CHAPTER 1

GLOBAL PROSPECTS AND POLICIES

The Recovery Has Solidified, but Unemployment Remains High

The global recovery is continuing broadly as anticipated in the October 2010 and January 2011 *World Economic Outlook* (WEO) projections (Figure 1.1; Table 1.1). World growth decelerated to about 3¾ percent during the second half of 2010, from about 5¼ percent during the first half. This slowdown reflects a normal inventory cycle. As fears of a global depression receded in 2009, businesses at first slowed their rate of destocking, and then, as confidence continued to improve, began to rebuild depleted inventories. This fostered a sharp rebound in industrial production and trade, which lasted through the first half of 2010. As this phase progressed, inventory rebuilding and, as a consequence, industrial production and trade moved into lower gear in the second half of last year. In the meantime, however, reduced excess capacity, accommodative policies, and further improvements in confidence and financial conditions encouraged investment and sharply reduced the rate of job destruction. Consumption also regained strength. Consequently, the recovery has become more self-sustaining, risks of a double-dip recession in advanced economies have receded, and global activity seems set to accelerate again.

Nonetheless, the pace of activity remains geographically uneven, with employment lagging.

- In major advanced economies, economic growth is modest, especially considering the depth of the recession, reaching just 3 percent in 2010. In the United States and the euro area, the economy is following a path as weak as that following the recessions of the early 1990s, despite a much deeper fall (Figure 1.1, middle panel).
- In contrast, many emerging and developing economies have seen robust growth, reaching more than 7 percent in 2010, and have low unemployment rates, although unemployment tends to disproportionately affect young people. In a growing number of these economies, there is evidence of tightening capacity constraints, and many face large food price increases, which present other social challenges.
- Overall, growth is insufficiently strong to make a major dent in high unemployment rates (Figure 1.1, top panel). Some 205 million people are still looking for jobs, which is up by about 30 million worldwide since 2007, according to the International Labor Organization. The increase in unemployment has been very severe in advanced economies; in emerging and developing economies, high youth unemployment is a particular concern, as noted above.

The recovery is broadly moving at two speeds, with large output gaps in advanced economies and closing or closed gaps in emerging and developing economies, but there are appreciable differences among each set of countries (Chapter 2). Economies that are running behind the global recovery typically suffered large financial shocks during the crisis, often related to housing booms and high external indebtedness. Among the advanced economies, those in Asia have experienced a strong rebound (Figure 1.1, bottom left panel). The recovery of euro area economies that suffered housing busts or face financial market pressures has been weaker than in Germany and some other euro area economies. Among emerging and developing economies, those in Asia are in the lead, followed by those in sub-Saharan Africa, whereas those in eastern Europe are only just beginning to enjoy significant growth.

Financial Conditions Are Improving

Reinforcing and reflecting generally positive outcomes, strong profits have spurred equity price gains and lowered bond prices, and volatility has decreased (Figure 1.2, top and bottom panels). Stock prices in emerging Asia, Latin America, and the United States have approached precrisis peaks (Figures 1.2 and 1.3, top panels). Financial stocks in the euro area, however, have been sluggish, reflecting contin-

Table 1.1. Overview of the *World Economic Outlook* Projections

(Percent change unless noted otherwise)

	Year over Year						Q4 over Q4		
			Projections		Difference from January 2011 WEO Projections		Estimates	Projections	
	2009	2010	2011	2012	2011	2012	2010	2011	2012
World Output[1]	**–0.5**	**5.0**	**4.4**	**4.5**	**0.0**	**0.0**	**4.7**	**4.5**	**4.4**
Advanced Economies	**–3.4**	**3.0**	**2.4**	**2.6**	**–0.1**	**0.1**	**2.7**	**2.6**	**2.5**
United States	–2.6	2.8	2.8	2.9	–0.2	0.2	2.7	3.0	2.7
Euro Area[2]	–4.1	1.7	1.6	1.8	0.1	0.1	2.0	1.5	2.1
Germany	–4.7	3.5	2.5	2.1	0.3	0.1	4.0	1.9	2.5
France	–2.5	1.5	1.6	1.8	0.0	0.0	1.5	1.7	2.0
Italy	–5.2	1.3	1.1	1.3	0.1	0.0	1.5	1.3	1.2
Spain	–3.7	–0.1	0.8	1.6	0.2	0.1	0.6	1.1	1.9
Japan	–6.3	3.9	1.4	2.1	–0.2	0.3	2.5	2.5	1.3
United Kingdom	–4.9	1.3	1.7	2.3	–0.3	0.0	1.5	2.2	2.4
Canada	–2.5	3.1	2.8	2.6	0.5	–0.1	3.2	2.8	2.5
Other Advanced Economies[3]	–1.2	5.7	3.9	3.8	0.1	0.1	4.8	4.3	3.7
Newly Industrialized Asian Economies	–0.8	8.4	4.9	4.5	0.2	0.2	6.1	5.9	3.8
Emerging and Developing Economies[4]	**2.7**	**7.3**	**6.5**	**6.5**	**0.0**	**0.0**	**7.4**	**6.9**	**6.9**
Central and Eastern Europe	–3.6	4.2	3.7	4.0	0.1	0.0	3.7	3.7	4.0
Commonwealth of Independent States	–6.4	4.6	5.0	4.7	0.3	0.1	4.7	4.5	3.7
Russia	–7.8	4.0	4.8	4.5	0.3	0.1	4.7	4.3	3.5
Excluding Russia	–3.1	6.0	5.5	5.1	0.4	–0.1	. . .	. . .	. . .
Developing Asia	7.2	9.5	8.4	8.4	0.0	0.0	9.2	8.4	8.5
China	9.2	10.3	9.6	9.5	0.0	0.0	9.8	9.4	9.5
India	6.8	10.4	8.2	7.8	–0.2	–0.2	9.7	7.7	8.0
ASEAN-5[5]	1.7	6.9	5.4	5.7	–0.1	0.0	6.1	5.4	5.6
Latin America and the Caribbean	–1.7	6.1	4.7	4.2	0.4	0.1	5.2	5.0	4.6
Brazil	–0.6	7.5	4.5	4.1	0.0	0.0	5.0	5.0	4.0
Mexico	–6.1	5.5	4.6	4.0	0.4	–0.8	4.4	4.4	3.7
Middle East and North Africa	1.8	3.8	4.1	4.2	–0.5	–0.5	. . .	. . .	. . .
Sub-Saharan Africa	2.8	5.0	5.5	5.9	0.0	0.1	. . .	. . .	. . .
Memorandum									
European Union	–4.1	1.8	1.8	2.1	0.1	0.1	2.1	1.8	2.4
World Growth Based on Market Exchange Rates	–2.1	3.9	3.5	3.7	0.0	0.1	. . .	. . .	. . .
World Trade Volume (goods and services)	**–10.9**	**12.4**	**7.4**	**6.9**	**0.3**	**0.1**	**. . .**	**. . .**	**. . .**
Imports									
Advanced Economies	–12.6	11.2	5.8	5.5	0.3	0.3	. . .	. . .	. . .
Emerging and Developing Economies	–8.3	13.5	10.2	9.4	0.9	0.2	. . .	. . .	. . .
Exports									
Advanced Economies	–12.2	12.0	6.8	5.9	0.6	0.1	. . .	. . .	. . .
Emerging and Developing Economies	–7.5	14.5	8.8	8.7	–0.4	–0.1	. . .	. . .	. . .
Commodity Prices (U.S. dollars)									
Oil[6]	–36.3	27.9	35.6	0.8	22.2	0.5	. . .	. . .	. . .
Nonfuel (average based on world commodity export weights)	–15.8	26.3	25.1	–4.3	14.1	1.3	. . .	. . .	. . .
Consumer Prices									
Advanced Economies	0.1	1.6	2.2	1.7	0.6	0.1	1.6	2.2	1.5
Emerging and Developing Economies[4]	5.2	6.2	6.9	5.3	0.9	0.5	6.3	5.9	4.2
London Interbank Offered Rate (percent)[7]									
On U.S. Dollar Deposits	1.1	0.5	0.6	0.9	–0.1	0.0	. . .	. . .	. . .
On Euro Deposits	1.2	0.8	1.7	2.6	0.5	0.9	. . .	. . .	. . .
On Japanese Yen Deposits	0.7	0.4	0.6	0.3	0.0	0.1	. . .	. . .	. . .

