Prospects and Risks in Commodity Markets

JOHN BAFFES
The World Bank

Policy Research Institute
Ministry of Agriculture, Forestry, and Fisheries
Tokyo, Japan
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Outline

- **Overview**
- **Price Trends and Volatility**
- **Commodity Market Developments & Outlook**
  - *Energy Markets*
  - *Metals Markets*
  - *Agricultural Markets*
- **Economic Outlook**

Overview

Overview

- Commodity prices have seen broad-based declines so far this year.
  - Crude oil dropped to $85/barrel in mid-October, from this year's high of $108/barrel in mid-June.
  - Agricultural prices have weakened as well, down 6% since June.
  - Metal prices remained relatively stable, from the sharp declines seen in 2011.
- Slowdown in emerging economies, strong US dollar, increased oil supplies, and good crop prospects for agriculture, all have contributed to the weakness.
- Prices are expected to remain weak through the remainder of 2014 and, perhaps, much of 2015.

Price Outlook

(Nominal indices, percent change)

	2012/13 (actual)	2013/14 (forecast)	2014/15 (forecast)
Energy	-0.1	-2.5	-4.6
Metals	-5.5	-5.4	+1.2
Agriculture	-7.1	-3.1	-1.1
Fertilizers	-17.4	-11.5	-3.5
Crude oil ($/bbl)	*-0.9*	*-2.5*	*-5.7*
Gold ($/toz)	*-15.5*	*-9.7*	*-2.7*

Source: World Bank
Note: Forecasts as of October 16, 2014.

Price Trends and Volatility

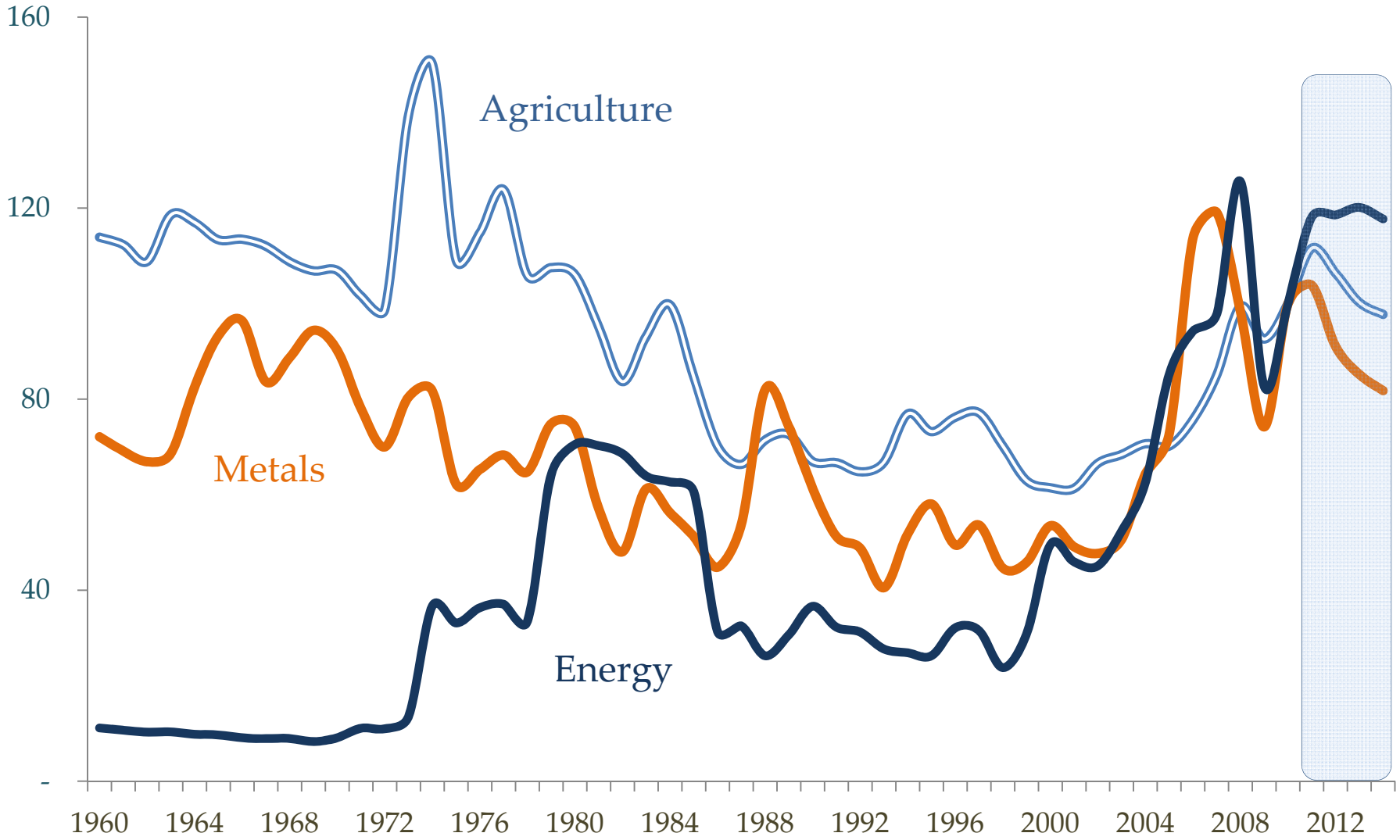
Most of the 'perfect storm' conditions are still in place

	1997-2004	2005-12	Change (%)
Agricultural prices (nominal index, 2005 = 100)	89	154	73
Macroeconomic drivers			
GDP growth (low and middle income countries, % p.a.)	4.6	6.2	36
Industrial production (emerging economies, % p.a.)	*5.4*	*7.3*	*36*
Crude oil price (US$/barrel, nominal)	25	79	223
Exchange rates (US$ against a broad index of currencies)	118	104	-11
Interest rates (10-year US Treasury bill, percent)	5.2	3.6	-31
Funds invested in commodities ($ billion)	57	230	302
Sectoral drivers			
Stocks (total of maize, wheat, and rice, months of consumption)	3.5	2.5	-27
Biofuel production (thousand of barrels per day equivalent)	230	890	287
Fertilizer prices (nominal index, 2005 = 100)	69	207	201
Growth in yields (% change per annum, average)	1.4	0.5	-63
Yields (average of wheat, maize, and rice, tons/hectare)	*3.7*	*4.0*	*10*
Natural disasters (droughts, floods, and extreme temperatures)	174	207	19
OECD policies (Producer NPC, %)	1.3	1.1	-13

Sources: BarclayHedge, CRED, FRED, IEA, IMF, USDA, World Bank, and author's calculations

Despite recent declines, most prices are still high

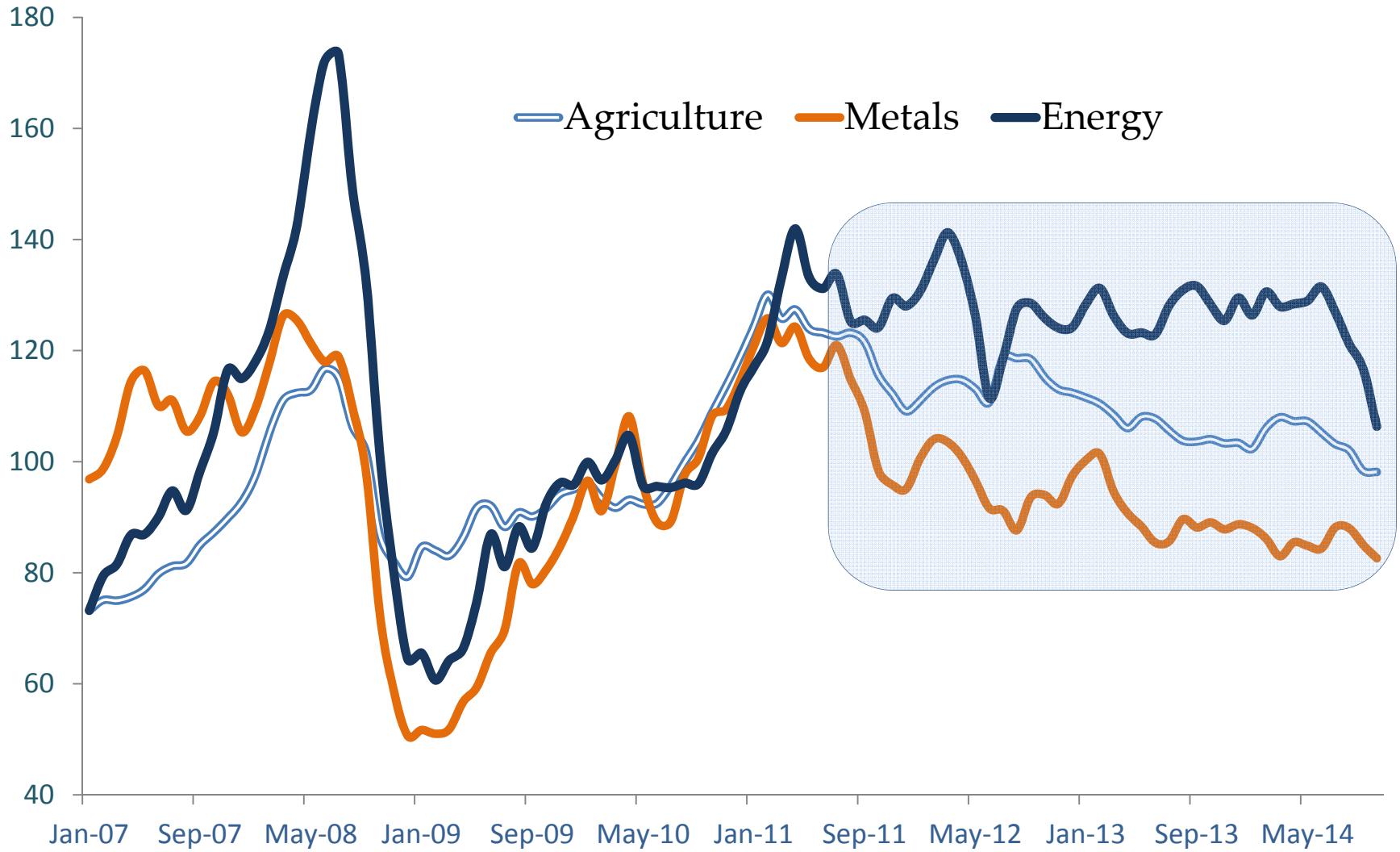
(MUV-deflated indices, 2010 = 100)



Source: World Bank.
Note: 2014 figures as of October 2014

… and relatively stable

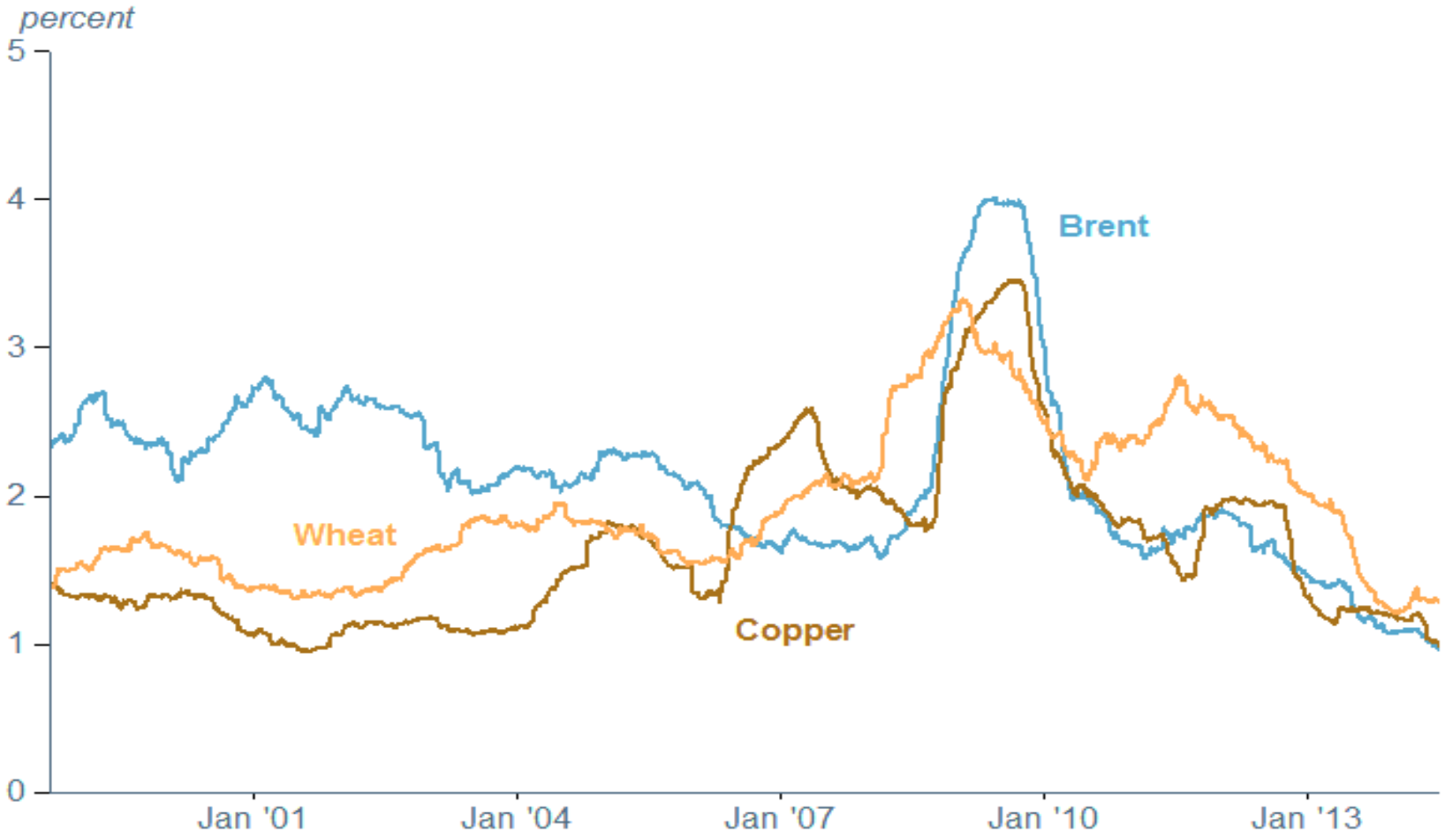
(Nominal indices, 2010 = 100)



