



International Monetary Fund



IMF Tokyo Presentation
June 2, 2011

Economic Prospects and Policy Challenges Related to Commodities

Prospects: gradual **recovery** in advanced economies;
strong **expansion** in emerging economies

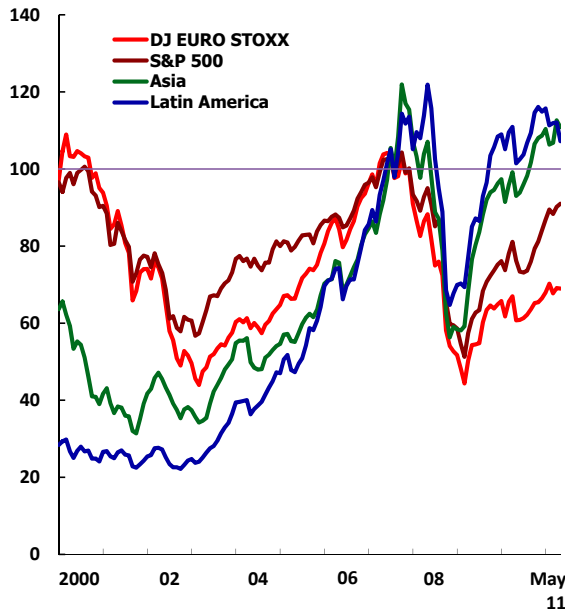
Risks: fiscal/financial challenges; **high commodity prices**

**Medium and long-term policy challenges posed by
high commodity prices**

Equity markets have recovered and volatility is close to "normal". Problems persist in AE banks.

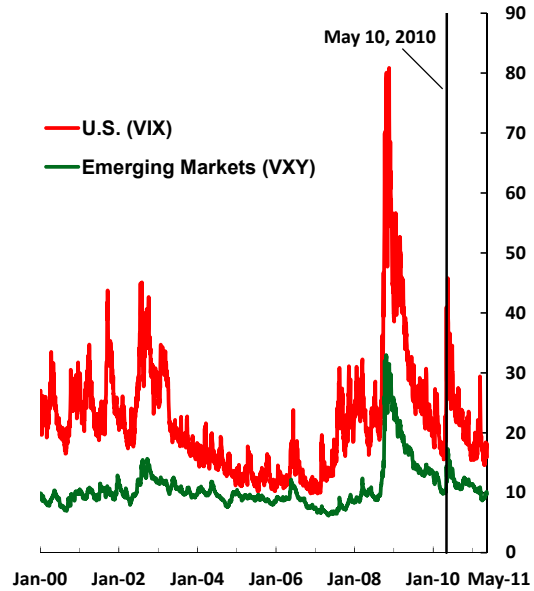
Equity Markets

(index; 2007=100; national currency)



Implied Volatility

(percent)

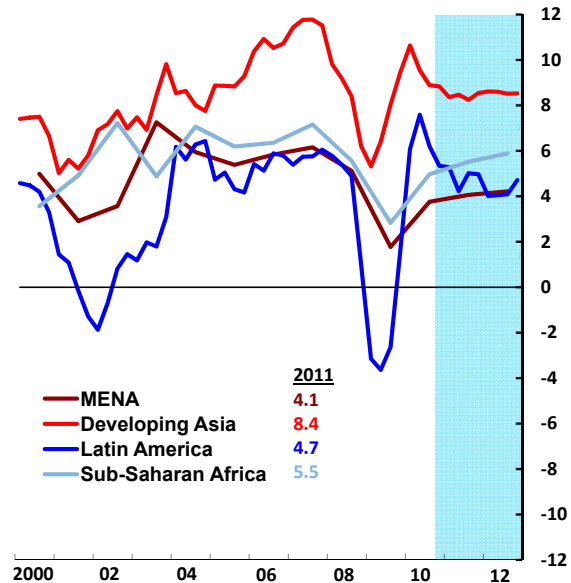
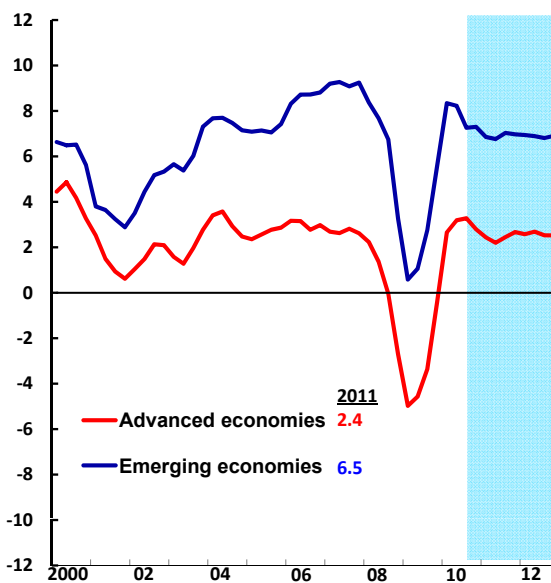


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Multispeed recovery: $6\frac{1}{2}$ percent growth in EM
 $2\frac{1}{2}$ percent growth in AE
 $4\frac{1}{2}$ percent global growth.