Note: Real effective exchange rates are assumed to remain constant at the levels prevailing during February 8–March 8, 2011. When economies are not listed alphabetically, they are ordered on the basis of economic size. The aggregated quarterly data are seasonally adjusted.

[1]The quarterly estimates and projections account for 90 percent of the world purchasing-power-parity weights.

[2]Excludes Estonia.

[3]Excludes the United States, Euro Area, and Japan but includes Estonia.

[4]The quarterly estimates and projections account for approximately 79 percent of the emerging and developing economies.

[5]Indonesia, Malaysia, Philippines, Thailand, and Vietnam.

[6]Simple average of prices of U.K. Brent, Dubai, and West Texas Intermediate crude oil. The average price of oil in U.S. dollars a barrel was $79.03 in 2010; the assumed price based on futures markets is $107.16 in 2011 and $108.00 in 2012.

[7]Six-month rate for the United States and Japan. Three-month rate for the Euro Area.

ued vulnerability to peripheral euro area economies (Figure 1.2, middle panel). Government bond and bank credit default swap spreads in peripheral euro area economies remain high, pointing to significant vulnerabilities (Figure 1.4, middle panel). Stocks in Japan are lagging because of the appreciation of the yen and the impact of the recent earthquake. Credit growth remains very subdued in the advanced economies. Bank lending conditions in the major advanced economies, including those of the euro area, are slowly easing after a prolonged period of incremental tightening (Figure 1.4, top panel); for small and medium-size firms, they are easing or tightening only modestly. In the meantime, credit growth has again reached high levels in many emerging market economies, particularly in Asia and Latin America (Figure 1.3, bottom panel).

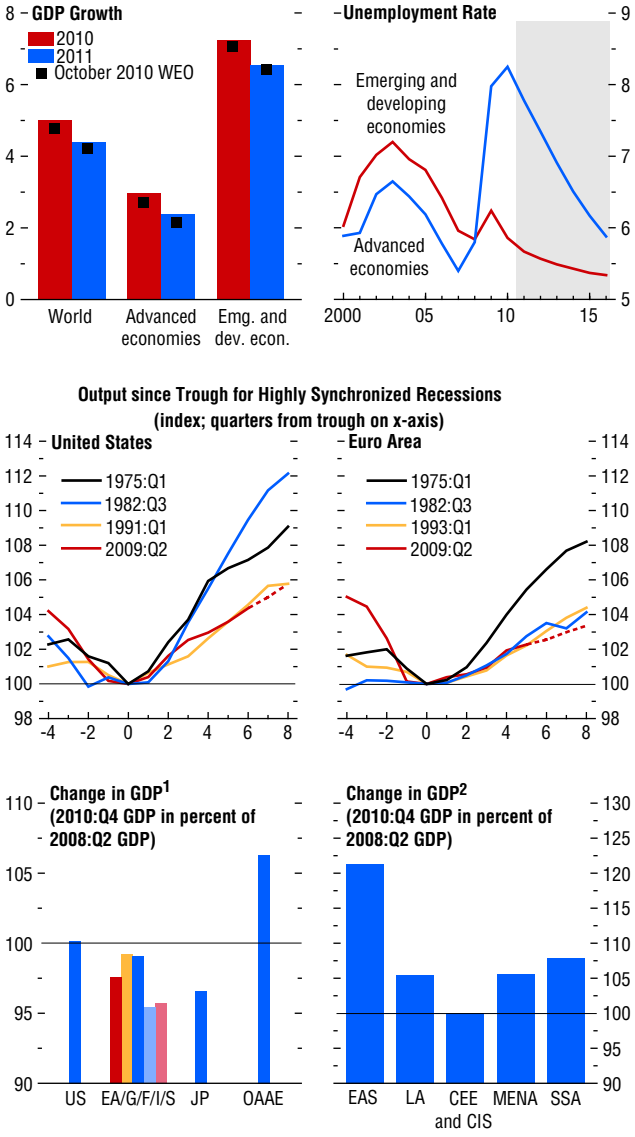
Global capital flows rebounded sharply following the collapse during the crisis, but they are still below precrisis averages in many economies (Figure 1.5, middle and bottom panels; Chapter 4). Accordingly, stock markets and credit in emerging market economies have rebounded unusually fast from deep falls (Box 1.1). Strong growth prospects and relatively high yields are attracting flows into emerging markets. Sluggish activity and damaged financial systems continue to depress flows between advanced economies. These forces raise policy challenges that are discussed in more detail later in this chapter as well as in the April 2011 *Global Financial Stability Report*.

