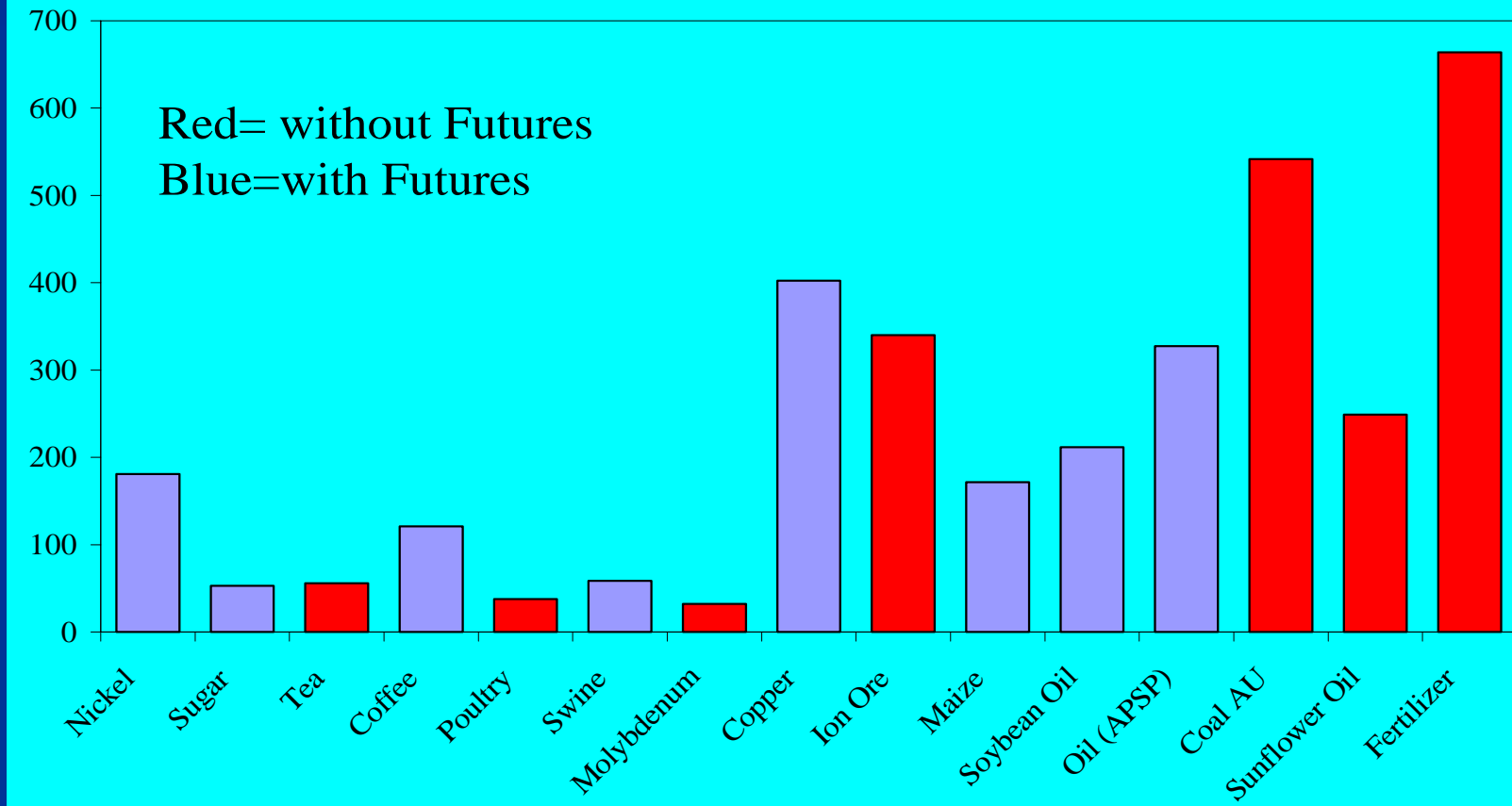
Months after the shock	1	4	12	24	60
	In Constant Dollars (based on U.S. REER)				
Gold	1.12	1.12	1.13	1.14	1.17
Oil	0.48	0.58	0.81	1.08	1.58
NonFuel Commodity Index	0.47	0.48	0.51	0.54	0.64
Aluminum	0.55	0.58	0.65	0.74	0.95
Copper	1.23	1.28	1.38	1.52	1.80

# How about speculation?

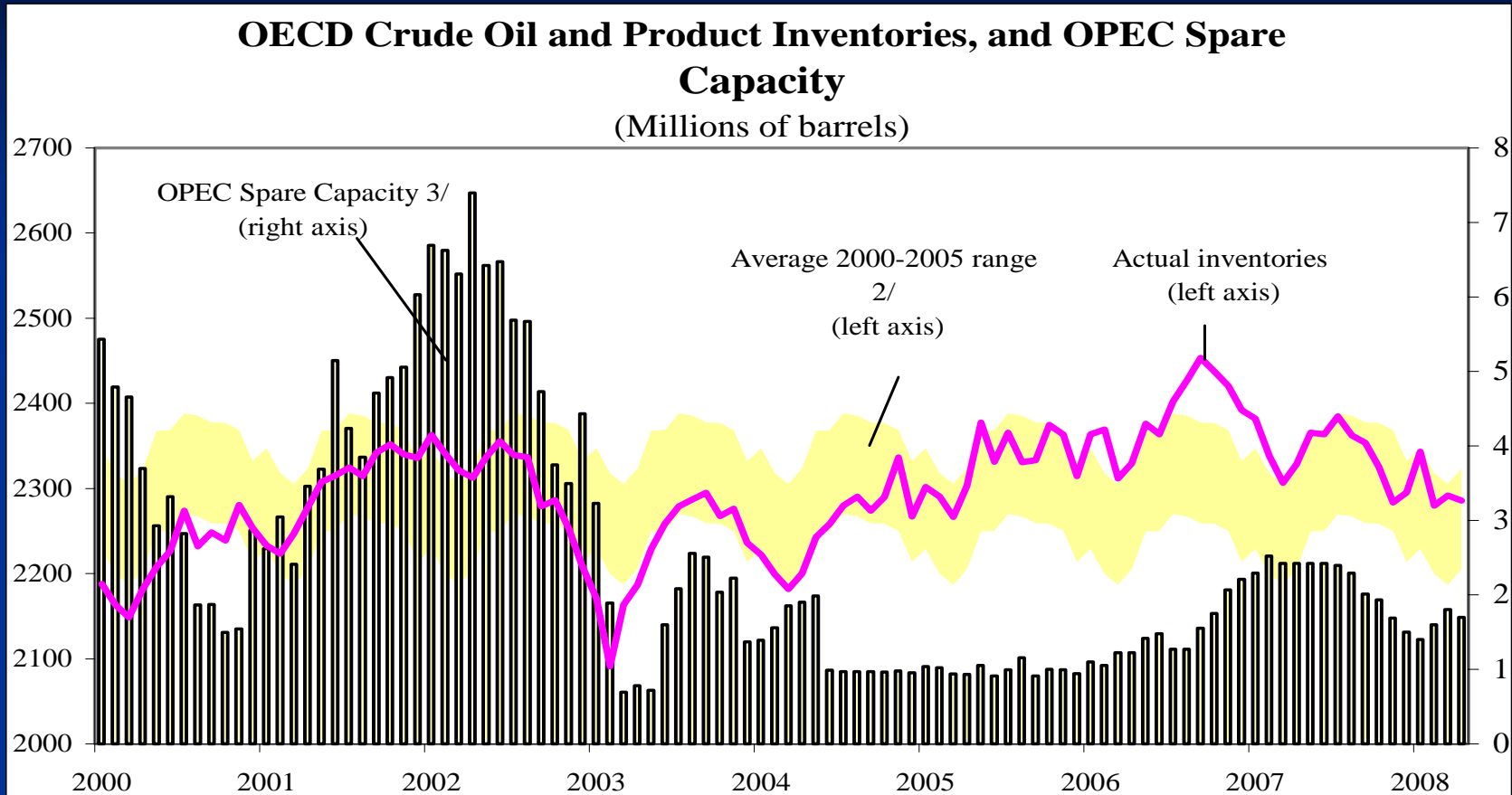
- IMF staff (e.g., Samiei and Antoshin, 2006) found robust evidence that speculative activity tends to follow price movements.
- The direction of Granger causality runs from prices to changes in speculative positions.
- CFTC: speculators have enhanced liquidity, depth, and fluidity of trade in commodities. This fosters price discovery.
- The increased interest by non-commercial investors has provided liquidity, particularly at the long end (the rise in 'commodities as an asset class').