Real GDP Growth

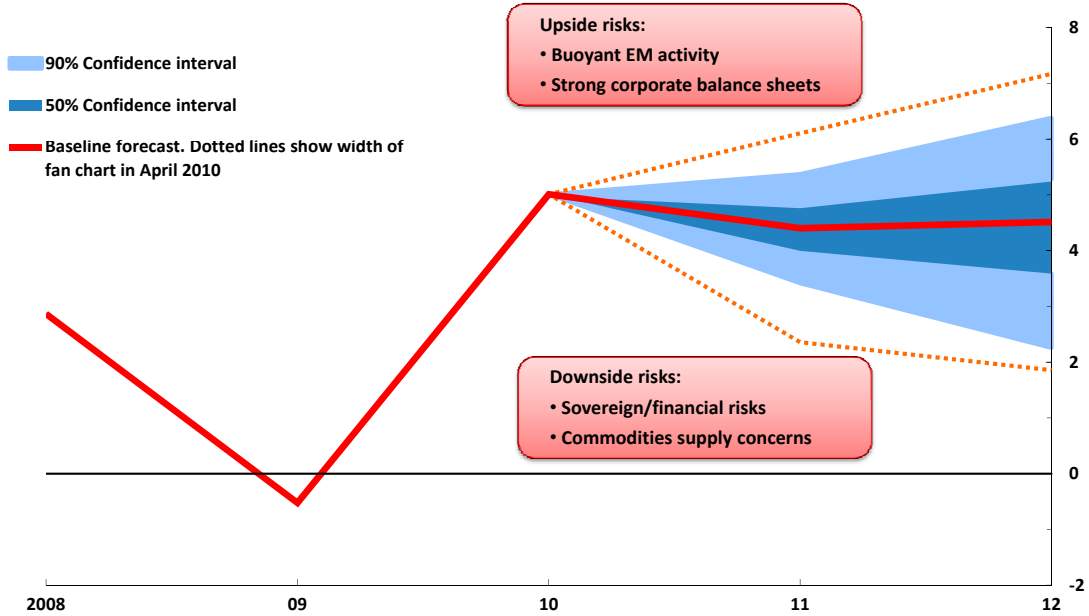
(percent change from a year earlier)



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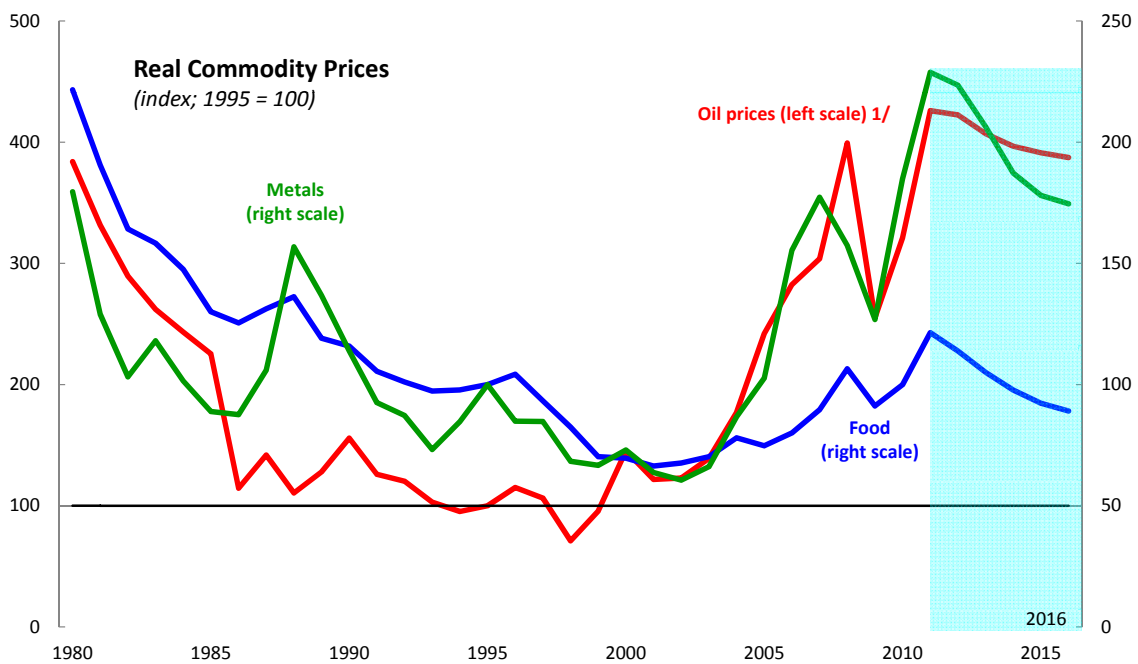
Downside risks have diminished but continue to dominate.

Prospects for World GDP Growth
(percent change)



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Commodity prices have been boosted by structural, cyclical, and special factors.



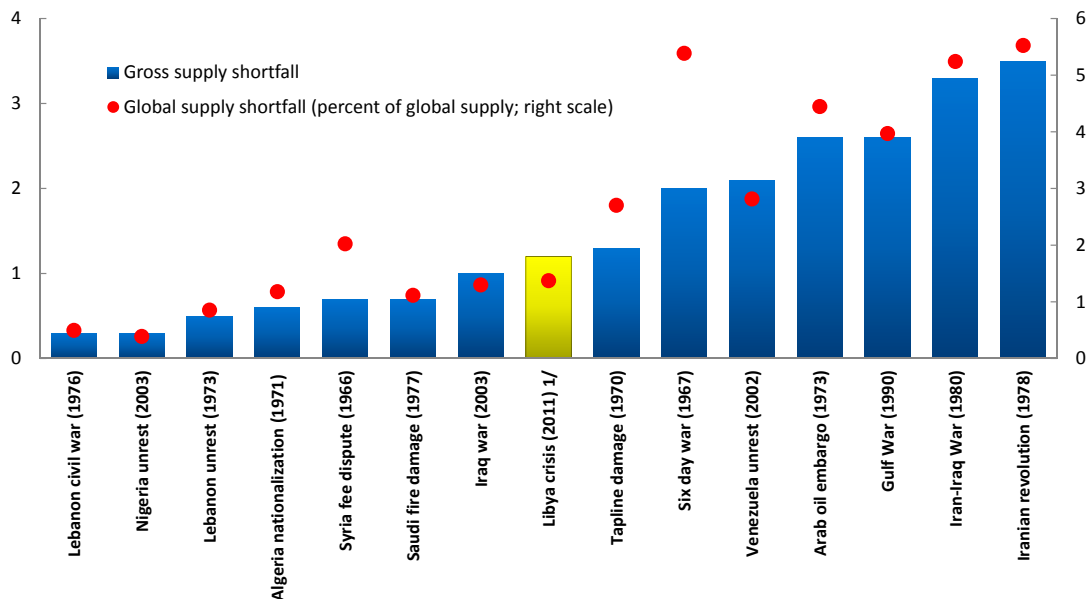
Source: IMF, *Global Assumptions*.

