

Global Commodity Prices: A Transition to “the New Normal” or a Bubble in the Making?

Rasim Jafarov

December 15, 2010

Key Questions

- Commodity prices have seen a great run up in recent years, and are currently trading at historical highs.

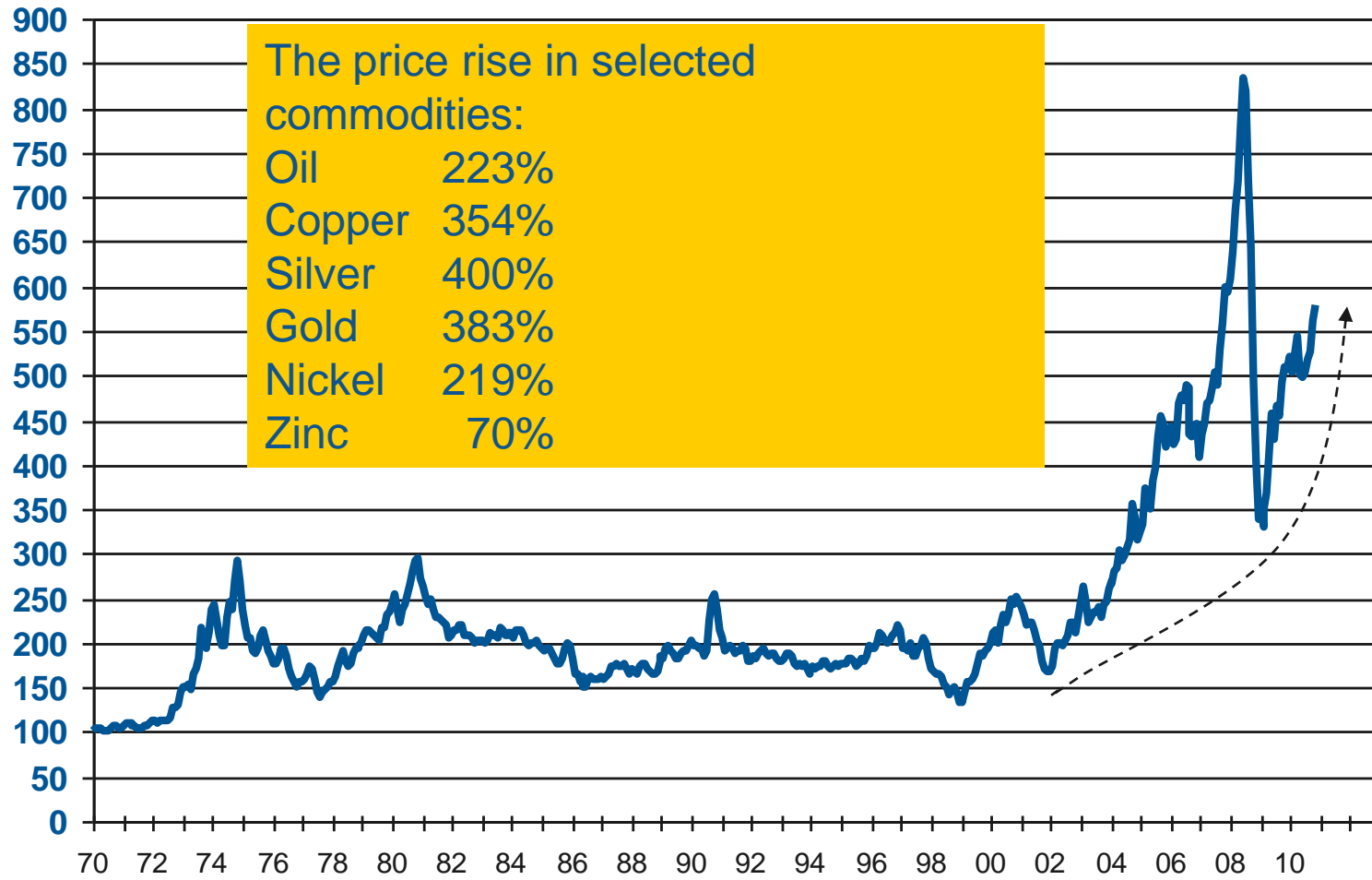
The question is: is this a beginning of a “new normal” or just a bubble in the making?

- How sustainable are prices at current levels and what is the future outlook for commodities?

Outline

- New realities in commodities markets
- Nominal and fundamental factors behind recent changes in commodity prices
- Role of speculators
- Empirical evidence of bubbles in selected commodities
- Short term risks and long term outlook

S&P GSCI index: Commodity prices have had an impressive run up in the last decade



Factors historically driving commodity prices to new sustainable levels

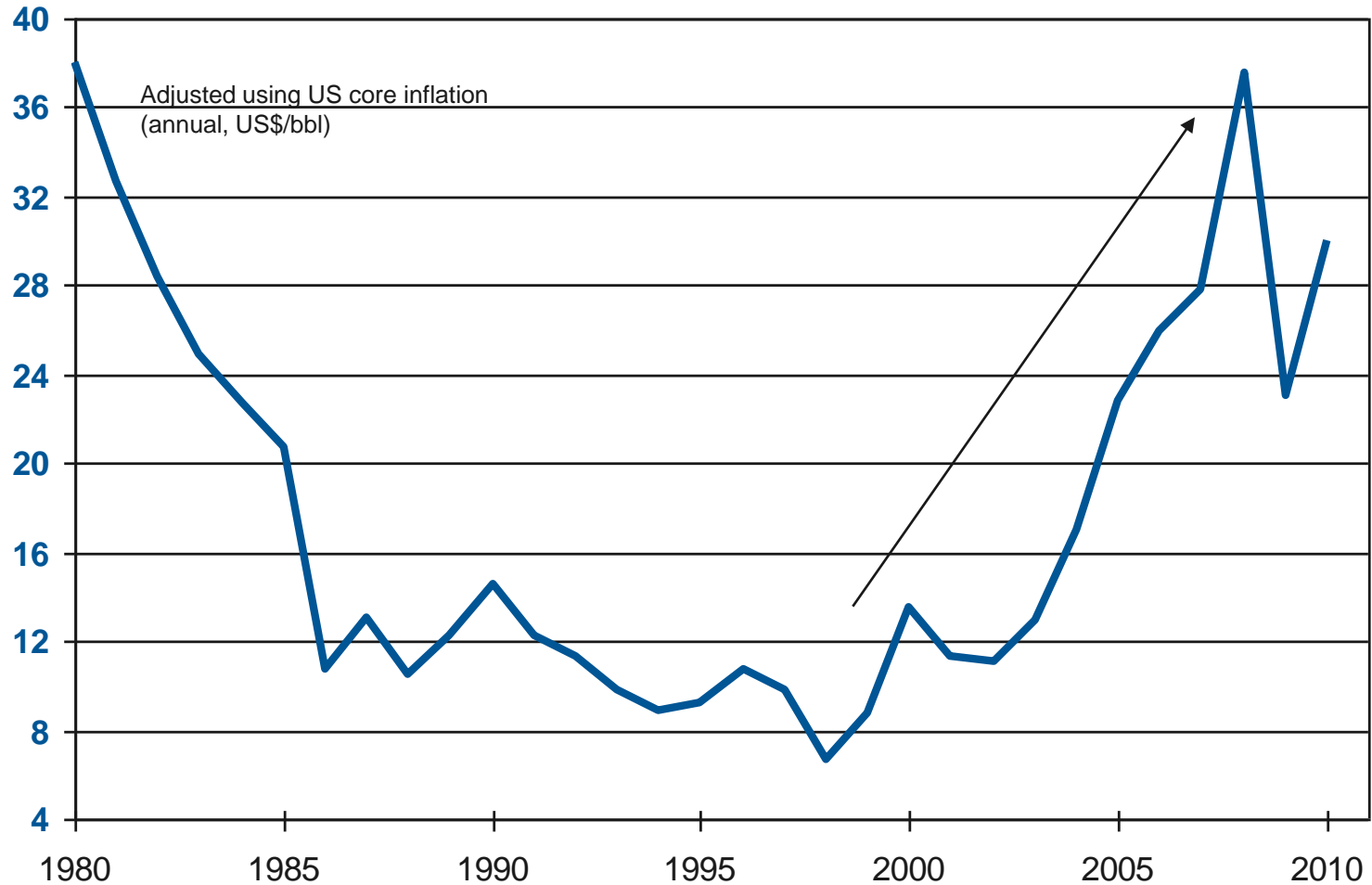
- **Nominal factors:**

1. Global inflation (rising costs)
2. Exchange rate movements

- **Real/Fundamental factors:**

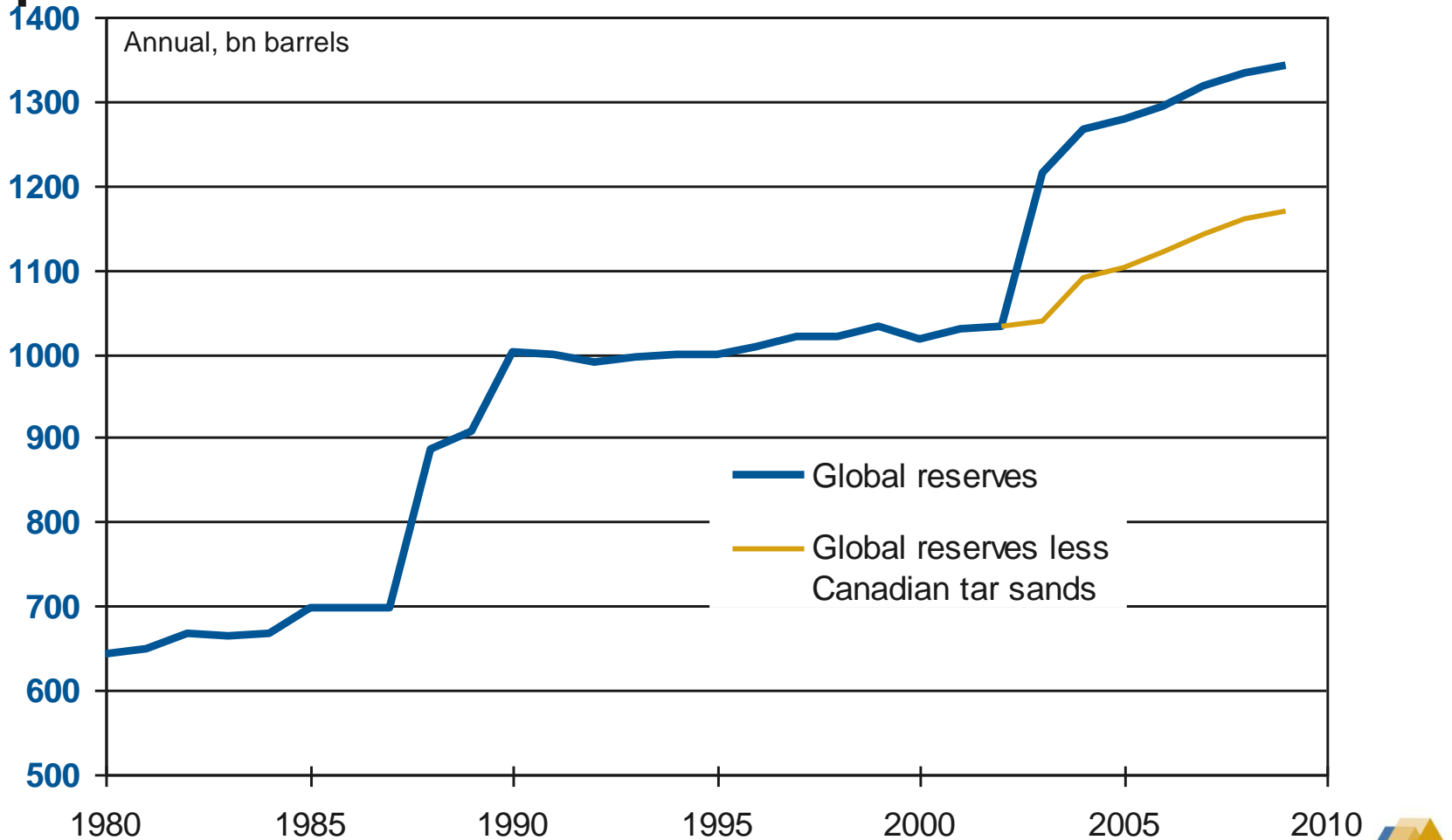
1. Demand transformations
2. Supply side changes

Real price of oil: nominal factors – inflation – could not account for a dramatic shift in the commodity prices