Source: World Bank
Note: Last observation is October 2014

Price volatility of 3 representative commodities

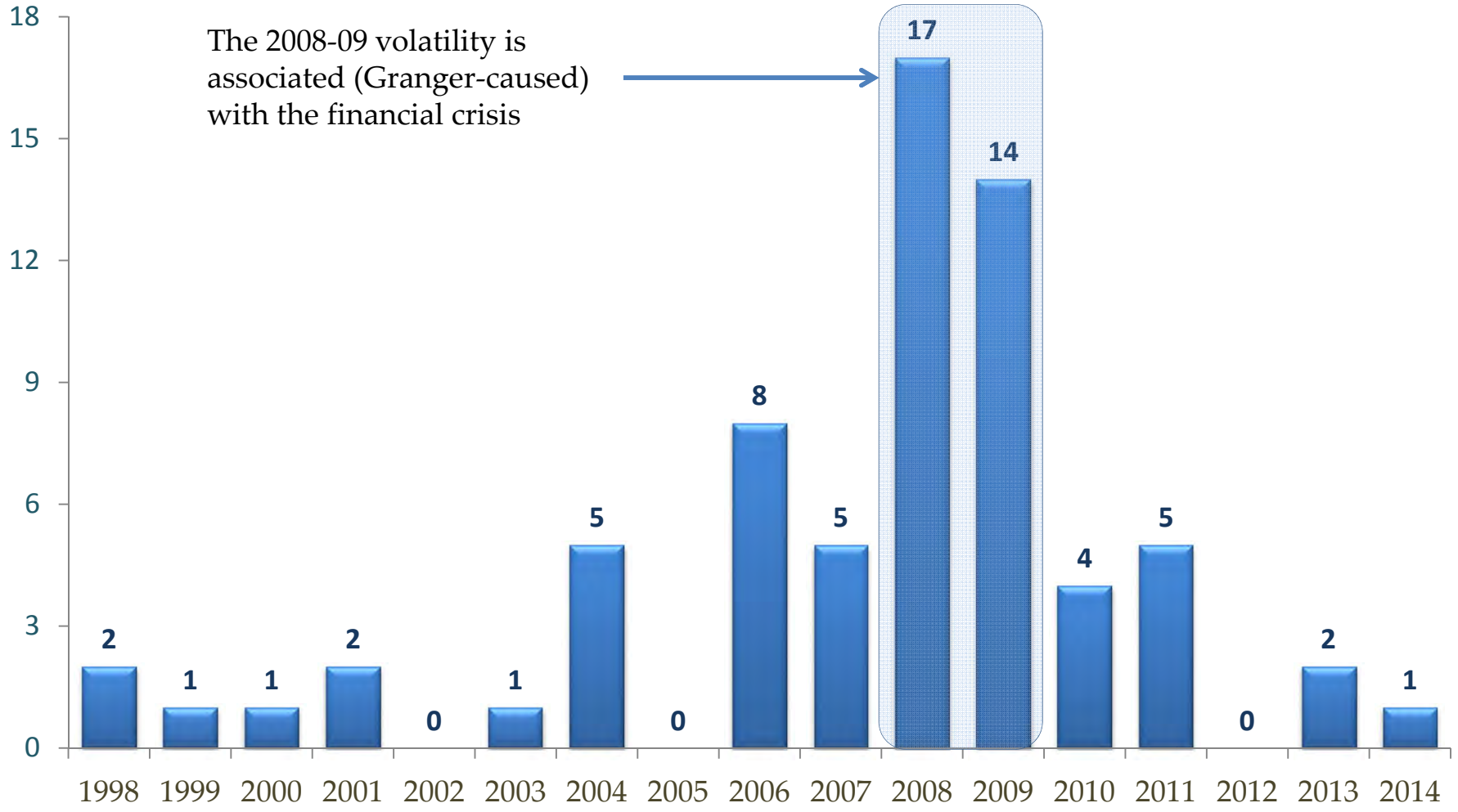
(Brent, Copper, Wheat)



Source: ICE, CME, and World Bank calculations
Note: Volatility is measured as the standard deviation of daily returns . Based on data from 1/11998 to 06/31/2014

"Excess" Volatility?

(Number of commodities whose volatility was above 25%)



Source: ICE, CME, and World Bank calculations

Note: The averages apply to each commodity during the entire sample and have been calculated separately for each calendar year.

Energy Markets

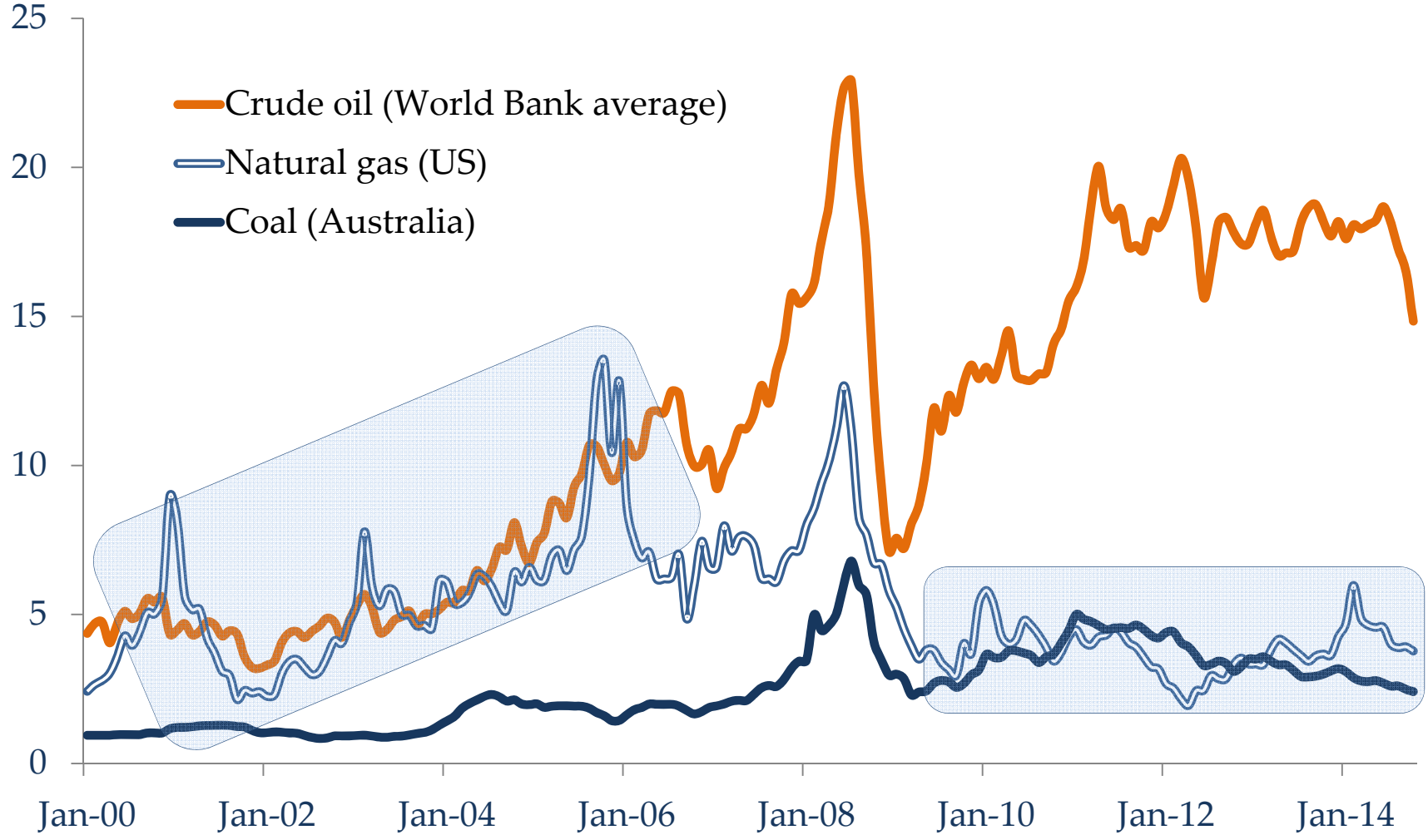
Energy

After fluctuating around US$ 100/barrel for almost 4 years, oil prices avera$86/bbl in mid-October. Numerous factors have exerted downward pressure on oil prices:

- Increased US oil output, which is expected to exceed its 1972 levels by next year, has more than matched declines elsewhere.
- OPEC's output has been increasing to reach almost 31 mb/d in September, due to high production levels by some of its members, including Angola, Iraq, Libya, Nigeria, and UAE.
- Weak economic data by the Euro area have curtailed OECD demand.
- Numerous emerging economies, including China and India, point to weak demand as well.
- OPEC's inaction (unwillingness or inability?) to defend the $100-110/bbl range that was in place during the past 4 years.

The diverging path of US natural gas and crude oil prices continues

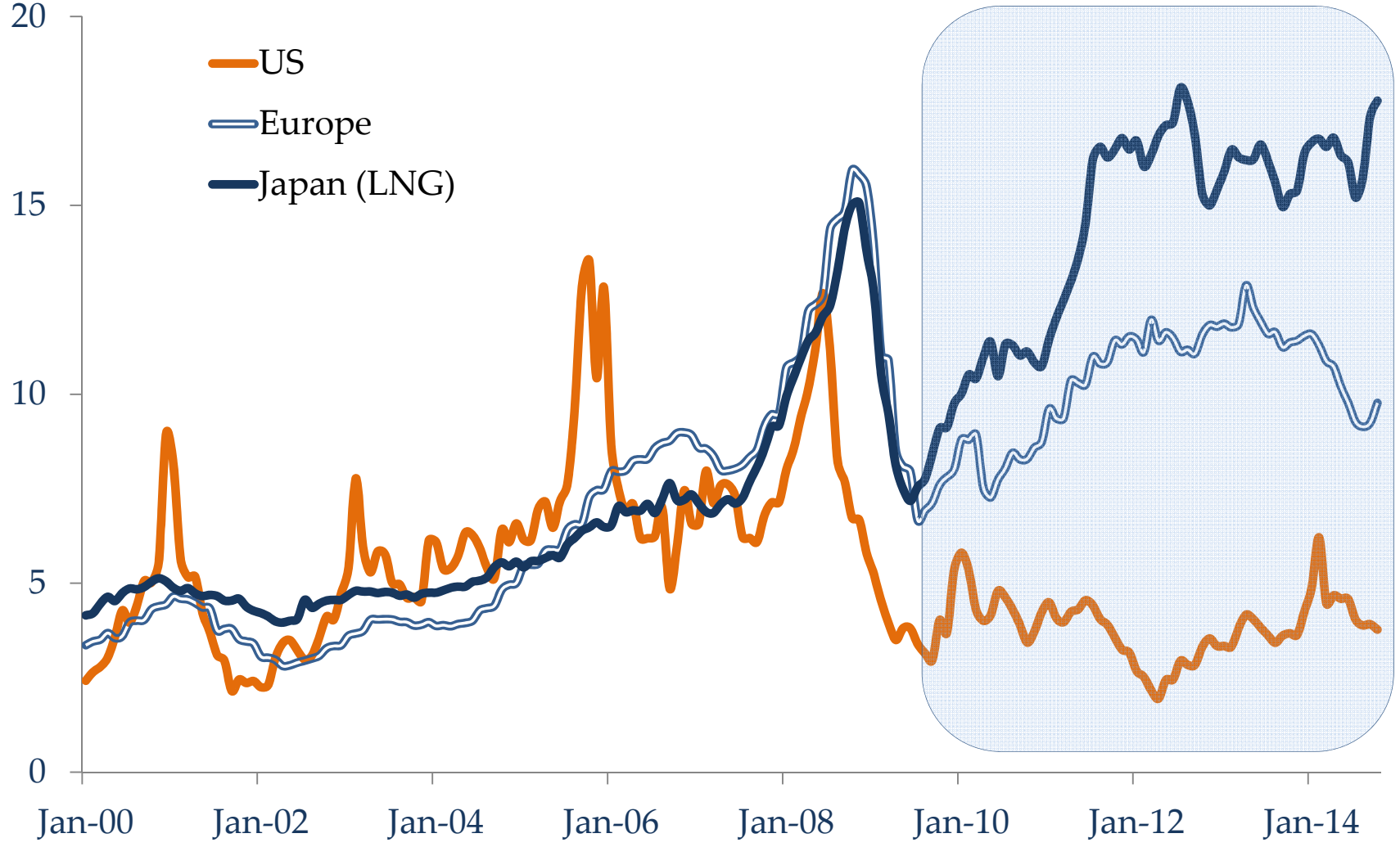
(US dollars per mmbtu)



Source: World Bank
Note: Last observation is October 2014

So do the paths divergence of US, European , and Japanese natural gas prices

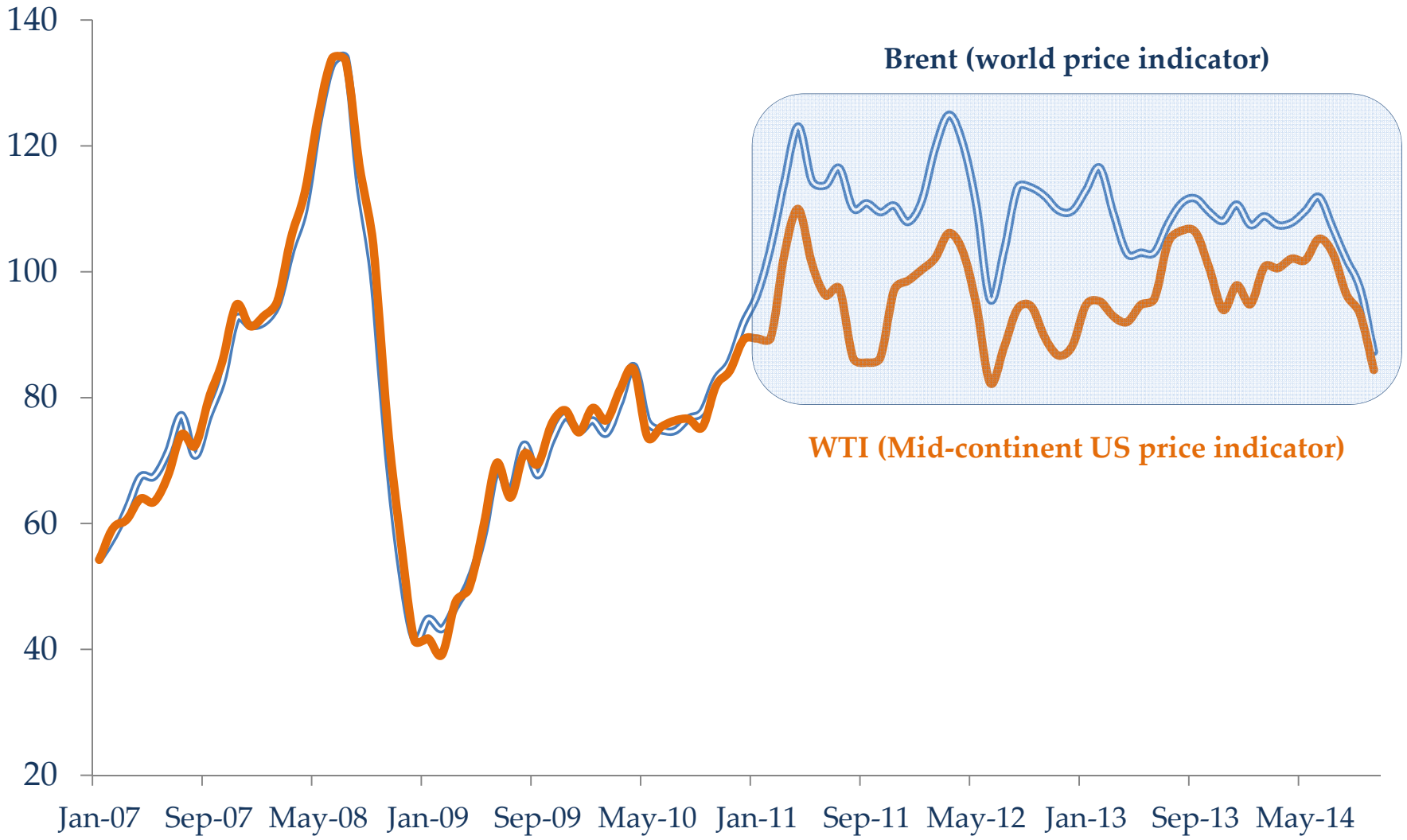
(US dollars per mmbtu)