**Also, price of some commodities without futures markets rose more than those with futures markets.**

**Major Commodity Price Changes**  
(2007M1-2008M6, percent)



# Also, no Compelling Evidence of a Buildup in Inventories



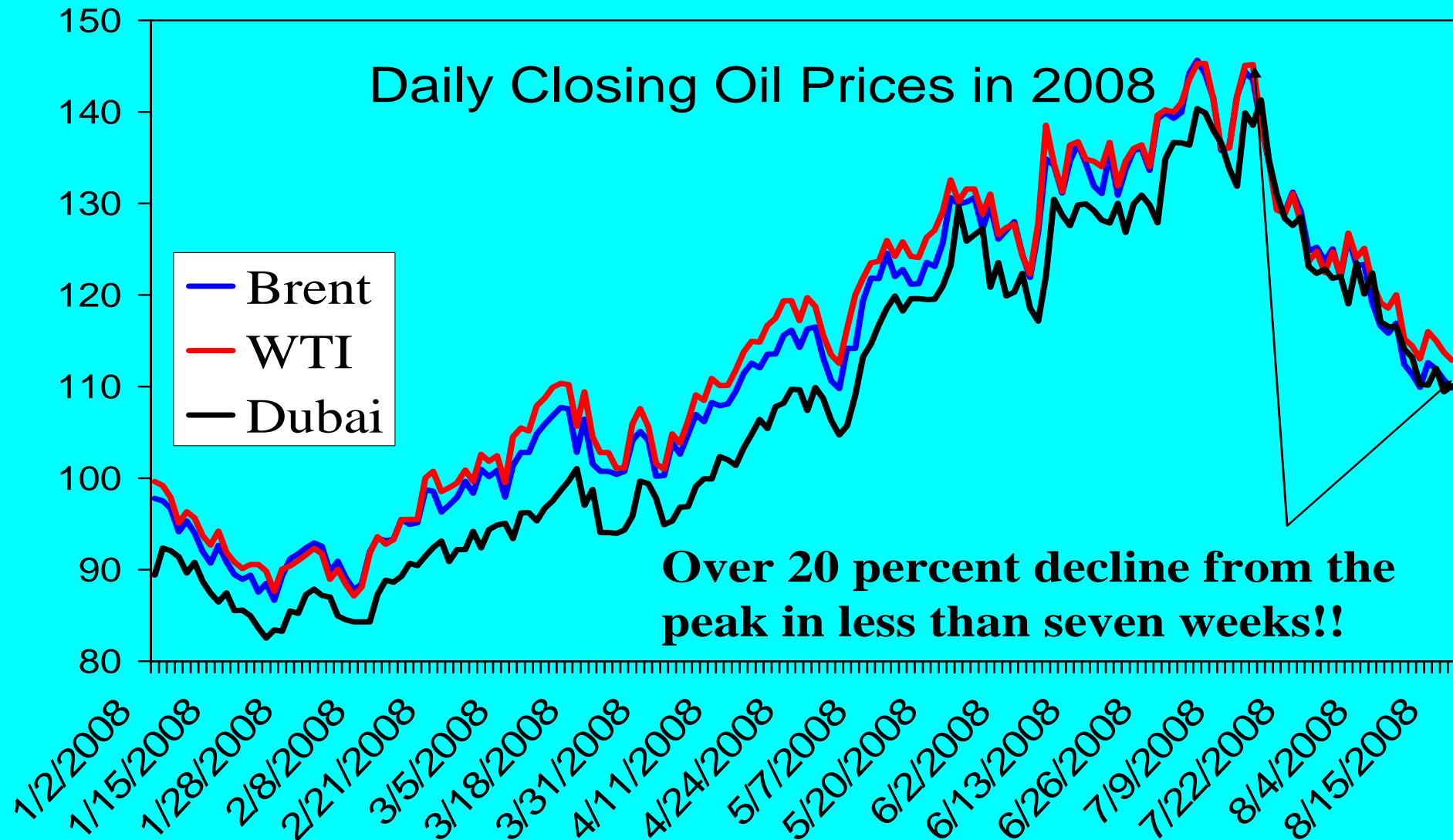
1/ Average price of West Texas, Brent, and Dubai crude.

2/ Average of each calendar month during 2000-2005, with a 40 percent confidence interval based on past deviations.