1/ Simple average of spot prices of U.K. Brent, Dubai Fateh, and West Texas Intermediate crude oil.

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Oil prices have risen appreciably after supply shocks, such as in Libya.

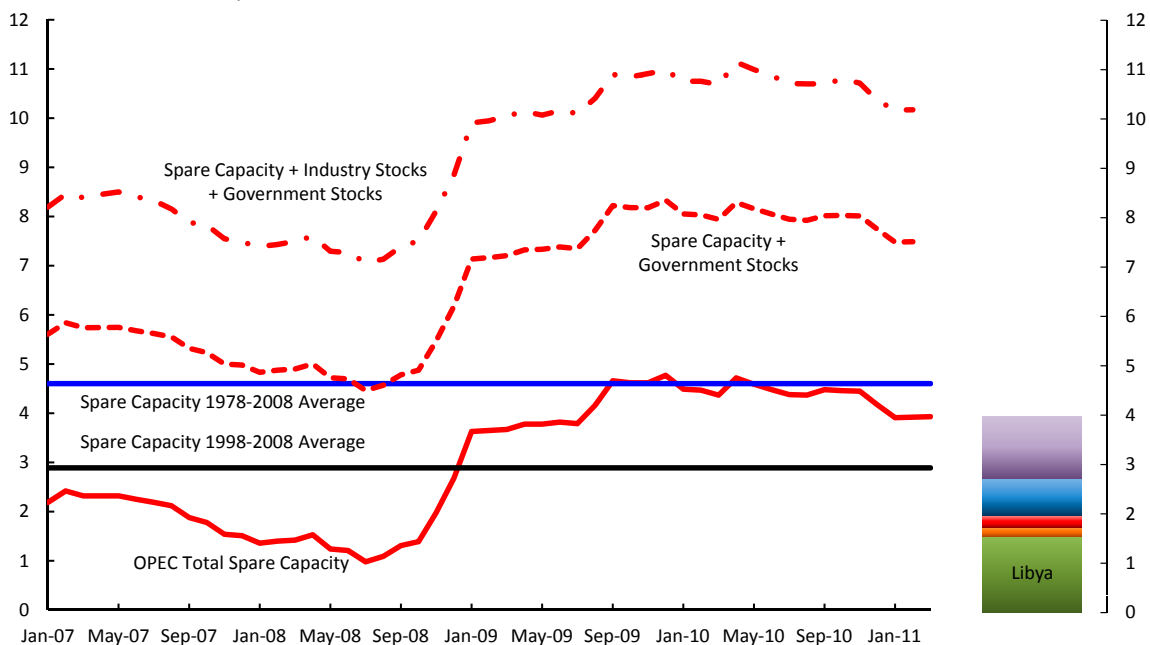
Global Oil Supply Disruptions by Average Gross Supply Losses
(million barrels a day)



Sources: Bank of America Merrill Lynch *Global Energy Weekly* February 28, BP *Statistical Review* June 2010, and IMF staff calculations.
1/ Shortfall as percent of 2010 global supply. Only 1.2 mbd of Libya's production is estimated to be shut in, relative to the total 2010 output of 1.6 mbd.

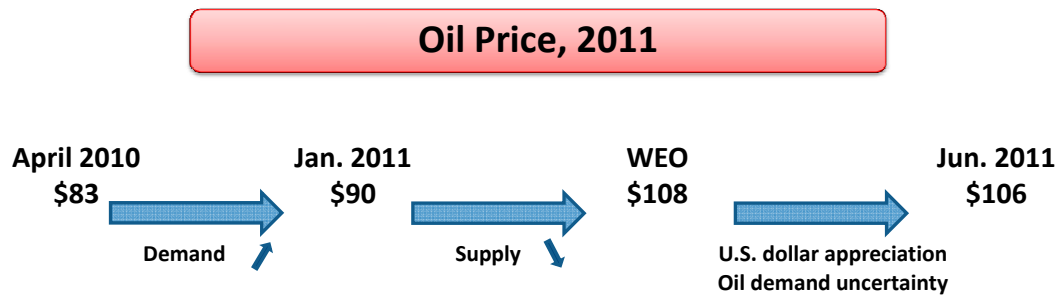
There is enough spare capacity to absorb loss of production from Libya and some other exporters.

OPEC Spare Crude Oil Production Capacity and 2010 Crude Oil Production by Country 1/
(million barrels a day)



Sources: International Energy Agency; and IMF staff calculations.
1/ Government and industry stocks are calculated by dividing total inventories in OECD countries by 365 days.

Oil prices are back close to levels assumed in the April 2011 WEO, after touching \$120.



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Risks for prices spikes have diminished.