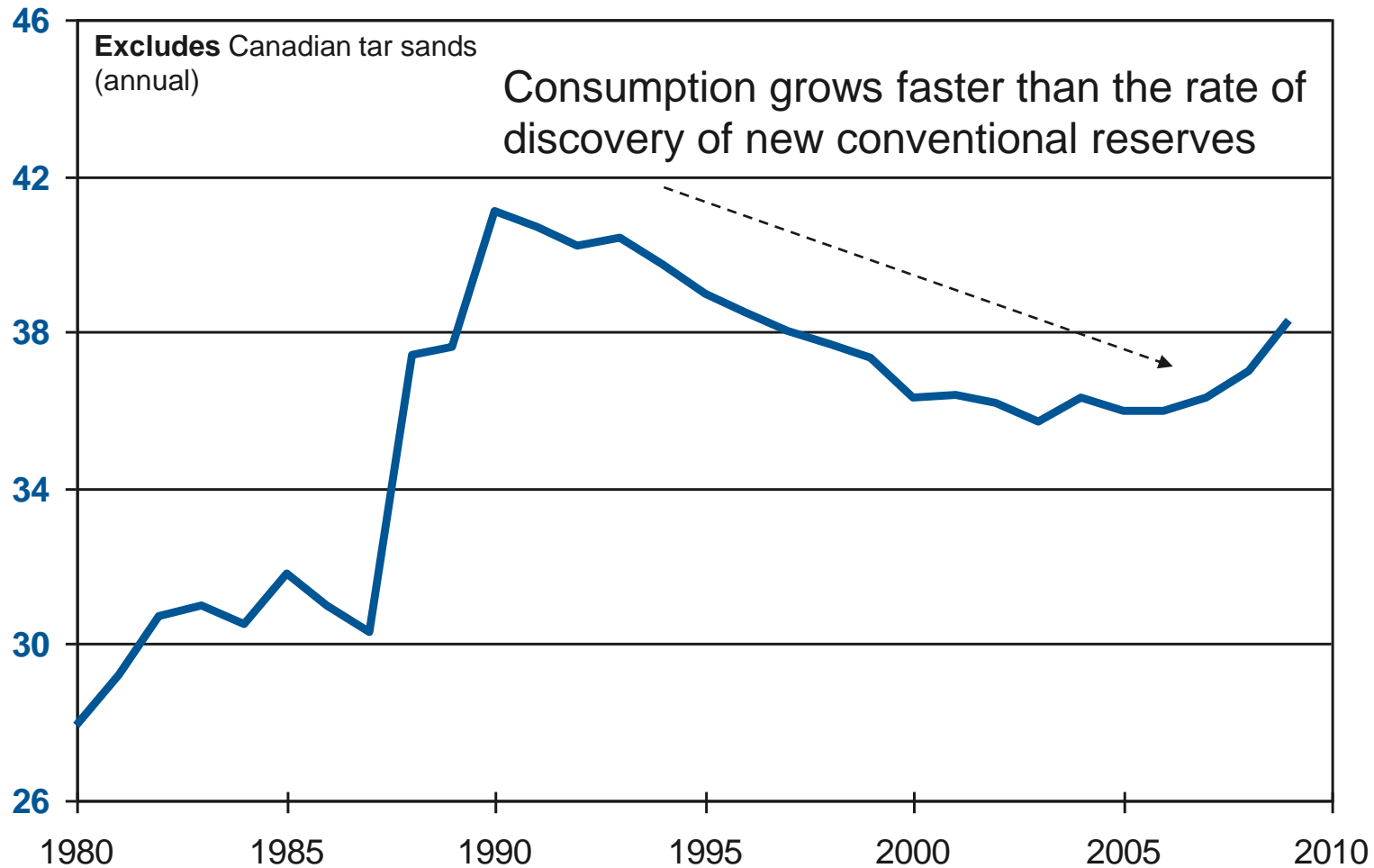
Global Crude Oil Reserves

The rise of non-conventional sources raised oil production costs



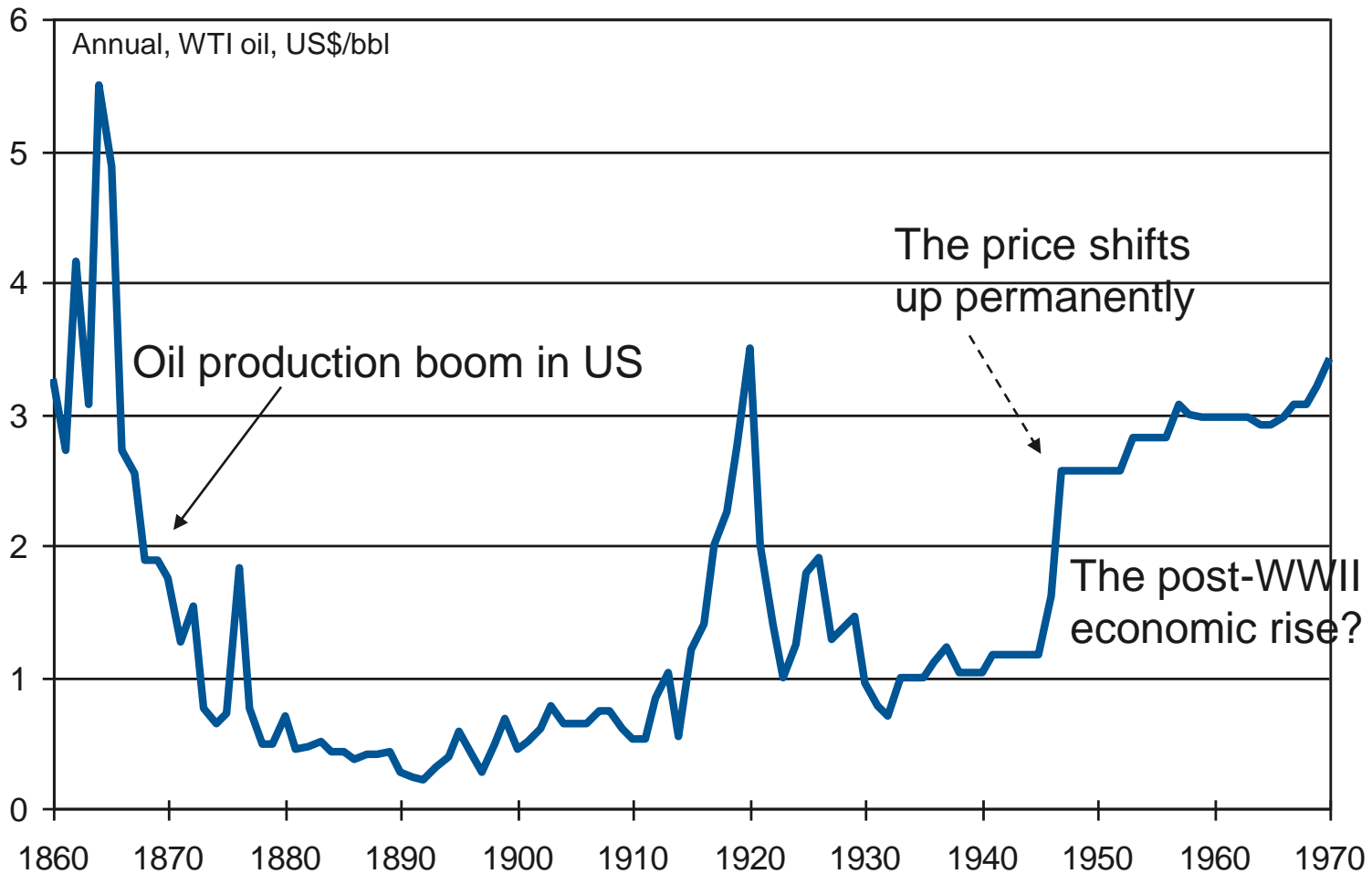
Source: BP Statistical Review of World Energy 2010

Total Crude Oil Reserves to Oil Consumption



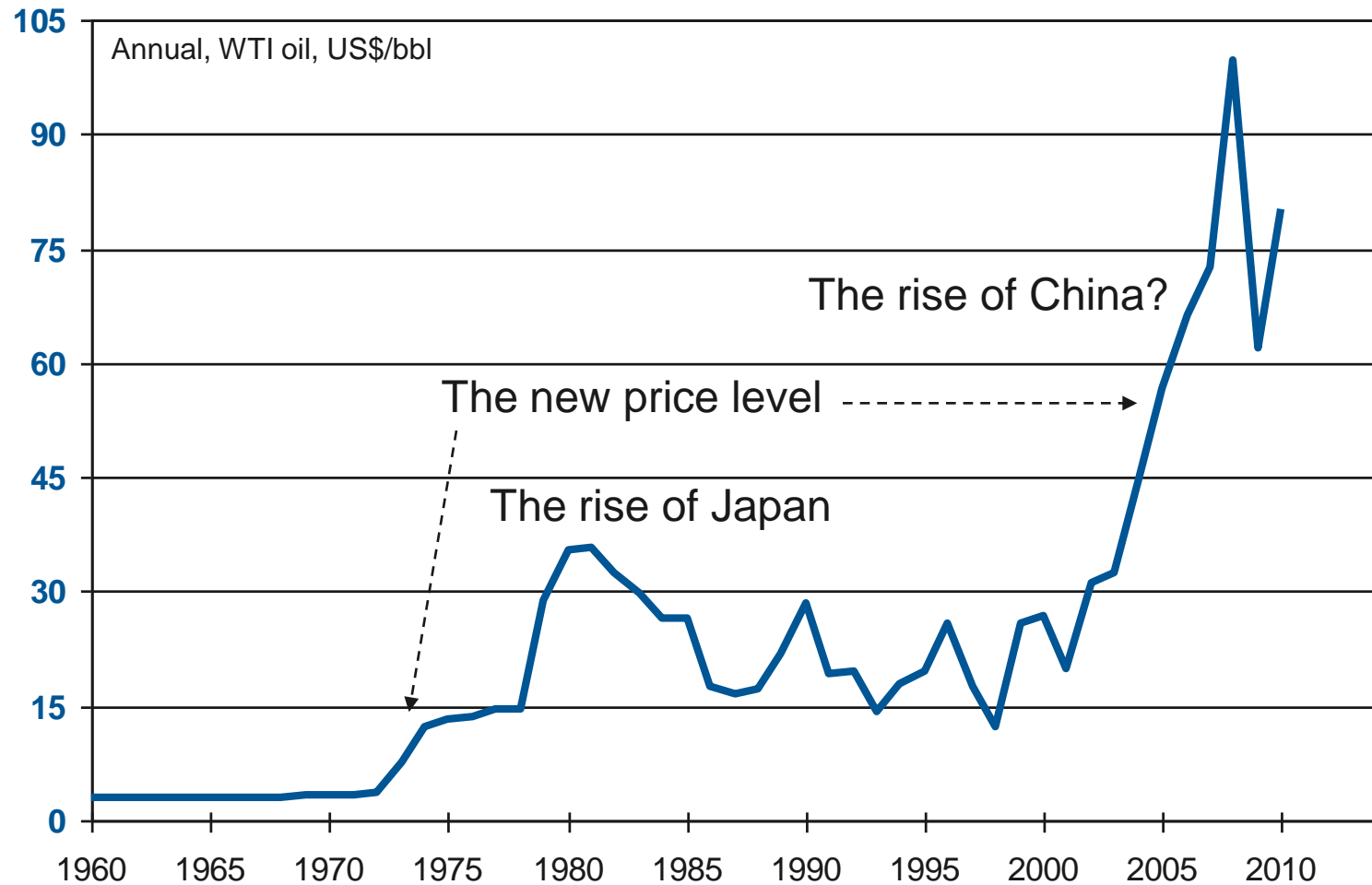
Source: BP Statistical Review of World Energy 2010

The price of oil in historical perspective: supply and demand shocks



Source: Global Financial Data

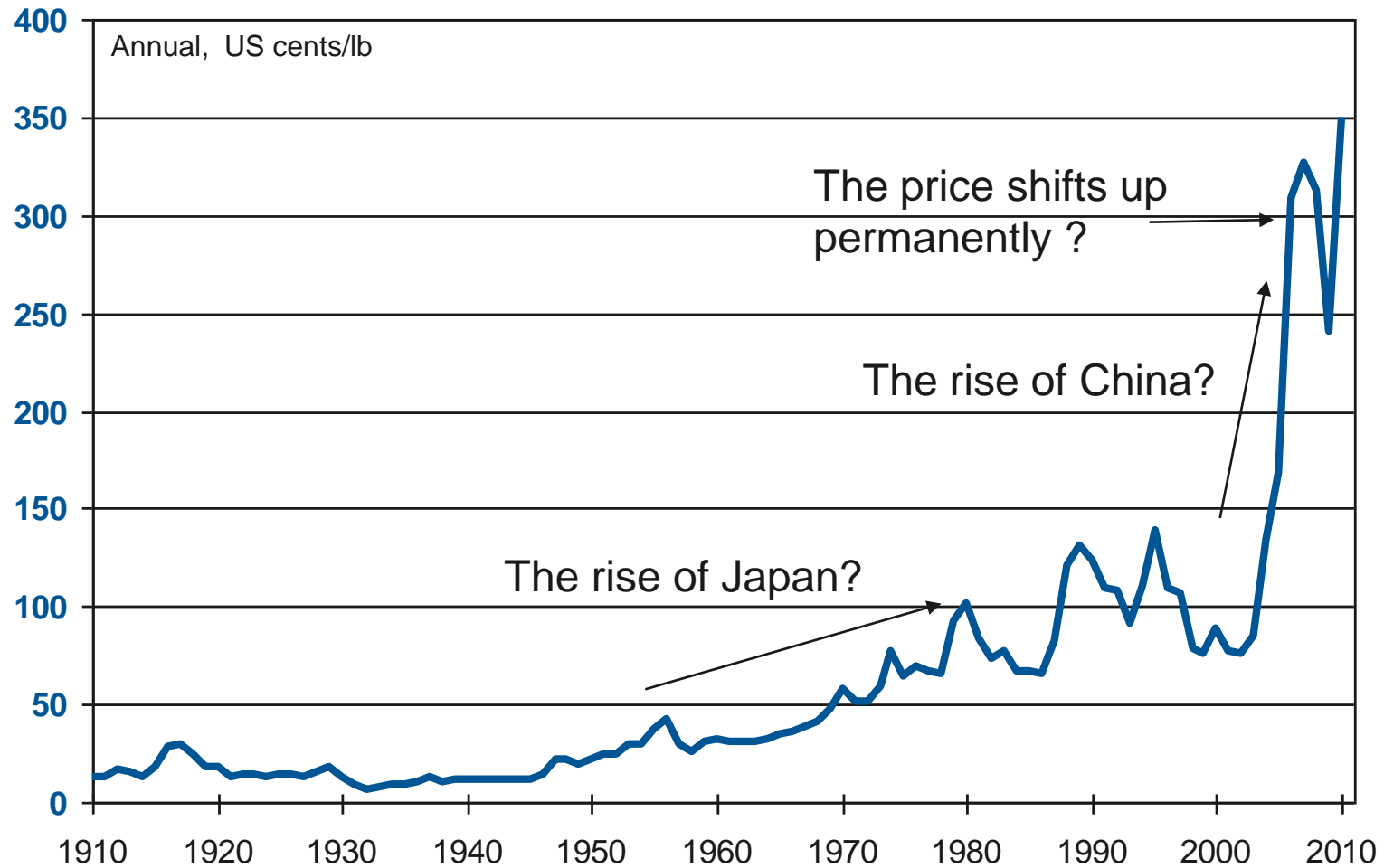
The price of oil and permanent demand shifts