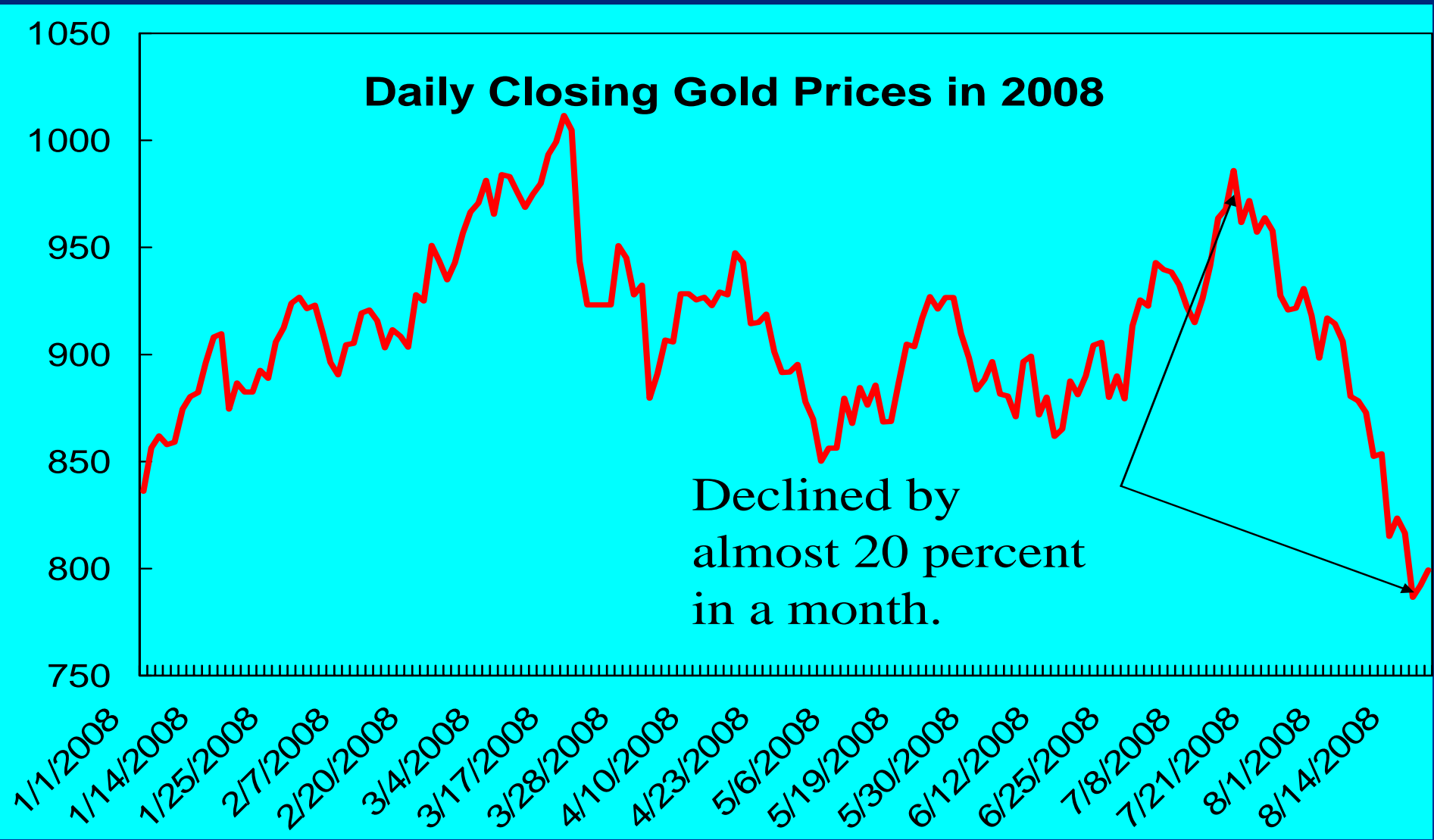
3/ OPEC-11 spare capacity refers to production capacity that can be brought online within 30 days and sustained for 90 days.

Sources: Energy Information Agency, US Department of Energy, International Energy Agency; and IMF Staff Estimates.