Source: World Bank
Note: Last observation is October 2014

WTI is still traded with a discount over Brent

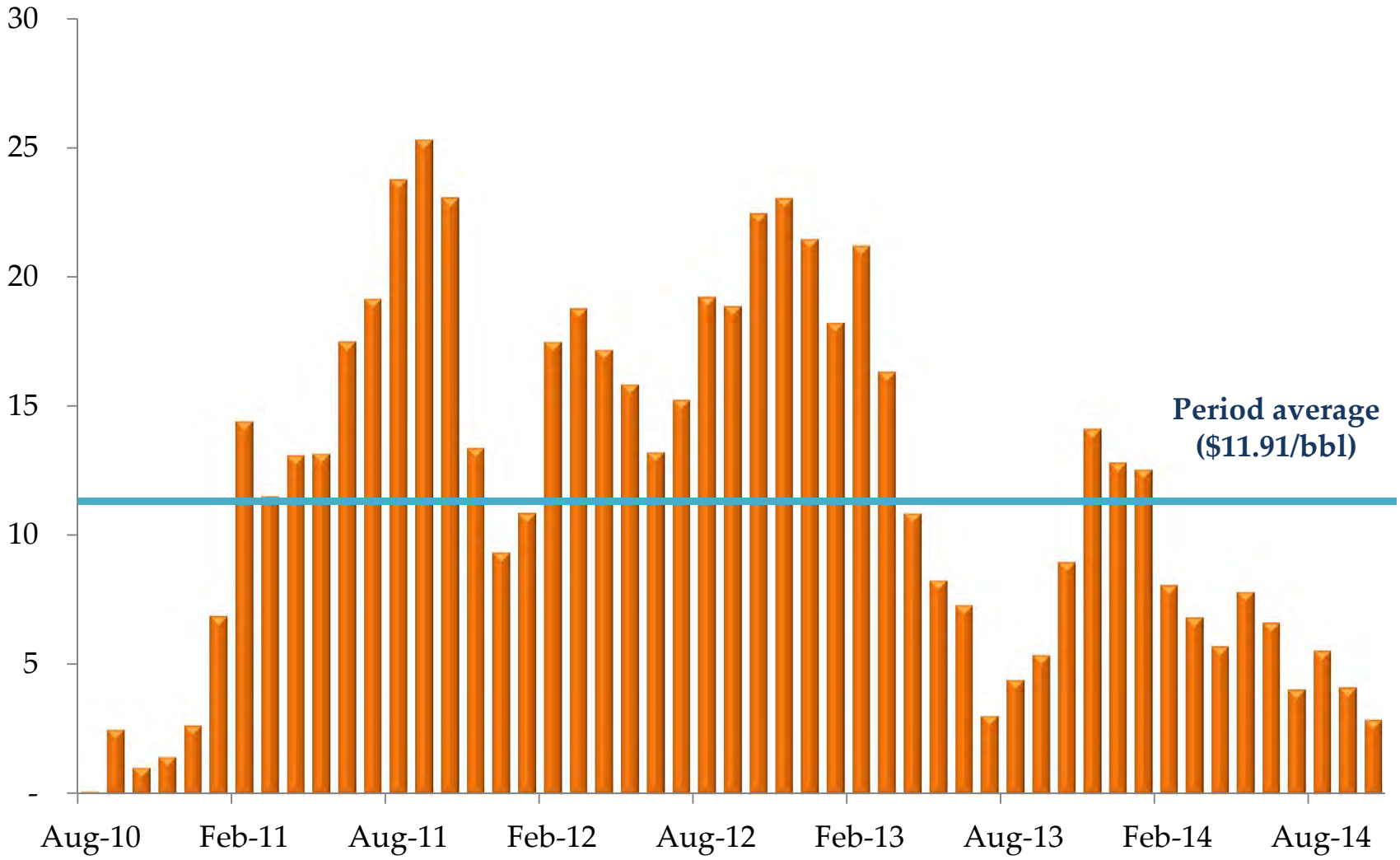
(US dollars per barrel)



Source: World Bank
Note: Last observation is October 2014

… but the gap is narrowing

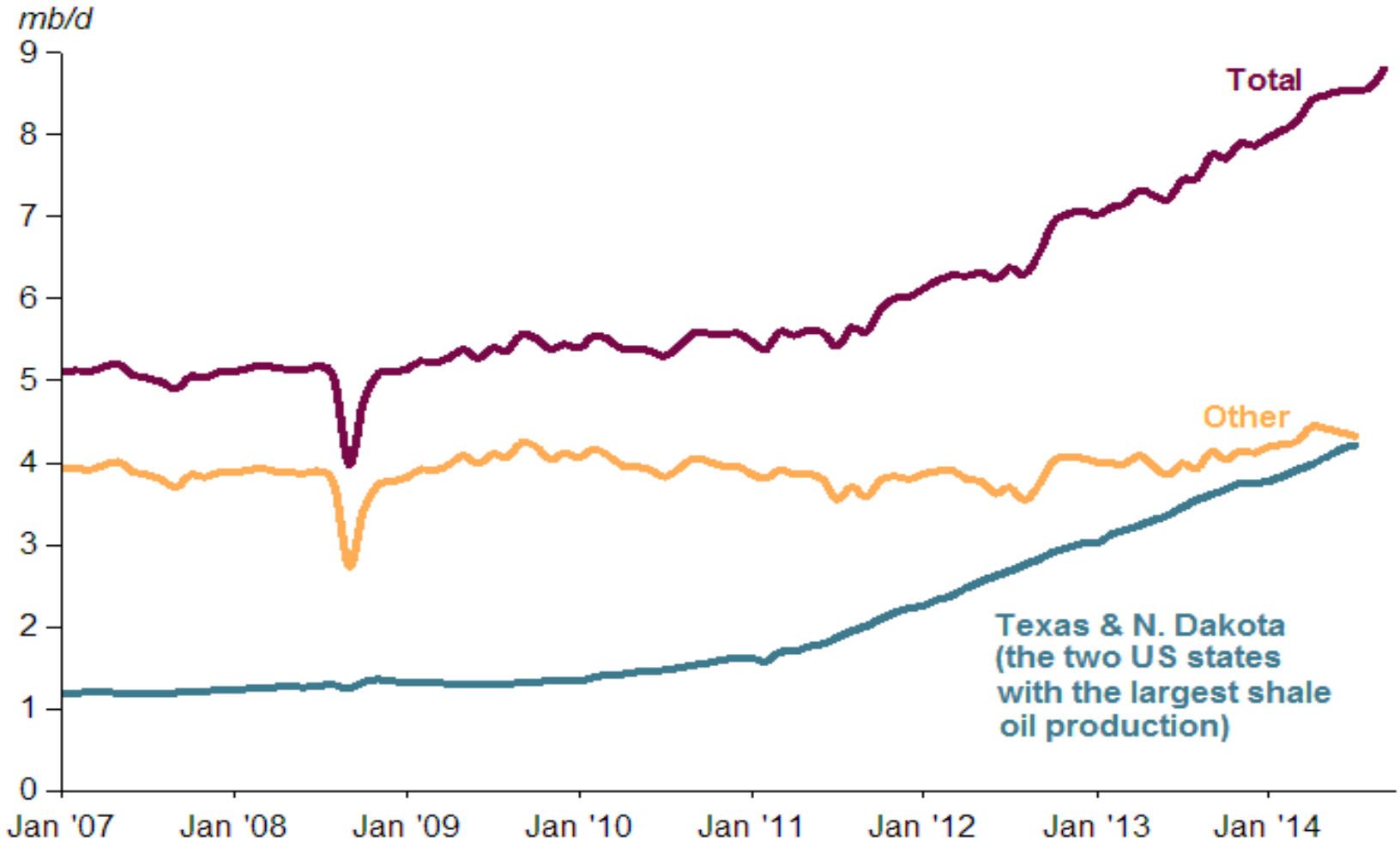
(US dollars per barrel)



Source: World Bank
Note: Last observation is October 2014

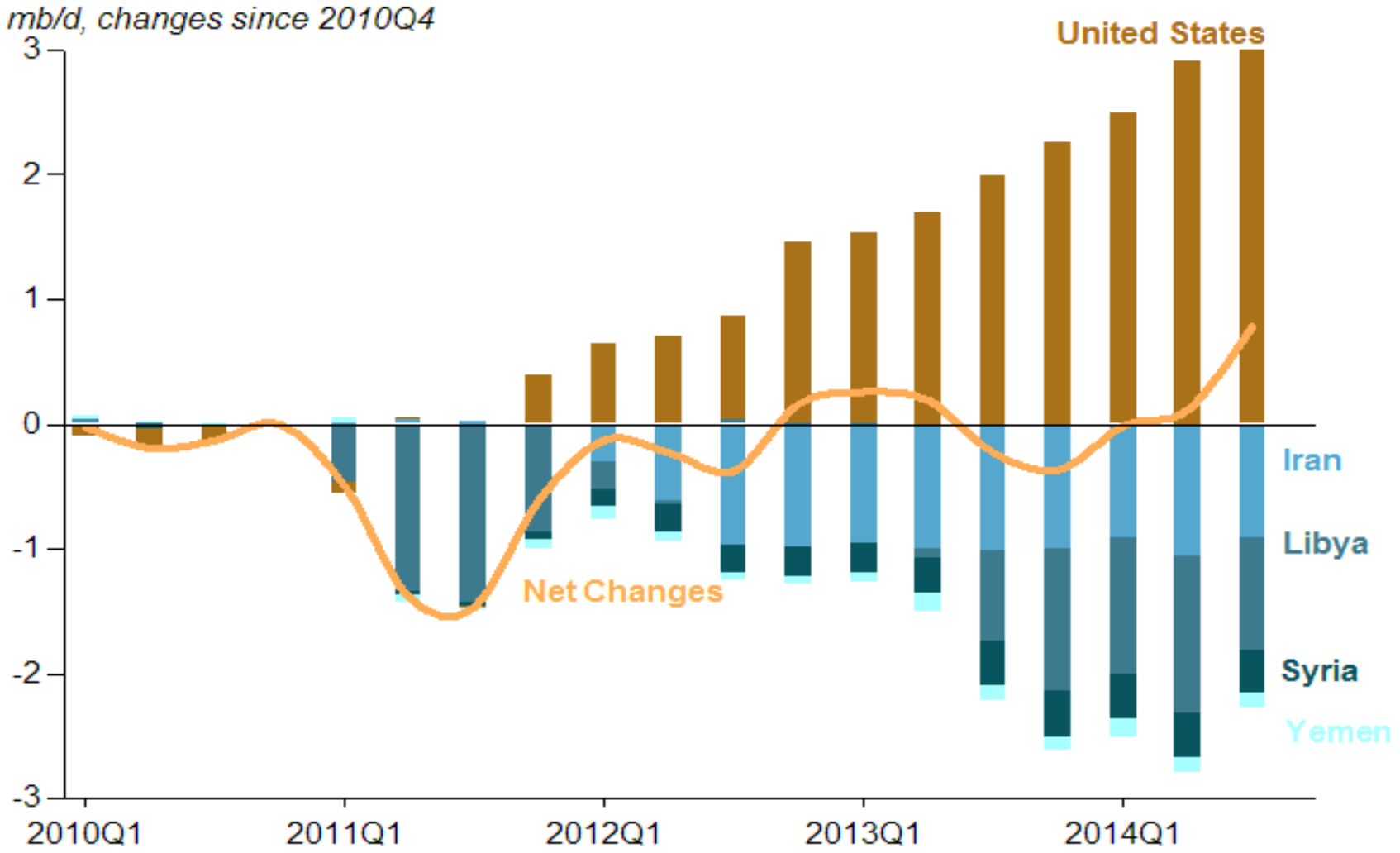
Almost half of US crude is unconventional

(Million barrels per day)