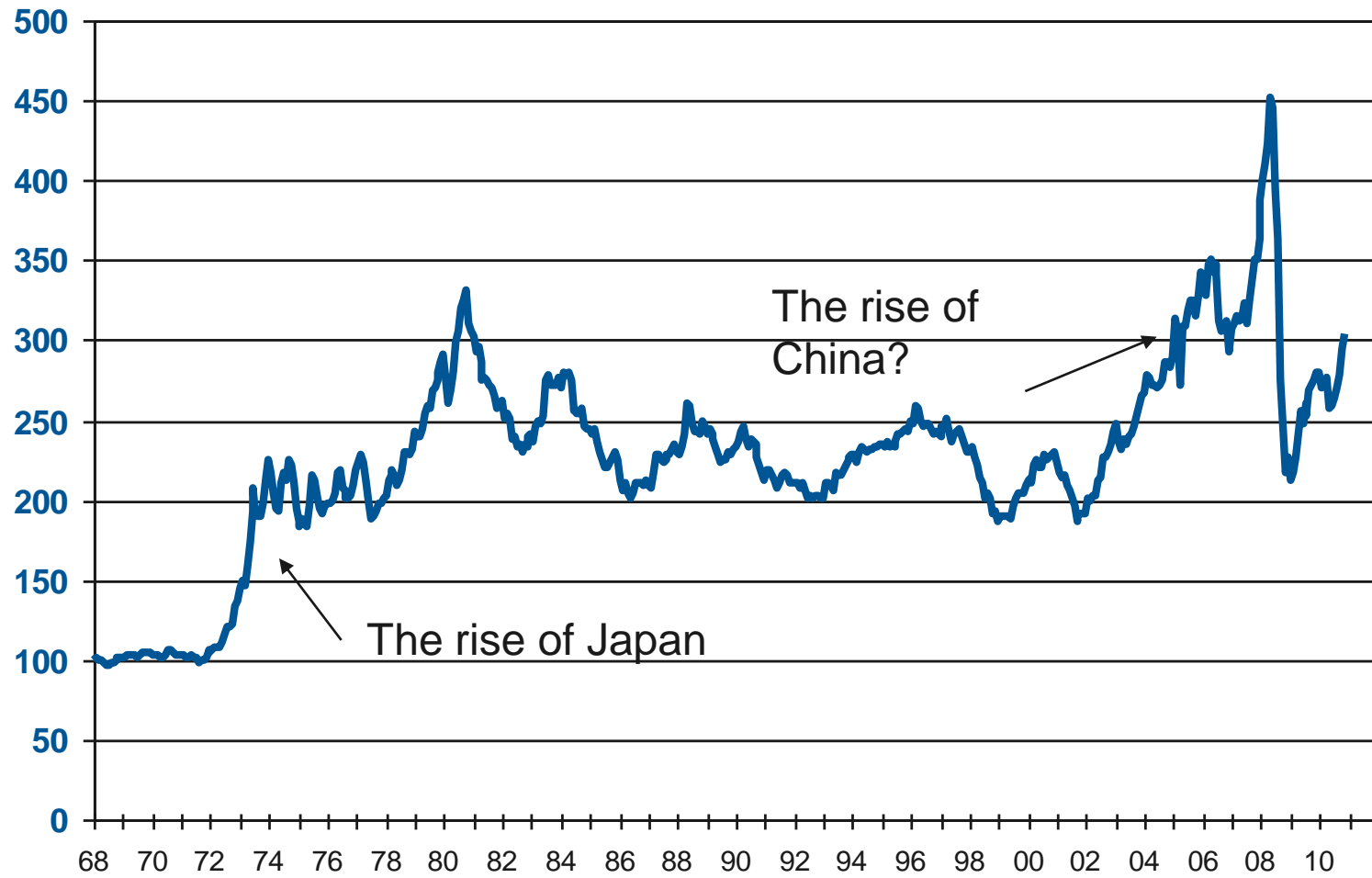
Source: Datastream



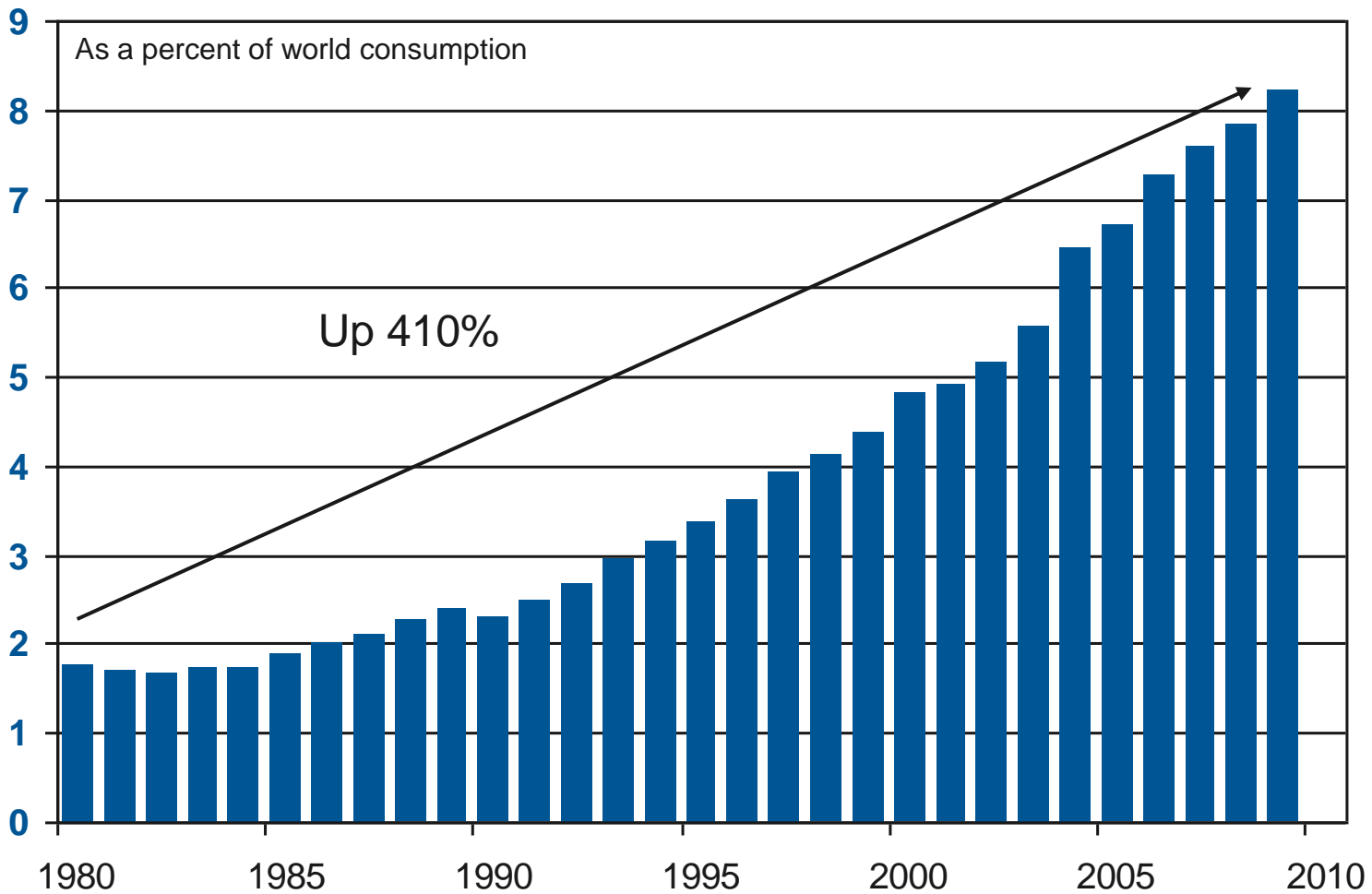
The copper price and permanent demand shifts



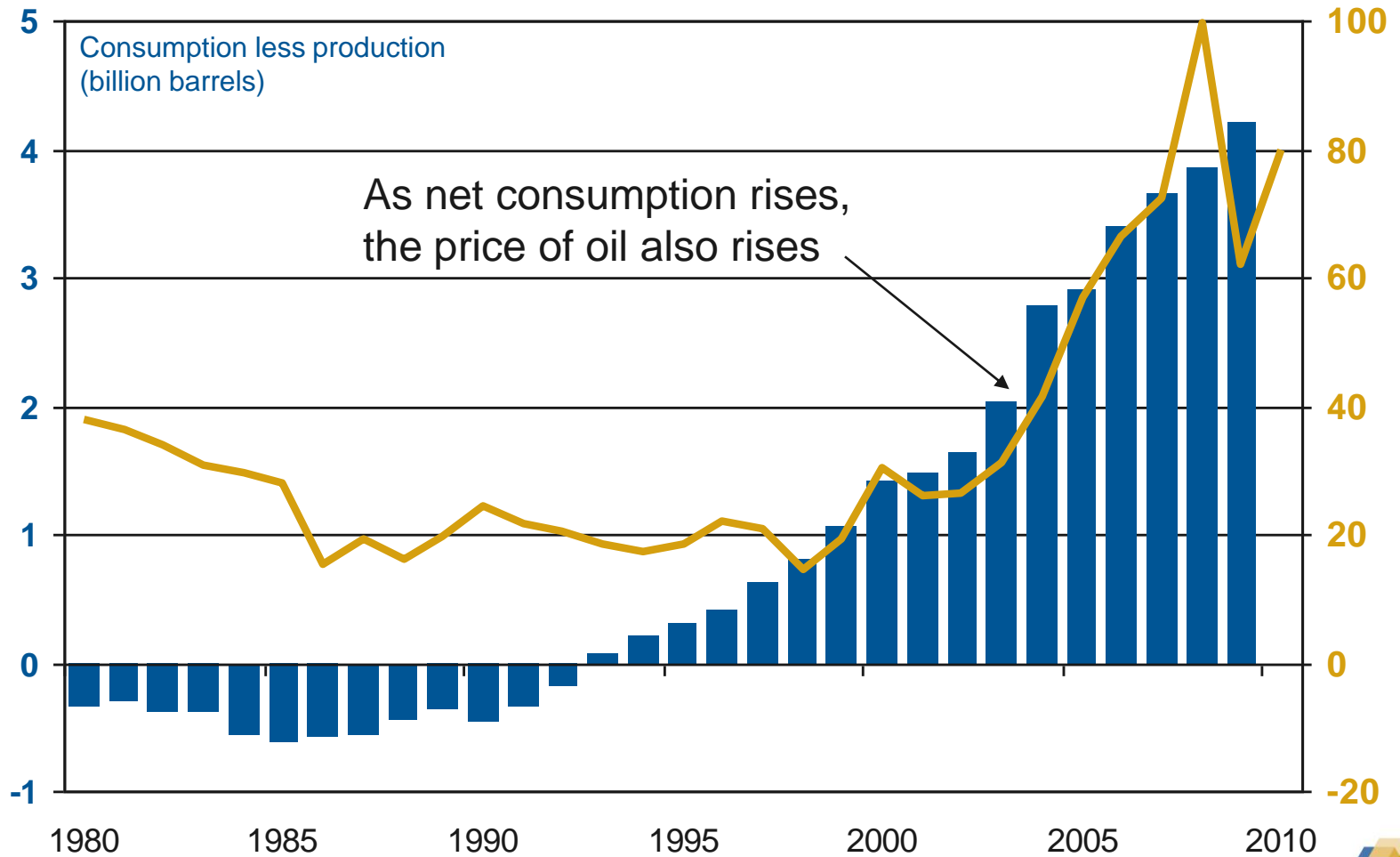
CRB index and permanent demand shifts



China Oil Consumption



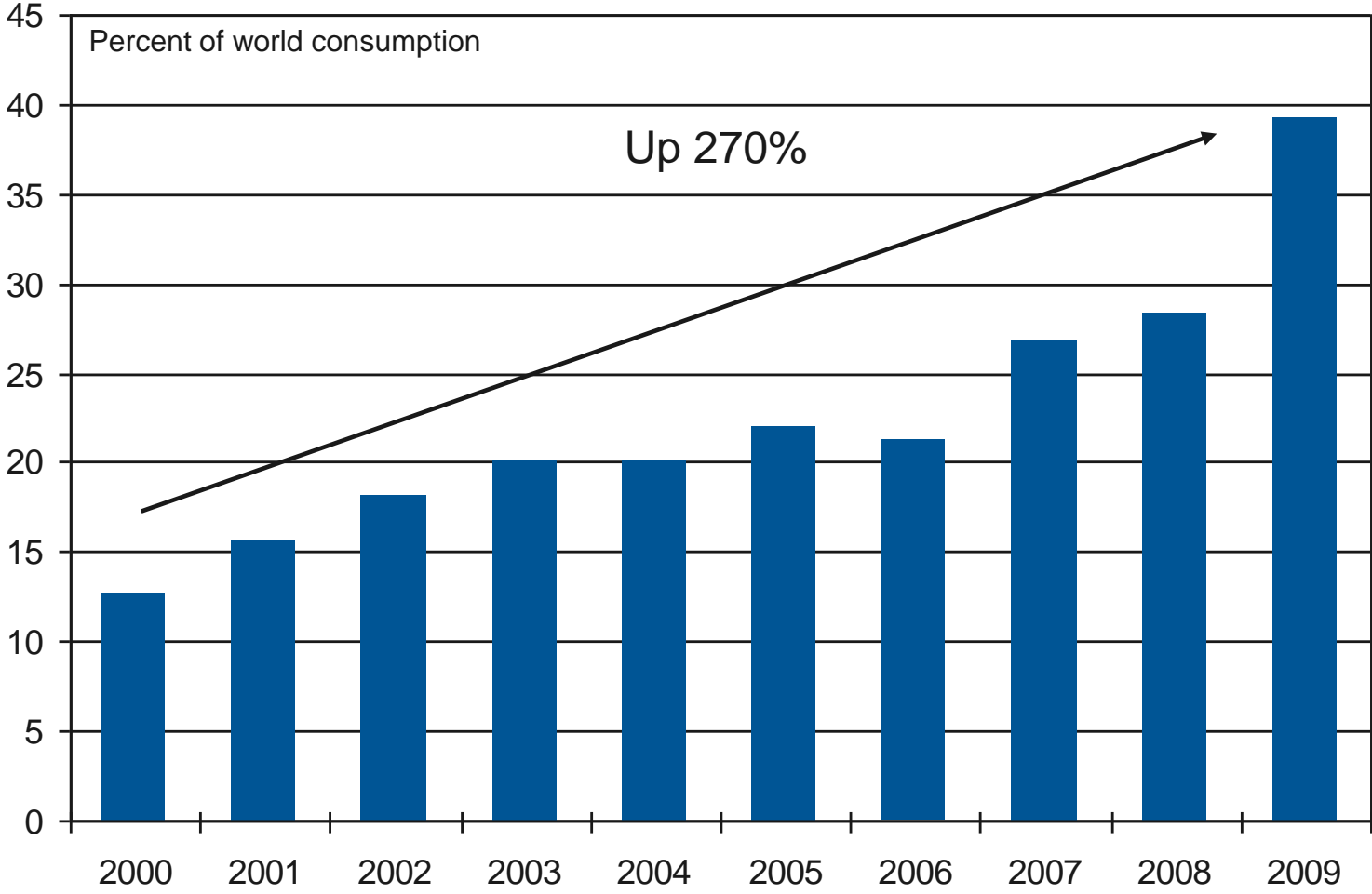
China's consumption gap and the price of oil



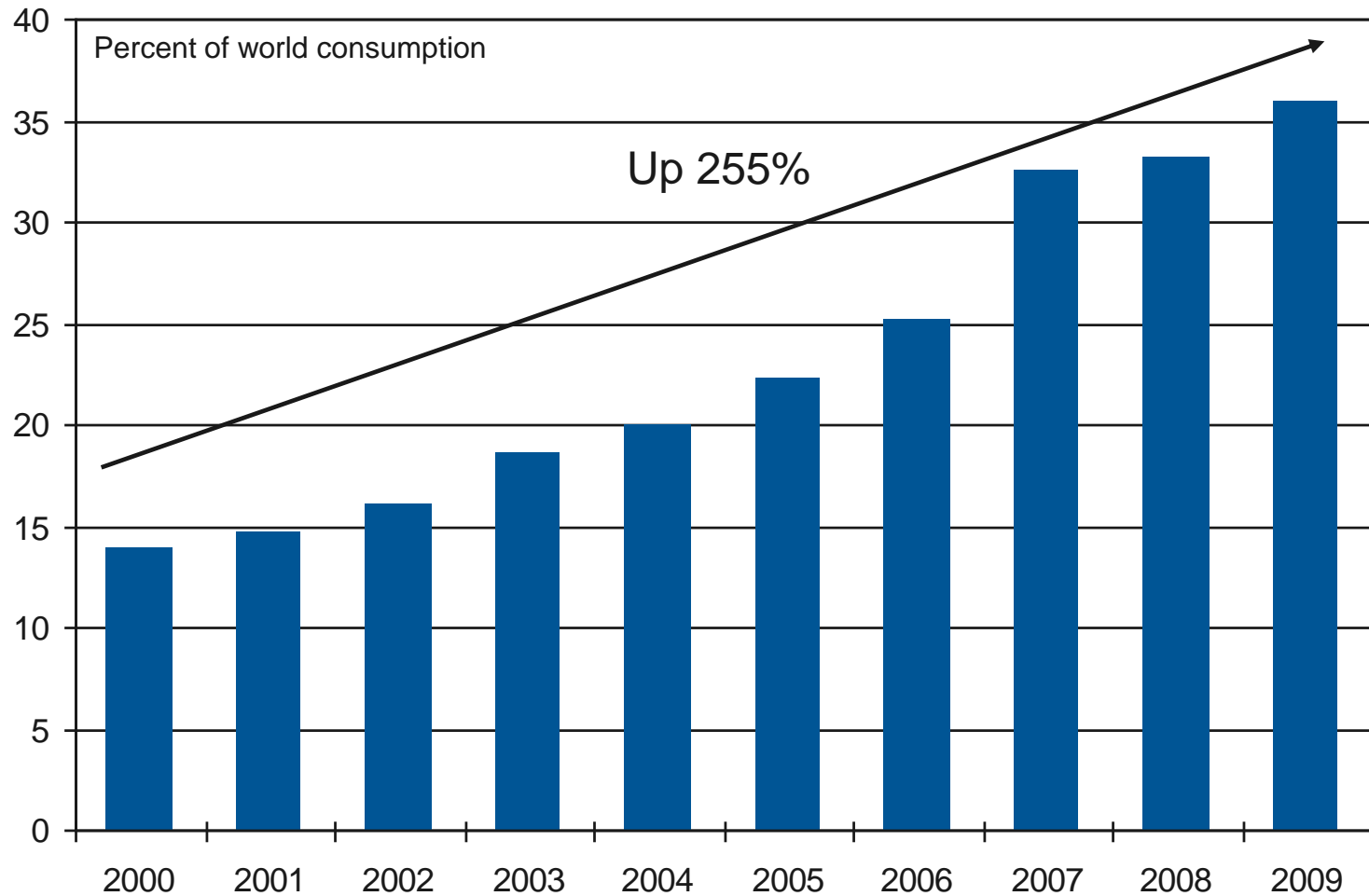
As net consumption rises,
the price of oil also rises