**More recently, there is a sharp correction in oil prices.**

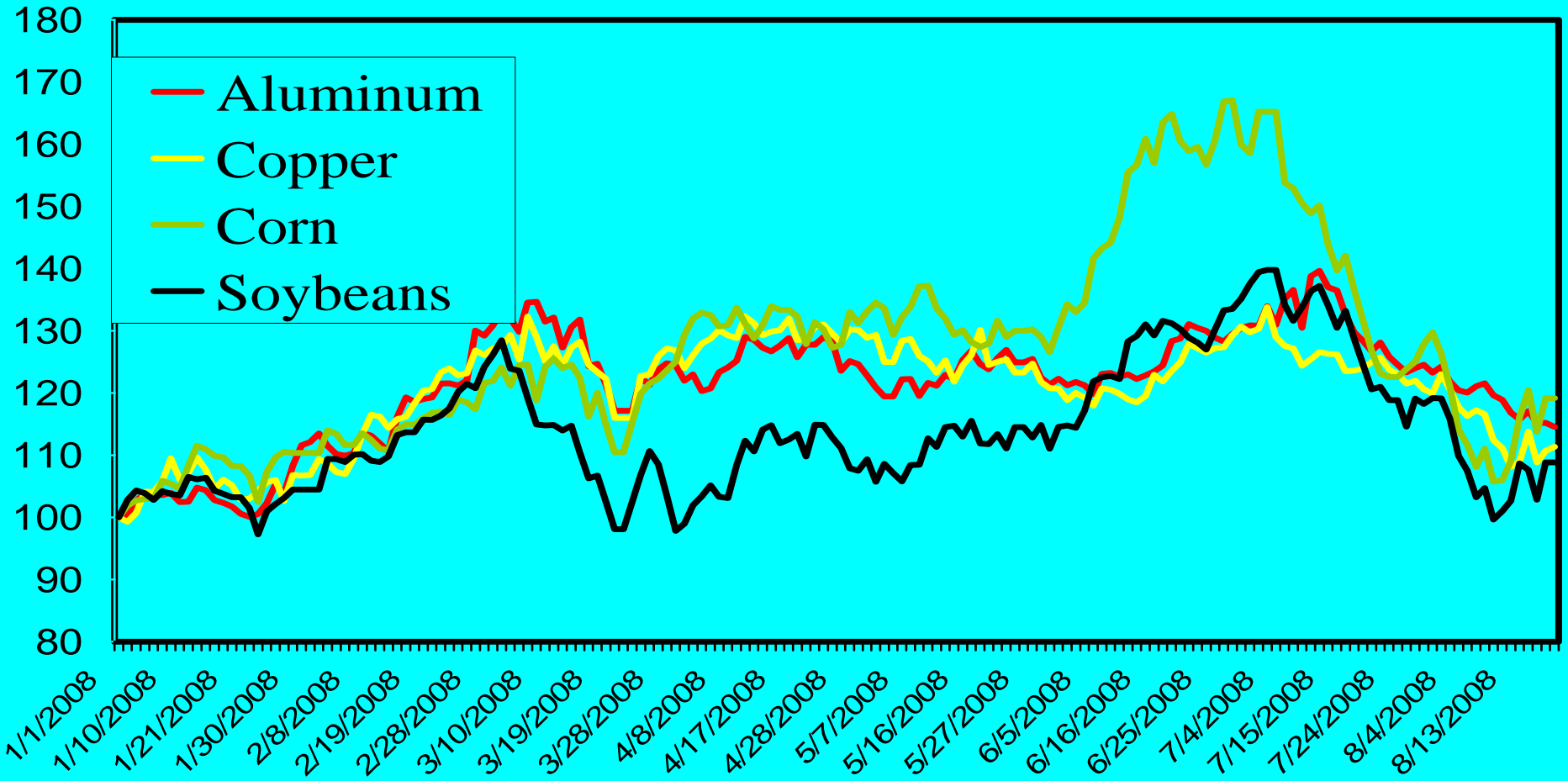


# Gold prices also declined sharply in the past month.

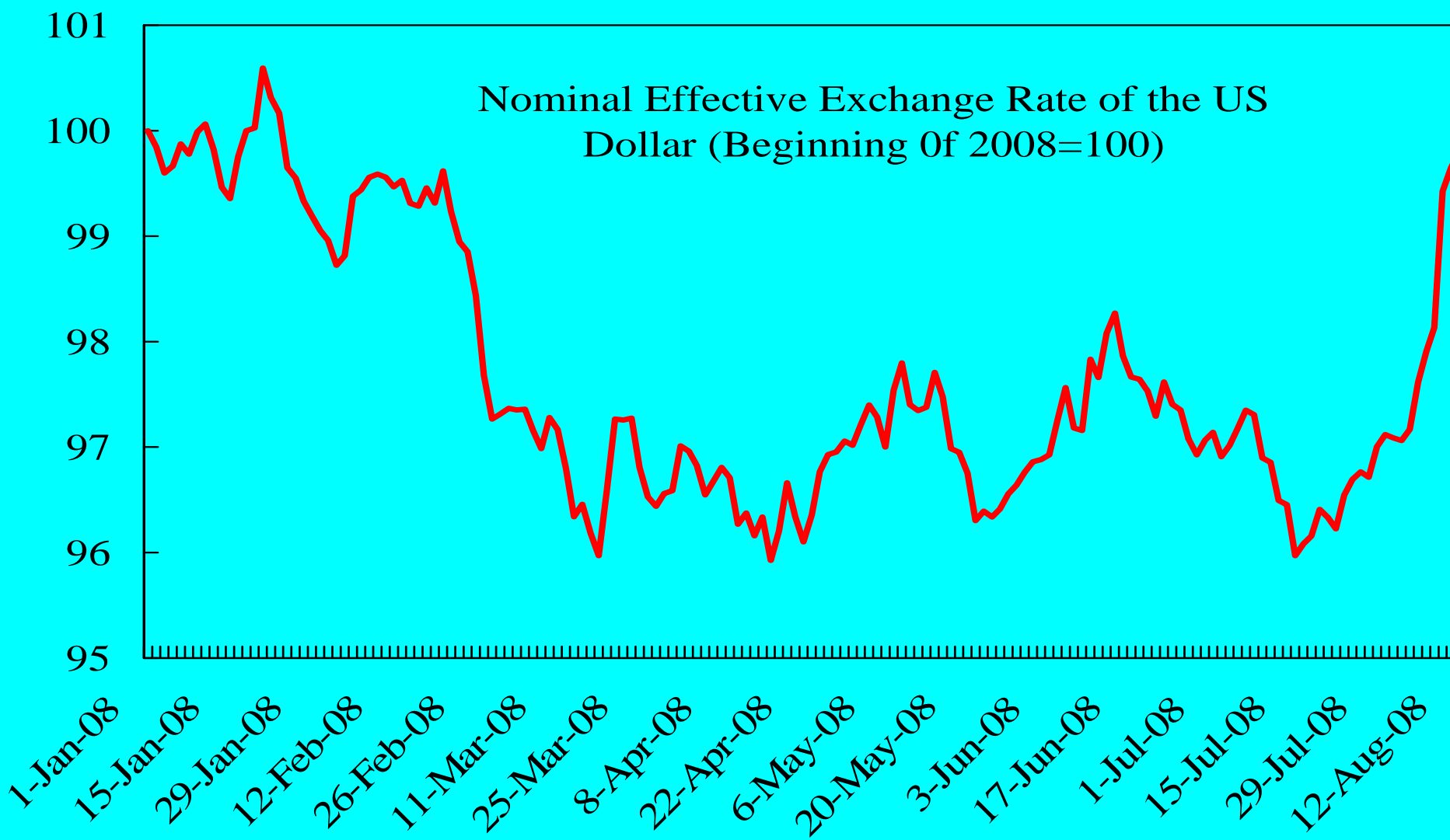


# Other commodity prices also declined.

## Other Commodity Prices (January 1, 2008=100)



# The recent fall of commodity prices partly partly the appreciation of the USD.



# **In addition, it also reflects other factors:**

- Weakening energy and commodity demand due to the global economic slowdown;
- substitution effect amid high energy/commodity prices;
- Increased oil inventory
- Increased oil production (both OPEC and non-OPEC)
- For crops (corn and soybeans), improved weather conditions