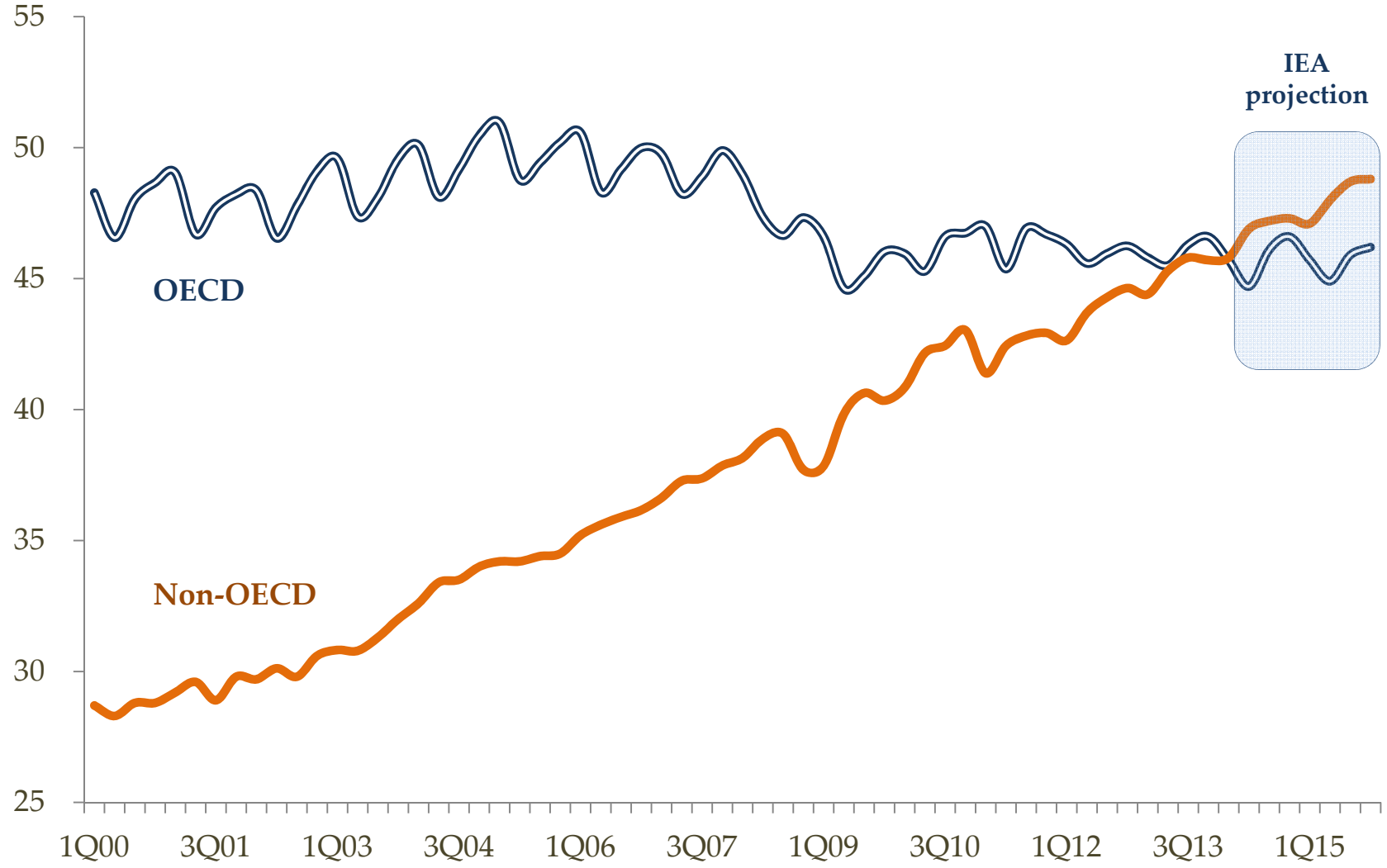
The US brought more oil into the market than what was taken out by MENA producers

(Million barrels per day)



Non-OECD countries consume more oil than OECD

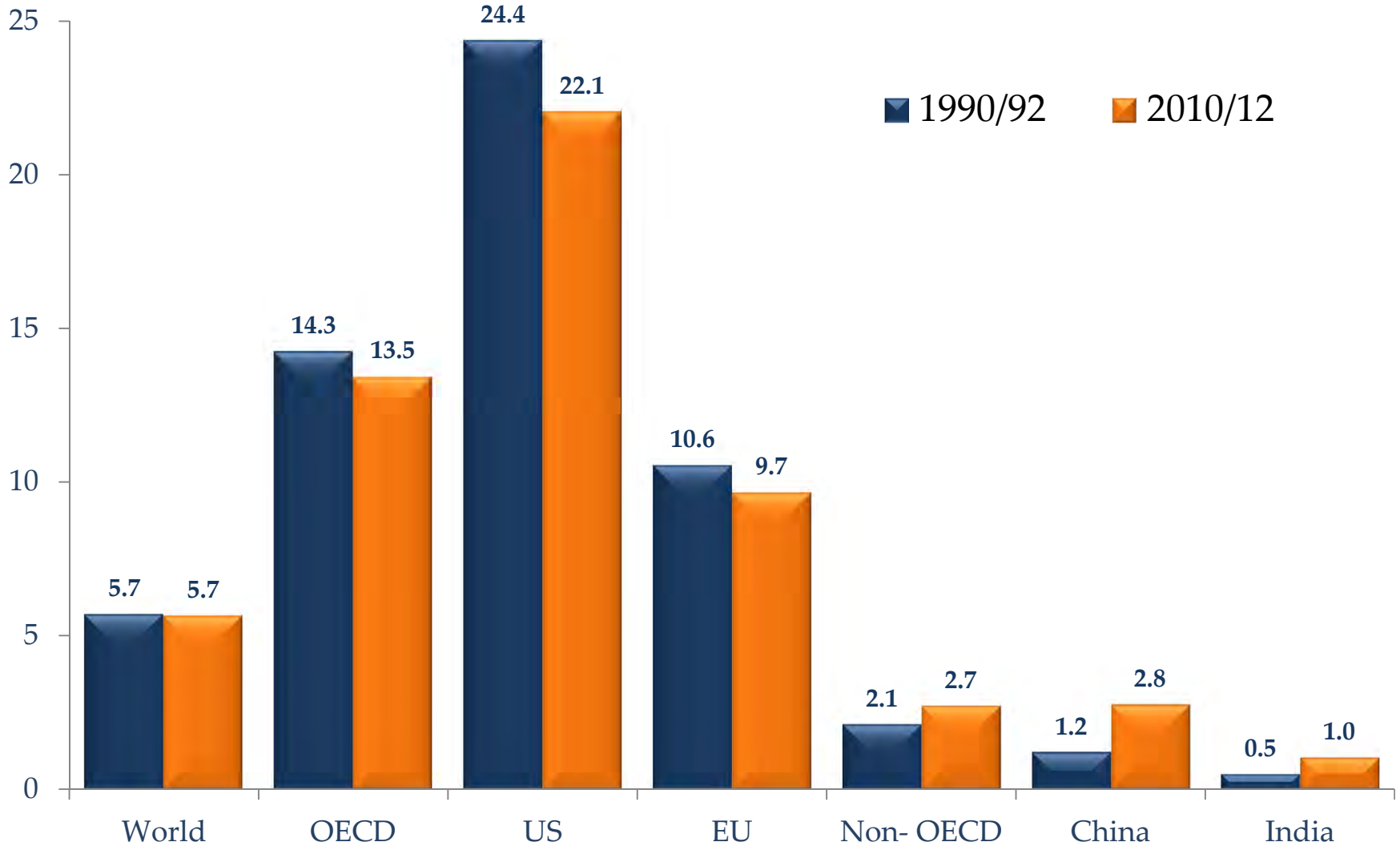
(million of barrels per day)



Source: International Energy Agency

OECD countries consume more than 5 times more oil than non-OECD countries in per capita terms

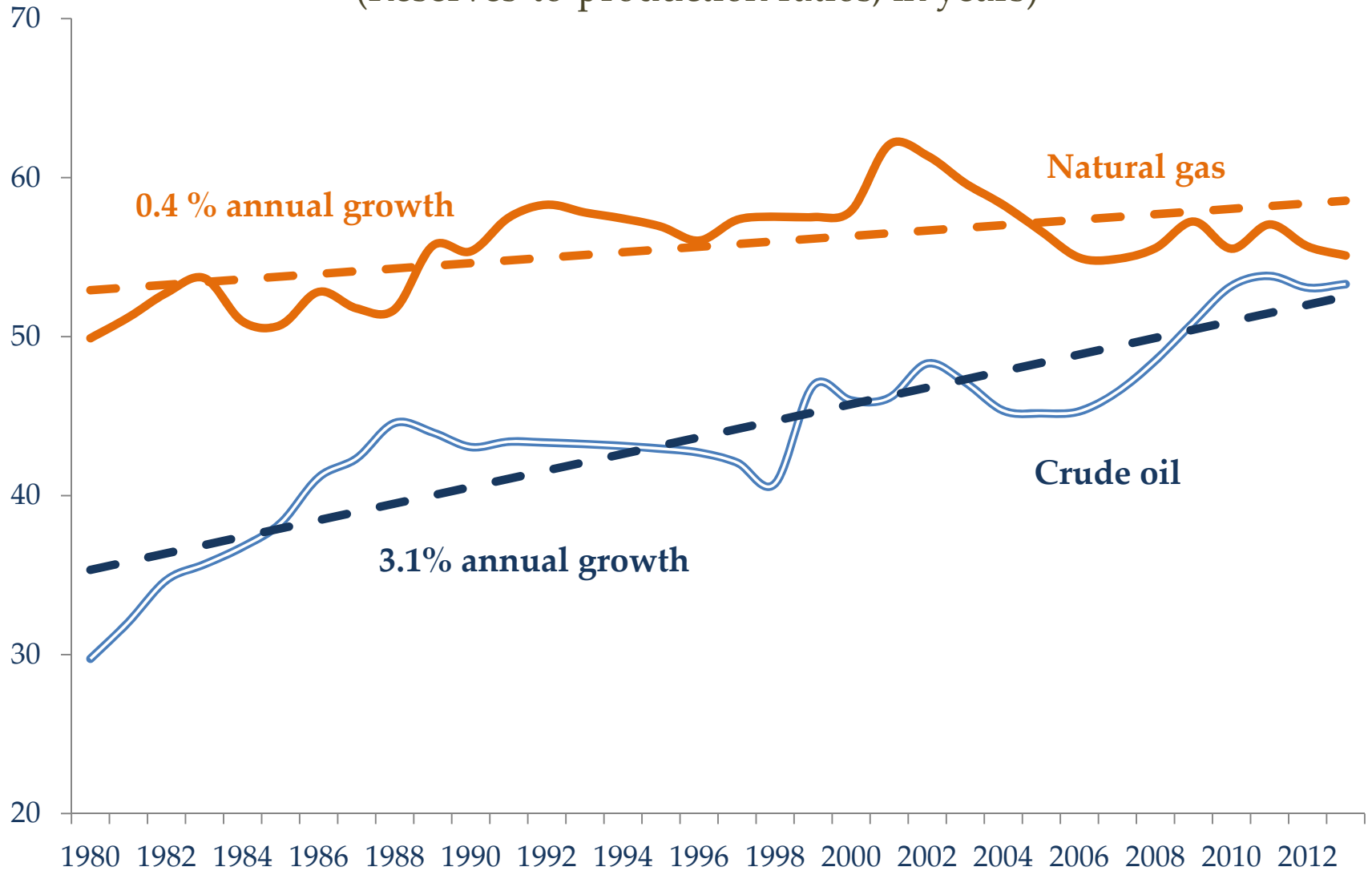
(barrels per person per year)



Source: BP Statistical Review, UN, OECD, Eurostat

Global oil & gas reserves have been increasing even when unconventional supplies are not included

(Reserves-to-production ratios, in years)



Source: BP Statistical Review (June 2014)

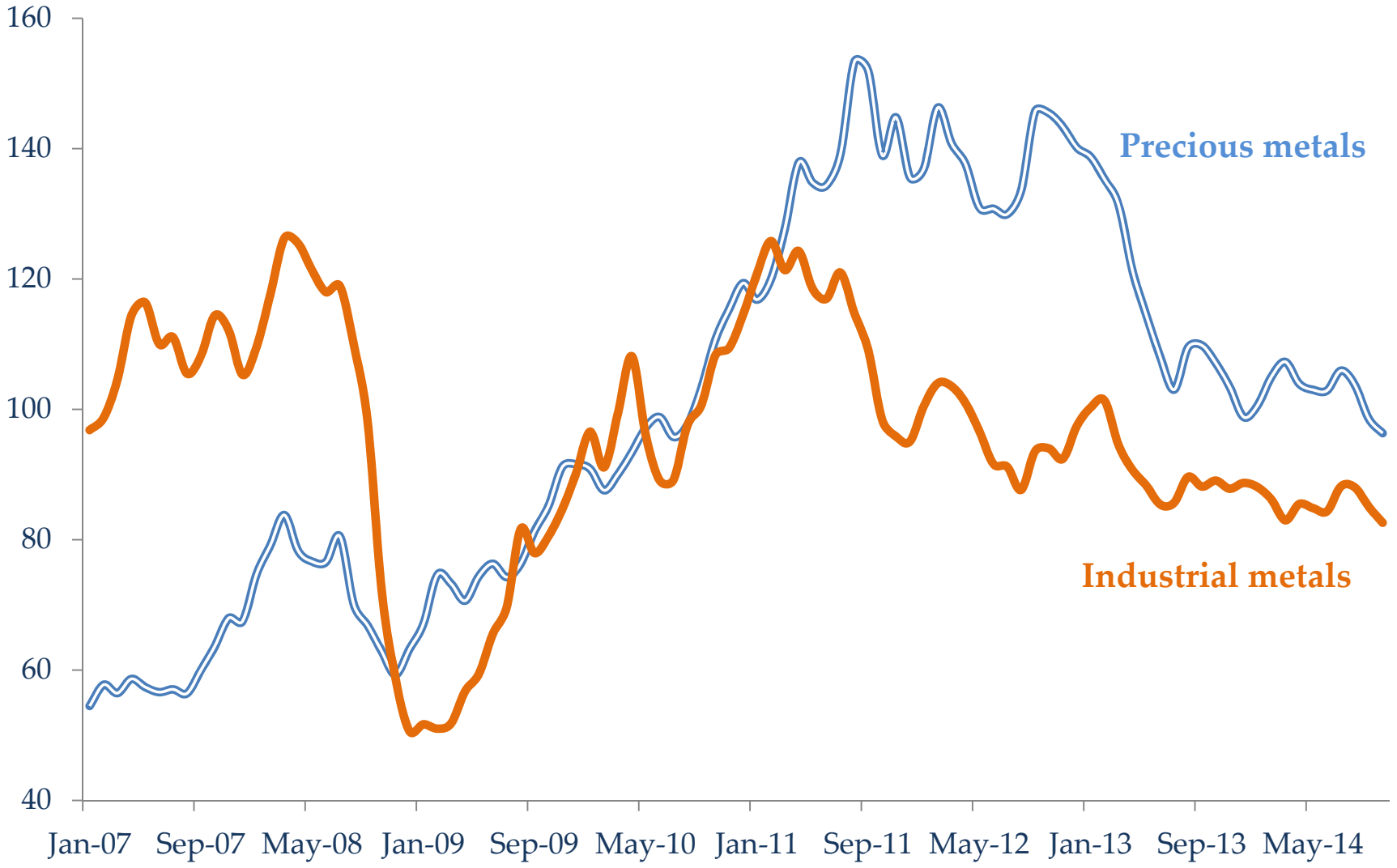
Metals Markets

Metals

- Both industrial and precious metal price have declined, the former gradually since early 2011, the latter since the end of 2012.
- The weakening of industrial metals reflects concerns of China's economy--China accounts for almost half of world metal consumption, up from a mere 5 percent two decades earlier.
- There are reports that China's metal demand has declined considerably during 2014 but it is too early to confirm, especially given that some metal prices picked up recently.
- Historically, metal prices have tracked closely the economic activity because they respond to industrial production. The past decade is no exception: Industrial metal prices were the first to boom in the early 2000s and the first to weaken after the 2011 peak.