Source: US Energy Information Administration, Datastream

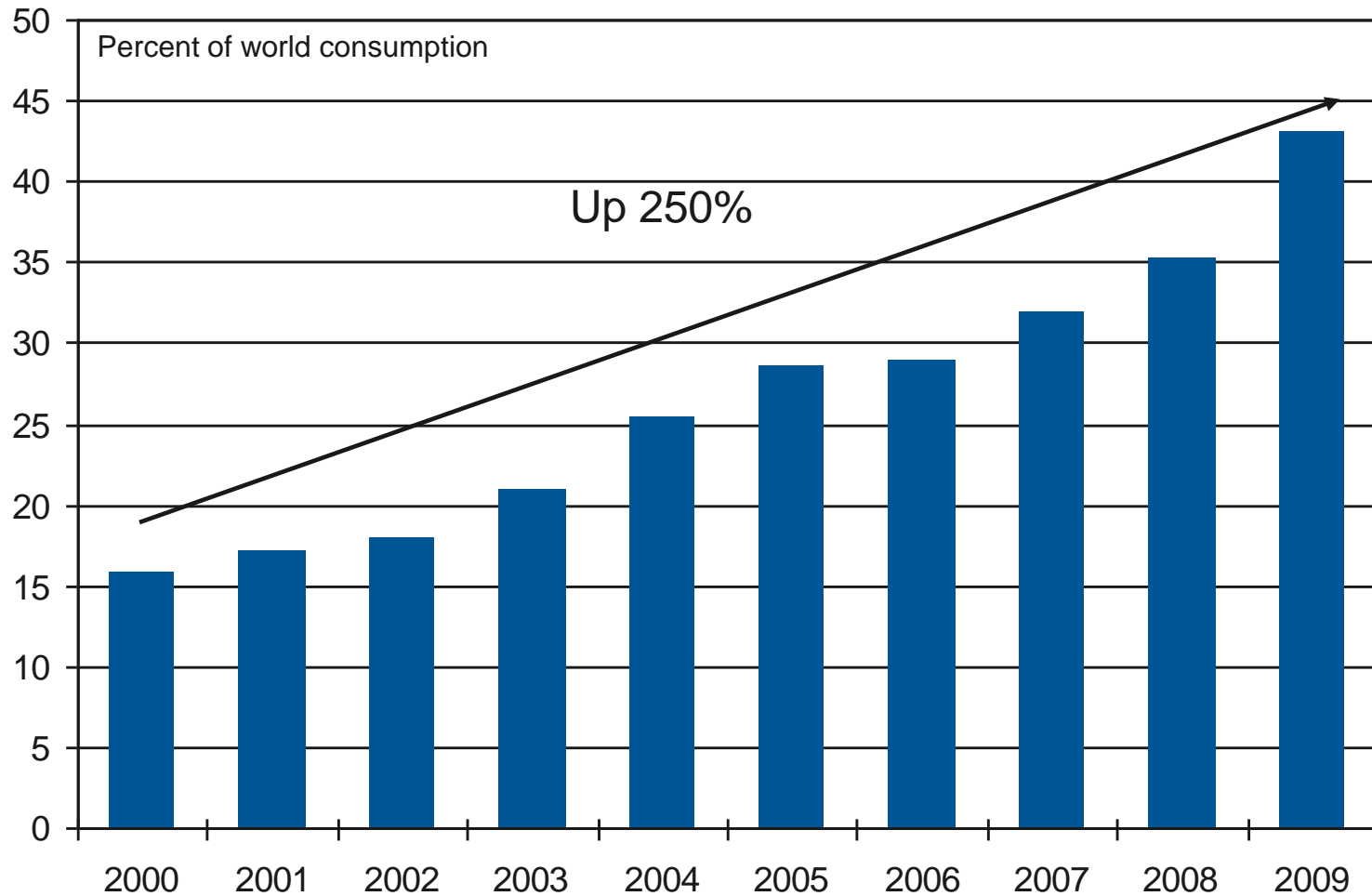
China Copper Consumption



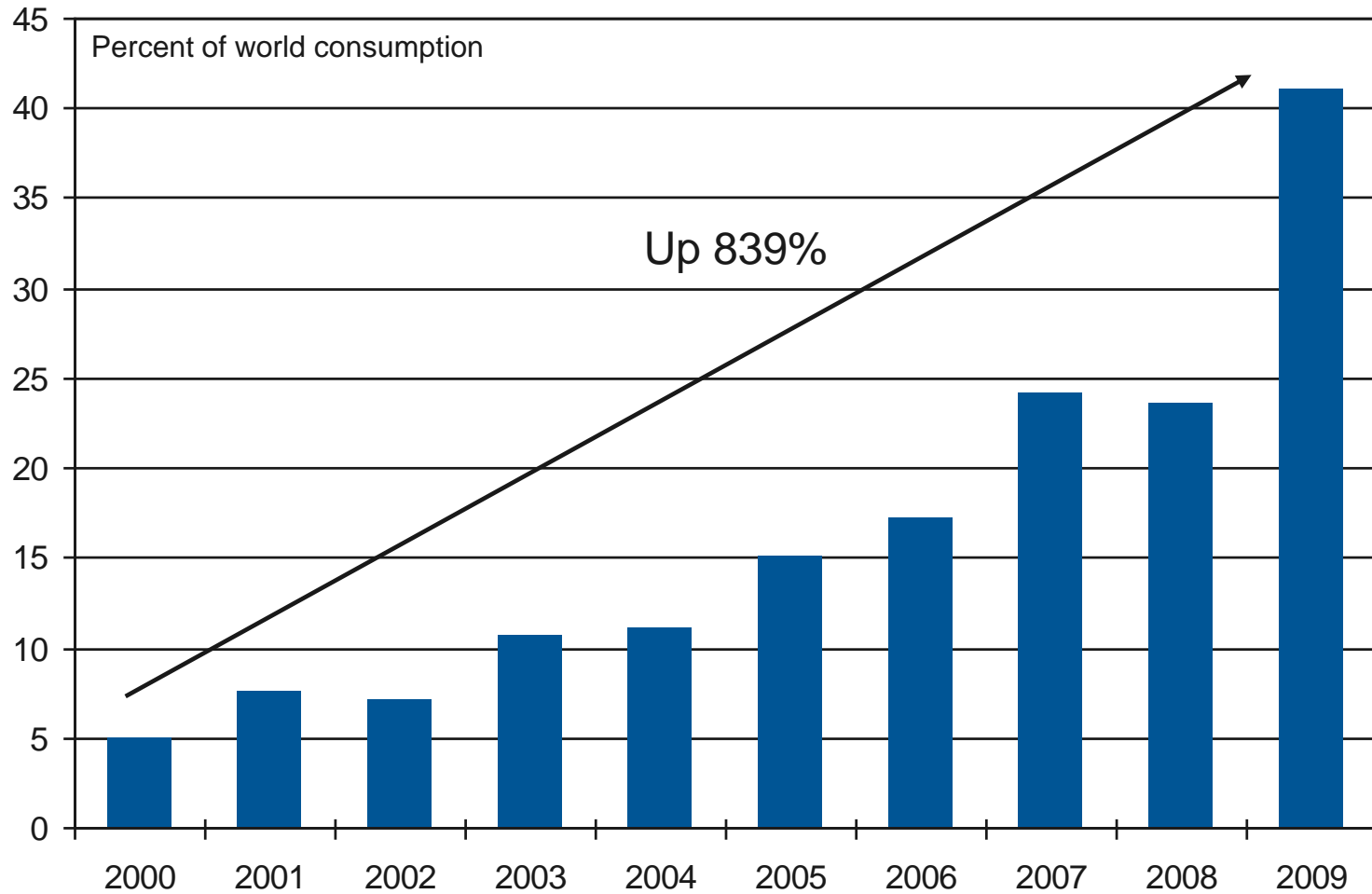
China Aluminum Consumption



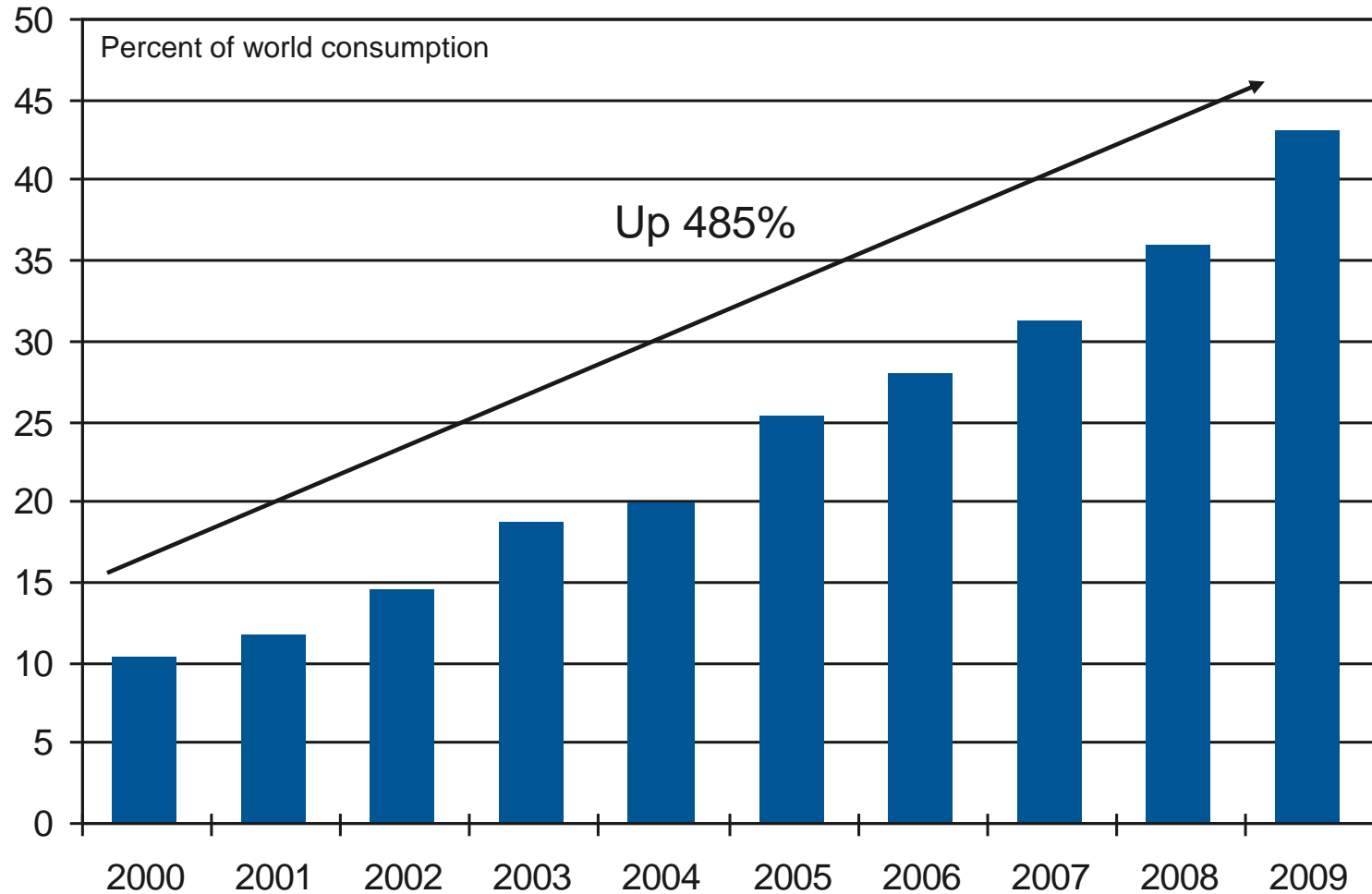
China Zinc Consumption



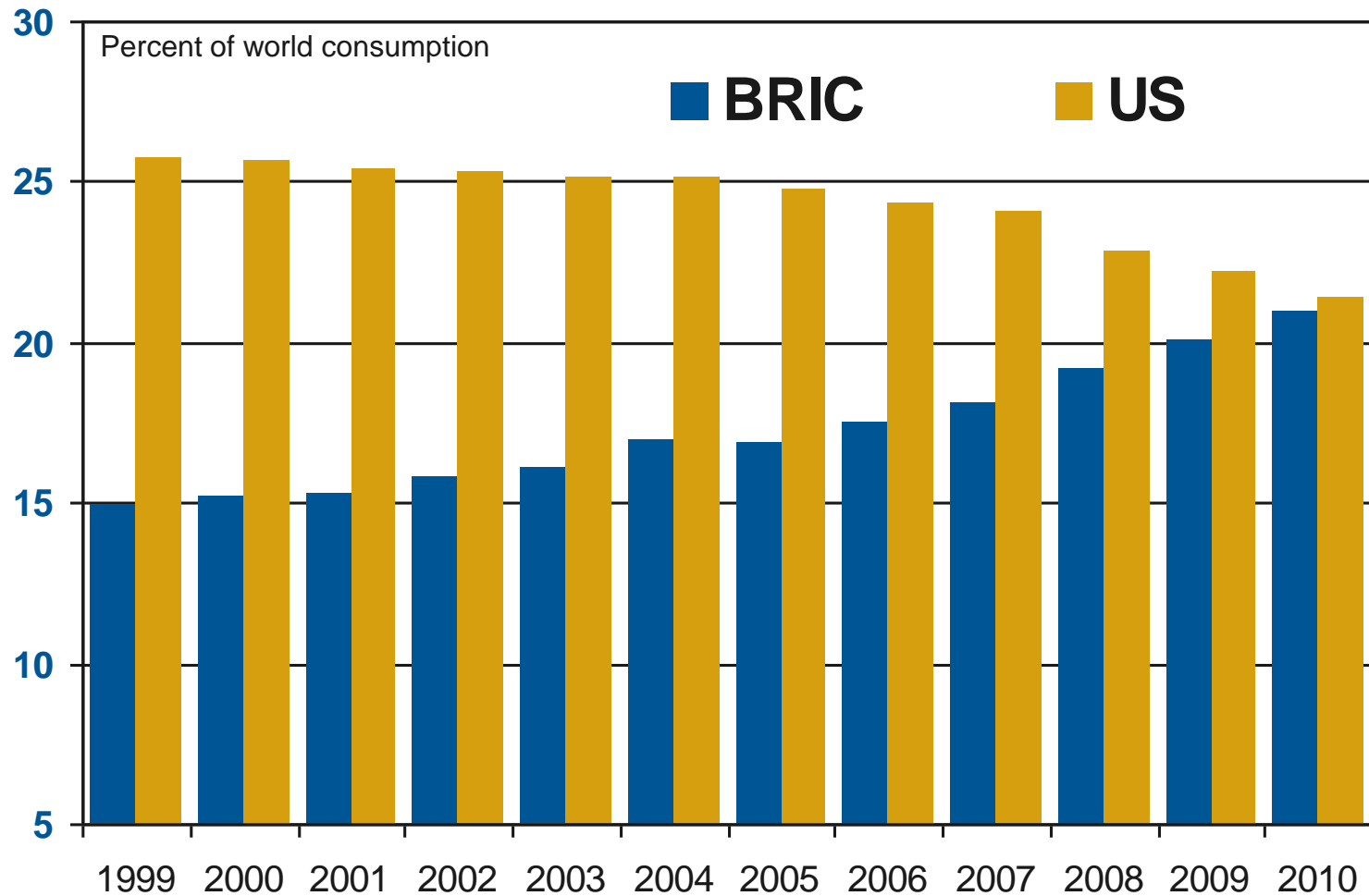
China Nickel Consumption



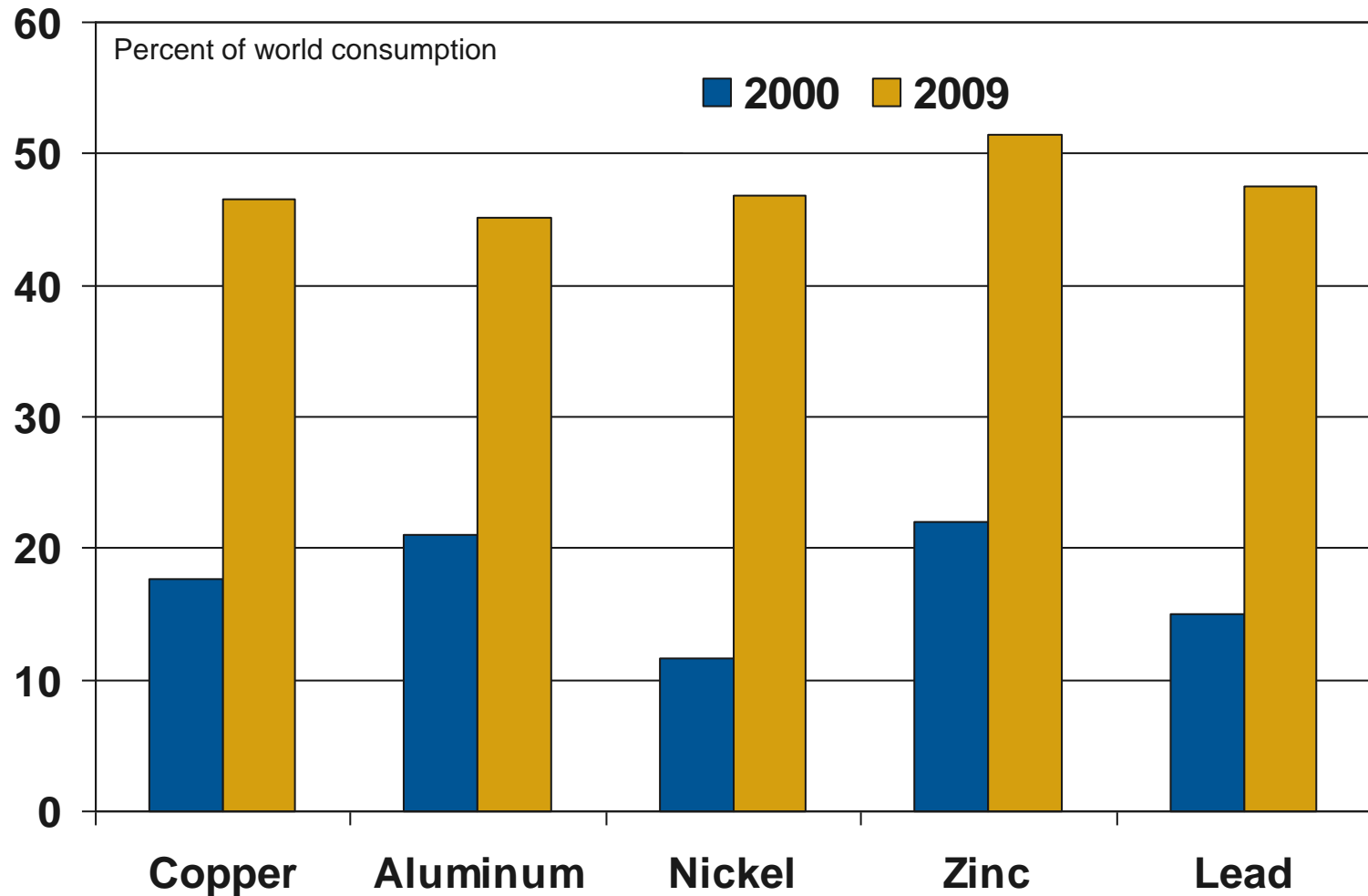
China Lead Consumption



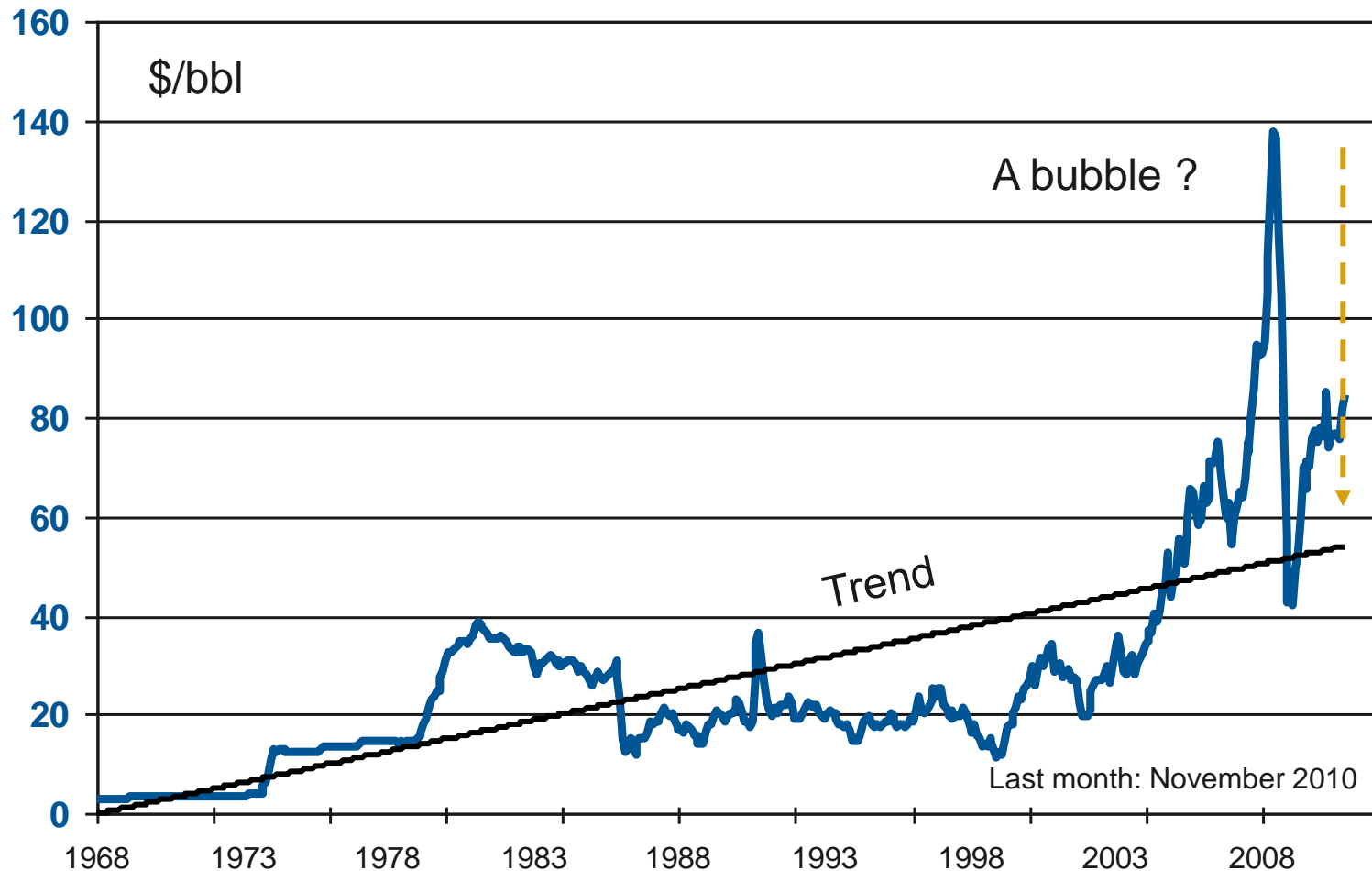
Oil consumption in the “BRIC” is set to overtake the US consumption next year