- Capital flows to some larger emerging market economies—for example, Brazil, China, India, Indonesia, Mexico, Peru, Poland, and Turkey—are all within the range of or above precrisis levels. The recovery has been led so far by portfolio and bank flows, with a falling share of foreign direct investment inflows. These developments mark a departure from earlier experience and may raise the risk of future instability, including capital outflows. However, during fall 2010 the capital-flow-driven rally in emerging market assets slowed again. Other regions, such as east and west Africa, have yet to see much of a rebound in capital inflows.
- Flows between advanced economies have been hit hard by the financial disintermediation wrought by the crisis (Figure 1.5, middle panel).

Figure 1.1. Global Indicators

(Annual percent change unless noted otherwise)

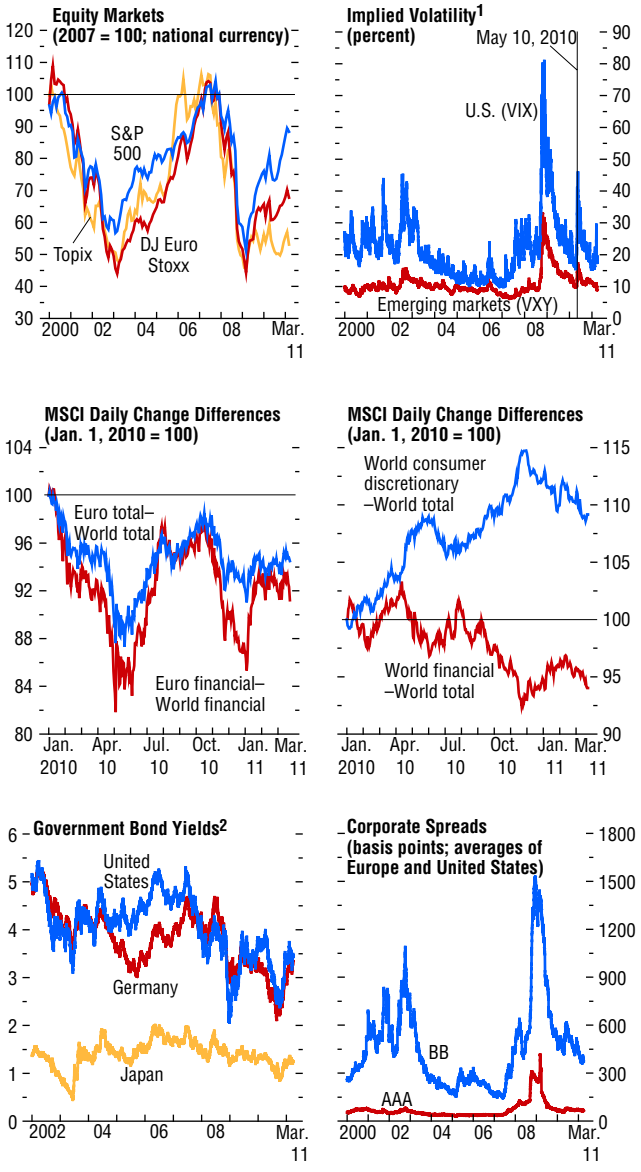
Global activity has evolved broadly in line with the October 2010 WEO forecast. Growth is low in advanced economies and unemployment is high. In the United States and the euro area, the recoveries are tracking those of the 1990s, despite much deeper falls in output during the Great Recession. Emerging and developing economies that have not been hit hard by the crisis are already in expansionary territory.



Source: IMF staff estimates.
[1]US: United States; EA/G/F/I/S: euro area/Germany/France/Italy/Spain; JP: Japan; OAAE: other advanced Asian economies.
[2]EAS: emerging Asia; LA: Latin America; CEE and CIS: central and eastern Europe and Commonwealth of Independent States; MENA: Middle East and North Africa; SSA: sub-Saharan Africa. Due to data limitations, annual data are used for MENA and SSA.

Figure 1.2. Recent Financial Market Developments

Equity prices have moved close to precrisis peaks in the United States but are lagging in Europe and Japan, reflecting, respectively, concerns about the financial sector and exports. Volatility has receded. Corporate spreads have returned to a low level. Long-term government bond yields have moved up in response to stronger activity but remain below levels reached in early 2010.



Sources: Bloomberg Financial Markets; and IMF staff calculations.
[1]VIX = Chicago Board Options Exchange Market Volatility Index; VXY = JPMorgan Emerging Market Volatility Index.
[2]Ten-year government bonds.

Capital flows from the United States have returned to precrisis levels but have been redirected to emerging market economies and away from advanced economies. Capital flows from the euro area, especially via banks, are still well below precrisis levels. Reduced flows to other advanced economies account for most of this reduction, although flows to emerging market economies are also weak.

Changes in financial conditions are unlikely to give significant additional support to output growth over the near term. Given the state of the "real" recovery, risk aversion and volatility are already low in the major financial markets, as evidenced by the vigorous recovery of equity markets and a narrowing of credit risk spreads. Although bank lending conditions in advanced economies are still far from normal, further progress is likely to be slow. Securitization markets remain in disrepair. Banks will need time to switch toward more stable deposits and long-term wholesale funding. Supervision and regulation are being tightened for good reason. In addition, conditions are likely to remain volatile because of continued uncertainty about how the crisis in the euro area will be resolved. Indices of broad financial conditions compiled by the IMF staff confirm this qualitative reading. They suggest that conditions are easing slowly and to a similar degree in the United States, the euro area, and Japan; simple forecasts point to further, very gradual easing (Figure 1.4, bottom panel; Appendix 1.1).

Robust capital flows to key emerging market economies may well continue, although questions about macroeconomic policies and geopolitical uncertainty could slow flows over the near term. The growth differential between these economies and advanced economies is not forecast to diminish significantly. Together with emerging economies' demonstrated resilience during the financial crisis, this supports further structural reallocation of portfolios toward these economies. However, uncertainty about the extent and possibility of policy rate hikes in the face of rising inflation may already be acting as a brake on such flows, as is heightened geopolitical uncertainty. A strengthening recovery in the United States, rising yields (Chapter 4), and renewed

uncertainty in the euro area could also temper such flows in the future.