Probability of WTI price reaching \$150 or above
(percent)

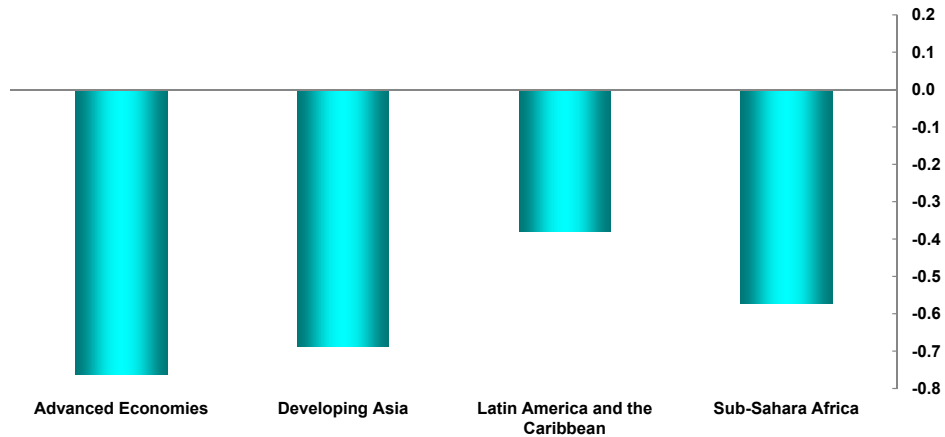
	3-Jan-11	7-Mar-11	23-May-11
3-mo forward	0.0	2.3	0.0
6-mo forward	0.8	6.8	0.9
9-mo forward	2.3	9.4	3.1
2-yr forward	6.2	12.3	6.6
3-yr forward	8.4	13.2	8.8

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Price spikes could significantly reduce output but losses need to be kept in perspective.

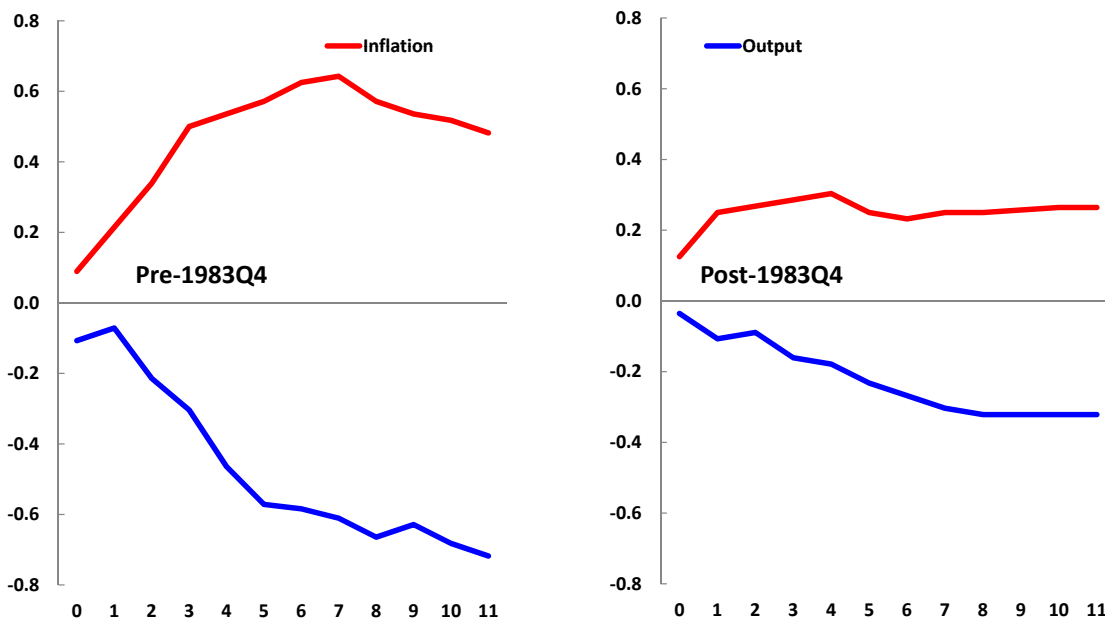
Scenario: \$150 in 2011; \$108 in 2012

Effects of a Temporary Oil Price Shock on Output
(2011-12 Cumulative deviation from baseline; in percentage points)



WEO estimates for oil price-related losses are consistent with estimates found in the literature for the United States.

(percentage points, effects of a 10-percent increase in oil prices, quarters on x-axis)

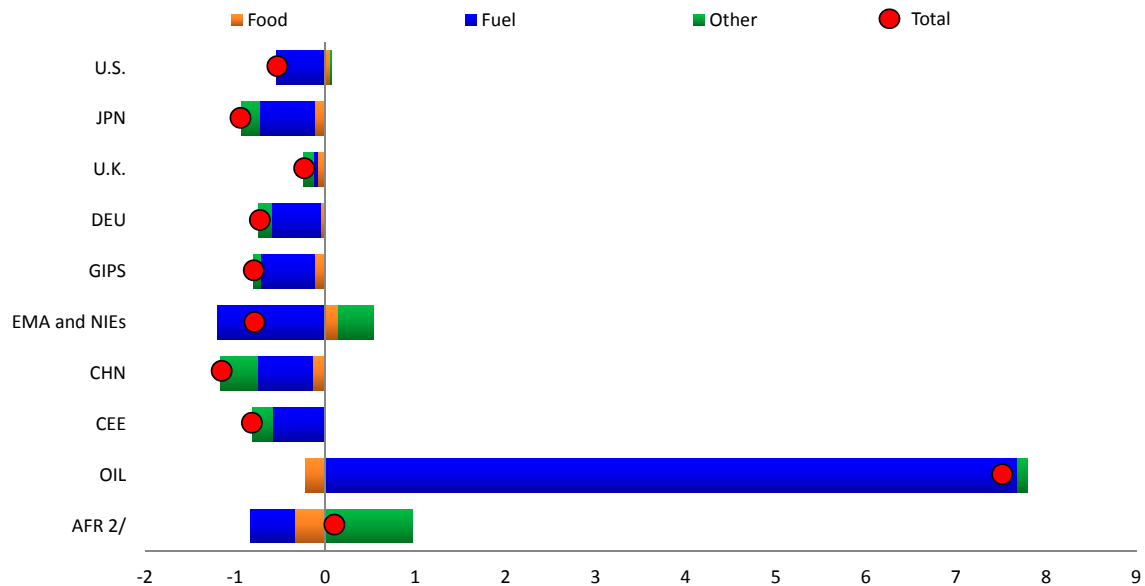


Source: "The Macroeconomic Effects of Oil Price Shocks: Why are the 2000s so different from the 1970s" by Blanchard and Galí (2007).