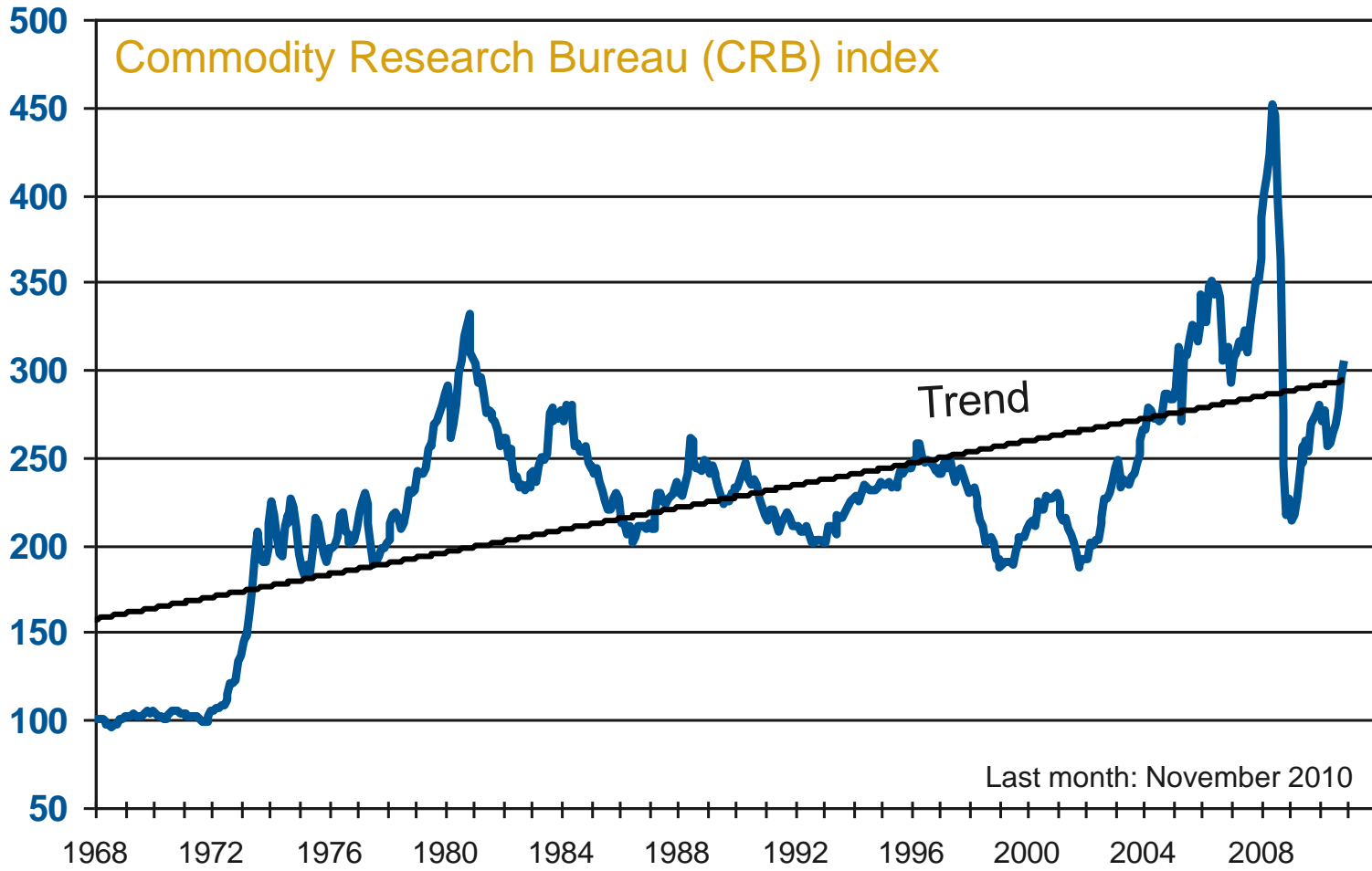
BRIC consumption of industrial metals is about to account for half of the world consumption



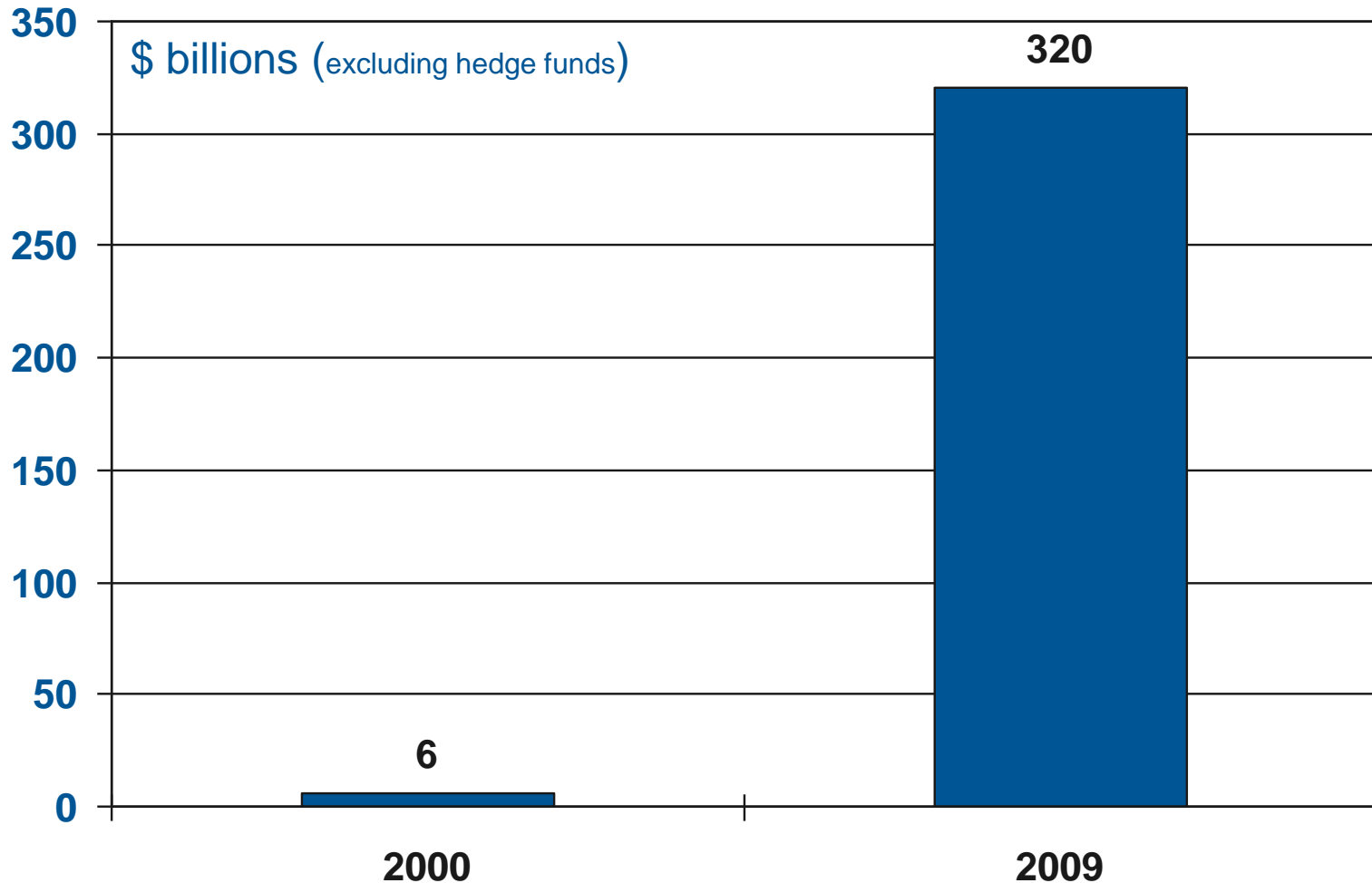
But not all price movements have been driven by fundamental changes: **speculators** may have also played a role, especially in the case of oil



But less in the case of other commodities

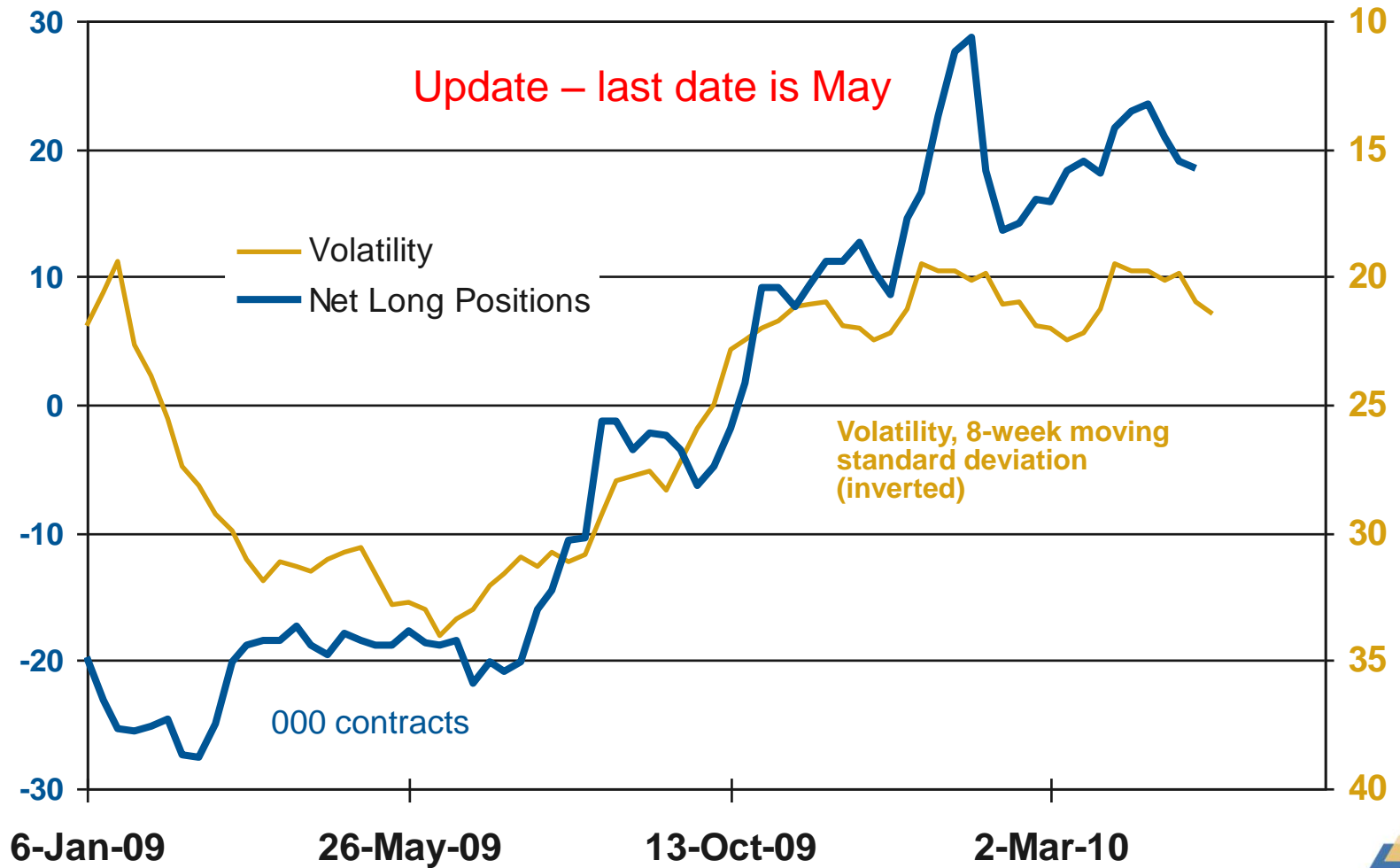


Institutional and retail investments in commodities have dramatically surged over the last 10 years