Commodity Prices Are Resurgent

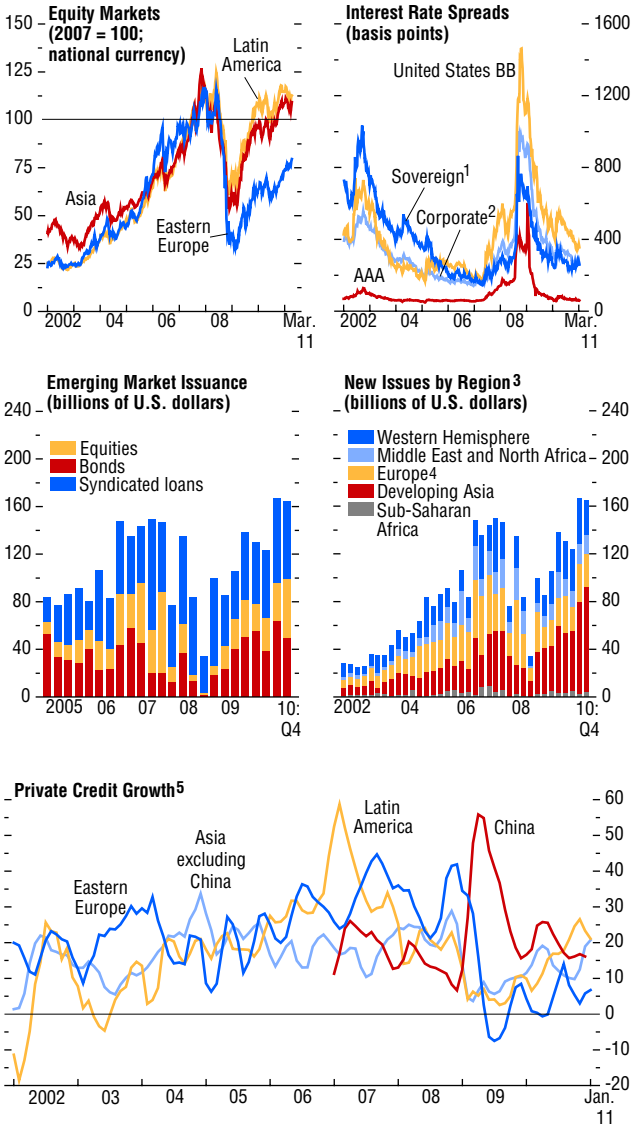
Commodity prices have quickly returned to high levels, owing to structural as well as cyclical and special factors, and market pressures remain elevated. The key structural change is rapid growth in emerging and developing economies, which has lifted and changed the pattern of commodity consumption. At the same time, supply responses have been slow, with production running into sharply higher marginal costs. The key cyclical factor was stronger-than-expected growth in demand for commodities during the second half of 2010, which drove up oil prices for 2011 to about $90 a barrel by early January 2011, up from the $83 a barrel expected in April 2010. Special factors include the Organization of Petroleum Exporting Countries' (OPEC's) lower-than-expected output response when prices rose above $70–$80, a price range previously declared to be "fair," which increased market concern about supply. Another special factor has been unrest in the Middle East and North Africa since January 2011. For food, the main special factor was weather-related supply shocks.

Stronger-than-anticipated global demand for commodities has reduced inventories and caused a strong, sustained, and broad-based increase in prices (Appendix 1.2). The overall IMF commodity price index rose by 32 percent from the middle of 2010 to February 2011—recuperating about three-quarters of the 55 percent decline after the cyclical peak in July 2008 through early 2009. Food prices are within reach of their 2008 peaks. Fortunately, good harvests in sub-Saharan Africa have offered a measure of protection to some of the world's poor. However, social unrest in the Middle East and North Africa could place further upward pressure on food prices if the governments of large grain importers inside and outside the region step up their purchases to ensure sufficient supply in these subsidized domestic food markets.

Commodity supplies are expected to respond to higher prices in 2011. There is spare capacity in the energy sector, which could make up for production losses on account of civil war in Libya, and an

Figure 1.3. Emerging Market Conditions

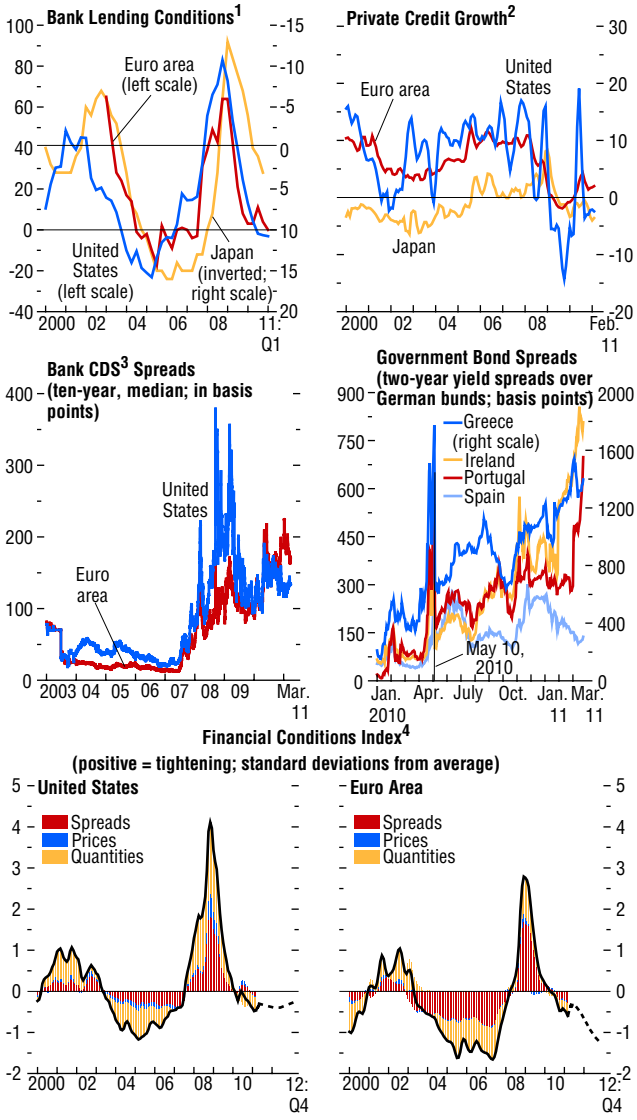
Equity prices in Asia and Latin America are close to precrisis peaks. In addition, credit spreads have returned to low levels, capital flows have picked up remarkably quickly, and private sector credit growth is reaching high levels again in many emerging market economies.