# Looking forward...

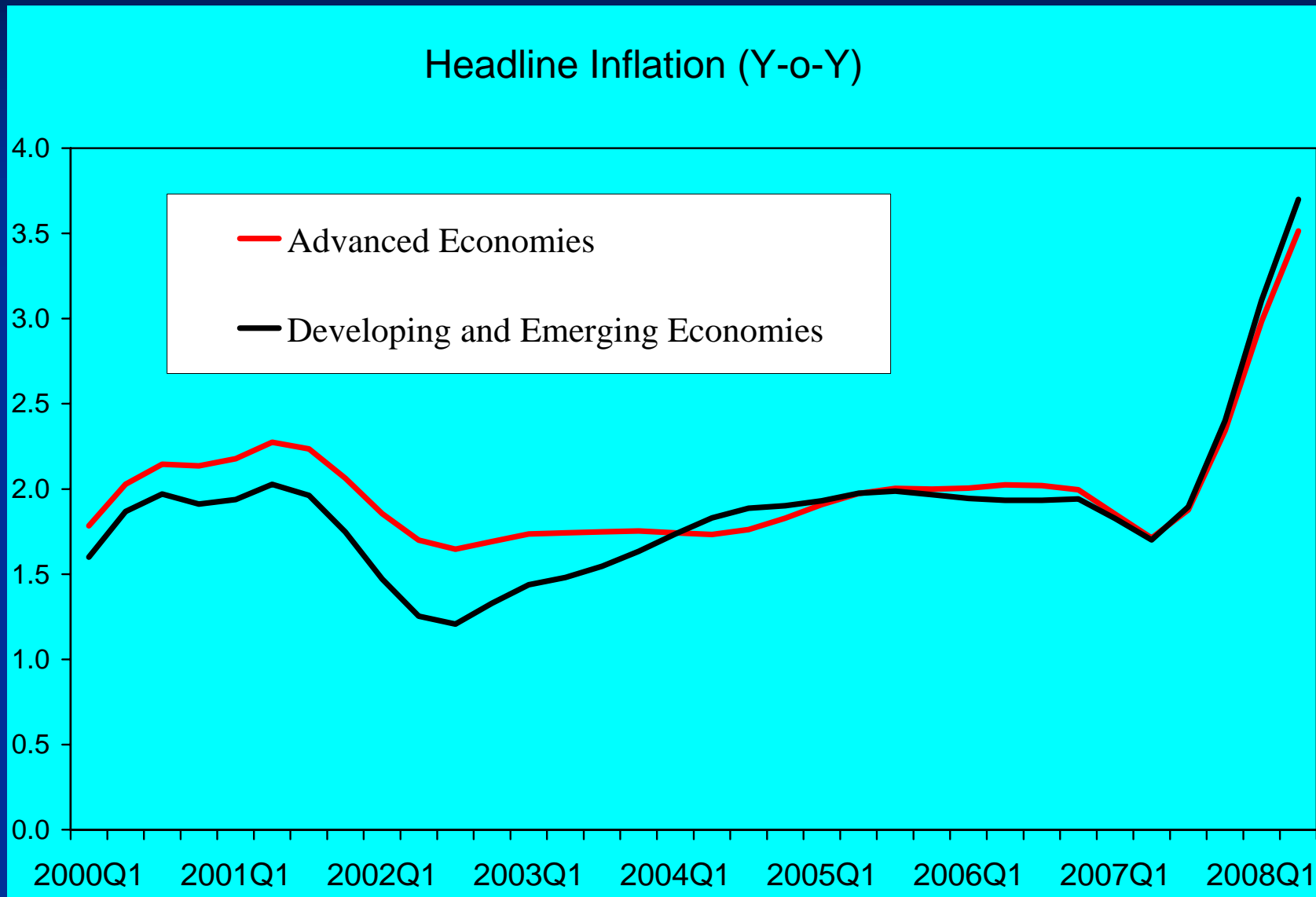
- A high degree of uncertainty
- Depends on the extent of global slowing, particularly how the slowdown in advanced countries spills over to emerging markets.
- Still, the tight supply constraints remain.
- Short-term supply disruptions (geopolitical risks, adverse weather conditions, outages...) could raise prices again
- In the long run, prices should ease as supply responds...but it may take a long time, particularly for energy.

# Part II

- What are the impact of high energy prices and other commodity prices affect global inflation?

- The recent commodity price fall is good news for central banks.
- Still, past high prices may have worked their way through the system

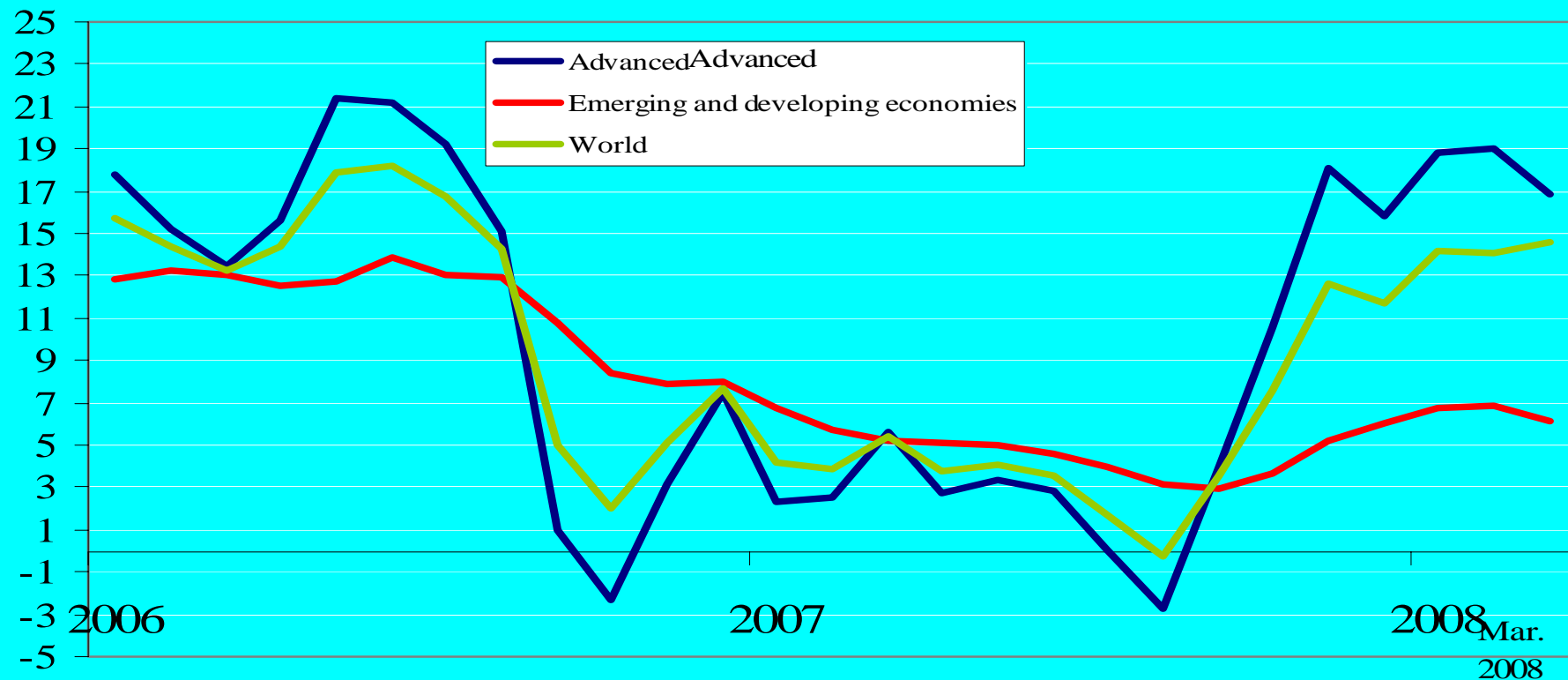
# Inflation has been mounting in both advanced and developing economies thus far in 2008.<sup>28</sup>