Winners and Losers:

First-round Impact of Commodity Price Changes on Trade Balance 1/

(April 2011 WEO forecast over October 2010 WEO forecast; 2011 trade balance in percent of 2009 GDP)



Source: IMF staff calculations.

1/ Country export and import weights by commodities are derived from trade data for 2005–08.

2/ AFR excludes South Africa and oil-exporting African countries: Algeria, Angola, Republic of Congo, Equatorial Guinea, Gabon, Nigeria, and Sudan.

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The Medium-Term Challenges:

Many commodities prices have been trending higher since the early 2000s and have recovered unusually quickly from the Great Recession.

High and rising prices are raising concerns about scarcity. How could it affect global growth? What are the policy challenges?

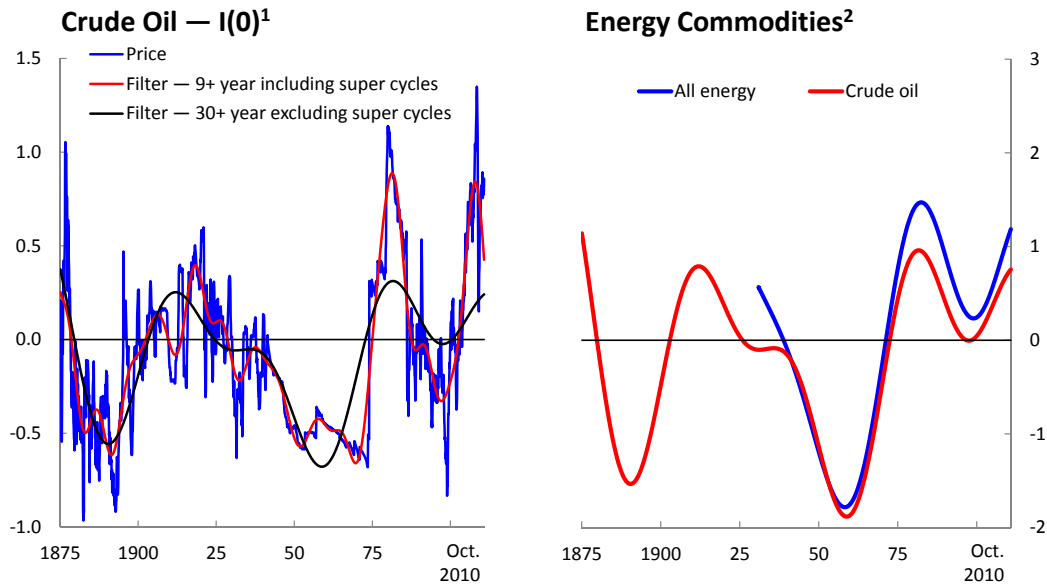
Focus of this presentation: Oil scarcity¹

- Tangible evidence of scarcity since 2005
- Oil is a key factor of production
- Oil is the most traded commodity
- Changes in oil market conditions have direct and indirect effects on the global economy

¹Based on Chapter 3 on “Oil Scarcity, Growth, and Global Imbalances” in the April 2011 *World Economic Outlook*.

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Global oil markets have entered a period of increased scarcity, as evidenced by the long-term component of real prices.

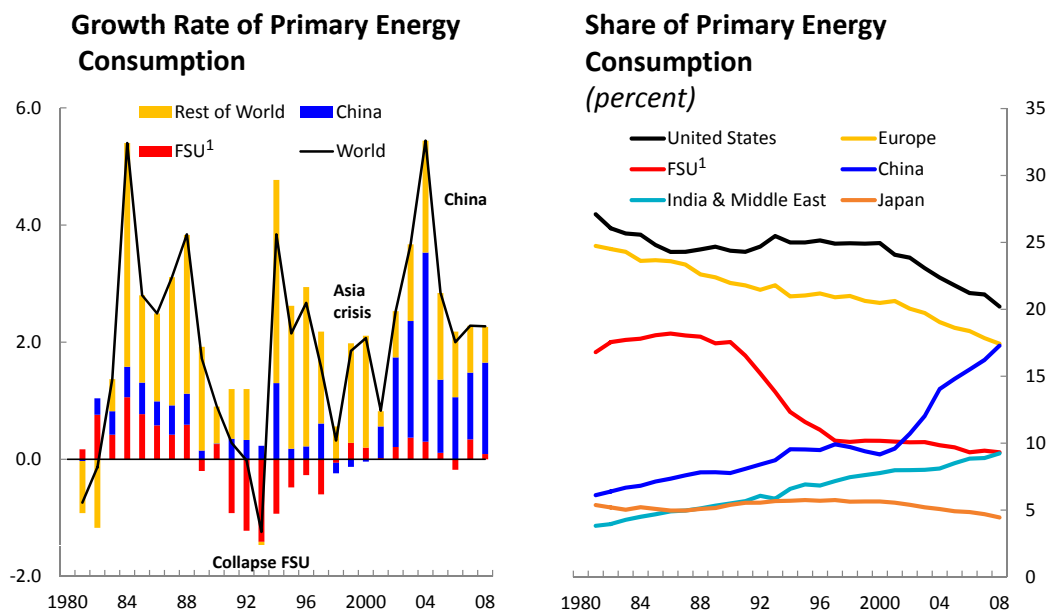


Sources: Global Financial Data; IMF Primary Commodity Price System; and IMF staff calculations.

¹U.S. dollar-denominated commodity prices are deflated by the U.S. consumer price index in log deviations from the sample mean. Deviation between filtered components and price is accounted for by noise, business cycle frequencies, and random walk drift where $I(1)$.

²First-principal component (standard deviation from mean) normalized to have unit variance.