Industrial and precious metal prices

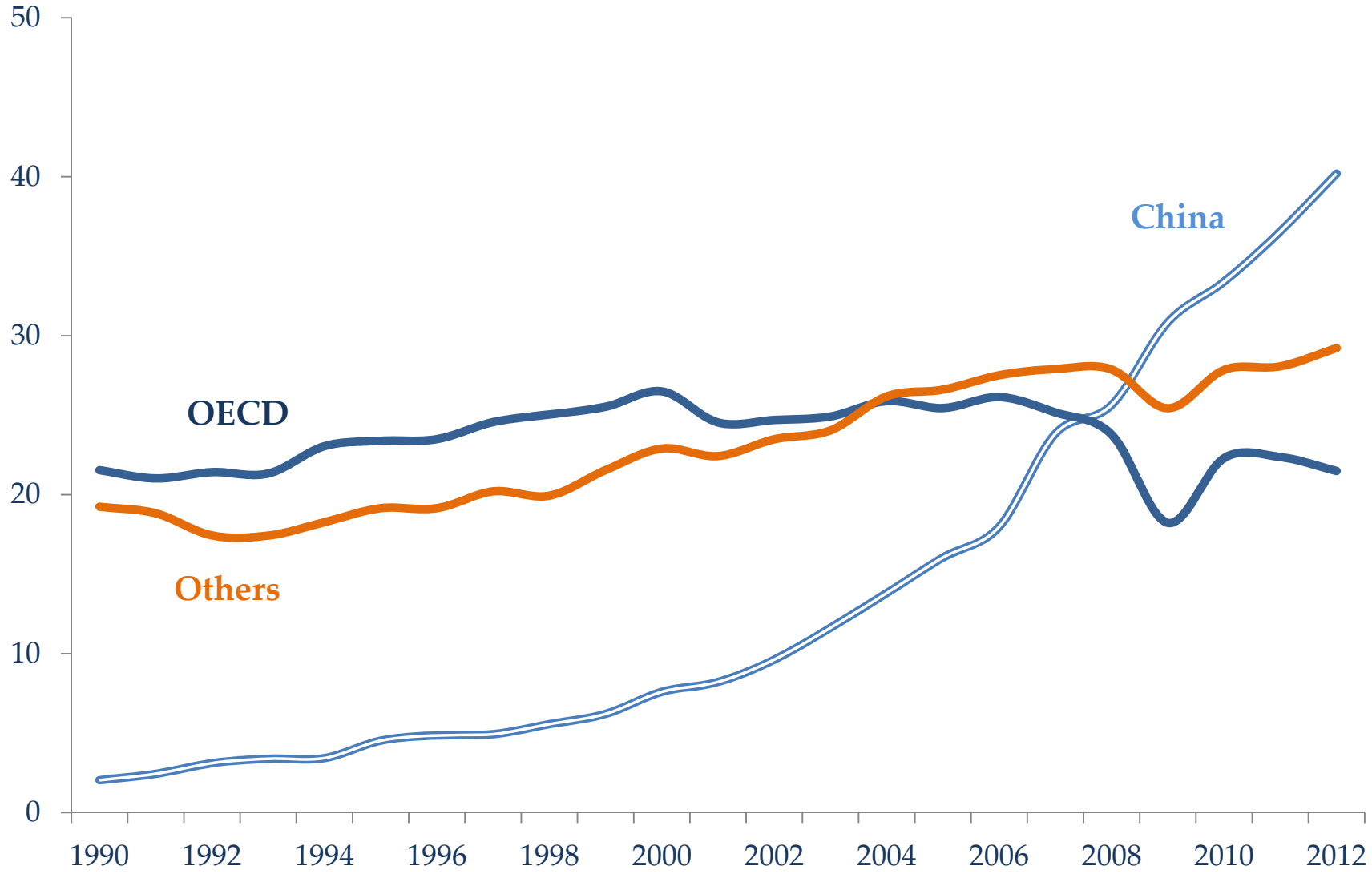
(Nominal indices, 2010 = 100)



Source: World Bank
Note: Last observation is October 2014

Consumption of six base metals

(Million metric tons)



Source: World Bureau of Metal Statistics

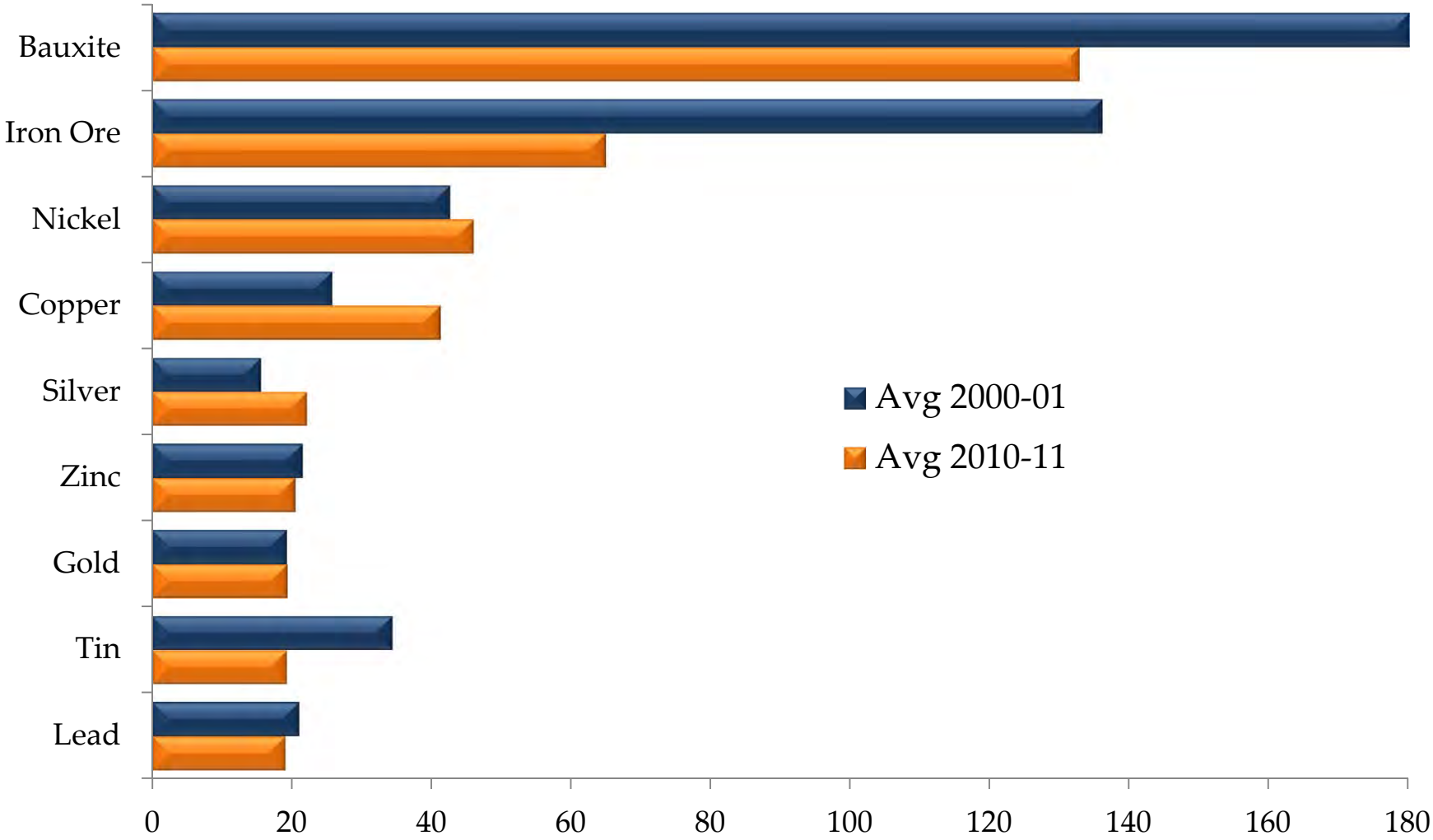
Parameter estimates from a metal price determination model

	Aluminum	Copper	Lead	Nickel	Tin	Zinc
Ind. Production	0.80***	1.01***	2.41***	1.78***	1.90***	0.69***
Inventories	-0.13***	-0.08***	-0.20***	-0.22***	-0.10***	-0.13***
Real oil price	0.15***	0.56***	0.04	0.35***	0.02	0.41***
Real ex. rate	-0.33*	-1.98***	-3.15***	-2.01***	-2.96***	-0.77***
Real int. rate	0.02**	0.04***	0.01	0.04***	-0.03*	-0.09***
R^2	0.75	0.94	0.94	0.87	0.92	0.78
ADF	-4.35***	-4.78***	-5.09***	-4.86***	-4.09***	-4.54***
PP	-3.75***	-3.68***	-4.02***	-3.49***	-3.50***	-3.64***

Notes: The model (estimated as SUR) is based on quarterly observations, 1991Q1-2012:Q4. Asterisks indicate levels of significance: (*) for 10%, (**) for 5%, and (***) for 1%. ADF and PP denote the Augmented Dickey-Fuller (GLS) and Phillips-Perron statistics for unit root.
Source: Baffes and Savescu (2014), "Causes of the post-2000 Metal Super Cycle".

Global metal reserves

(Reserves-to-production ratios in years)



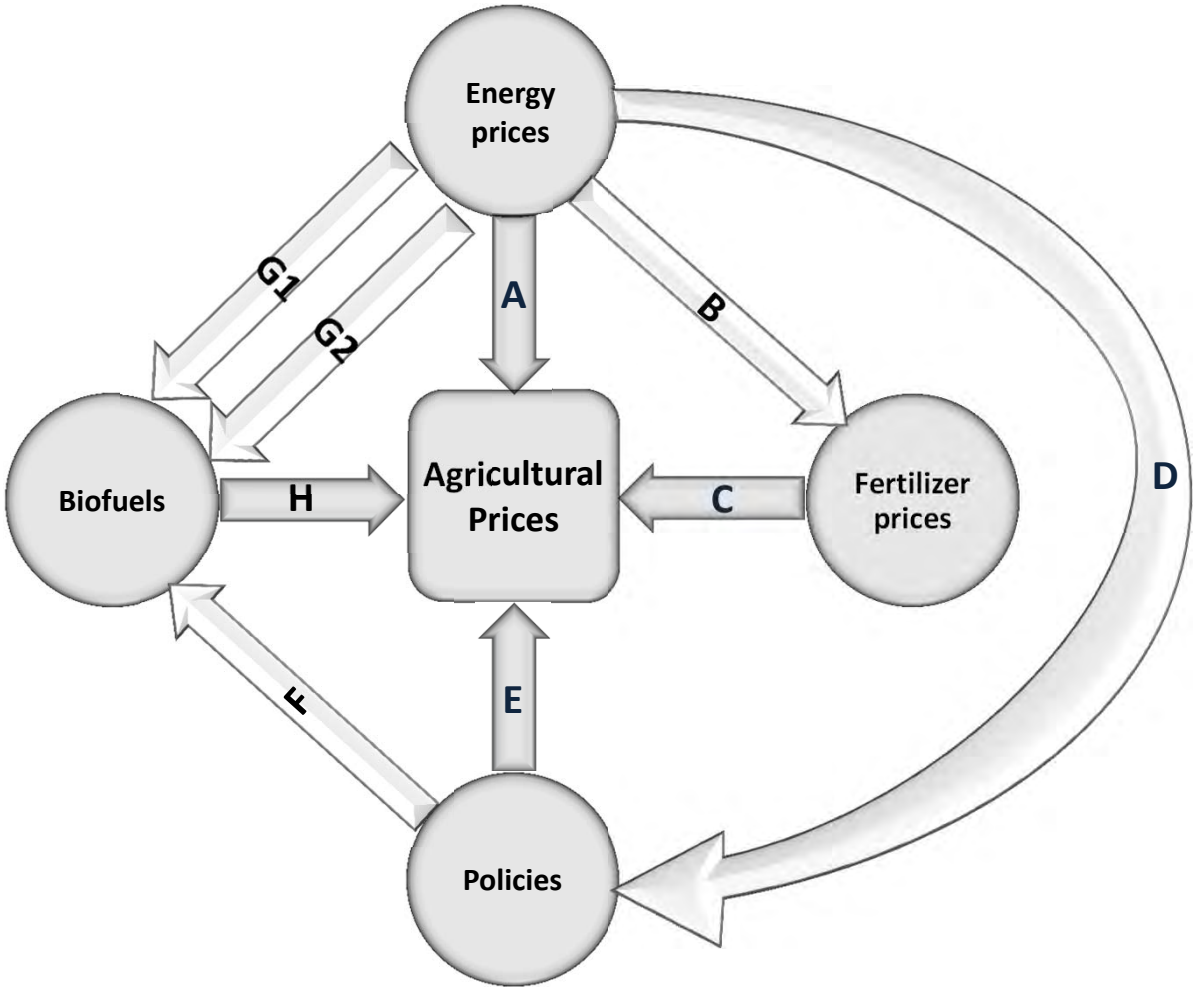
Source: U.S. Geological Survey

Agricultural Markets

Agriculture

- Most agricultural prices declined as supply conditions improved and stocks return to historical norms.
- El Nino conditions, which appeared to be a threat for a number of food commodities earlier in the summer, will at most, be weak.
- For industrial agricultural commodities (notably cotton and natural rubber), the weakening in global economic conditions has taken a toll
- Exceptions to the generally declining price trend are markets-specific:
  - Coffee price rallied earlier in the year due to a drought-induced shortfall in Brazil's Arabica production.
  - Rice prices strengthened due to weaker than expected production in a number of South-East Asian rice producers.