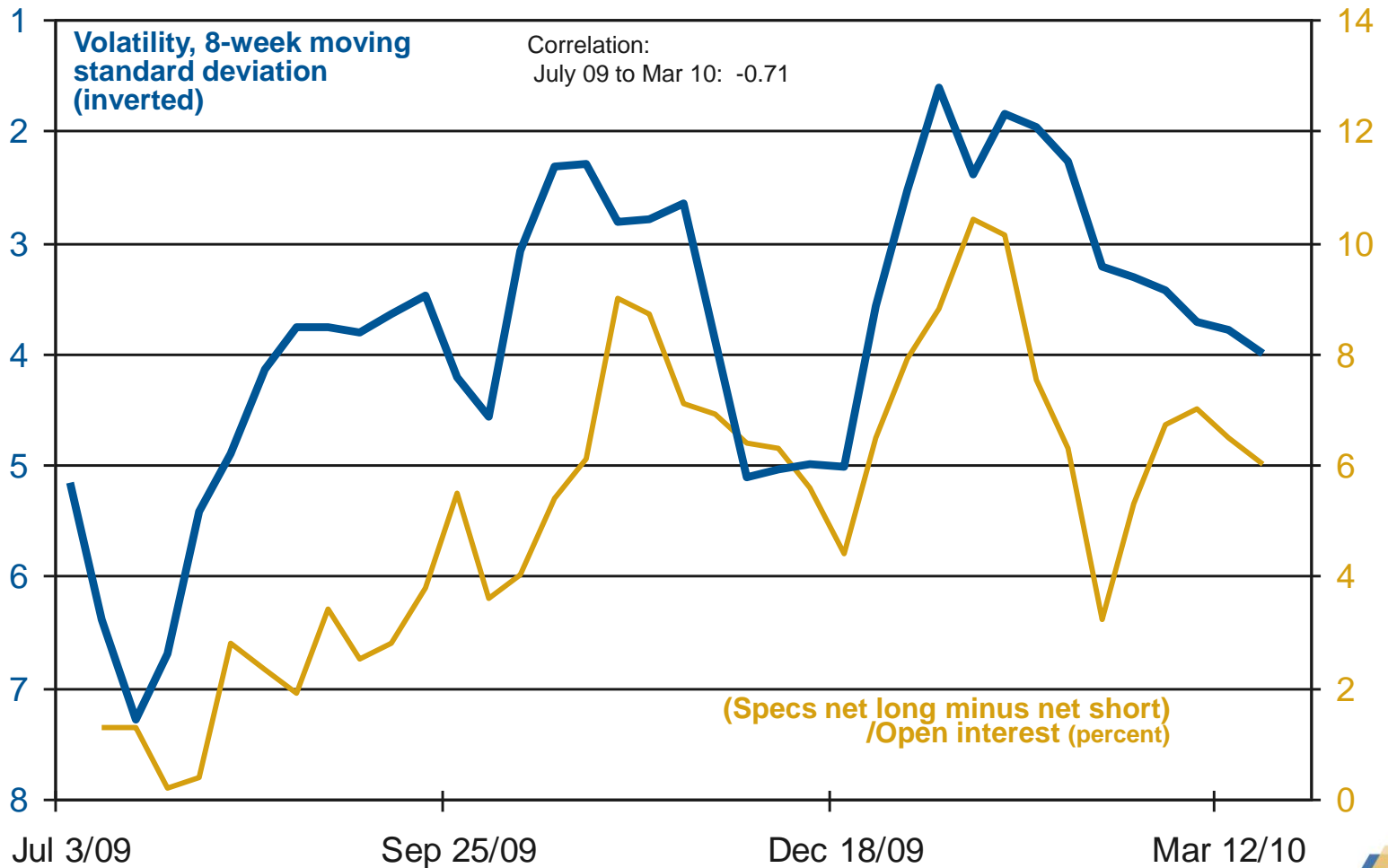


Source: Barclays Capital

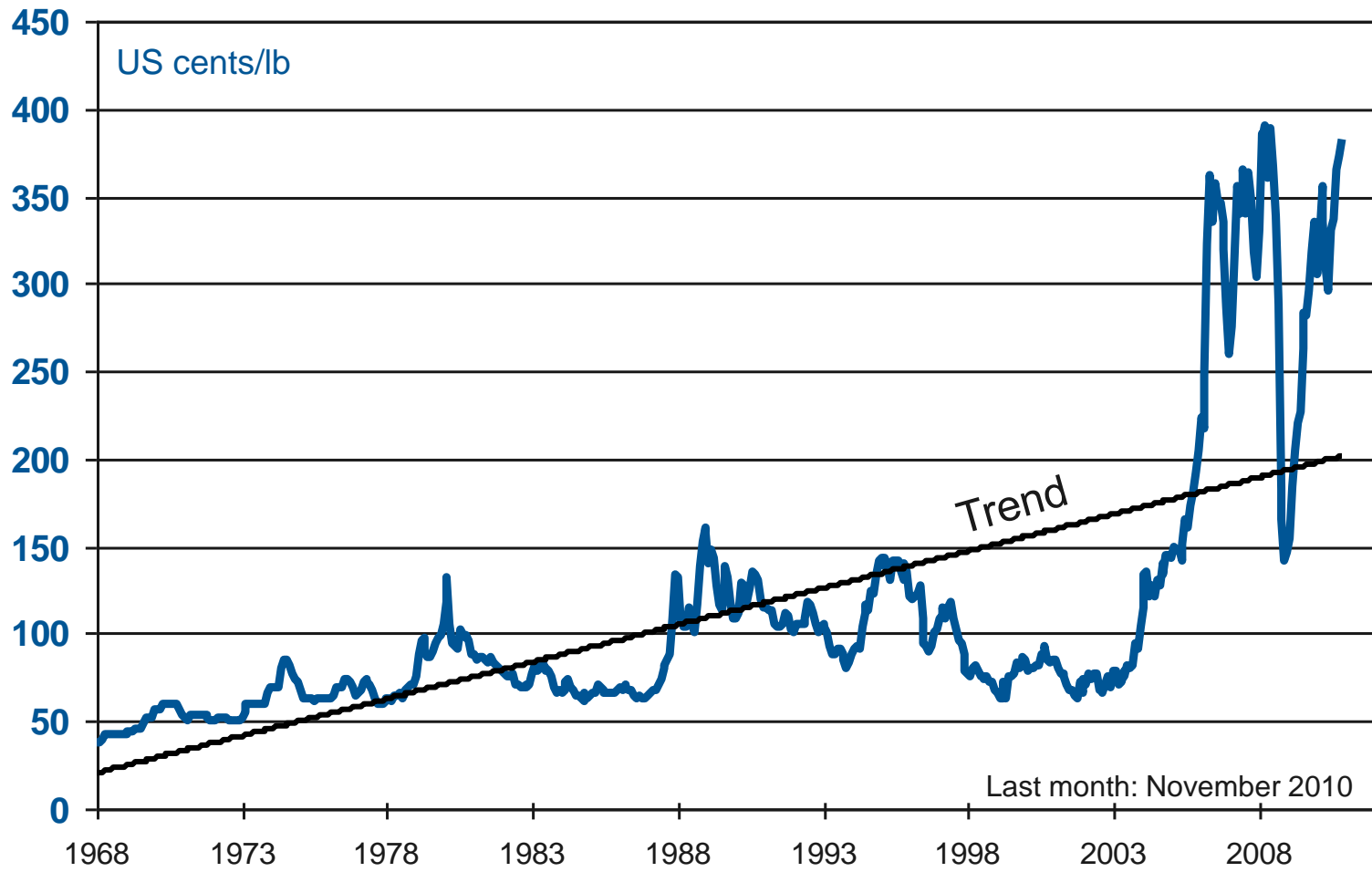
Commitment Of Traders Vs. Copper Price Volatility



Commitments Of Traders Vs Oil Price Volatility



Empirical methods of bubble detection: trend-line approach for the copper price case



Trend-line approach for the gold price case



Last month: November 2010

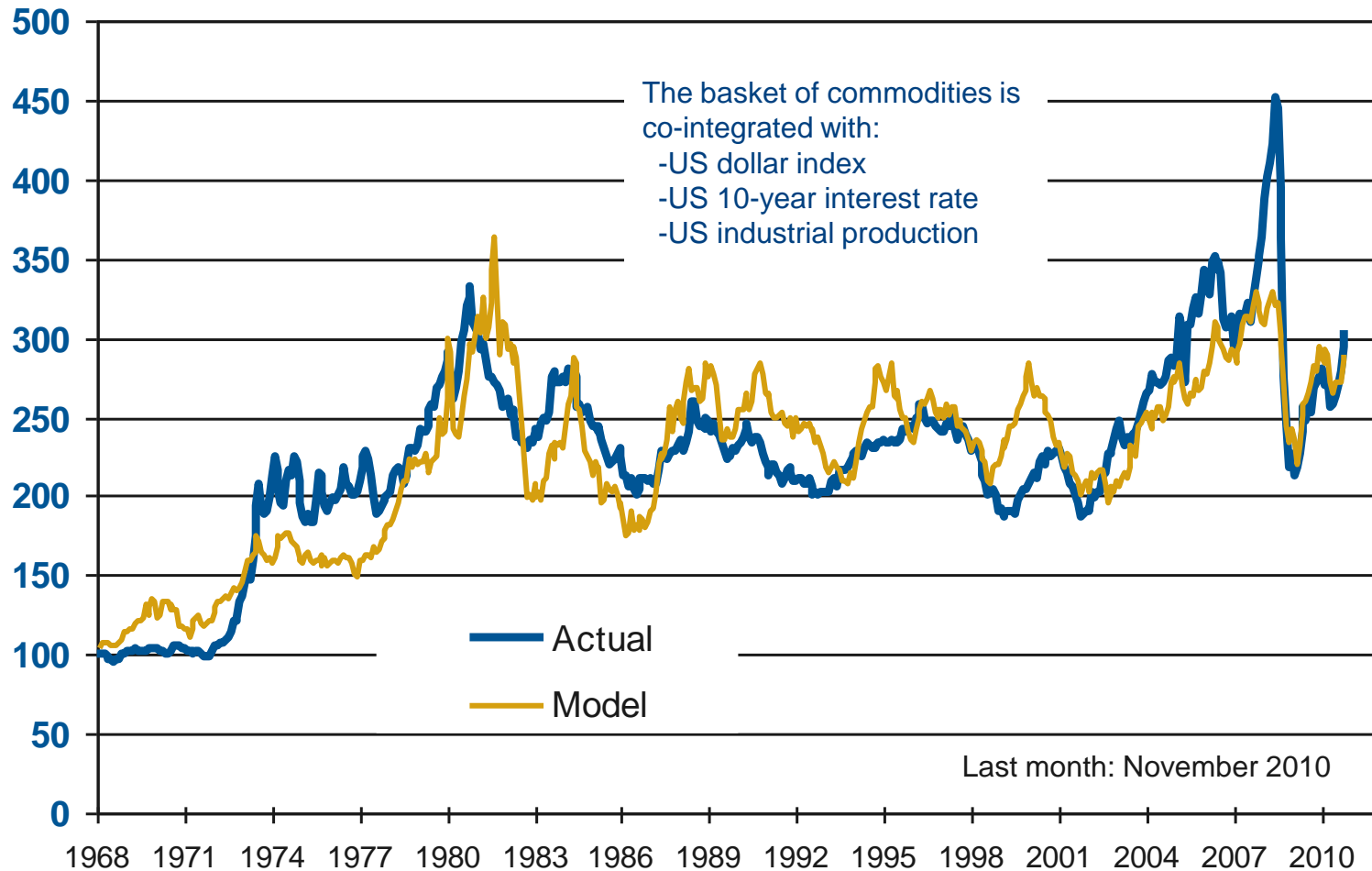


Econometric methods of bubble detection

- Co-integration model:
 - $Y(t) = F(X_1, X_2, \dots, X_n) + B(t)$
 - Series are $I(1)$
 - First differences are $I(0)$
 - Stationarity of residuals would suggest no sustainable bubble in the prices (i.e., the null hypothesis of unit root should be rejected)
- $E(B(t))=0$