Global energy consumption has recently increased rapidly, particularly in China.



Source: International Energy Agency.
¹FSU = former Soviet Union.

Prospects for Energy Consumption:

Panel Regression

Per capita energy consumption (E) on per capita income (Y)
55 countries during 1980-2008

Nonlinear relationship between E and Y

Income elasticity is close to 1 for emerging economies
Income elasticity is much lower in advanced economies

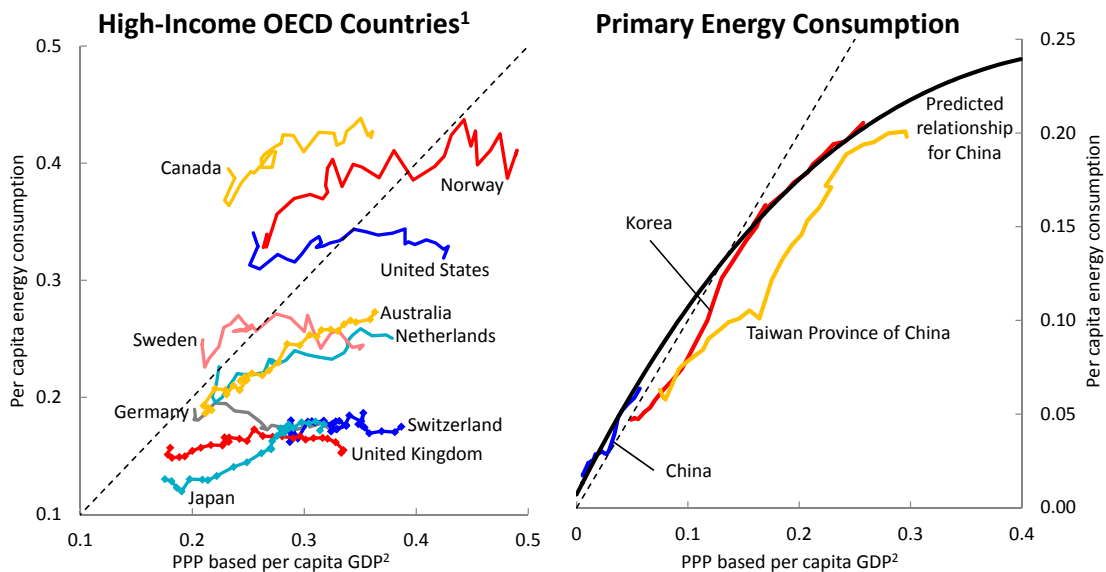
Korea exemplifies this one-to-one relationship and China's energy consumption so far closely followed this pattern.

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Significant demand increases lie ahead.

(hundred thousands of 2005 U.S. dollars on x-axis;
billions of British thermal units on y-axis)

Nonlinear relationship between energy consumption and income

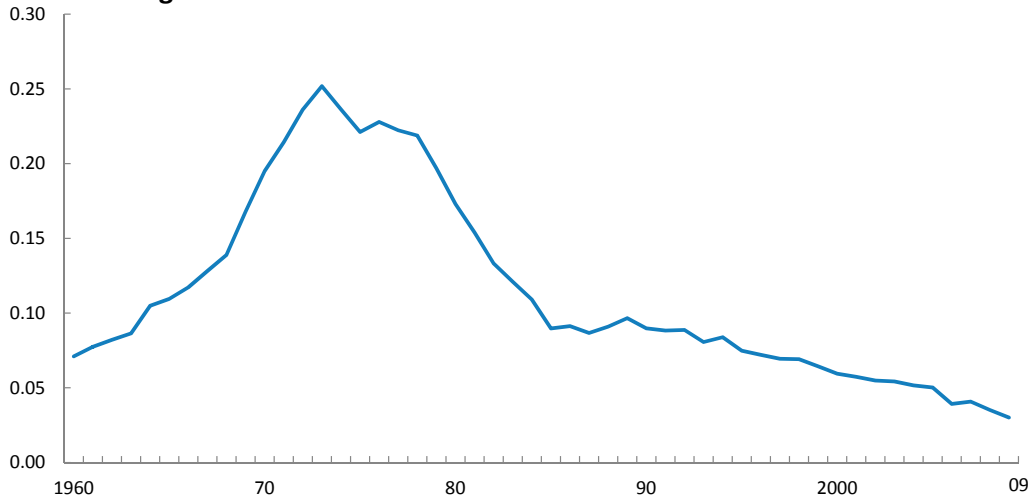


Sources: IMF, International Financial Statistics; International Energy Agency; World Bank, World Development Indicators; and IMF staff calculations.
¹OECD = Organization for Economic Cooperation and Development.
²PPP = purchasing power parity.

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Big switch in the power sector has been completed, leaving little room for further reduction in oil consumption (oil demand is less elastic now).

The Big Switch: Oil Share in the Electric Power Sector¹

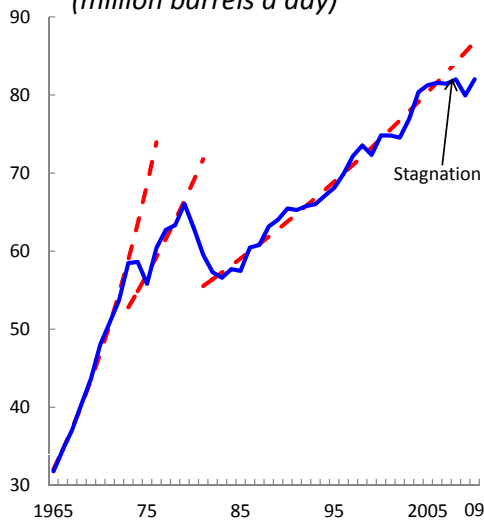


Sources: International Energy Agency; and IMF staff calculations.
¹Electricity generated by oil divided by total electricity production.