The complex interaction between energy and agriculture



A: Crude oil

B/C: Natural gas

D/F: Policy-driven Biofuels

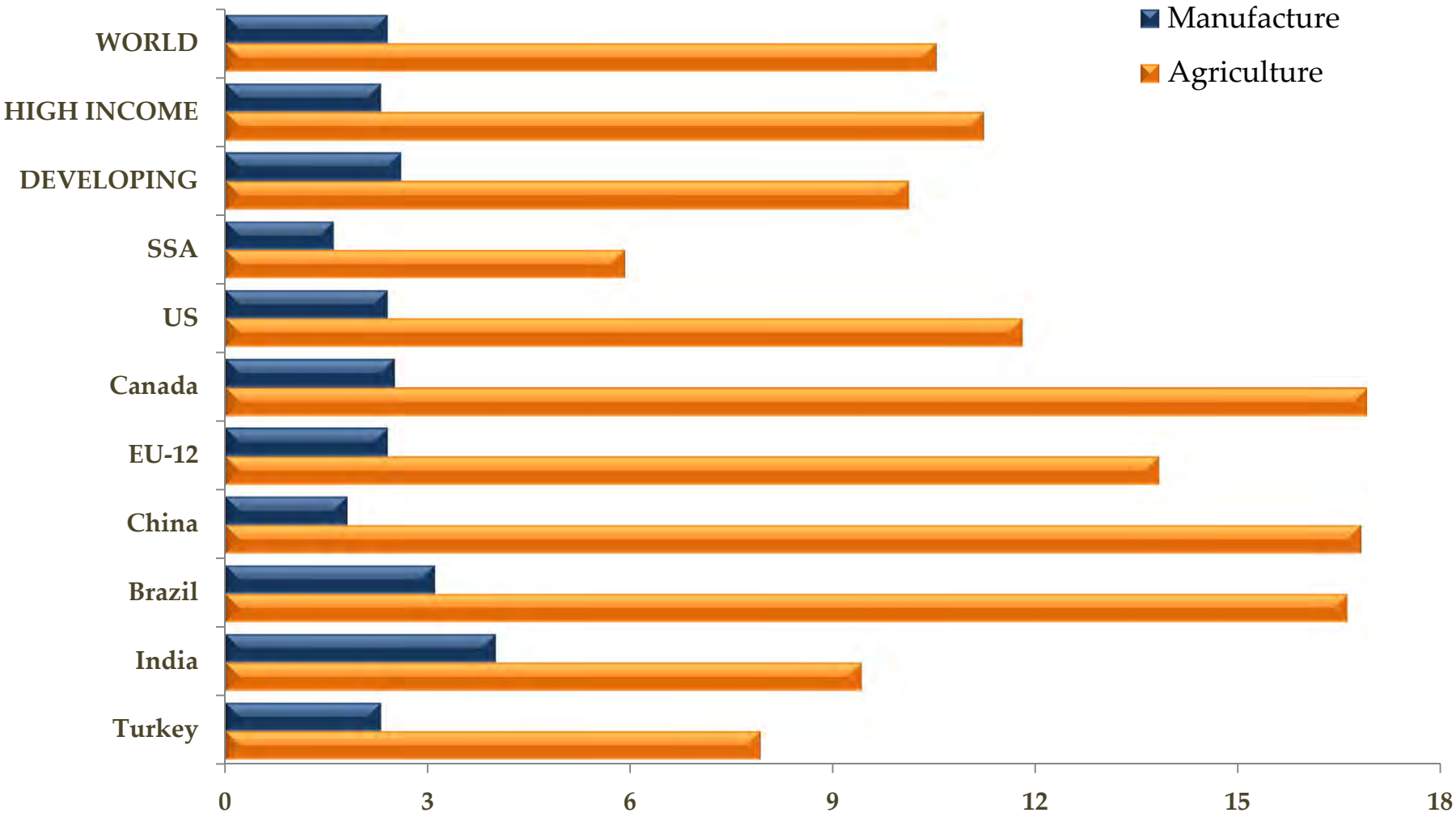
G1: Profitable biofuels (they may render A, B, and D/F irrelevant; oil price sets a floor to agricultural prices)

G2: Innovation in biofuels (agricultural prices fully linked to oil at lower level)

Source: Baffes, John (2013), "A framework for analyzing the interplay among food, fuels, and biofuels", *Global Food Security*, vol. 2, pp. 110-116.

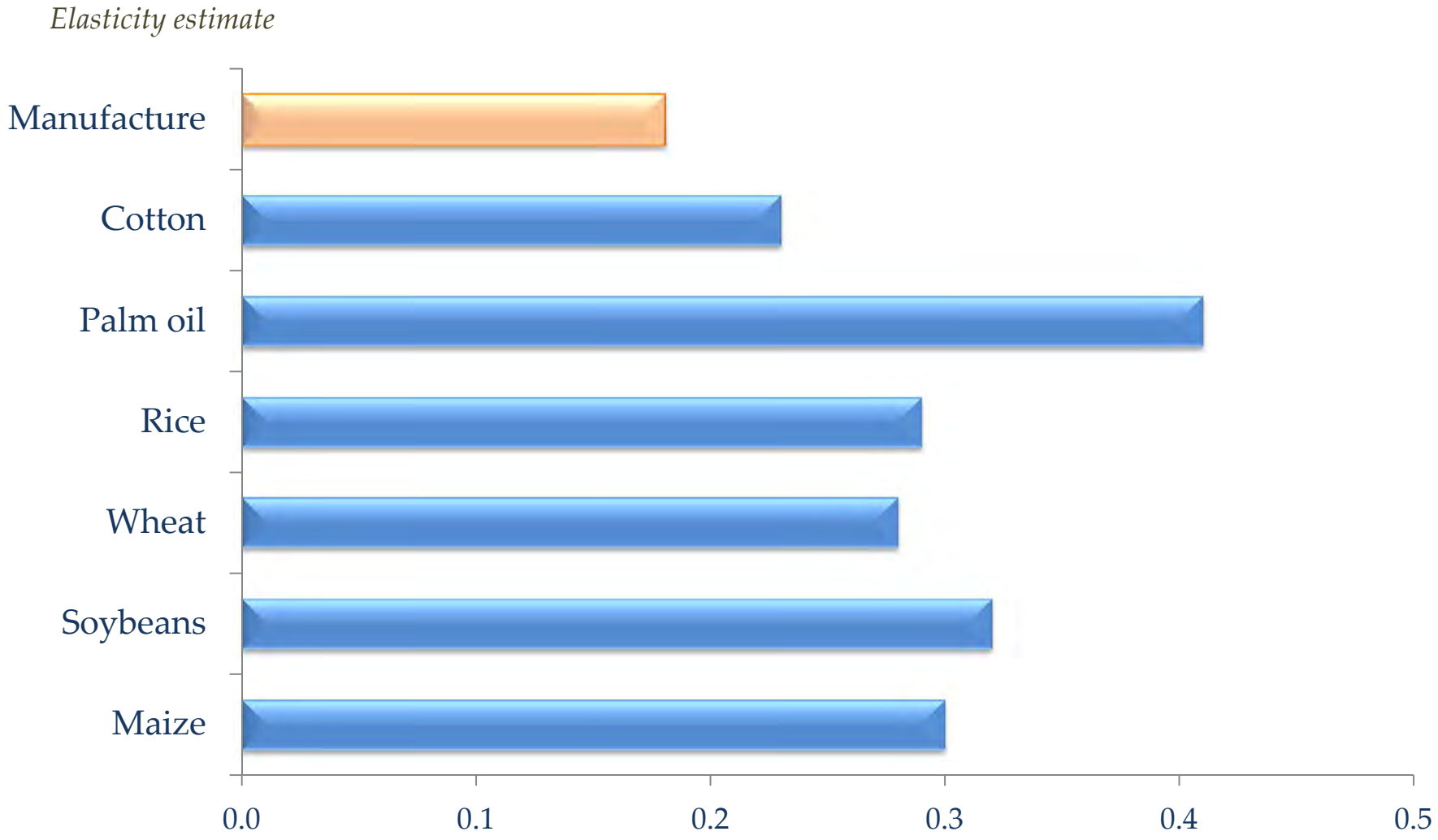
Energy matters a lot to agriculture

Share of energy component in 2007, percent



Source: Author's calculations based on the GTAP database

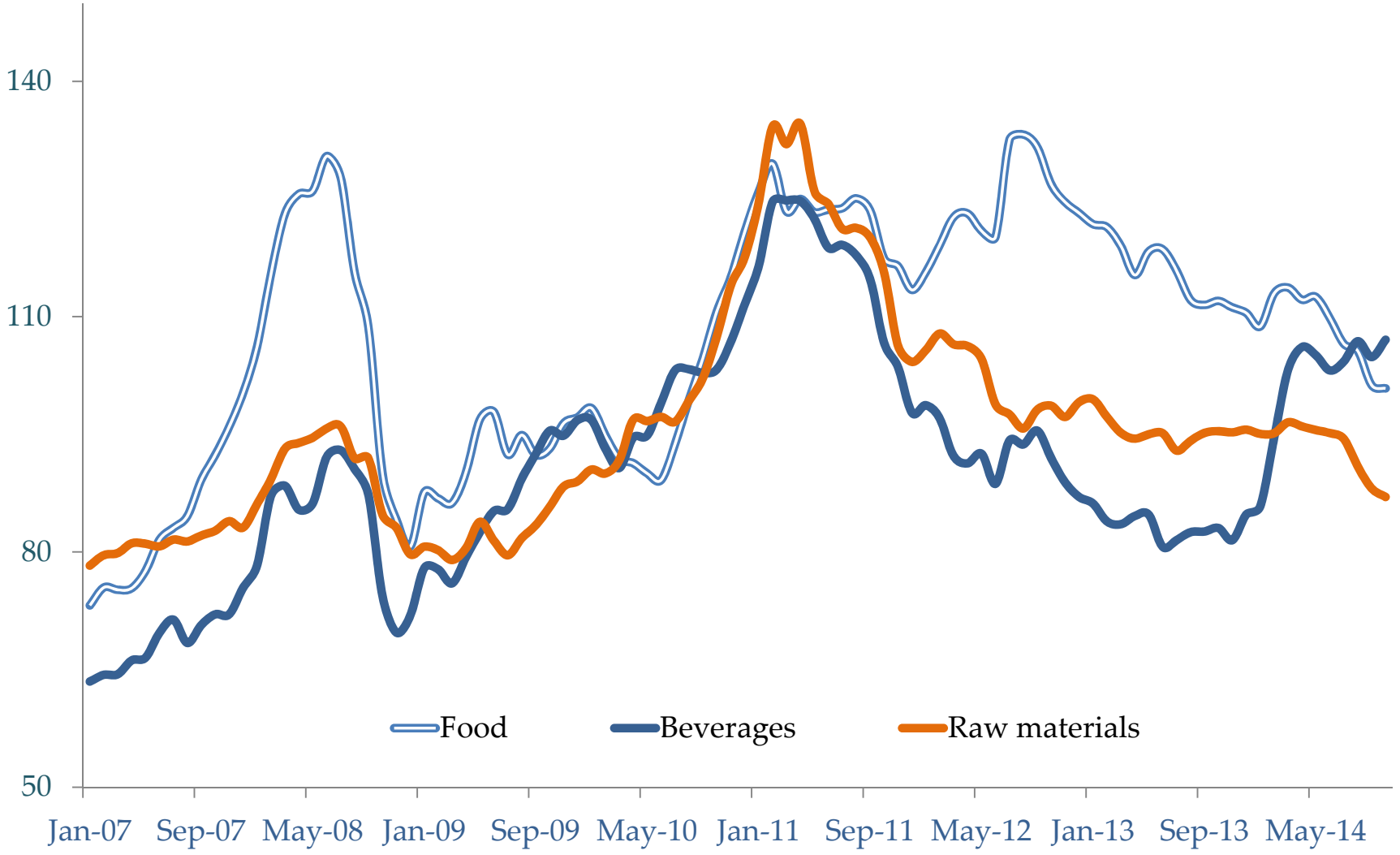
Agricultural (especially food) prices respond much stronger to oil prices than manufacturing prices



Source: Baffes and Etienne (2014)

Most agricultural prices are off their 2011 peaks

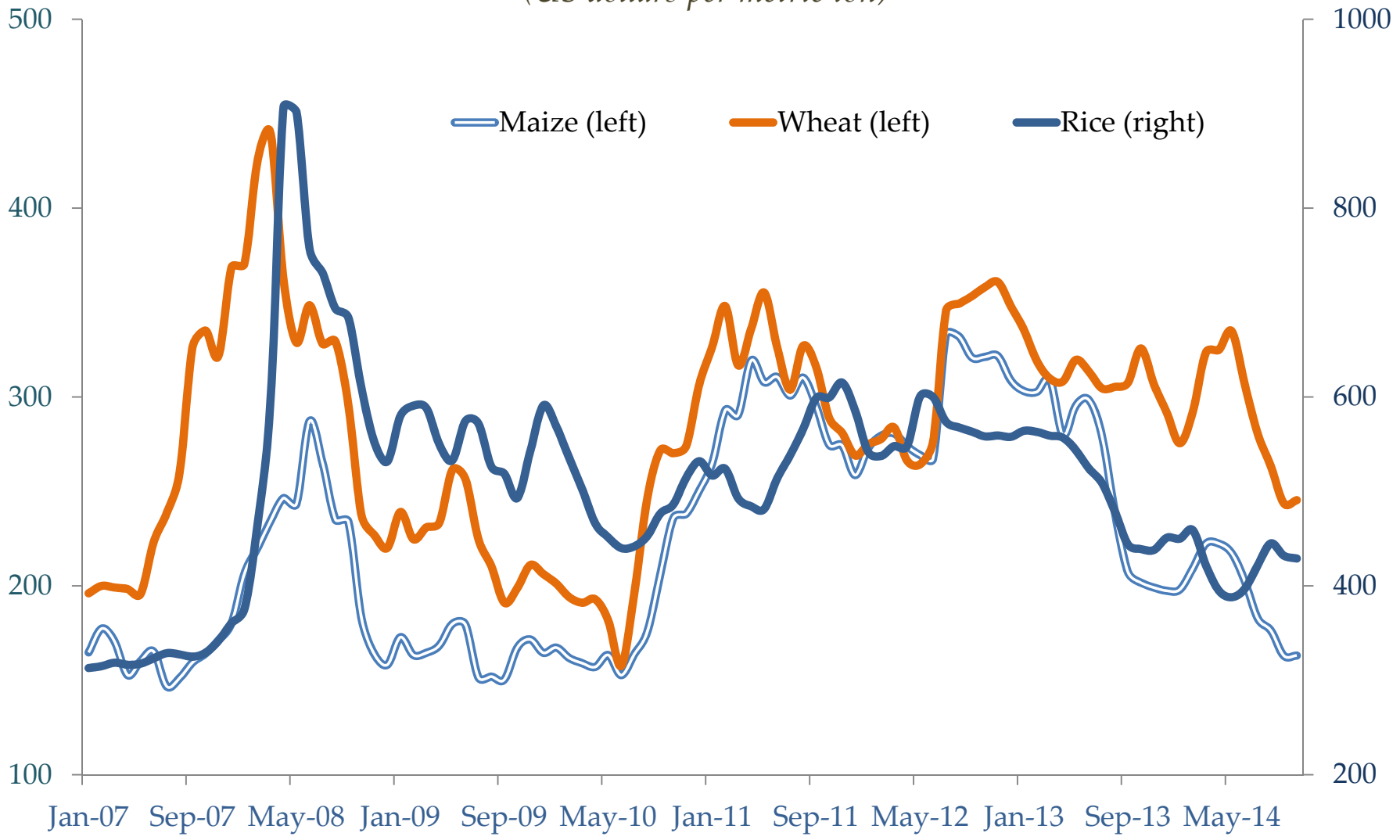
(Nominal indices, 2010 = 100)