Sources: Bloomberg Financial Markets; Capital Data; IMF, *International Financial Statistics;* and IMF staff calculations.
[1]JPMorgan EMBI Global Index spread.
[2]JPMorgan CEMBI Broad Index spread.
[3]Total of equity, syndicated loans, and international bond issues.
[4]Central and eastern Europe and Commonwealth of Independent States.
[5]Annualized percent change of three-month moving average over previous three-month moving average.

Figure 1.4. Developments in Mature Credit Markets

Bank lending conditions either are no longer tightening significantly or are easing again, but credit growth rates remain very low. The main concerns with respect to global financial stability stem from very high funding requirements of banks and sovereigns, especially in peripheral countries of the euro area. Further gradual easing of credit conditions can be expected.



Sources: Bank of America/Merrill Lynch; Bank of Japan; Bloomberg Financial Markets; European Central Bank; Federal Reserve; Haver Analytics; Thomson Datastream; and IMF staff calculations.

[1]Percent of respondents describing lending standards as tightening "considerably" or "somewhat" minus those indicating standards as easing "considerably" or "somewhat" over the previous three months. Survey of changes to credit standards for loans or lines of credit to firms for the euro area; average of surveys on changes in credit standards for commercial/industrial and commercial real estate lending for the United States; diffusion index of "accommodative" minus "severe," Tankan survey of lending attitudes of financial institutions, for Japan.

[2]Annualized percent change of three-month moving average over previous three-month moving average.

[3]CDS = credit default swap.

[4]Historical data are monthly, and forecasts (dashed lines) are quarterly.

anticipated return to more normal weather conditions should result in increased agricultural output. At the same time, demand growth should moderate somewhat, reflecting usual cyclical patterns. These developments are forecast to allow for more balanced growth in both supply and demand. Nonetheless, the outlook for oil markets remains quite uncertain, as perceptions of geopolitical supply risks can be volatile.

- Crude oil supply is responding sluggishly to the ongoing pickup in demand, largely reflecting the policy stance of OPEC. Constraints on non-OPEC capacity and disruption of production in Libya mean that the call on other OPEC suppliers will increase in 2011.[1] Current OPEC spare capacity levels, estimated at about 4½ percent of global demand, are sufficient to make up for losses of supply from Libya and to meet the expected increase in demand. If the supply response materializes, it should restrain further upward price pressure. Current WEO projections are based on futures market prices during March 2011, which saw oil prices stabilizing at about $108 a barrel, some 35 percent above 2010 levels, or some 20 percent above levels assumed for 2011 in the January 2011 *WEO Update*.
- Global food output should recover quickly from recent supply shocks, with increased global acreage and more normal weather conditions pointing to favorable harvest prospects in 2011. Low inventories will take time to rebuild, and so prices are likely to remain more volatile than usual. Governments will need to ensure that the poor have sufficient access to food while food prices stay high.

Regarding medium-term prospects for key commodities, genuine resource scarcity concerns are now widespread (Chapter 3). A gradual, significant downshift in oil supply trend growth is quite possible but might present only a limited drag on annual global growth of less than ¼ percent in the medium term. This relatively small effect reflects the small share of oil in overall economic production and consumption and the scope to adjust production and consumption to rising prices over the long term. However, given low (and falling) short-term

[1]The "call on OPEC" is the difference between global demand and supply from sources other than OPEC crude oil production, including OPEC natural gas liquids (NGL) production.

supply and demand elasticities, such a trend could also bring abrupt price changes that could have very damaging short-term effects on economic activity.

The Recovery Is Expected to Solidify

Given the improvement in financial markets, buoyant activity in many emerging and developing economies, and growing confidence in advanced economies, economic prospects for 2011–12 are good, notwithstanding new volatility caused by fears about disruptions to oil supply. As in the January *WEO Update,* activity is projected to pick up from the recent dip, with global growth reaching about 4½ percent during 2011–12 (see Table 1.1; Figure 1.6, top panel). Real GDP is expected to expand by about 2½ percent in advanced economies and by 6½ percent in emerging and developing economies. This entails a modest slowdown relative to the growth rates reached in 2010.

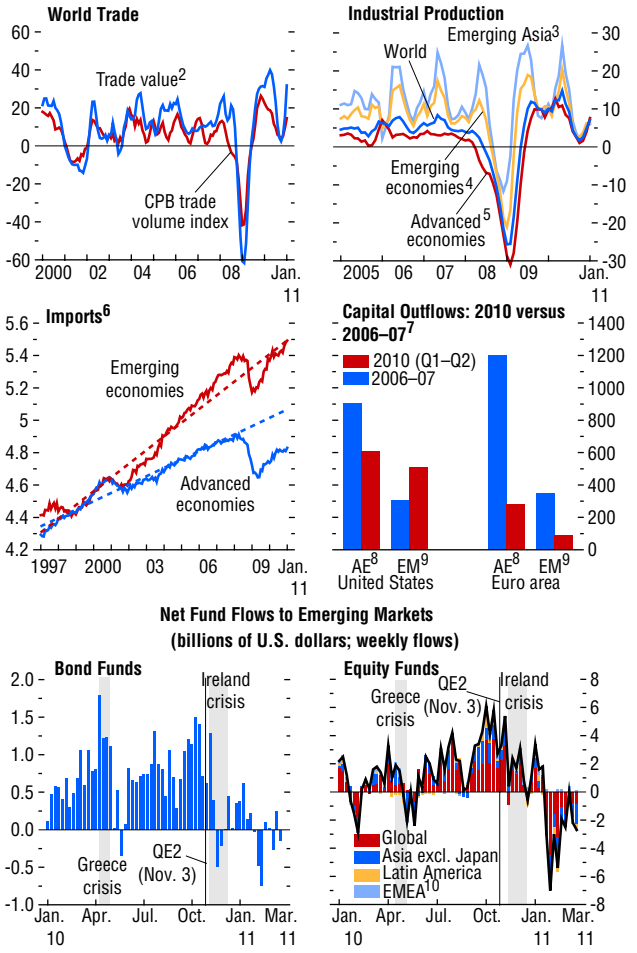
Leading indicators already show evidence of a pickup in growth following the inventory-led slowdown. After stagnating during much of the fall, industrial production has begun to regain speed, reflected in the return of manufacturing purchasing managers indices (PMIs) to more expansionary levels (Figure 1.7, top panel). Service sector PMIs suggest that the recovery is now broadening to this large part of the global economy. Retail sales are going strong in emerging market economies and have bounced back in advanced economies, led by the United States (Figure 1.7, middle panel). At the same time, the impact of recent oil price hikes is expected to be relatively limited.[2] A much wider reading of coincident indicators, summarized in the IMF's Growth Tracker, confirms a return of momentum (Figure 1.8, top panel).