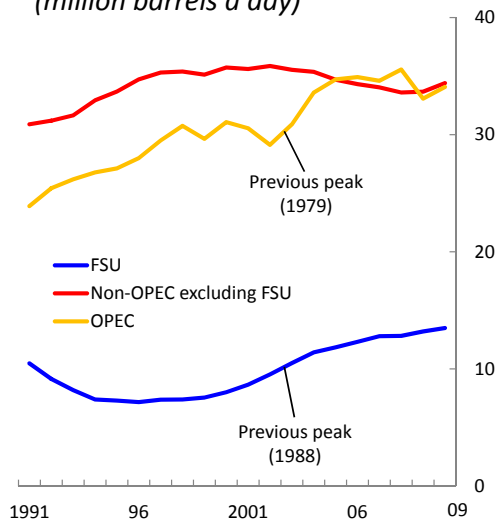
Oil supply has slowed down

Global crude oil production stagnated in the mid-2000, largely due to maturing oil fields in major producing countries.

World Oil Production¹
 (million barrels a day)



Oil Production by Major Groups²
 (million barrels a day)



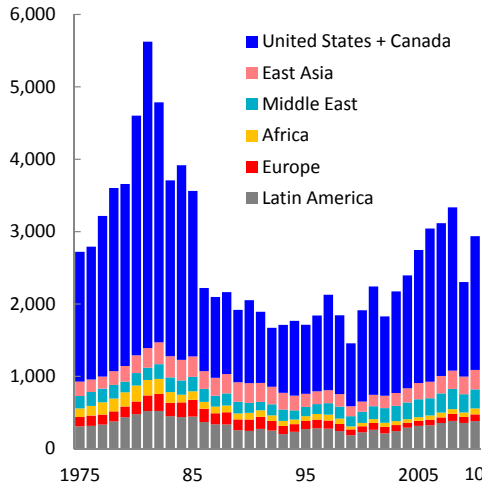
Sources: Bakker Hughes; and BP, *Statistical Review of World Energy*.
¹Piecewise linear trend.
²FSU = former Soviet Union; OPEC = Organization of Petroleum Exporting Countries.

Oil Demand-Supply Balance: Tensions are likely!

Challenges to raising oil supply capacity include long and variable time-to-build lags, technological risks, drag from maturing fields, and restrictions on oil investment.

Result: downshift in oil supply trend growth and precarious demand-supply balance → demand growth could exceed supply growth at unchanged prices.

International Rotary Rig Count by Region



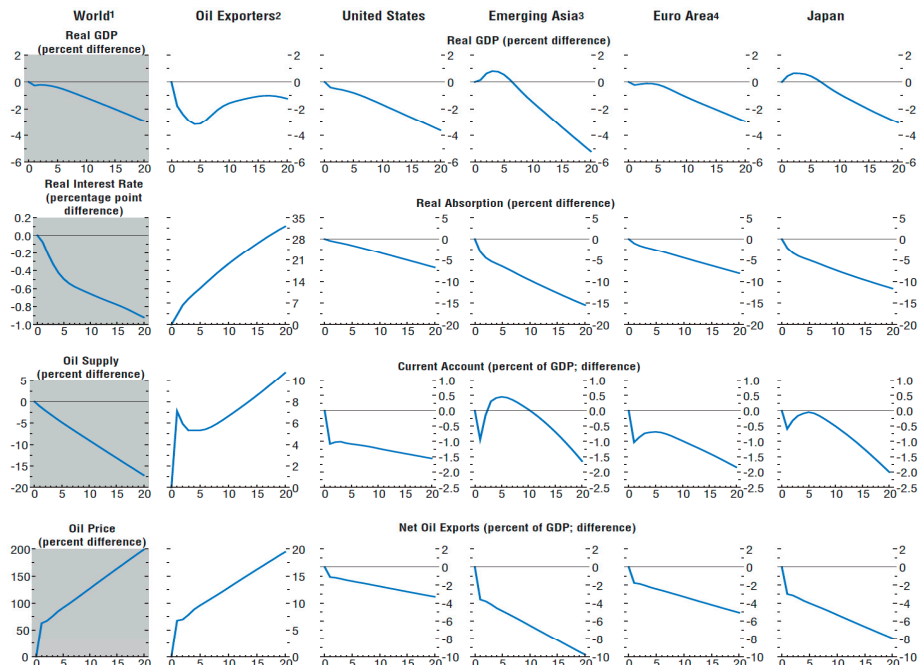
Sources: Bakker Hughes; BP, *Statistical Review of World Energy*; and Haver Analytics.
¹PPI = producer price index; WTI = West Texas Intermediate.

Oil Demand – Supply Balance
 (annual change, in percent)

	Avg. 2011-15
Demand	
World	1.3
Advanced economies	-0.7
Emerging and developing economies	3.2
Supply	
World	1.5
Non-OPEC	0.4
OPEC	3.0
Memorandum	
Oil demand growth implied by WEO growth forecast ¹	
Short-term income elasticity	3.0
Long-term income elasticity	1.3

Source: IEA, *Medium-term Oil Market Report*, updated December 2010; and IMF staff estimates.
¹Estimates from Chapter 3 in April 2011 *World Economic Outlook*, (Table 3.1)