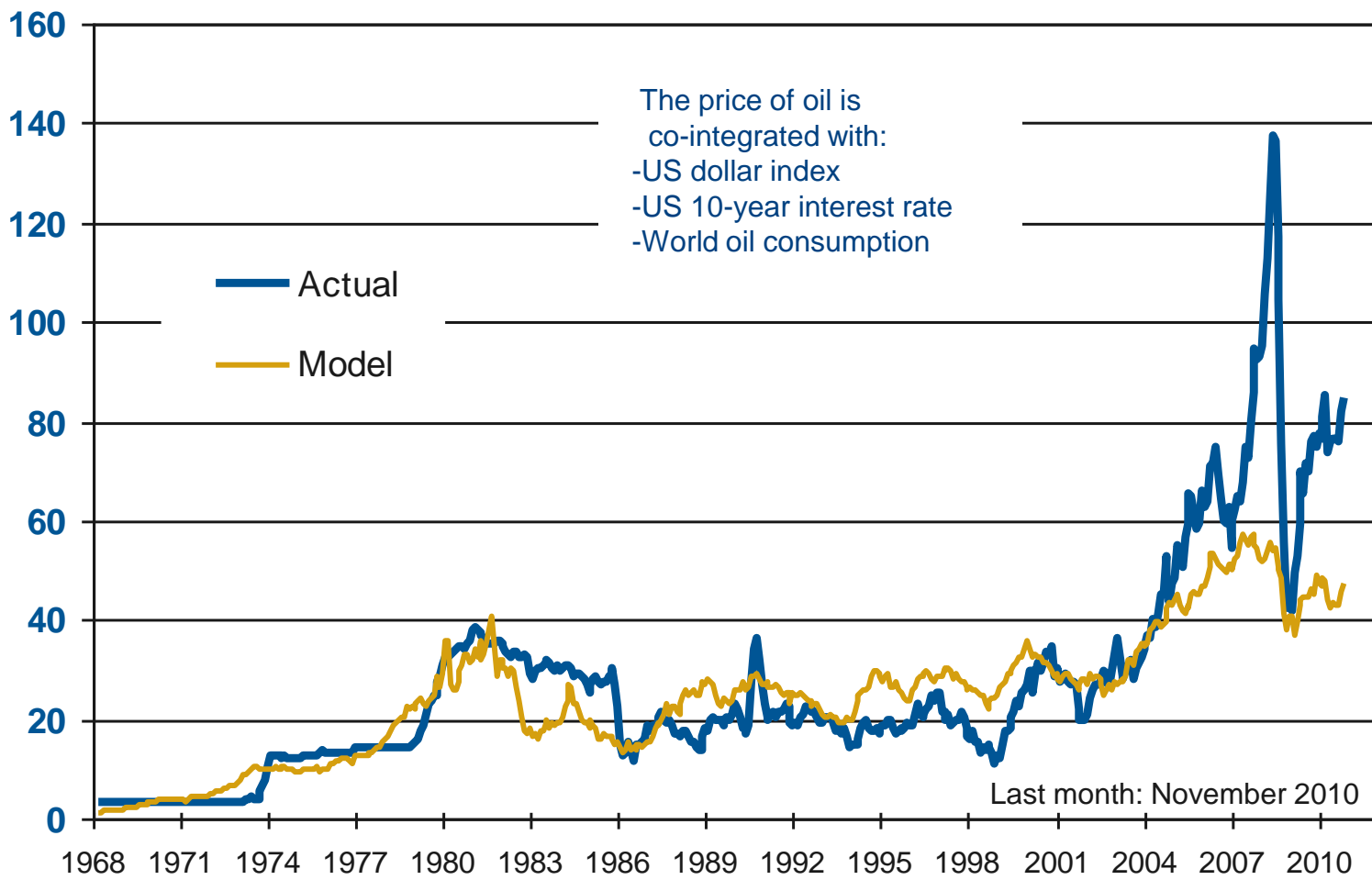
Econometric methods of bubble detection

Co-integration analysis: CRB index



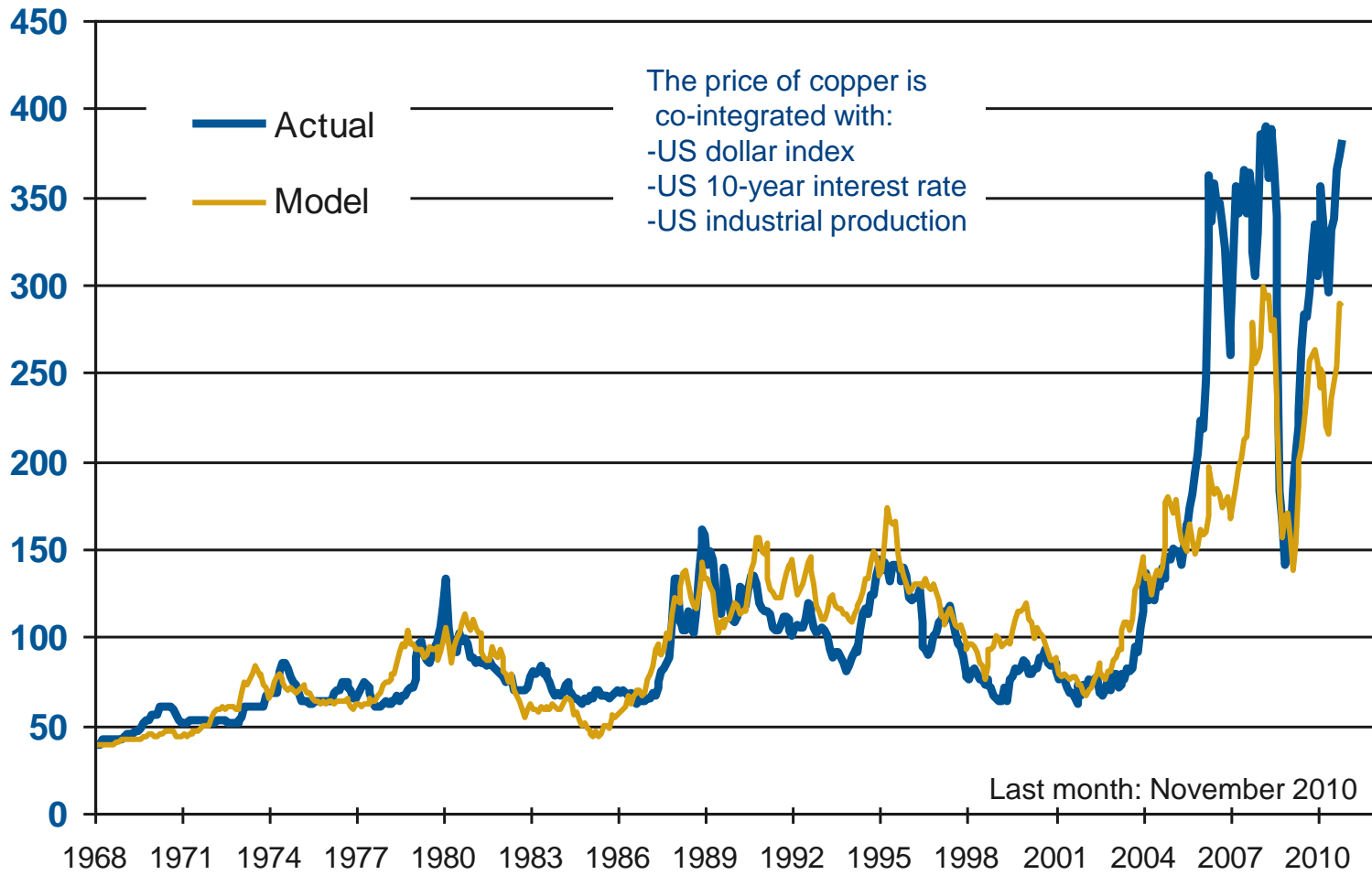
Econometric methods of bubble detection

Co-integration analysis: oil price



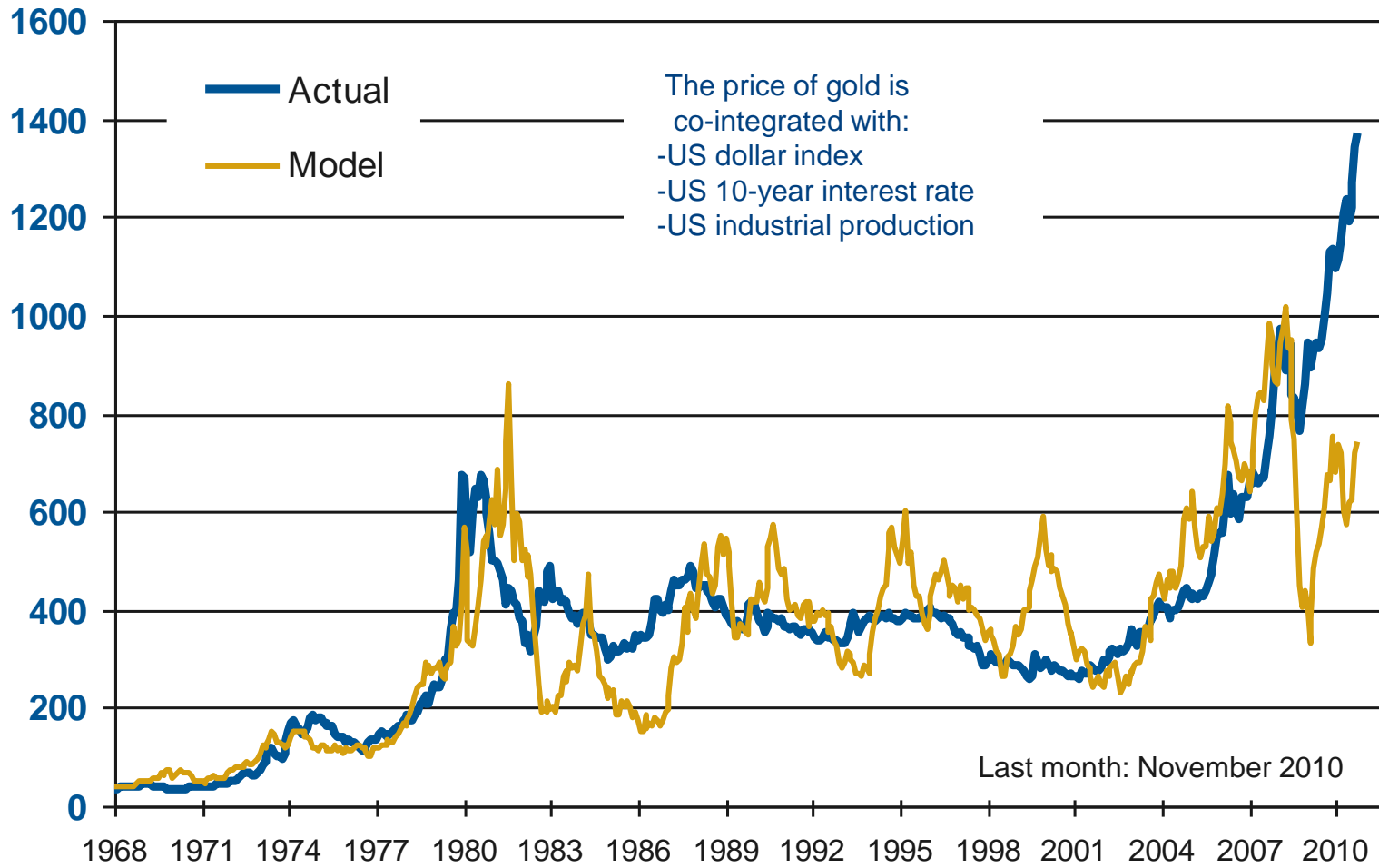
Econometric methods of bubble detection

Co-integration analysis: copper price



Econometric methods of bubble detection

Co-integration analysis: gold price



Test for nonstationarity: No strong empirical evidence of a unit root process

Null Hypothesis: **RESIDCRB** has a unit root

Exogenous: Constant

Lag Length: 0 (Automatic based on SIC, MAXLAG=18)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-3.21262	0.0198
Test critical values: 1% level	-3.44287	
5% level	-2.86695	
10% level	-2.56972	

*MacKinnon (1996) one-sided p-values.

Null Hypothesis: **RESIDOIL** has a unit root

Exogenous: Constant

Lag Length: 1 (Automatic based on SIC, MAXLAG=12)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-3.38631	0.0119
Test critical values: 1% level	-3.44292	
5% level	-2.86698	
10% level	-2.56973	

*MacKinnon (1996) one-sided p-values.

Null Hypothesis: **RESIDCOP** has a unit root

Exogenous: Constant

Lag Length: 1 (Automatic based on SIC, MAXLAG=12)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-3.87816	0.0024
Test critical values: 1% level	-3.44289	
5% level	-2.86697	
10% level	-2.56972	

*MacKinnon (1996) one-sided p-values.

Null Hypothesis: **RESIDGOLD** has a unit root

Exogenous: Constant

Lag Length: 1 (Automatic based on SIC, MAXLAG=12)

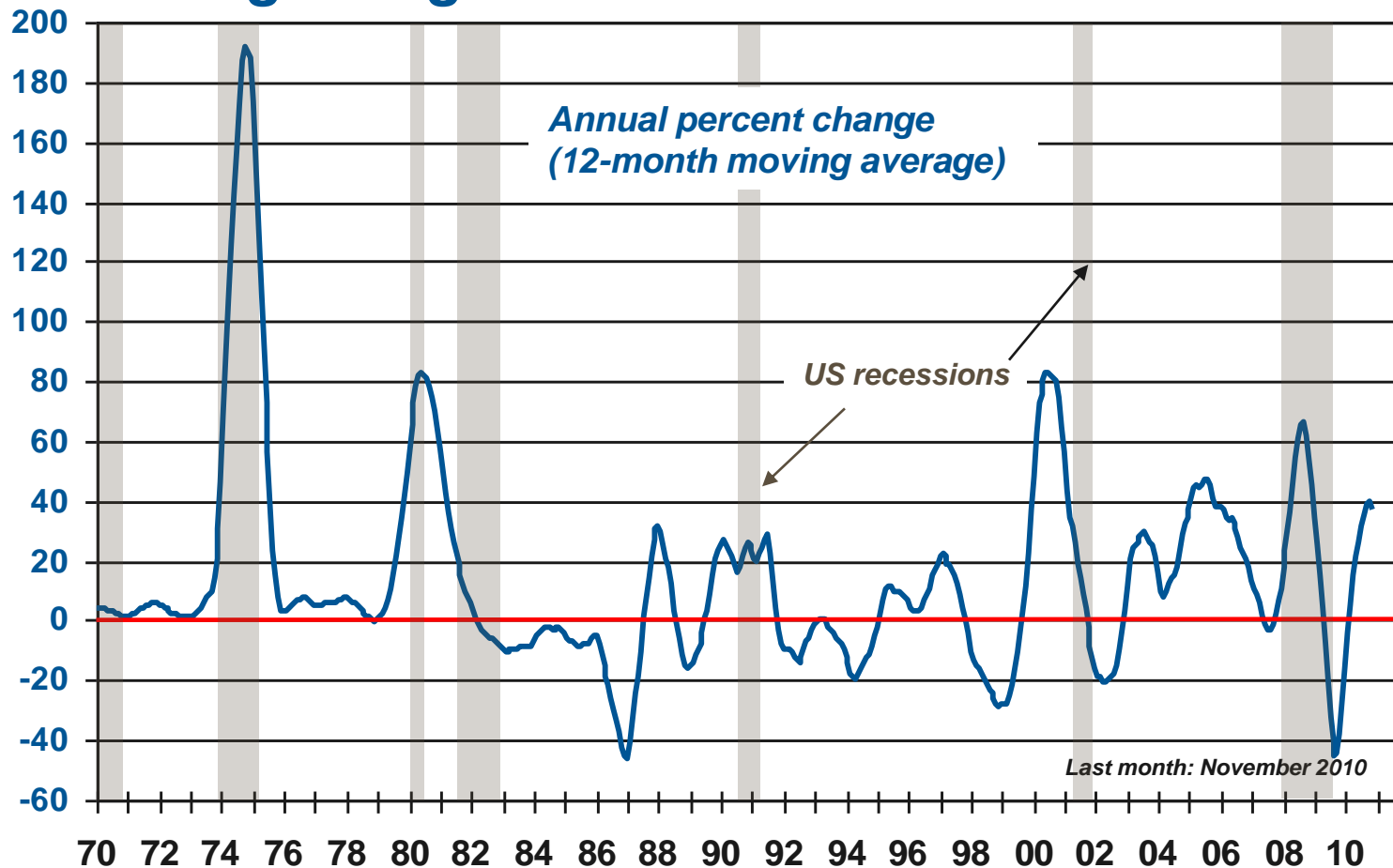
	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-3.38375	0.012
Test critical values: 1% level	-3.44289	
5% level	-2.86697	
10% level	-2.56972	

*MacKinnon (1996) one-sided p-values.