[2]Oil factor shares would imply output losses of a bit more than ½ percentage point, assuming the price increases during February and March are permanent. There are, however, important mitigating factors that would noticeably lower the effect on global growth. Fuel subsidies in many emerging and developing economies insulate end-users from increases in world oil prices at least temporarily. The terms-of-trade gains of oil exporters will lead to higher imports from oil importers as will higher government spending on social programs in some Middle Eastern economies. Finally, with the supply disruption expected to ease somewhat throughout the year, end-users could well accommodate higher oil expenditures in part by drawing on savings.

Figure 1.5. Current and Forward-Looking Trade Indicators[1]

(Annualized percent change of three-month moving average over previous three-month moving average unless noted otherwise)

World trade and industrial production slowed during 2010:H2, reflecting a global inventory cycle. Imports of emerging and developing economies are back to precrisis trends, but those in advanced economies continue to lag. Capital flows from advanced to emerging economies have picked up. However, according to some measures they slowed down during fall 2010. Flows between advanced economies remain in the doldrums.



Sources: Bureau of Economic Analysis; U.S. Treasury; EPFR Global; European Central Bank; Haver Analytics; Netherlands Bureau for Economic Policy Analysis for CPB trade volume index; and IMF staff calculations.

[1]Not all economies are included in the regional aggregations. For some economies, monthly data are interpolated from quarterly series.

[2]In SDR terms.

[3]China, India, Indonesia, Malaysia, Philippines, and Thailand.

[4]Argentina, Brazil, Bulgaria, Chile, China, Colombia, Hungary, India, Indonesia, Latvia, Lithuania, Malaysia, Mexico, Pakistan, Peru, Philippines, Poland, Romania, Russia, South Africa, Thailand, Turkey, Ukraine, and Venezuela.

[5]Australia, Canada, Czech Republic, Denmark, euro area, Hong Kong SAR, Israel, Japan, Korea, New Zealand, Norway, Singapore, Sweden, Switzerland, Taiwan Province of China, United Kingdom, and United States.

[6]Actual (solid line) versus 1997–2006 log linear trend (dashed line).

[7]Billions of U.S. dollars for the United States and euros for euro area, annualized.

[8]AE = advanced economies.

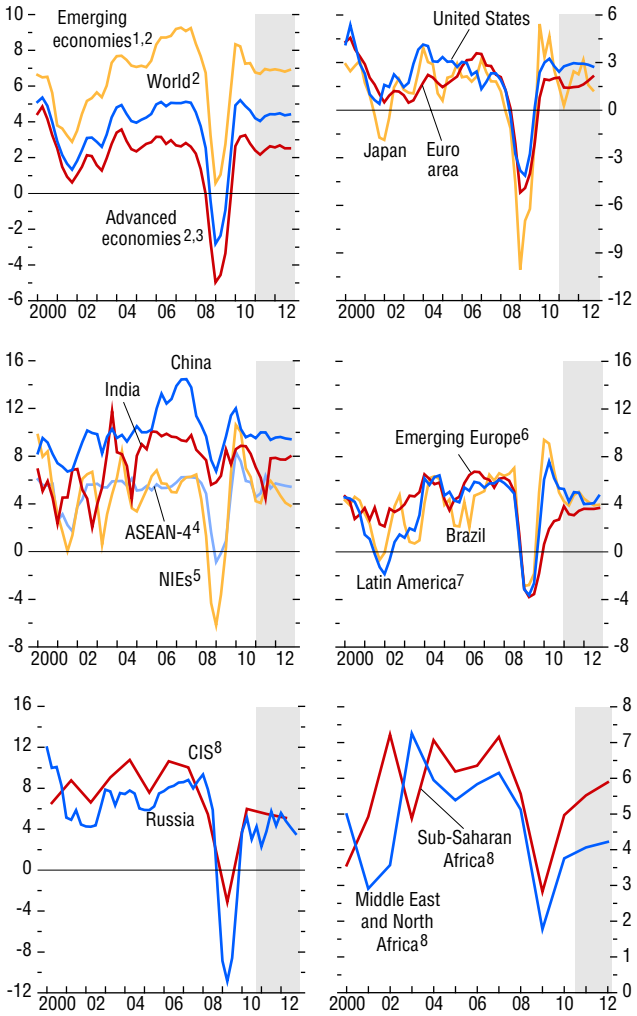
[9]EM = emerging market economies.

[10]EMEA = Europe, Middle East, and Africa.

Figure 1.6. Global Outlook

(Real GDP; quarterly percent change from one year earlier unless noted otherwise)

Global growth is forecast to reaccelerate. However, the recovery will remain two-speed in nature, with emerging and developing economies posting strong growth but not advanced economies. Activity is forecast to moderate somewhat in emerging Asia and Latin America, following strong rebounds, as capacity constraints begin to bind.



Sources: Haver Analytics; and World Economic Outlook database.

1Comprises China, India, Russia, South Africa, Turkey, and economies listed in footnotes 4, 6, and 7.

2Includes only economies that report quarterly data.

3Australia, Canada, Czech Republic, Denmark, euro area, Hong Kong SAR, Israel, Japan, Korea, New Zealand, Norway, Singapore, Sweden, Switzerland, Taiwan Province of China, United Kingdom, and United States.

4Indonesia, Malaysia, Philippines, and Thailand.

5Newly industrialized Asian economies (NIEs) comprise Hong Kong SAR, Korea, Singapore, and Taiwan Province of China.

6Bulgaria, Hungary, Latvia, Lithuania, and Poland.

7Argentina, Brazil, Chile, Colombia, Mexico, Peru, and Venezuela.

8Annual percent change from one year earlier. For MENA, aggregated data excludes Libya for the forecast years due to the uncertain political situation.