# Much of the increases are due to surging energy prices, with effects stronger in advanced economies...

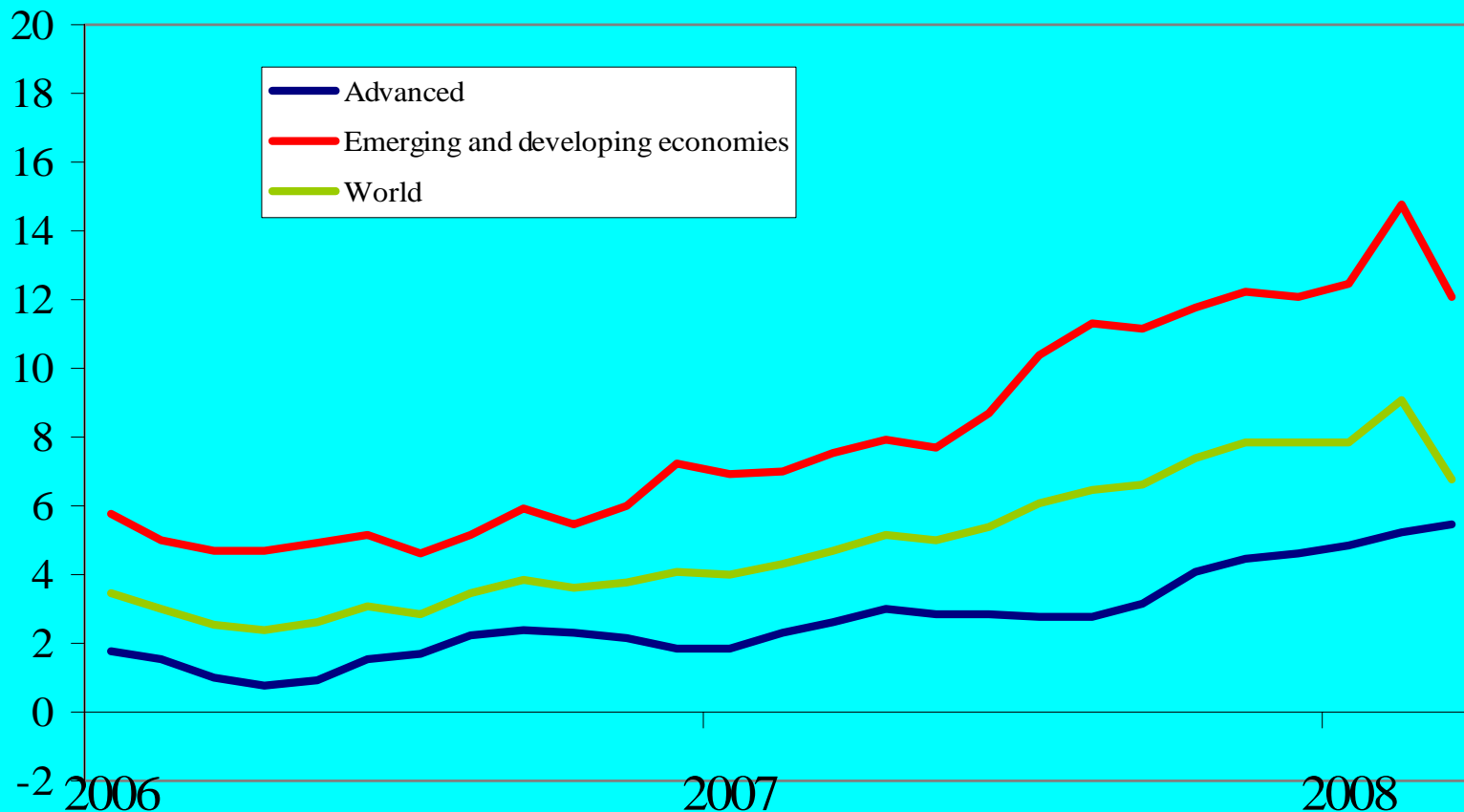
## Fuel Price Inflation

(12 month percent change)