Source: World Bank
Note: Last observation is October 2014

Grain prices have been weakening following improvements in supply prospects

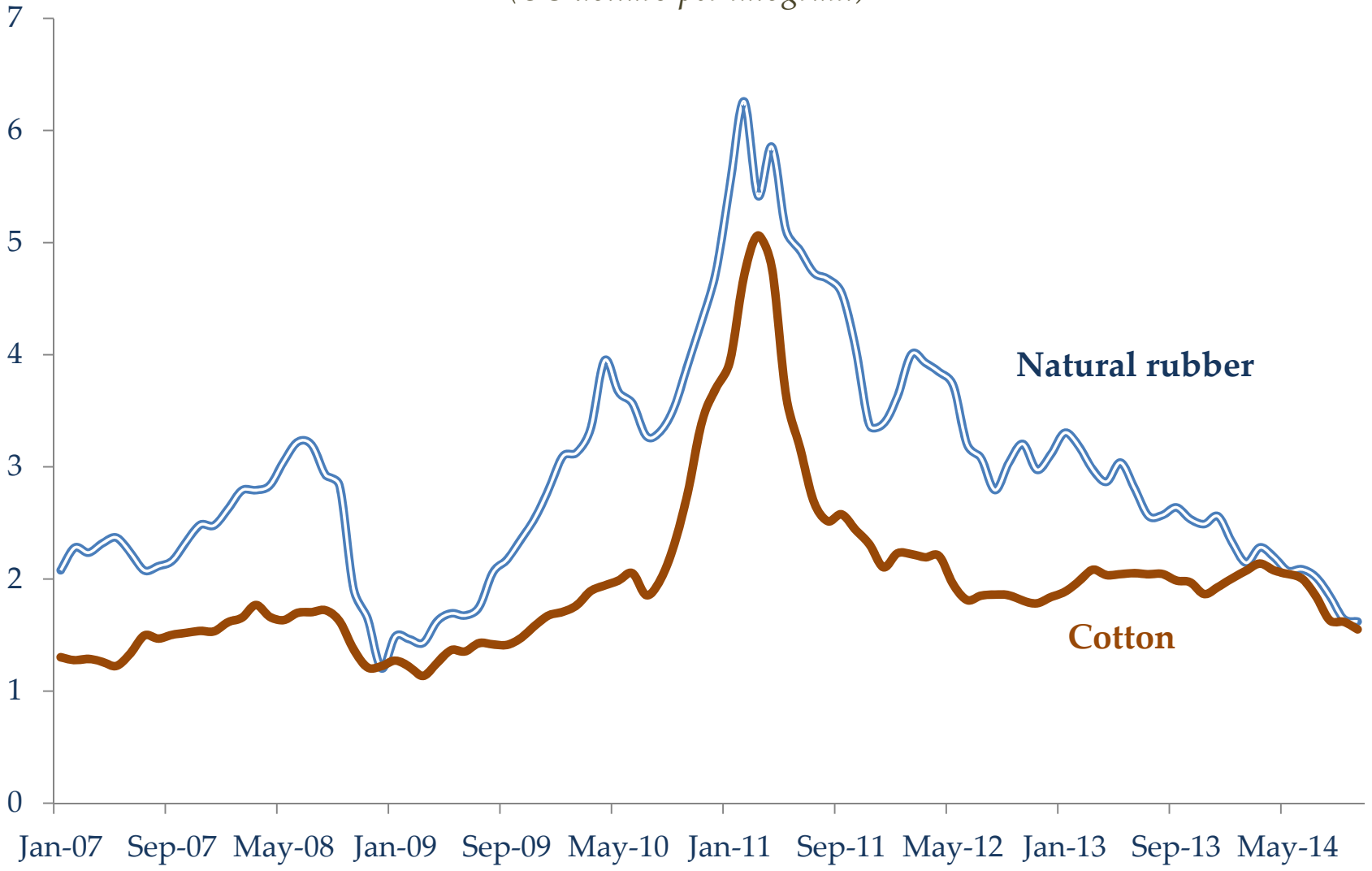
(US dollars per metric ton)



Source: World Bank
Note: Last observation is October 2014

Natural rubber and cotton prices have behaved in a remarkably similar fashion

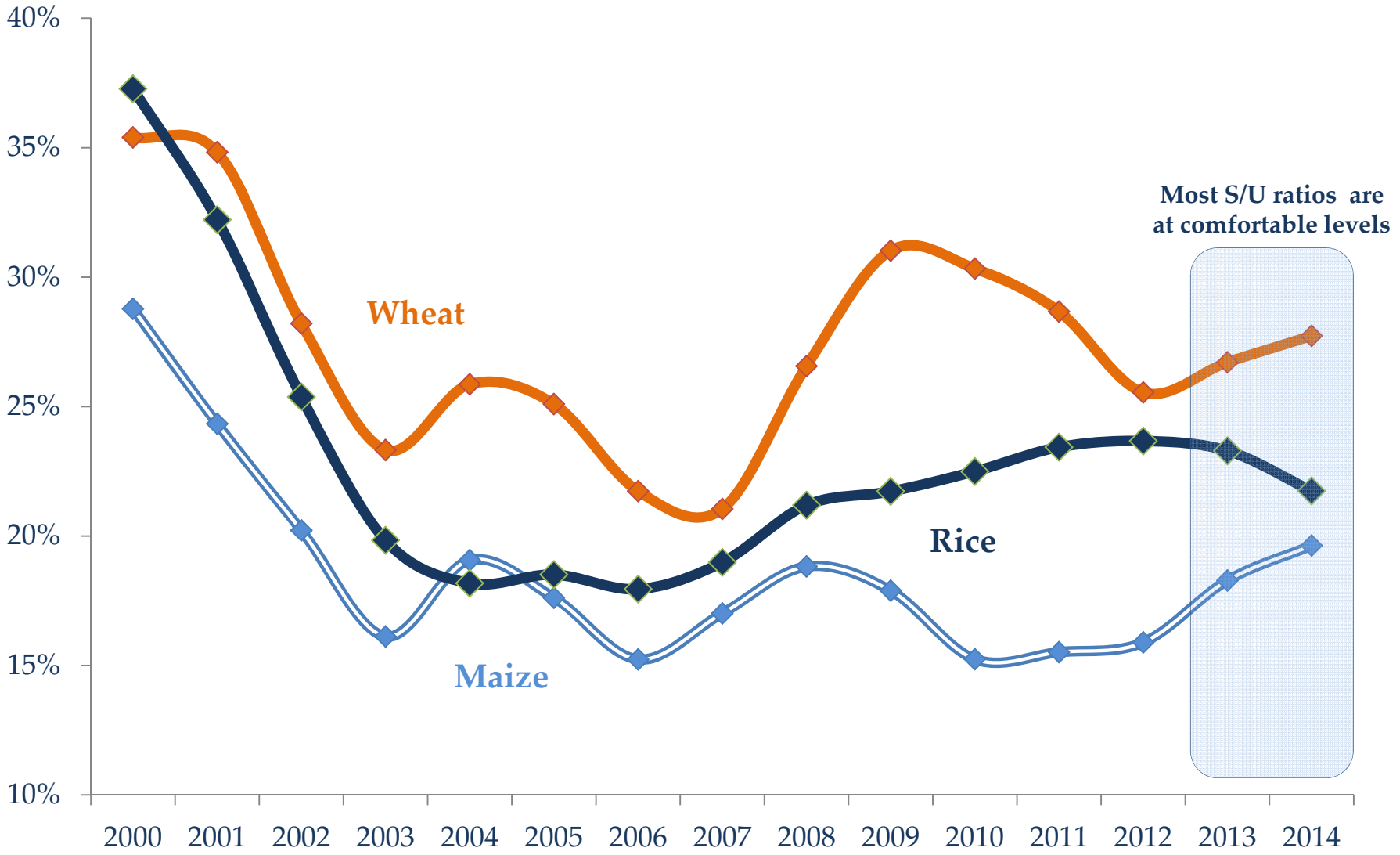
(US dollars per kilogram)



Source: World Bank
Note: Last observation is October 2014

Most grain supplies have improved

(stock-to-use ratios, percent)



Source: US Department of Agriculture (October 2014 update)

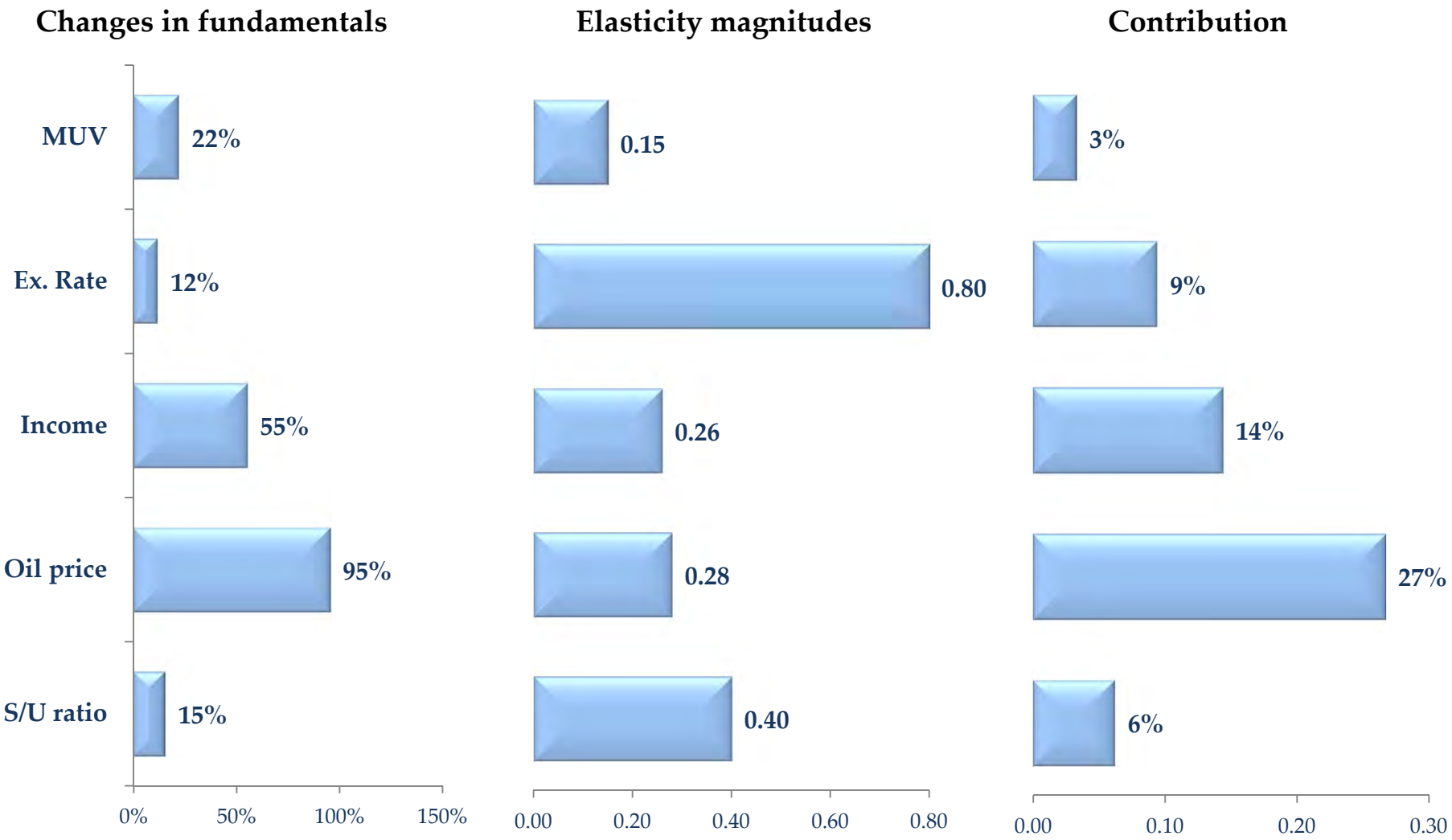
Parameter estimates from an agricultural price determination model

	Maize	Soybeans	Wheat	Rice	Palm oil	Cotton
Income	-0.49***	-0.37***	-0.42***	-0.55***	-0.50***	-0.64***
S/U ratio	-0.46***	-0.23***	-0.45***	-0.34***	-0.43***	-0.40***
Real oil price	0.16***	0.15***	0.12***	0.14***	0.30***	0.12***
Real ex. rate	-0.30	-0.20	0.10	-1.26***	-0.14	-0.10
Real int. rate	-0.01	-0.05***	0.05***	-0.03*	-0.05**	-0.03**
R^2	0.75	0.61	0.59	0.73	0.62	0.71
DG-GLS	-2.55**	-2.90***	-3.26***	-2.68***	-2.83***	-2.63**
PP	-3.87**	-3.23***	-3.08**	-3.93***	-4.08***	-3.61***

Notes: The model (estimated as SUR) is based on annual observations, 1960-2013. Asterisks indicate levels of significance: (*) for 10%, (**) for 5%, and (***) for 1%. DF-GLS and PP denote the Dickey-Fuller (GLS) and Phillips-Perron statistics for unit root.

Source: Baffes and Etienne (2014), "Analyzing Food Price Trends in the Context of Engel's Law and the Prebisch-Singer Hypothesis."