Various forces are interacting to propel the recovery:

- In advanced economies, investment is recovering with the rebound of industrial production because capital stocks are down and little excess capacity remains (Figures 1.7 and 1.8, bottom panels). The rebound in production is benefiting from low interest rates, easing financing conditions, and generally healthy corporate balance sheets and profitability. At the same time, consumption is being spurred by reduced job layoffs, the gradual recovery of employment, and previously postponed purchases of durable goods.[3] Household saving rates are not projected to rise much over the next couple years (Figure 1.9, middle panel). Deleveraging is thus expected to continue at its present pace, except in a few economies in the euro area that are still struggling with the crisis (Figure 1.9, lower panel).
- In much of Latin America and Asia and in low-income countries in sub-Saharan Africa, recovery has brought output back to precrisis peaks, and many economies have already moved into expansion territory (Figure 1.6, middle and bottom panels). Activity in these economies is being boosted by accommodative macroeconomic policies, rising exports and commodity prices, and—in several—capital inflows. Growth in sub-Saharan Africa is also projected to stay high, reflecting sustained strength in domestic demand and rising global demand for commodities (Figure 1.6, bottom panel). Economic prospects across the Middle East are quite diverse and still fairly uncertain at the time of writing. In eastern European and Commonwealth of Independent States (CIS) economies that were heavily affected by the crisis, activity is also rebounding.

Inflation pressure is forecast to broaden, mainly in emerging and developing economies. At the global level, headline inflation picked up to 4 percent in February, exceeding 2 percent in advanced economies and exceeding 6 percent in emerg-

[3]Postponement of such purchases led in 2009 to an unusually large drop in industrial production relative to GDP (see Figure 1.8, bottom panel).

ing and developing economies (Figure 1.10, top panel). This reflects mainly the behavior of food and energy prices and the fact that these components have a higher weight in the consumer price index (CPI) in lower-income countries. Thus, core inflation is running well below headline inflation, although it has been rising quickly in emerging and developing economies, from 2¼ percent in March 2010 to 3¾ percent in February 2011. Looking ahead, core inflation is projected to rise further as excess capacity is slowly worked off. Headline inflation will still moderate if commodity prices broadly stabilize as expected.

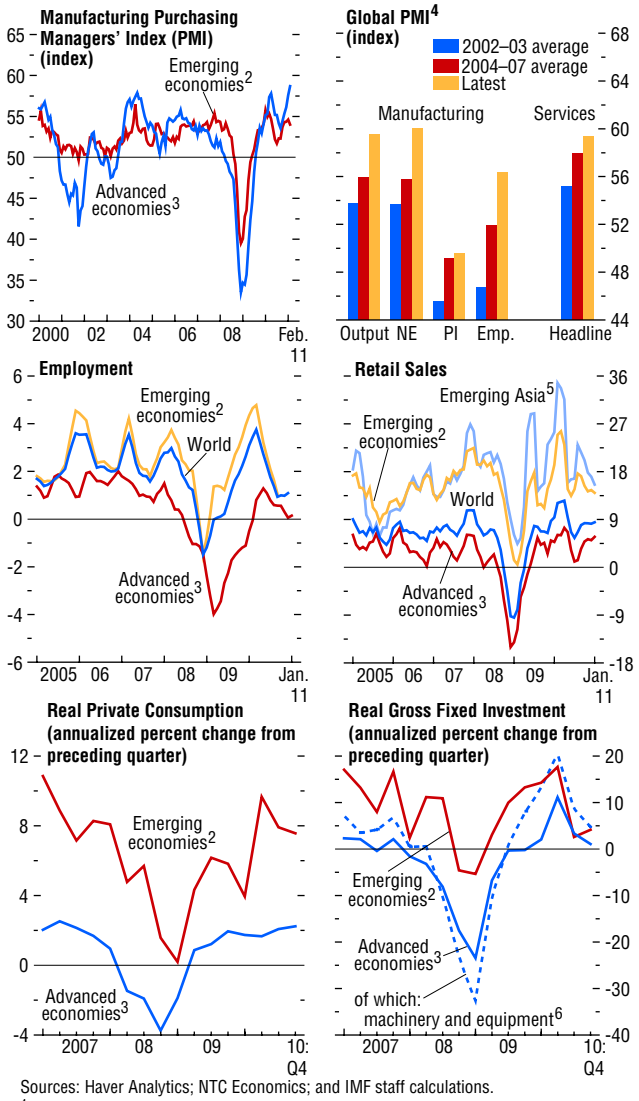
- In advanced economies, headline inflation is projected to return below 2 percent in 2011, settling at about 1½ percent during the course of 2012 as food and energy price hikes abate and wages accelerate only gradually amid weak labor markets (see Table 1.1).
- In emerging and developing economies, inflation pressure is broadening (Figure 1.10, top and bottom panels). Assuming broadly stable food and energy prices, the WEO forecast sees headline inflation at close to 7 percent in 2011 and receding to below 5 percent in 2012 (see Table 1.1).

The forecast assumes that macroeconomic policies remain generally supportive. For the major advanced economies, financial markets foresee only limited tightening of monetary policies over the coming year (Figure 1.11, top panel). Fiscal policy tightening is projected to be modest in 2011, following some loosening in 2010 (Figure 1.12, middle panel). Markets also expect only limited removal of monetary accommodation in emerging and developing economies (Figure 1.11, bottom panel). Concerns that the global recovery might be set back by fiscal tightening in advanced economies appear less pertinent. First, the withdrawal of fiscal stimulus projected for 2011 now appears limited, reaching only ¼ percent of GDP. Second, it seems there is a handoff from public to private demand as the driver of growth, even in advanced economies. This is evidenced, for example, by continued recovery in the euro area, notwithstanding a broadly neutral fiscal stance during 2010.

Figure 1.7. Current and Forward-Looking Growth Indicators[1]

(Annualized percent change of three-month moving average over previous three-month moving average unless noted otherwise)

Forward-looking indicators have remained expansionary, pointing to higher growth in 2011:H1. Consumption has gradually strengthened in advanced economies. Although investment has recently been less dynamic in these economies, it should pick up again as production reaccelerates. Indicators point to continued robust activity in many emerging and developing economies.



Sources: Haver Analytics; NTC Economics; and IMF staff calculations.

[1]Not all economies are included in the regional aggregations. For some economies, monthly data are interpolated from quarterly series.

[2]Argentina, Brazil, Bulgaria, Chile, China, Colombia, Hungary, India, Indonesia, Latvia, Lithuania, Malaysia, Mexico, Pakistan, Peru, Philippines, Poland, Romania, Russia, South Africa, Thailand, Turkey, Ukraine, and Venezuela.