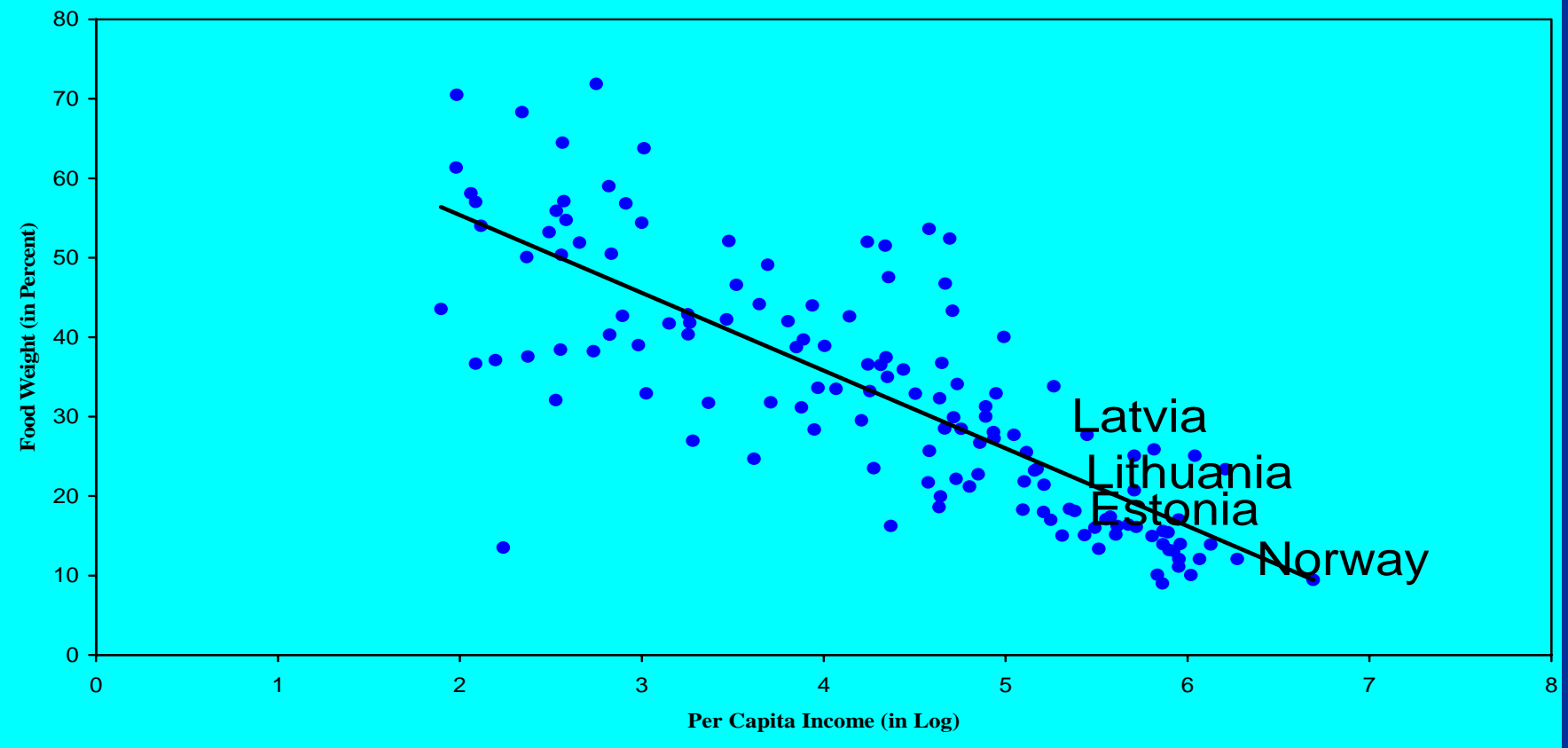
...and surging food prices, with stronger effects in developing economies.

**Food Price Inflation**  
(12 month percent change)



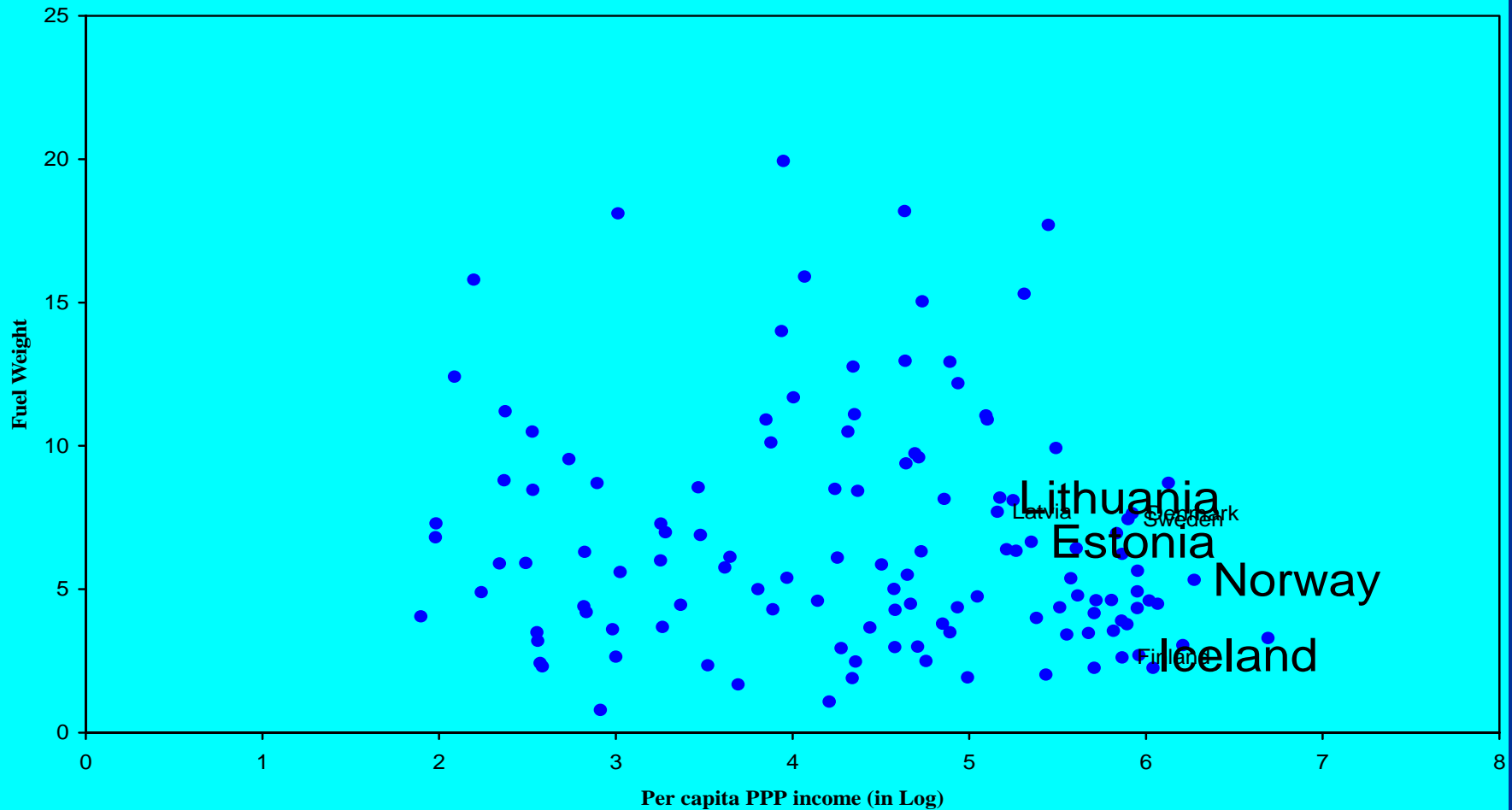
# Food inflation is a more serious problem in developing countries because of higher food weight in CPI.