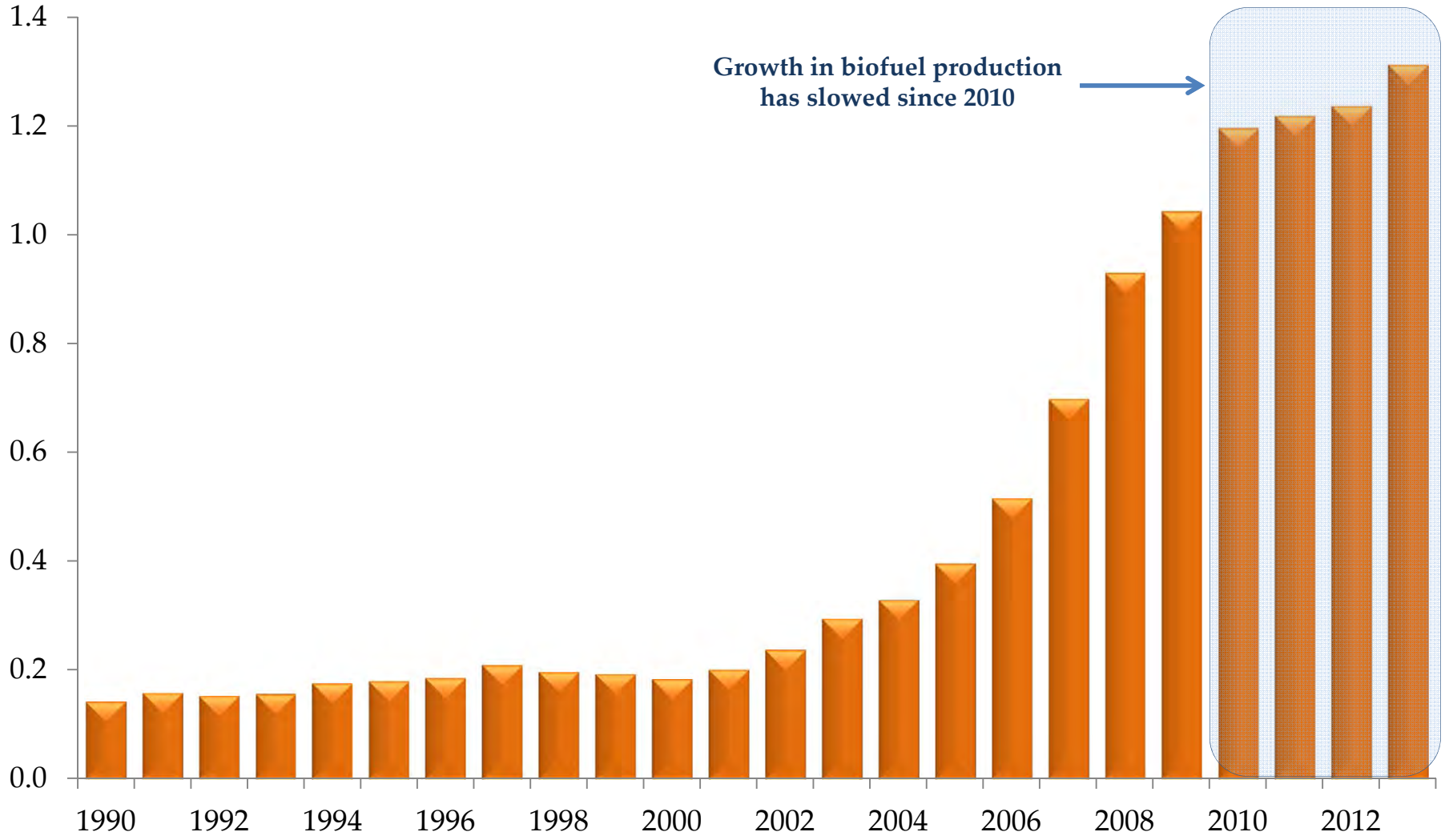
What matters most in food price trends?



Source: Baffes and Etienne (2014)

Global biofuel production has stabilized

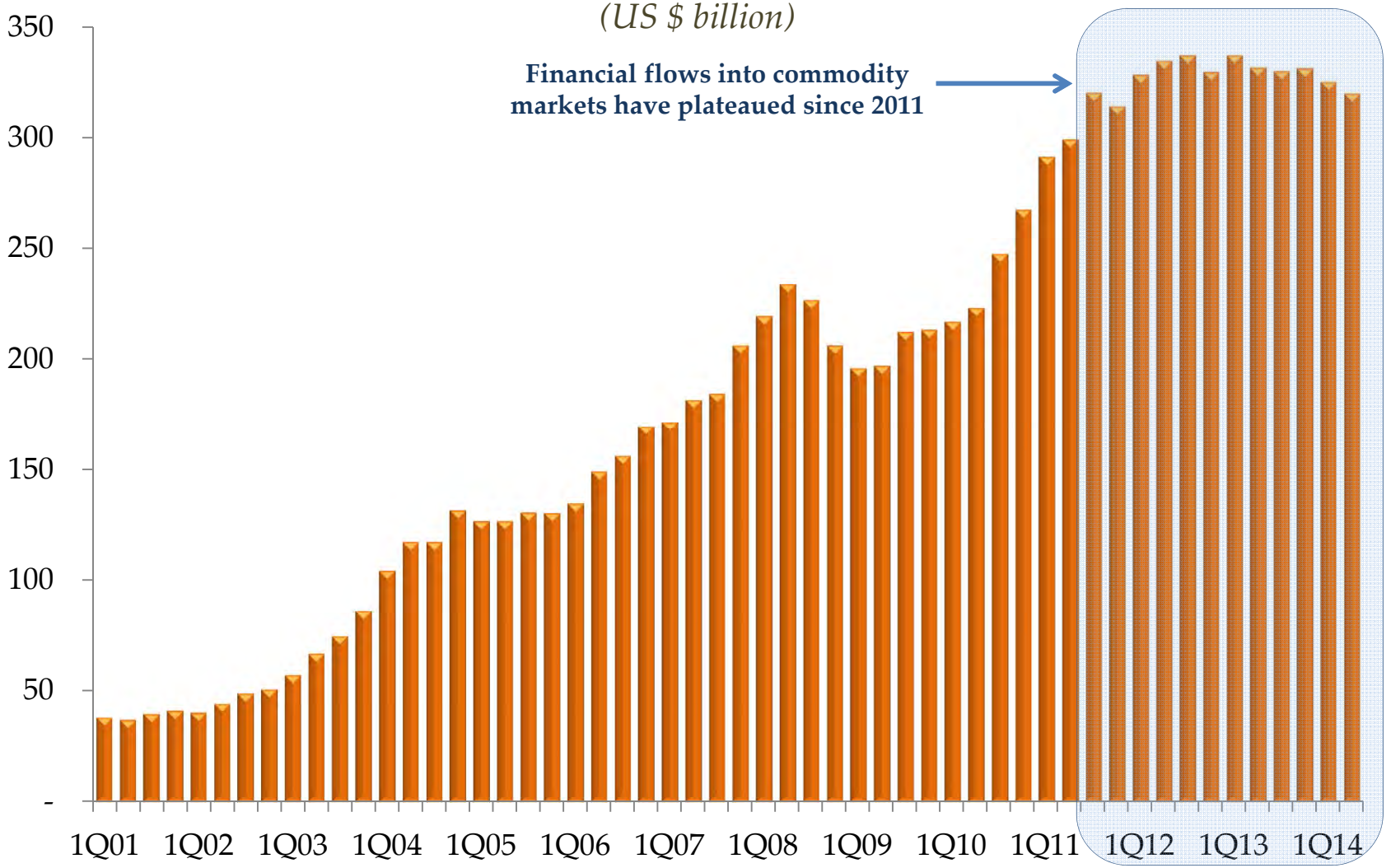
(million of barrels per day of oil equivalent)



Source: BP Statistical Review and IEA

Commodity assets under management have stabilized as well

(US $ billion)



Source: BarclayHedge, September 2014 update

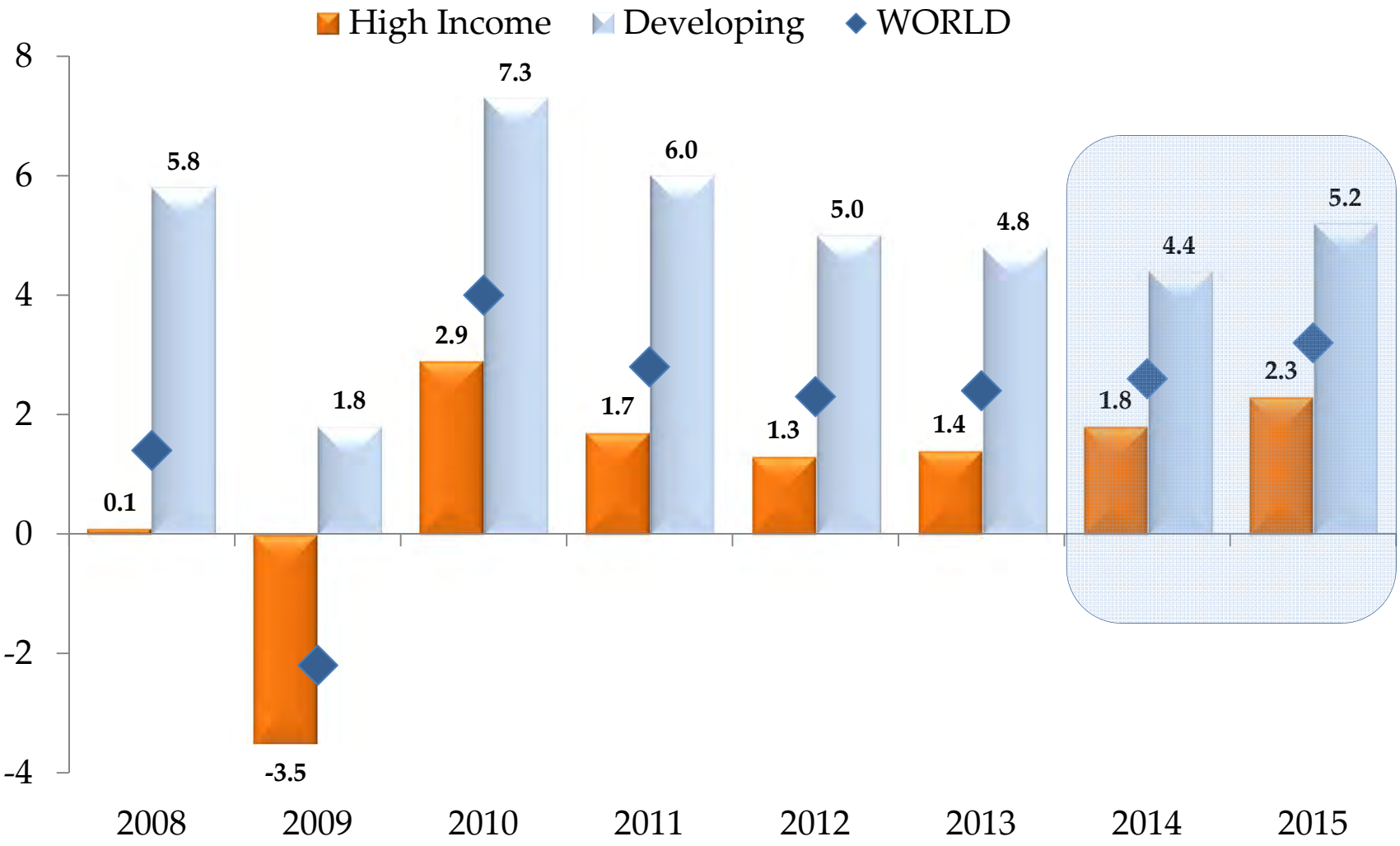
Outlook & price forecasts

- **Energy**: Oil prices are expected to ease gradually while US gas will increase slightly. Reconvergence between oil and natural gas prices will take time. Upside risks are less of a concern now. Downside risks include mainly further weakening by emerging economies, where most consumption takes place.
- **Metals**: Prices expected to decline with most risks associated with China (and the rest of the emerging economies), world's top metal consumer.
- **Agriculture**: Gradual decline in prices as global stocks return to historical norms. Most short term risks related to adverse weather conditions, which for the current season are less likely (concerns earlier in the year that 2015 will be a strong El Nino year have dissipated). Longer term risks are linked to energy.

Economic Outlook

GDP growth: history and forecasts

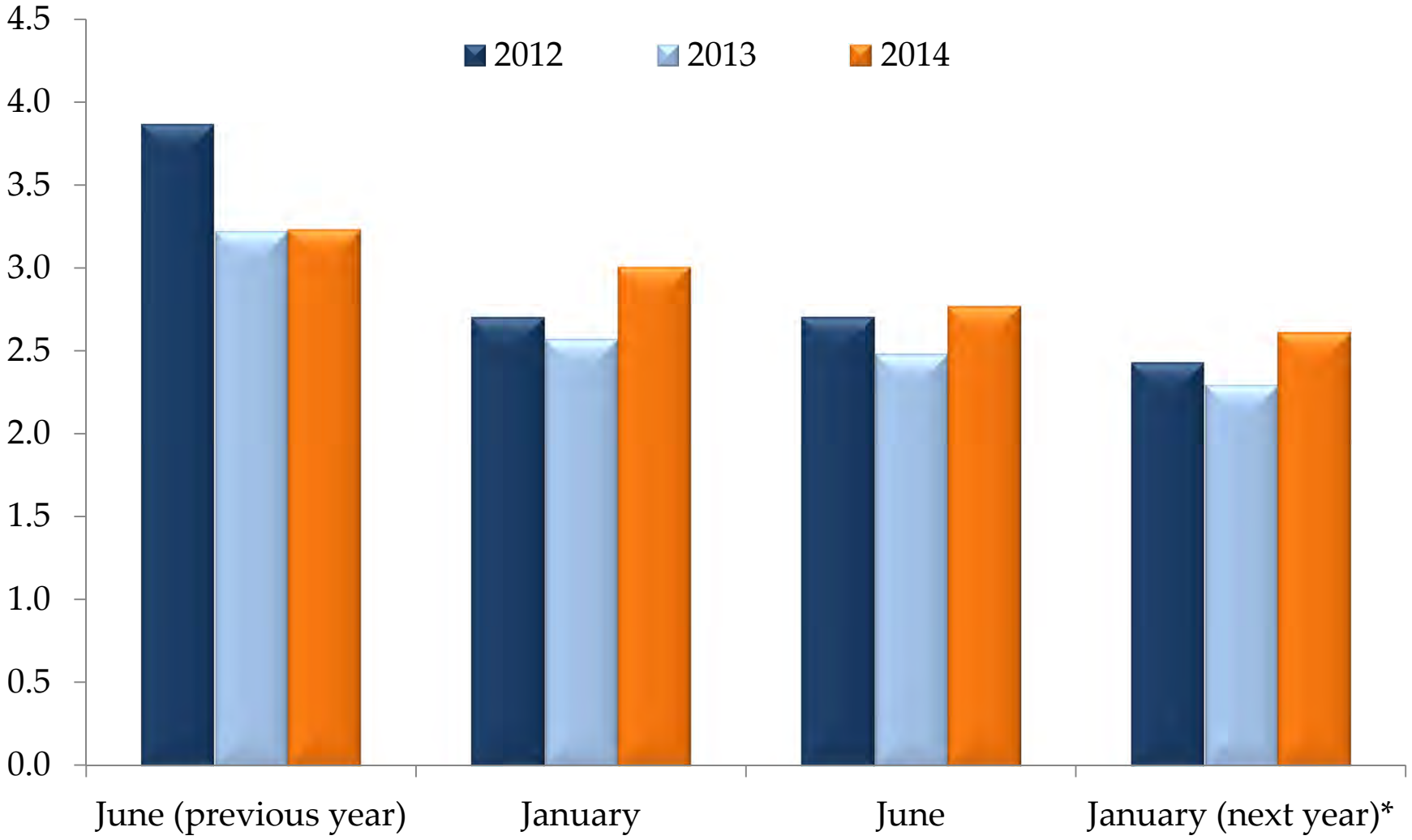
(percent from previous year)



Source: World Bank (forecasts based on the October 2014 update)

GDP forecast errors

(percent from previous year)



Source: World Bank

Thank you!

The World Bank's monthly commodity price update was published on November 4, 2004; the next update will be published on December 3, 2014.

The latest quarterly market analysis and price forecasts was published on October 16, 2014. The next update will be made available in the third week of January 2015.

www.worldbank.org/commodities