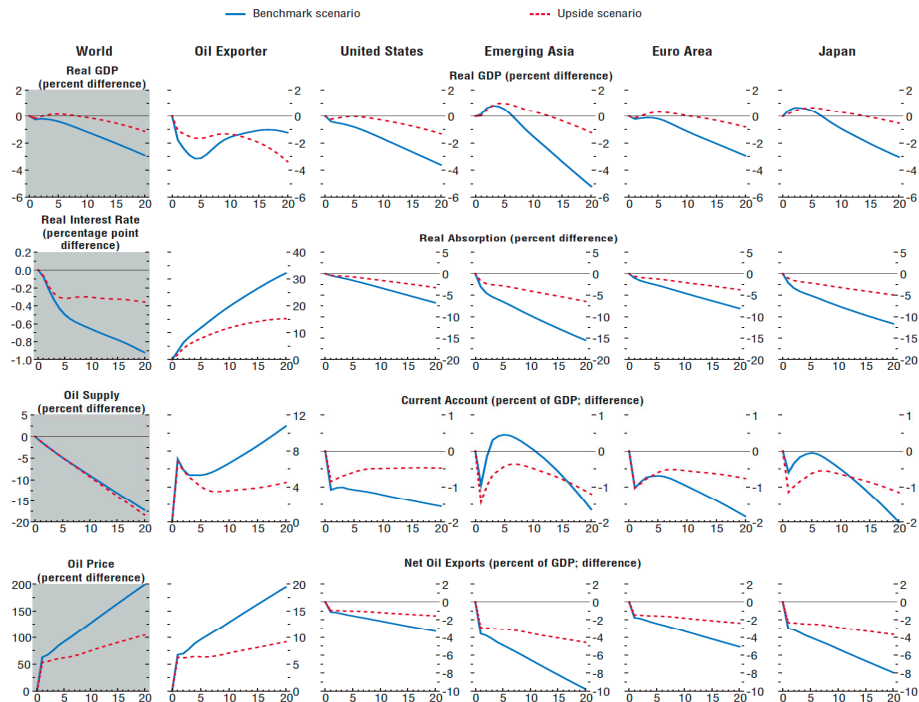
Benchmark Scenario: up to 0.25% less world growth p.a. Supply grows 0.8 percent instead of 1.8 percent (1981-2005 average)



Source: Global Integrated Monetary and Fiscal Model.
¹World: Total of all countries accounts for 78.78 percent of world GDP.
²Oil Exporters: Algeria, Angola, Azerbaijan, Bahrain, Canada, Republic of Congo, Equatorial Guinea, Iraq, Kuwait, Libya, Mexico, Nigeria, Norway, Oman, Qatar, Russia, Saudi Arabia, United Arab Emirates, and Venezuela.
³Emerging Asia: China, Hong Kong SAR, India, Indonesia, Korea, Malaysia, Philippines, Singapore, and Thailand.
⁴Euro area: Austria, Belgium, Cyprus, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Malta, Netherlands, Portugal, Slovak Republic, Slovenia, and Spain.

Alternative 1: Greater substitution—0.15 % less growth p.a.

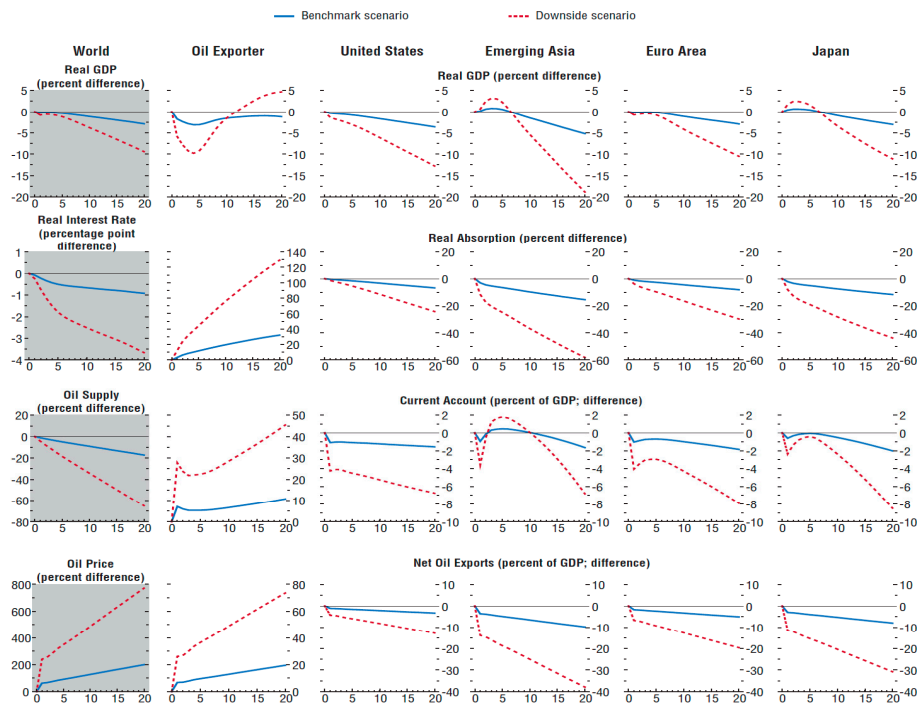
Price elasticity of demand at 0.3, relative 0.08 in the benchmark



Source: Global Integrated Monetary and Fiscal Model.
 Note: For the list of economies in each group, see the Benchmark Scenario chart.

Alternative 2: Greater Decline—1% less growth p.a.

Supply contracts by 2 percent per annum



Source: Global Integrated Monetary and Fiscal Model.
 Note: For the list of economies in each group, see the Benchmark Scenario chart.

Policy implications and Conclusions

Global oil market has entered a period of increased scarcity.

Gradual and moderate increases in oil scarcity would have a small impact on medium-term growth.

- benchmark(-1% growth reduction): output impact relatively benign; less than ¼ of a percent in terms of annual growth.

But, there is a significant potential for more severe impact.

- Important downside risks to oil investment and capacity growth.
- Sudden surges in oil prices could trigger large global output losses, redistribution, and sectoral shifts.
- Financial sector risks from surge in global capital flows and a widening of current account imbalances.

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Policy implications and Conclusions

Need to review the current policy frameworks to facilitate adjustment to unexpected changes in oil scarcity.

- Macro policies to ease adjustment in relative prices and resources
- Structural policies to strengthen the role of price signals

Consider policies aimed at lowering the risk of oil scarcity.

- Including the development of sustainable alternative energy sources

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