## Food Weight and Per-Capita PPP Income (in Log)



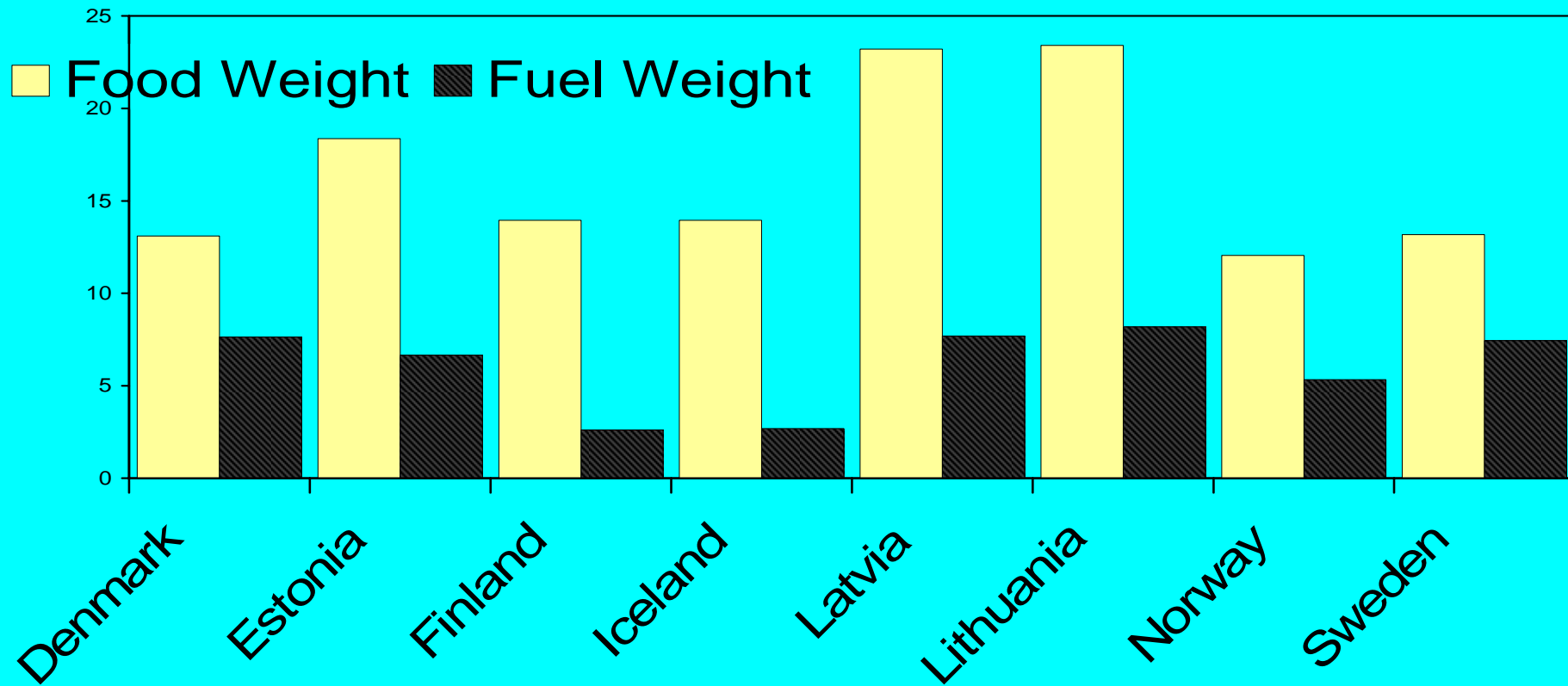
...while advanced countries have a more serious problem on fuel inflation because to higher fuel weights.

## Fuel Weight and Per-Capita Income



# Still, in many advanced countries, food weighs more than fuel in CPI.

## Food and Fuel Weights in Nordic and Baltic Counties



# First-round Contributions of food and fuel to Headline Inflation in the first half of the year.

	2007			2008		
	Headline	Food	Fuel	Headline	Food	Fuel
<b>Nordic and Baltic Countries</b>						
Denmark	1.7	0.6	0.0	3.5	1.0	0.5
Estonia	5.5	1.5	0.6	11.4	3.4	1.7
Finland	1.4	0.3	0.1	3.7	1.1	0.5
Iceland	4.8	0.4	0.1	8.2	1.2	0.1
Latvia	8.1	2.6	0.8	16.9	5.1	2.4
Lithuania	4.7	2.1	0.9	11.5	4.3	1.4
Norway	0.8	0.2	-0.7	2.9	0.4	0.6
Sweden	1.5	0.2	0.2	3.4	0.9	0.4
<b>Major Advanced Economies</b>						
France	1.3	0.1	0.1	3.2	0.8	0.4
Germany	1.9	0.2	0.2	3.0	0.7	0.7
Italy	1.9	0.4	0.1	3.5	0.9	0.4
United Kingdom	2.7	0.4	0.7	2.9	0.7	0.2
United States	2.5	0.5	0.2	4.2	0.7	1.6

## **In addition,**

- there will also be second-round effects as there may be spillover effects on expectation, demand for higher wages...etc

# Part III

What are the policy implications?

- **Good news: Commodity prices are falling.**
  - ➔ It increases the flexibility of central banks to use monetary policy amid the economic slowdown.
  - ➔ It also provides a welcome relief for the fragile global economy.
- **Bad news: High prices could come back as the fundamental tightness of energy markets remain.**
- **Also, energy and commodity prices are still high.**

# Thus, central banks still need to be vigilant

- The key: Do NOT let the first-round effects of higher food and energy prices on inflation spill over to higher prices of other goods and services (the second-round effect.)
- Credibility of central banks is very important.
- This will certainly be a very challenging task, given the slowing global economy.

# The first-round effects of higher food and fuel prices on inflation should generally be accommodated.

- In that way, relative prices can change without a forced decline in nontraded goods prices.
- If, as a result, inflation objectives are missed, the central bank should explain to the public that achieving these objectives in the face of such profound supply shocks would require an overly contractionary policy stance and, hence, lead to unnecessary slowing in economic activity (“output losses”).
- However, in countries that have recently adopted formal inflation targeting, and/or where policy credibility still remains to be established, the risk of undue output losses under monetary policy tightening may need to be balanced against risks of lower credibility if inflation objectives are missed.

# Preventing second-round impact is crucial

- At the same time, monetary policy should be sufficiently tight to prevent the first-round effects of higher food and fuel prices on inflation from spilling over to higher prices of other goods and services (second-round effects; as higher inflationary expectations may trigger a wage-price spiral).
- This is particularly important for countries where inflation has already been rising because of overly expansionary macroeconomic policies.

**For countries with fixed exchange rate regime (such as Estonia, which has a currency board arrangement),**

- **The monetary objective is to maintain the peg.**
- **For Estonia, the currency board arrangement could provide a key anchor to prices and price expectations. In particular, the strong EURO has somewhat shielded countries pegged to EURO from the increase in the US dollar price of food and oil prices.**
- **Fiscal policy could also help.**

Thank you.