Outlook for the prices: short-term risks

- The empirical evidence suggests that commodity markets are efficient and higher volume of investors trading is likely to make prices more responsive to sudden reversals in the short-term economic outlook:
- Chinese economy slows down or goes into a “hard landing” (on the back of aggressive monetary tightening, scaled back fiscal stimulus, or problems in the banking and housing sectors)
- Sovereign defaults in Europe become a reality with the result that the US dollar appreciates significantly
- US economy plunges back into recession as US monetary and fiscal policies are tightened too soon and a further run up in oil prices undermines the US economic recovery

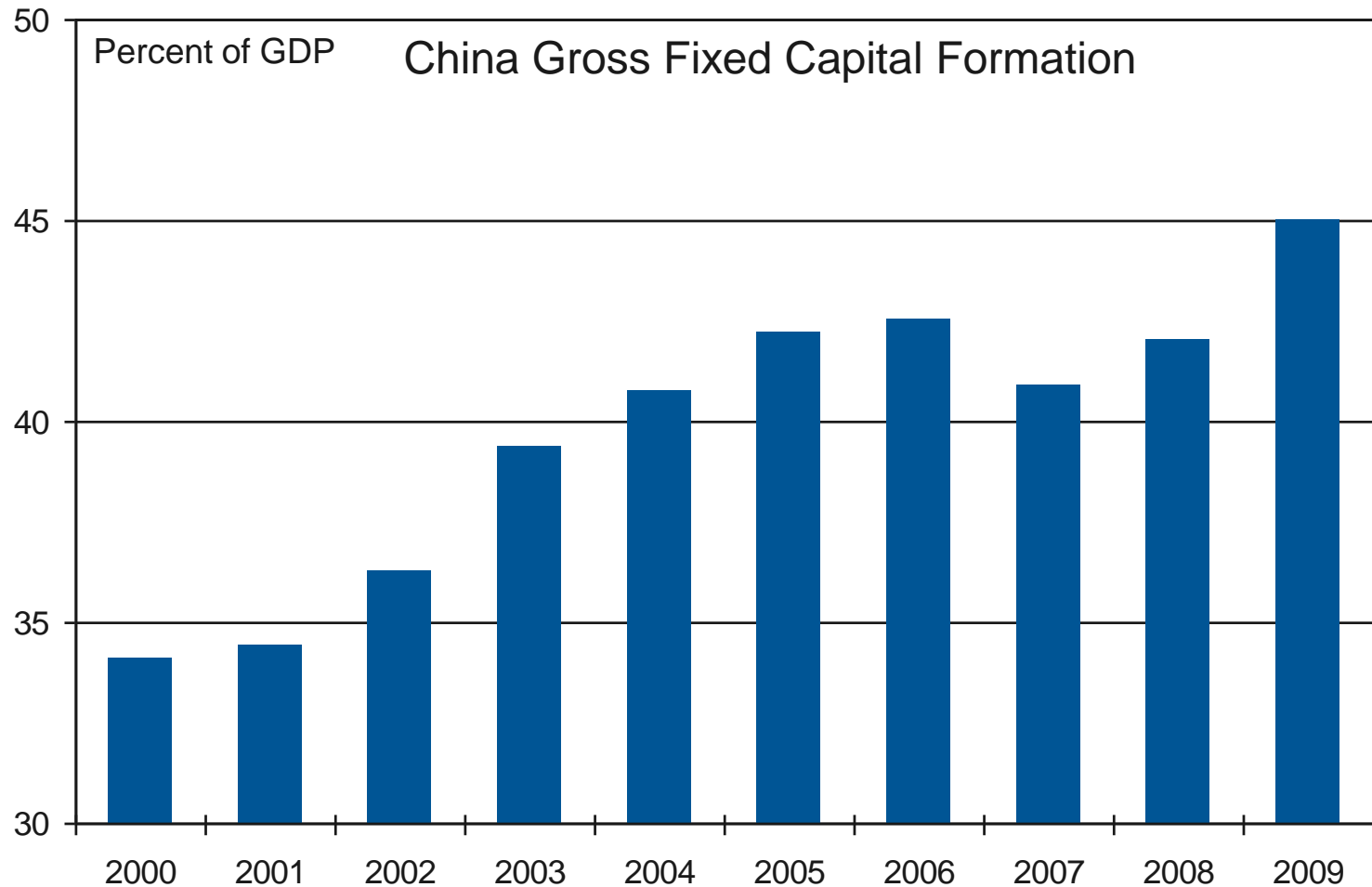
A further run up in oil prices may undermine the US economic recovery: oil prices tend to peak prior or in the beginning of recessions



Outlook for the prices: long-term constraints

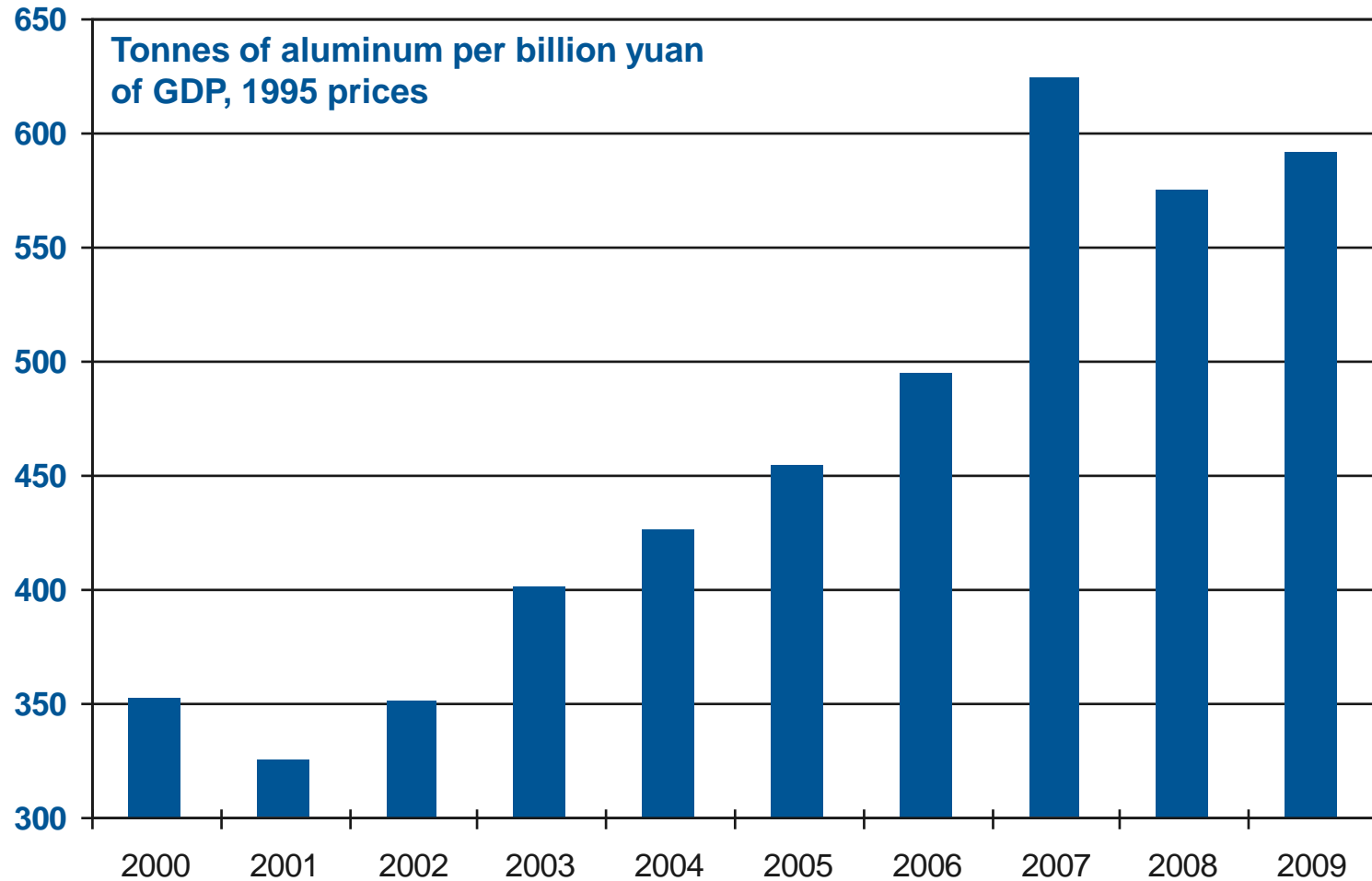
- Economic growth in emerging economies will become less commodity intensive (services rather than infrastructure investments will form the major part of domestic output)
- Demand for energy resources in emerging economies abates as energy subsidies are increasingly removed
- Technological advances in drilling and extraction may reduce production costs and prices

China's growth is largely investment-based

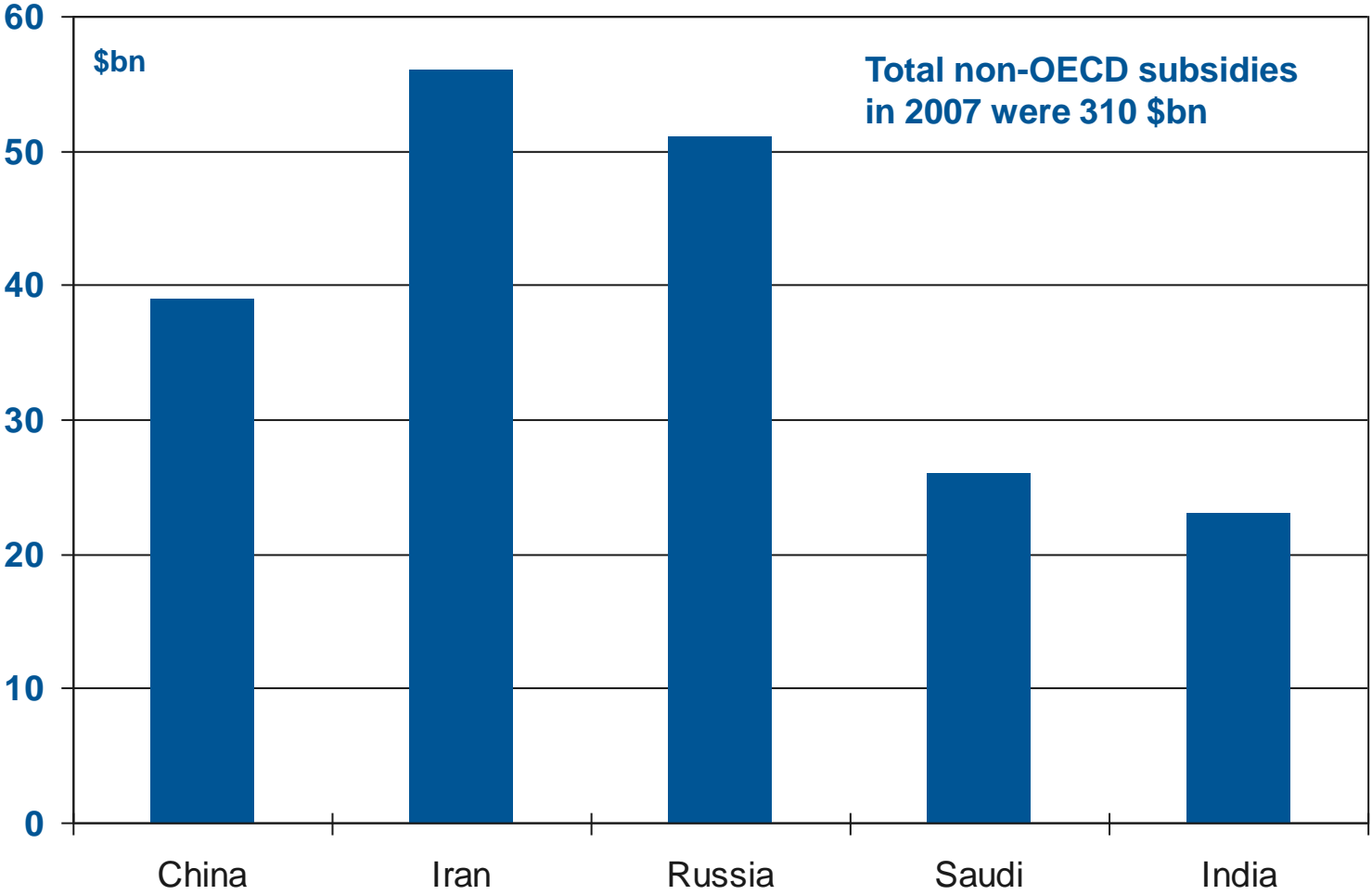


Source: IMF

And that increases commodity consumption intensity of its GDP



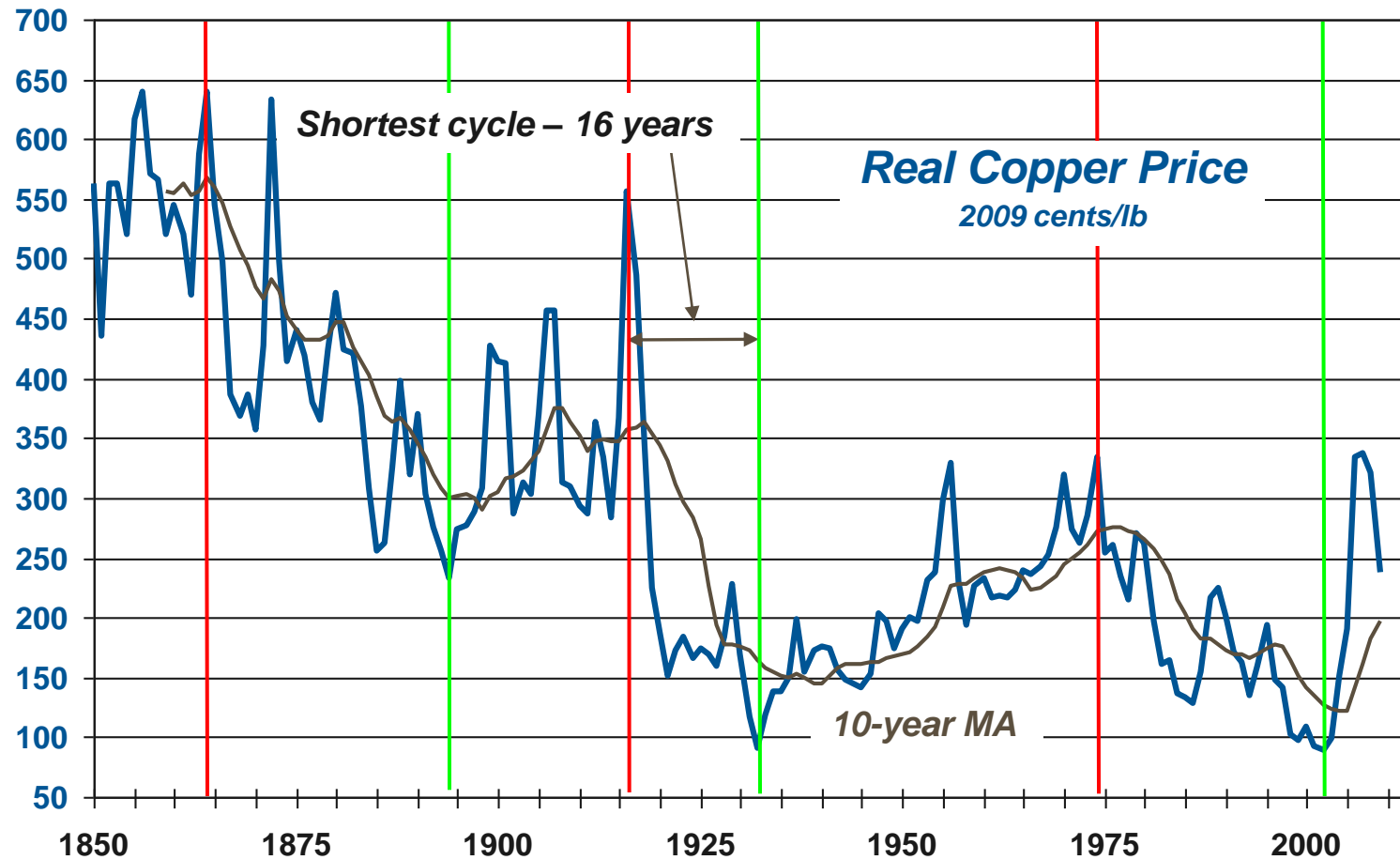
Energy subsidies in non-OECD countries sustain excessive demand for energy commodities



Outlook: long-term price support factors

- Commodities are in a bull cycle (for at least another 8 years)
- Industrialization/modernization needs in emerging economies will support demand for at least another 10 years
- Supply outlook impaired for most commodities: “easy to access” reserves are running out (light crude and high ore grades hard to come by), i.e., “*the low-hanging fruit has been already picked ...*”
- Geopolitical tensions in major production regions (political risks and potential supply disruptions)

*All commodities are in a long-run bull cycle**



**despite reversals – which are common in all cycles*

Outlook: long-term price support factors

- Environmental hurdles: i.e., The Gulf of Mexico disaster changes the future for off-shore drilling
- Resource nationalism (currently 7 of the top 10 source countries shut out western oil companies – Canada, Iraq and Kazakhstan are the exceptions) and rising taxation of the industry (*leading to imminent efficiency losses*)
- Global monetary and fiscal reflation as a solution to current and future government debt problems

Main conclusions

1. Commodity prices have been driven higher in recent years by fundamental structural changes in the global economy, including “demand explosion” in emerging economies
2. Global investment flows into commodities have surged in recent years, but the surge has not added significantly to price volatility for most commodities, nor is there a strong empirical evidence of a sustained deviation of prices from fundamentally justified levels
3. Despite potential short-term reversals, the long-term outlook for commodity prices is positive; fundamental changes unleashed in recent years will continue to support the prices for many years to come

THANK YOU!