[3]Australia, Canada, Czech Republic, Denmark, euro area, Hong Kong SAR, Israel, Japan, Korea, New Zealand, Norway, Singapore, Sweden, Switzerland, Taiwan Province of China, United Kingdom, and United States.

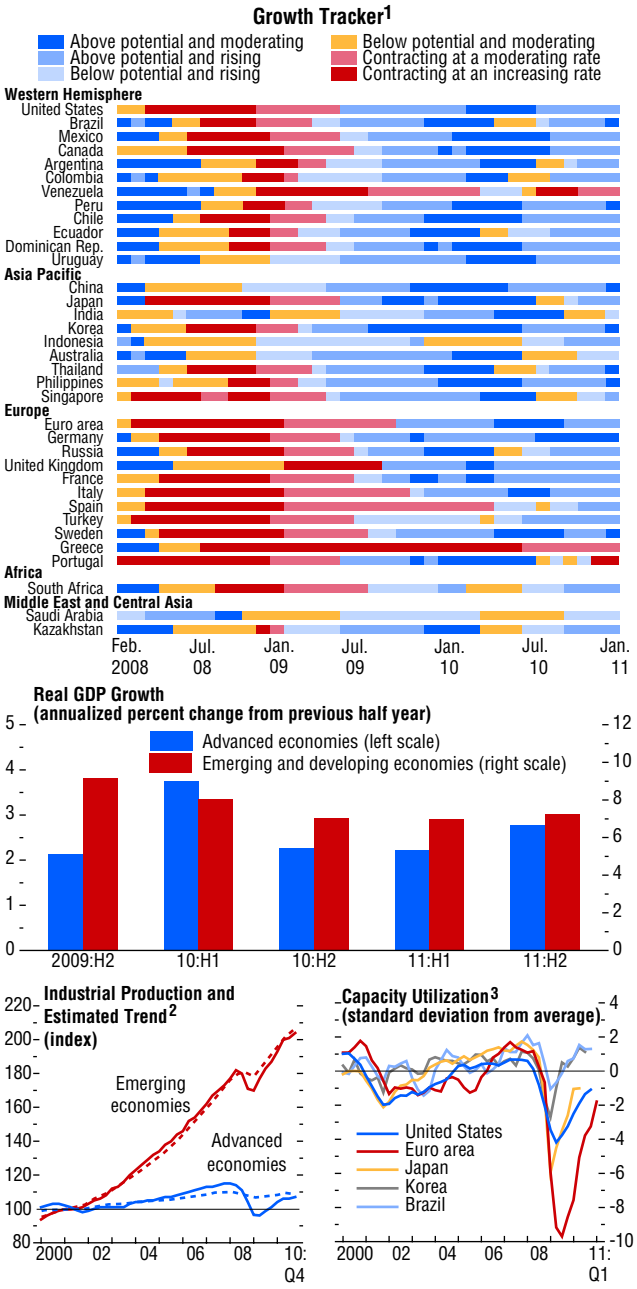
[4]NE: new orders; PI: purchased inventory; Emp.: employment.

[5]China, India, Indonesia, Malaysia, Philippines, and Thailand.

[6]Purchasing-power-parity weighted averages of metal products and machinery for the euro area, plants and equipment for Japan, plants and machinery for the United Kingdom, and equipment and software for the United States.

Figure 1.8. Prospects for Near-Term Activity

A reading of a large number of indicators for many countries—summarized in this Growth Tracker—suggests that activity is reaccelerating in many countries. In advanced economies, industrial production remains fairly low, considering the state of demand as captured by GDP. This is because consumption of durables has been postponed, as has investment. Some further catch-up is likely over the coming year.



Sources: Haver Analytics; and IMF staff estimates.

[1]The Growth Tracker is described in Matheson (2011). Within regions, countries are listed by economic size.

[2]Trend (dashed lines) is estimated using a cointegrating relationship of industrial production with advanced or emerging economy GDP, respectively.

[3]Data are standardized using averages and standard deviations taken from the 10 years before the crisis.

Risks Are Smaller but Remain to the Downside

The degree of uncertainty about the outlook for 2011 has declined since the October 2010 *World Economic Outlook*. However, downside risks have increased relative to the January 2011 *WEO Update,* mainly because of geopolitical uncertainty.

The fall in uncertainty relative to 2010 is confirmed by the distribution of analysts' forecasts for the yield curve and inflation as well as data on options prices for the Standard & Poor's (S&P) 500 index and oil, which are summarized in the IMF's fan chart (Figure 1.13, top panel). In particular, the dispersion of analysts' forecasts for real GDP growth is substantially smaller than it was in 2010 and is now close to the historical baseline (Figure 1.13, bottom panel). The fan chart suggests that markets continue to see a greater potential for upside rather than downside surprises for growth from equity prices (Figure 1.13, middle panel).[4] Interestingly, although forecasters generally see appreciably higher inflation, they now see more scope for inflation surprises on the downside rather than the upside, which has opposite implications for surprises with respect to real GDP growth. However, this result is essentially driven by forecasts for the United States, Japan, and China.

The key downside risk to growth relates to the potential for oil prices to surprise further on the upside because of supply disruptions. To explore these risks in more detail, the IMF staff developed a downside scenario under which greater-than-expected temporary supply disruptions push oil prices up to an average of $150 per barrel for 2011, after which they recede to the average levels currently expected for 2012. In advanced economies, the level of real GDP in 2012 would then be ¾ percent lower than in current WEO projections; in emerging and developing economies, the effects would vary widely, from an output loss of close to ¾ percent in Asia and sub-Saharan Africa, to ½ percent in Latin America, to output gains in the Middle East and North Africa as well as the Commonwealth of Independent States. Global output losses would

[4]For details on the construction of the fan chart, see Elekdag and Kannan (2009).

be much larger in the event of a permanent shock to oil supply.

According to the April 2011 *Global Financial Stability Report*, financial risks have declined since October 2010. Improvements in macroeconomic performance and strong prospects for emerging market assets are supporting overall financial stability. Accommodative macroeconomic conditions are helping to ease balance sheet risks and are spurring an increase in risk appetite. However, significant fiscal and financial vulnerabilities still lurk behind recent benign market developments, especially in the euro area. More generally, downside risks stem from high leverage and limited improvements in credit quality in advanced economies and gradually building credit risks in some major emerging market economies. These are the key downside risks for global economic and financial stability:

- *Weak sovereign balance sheets in advanced economies:* Risks relate to the major funding requirements of sovereigns and the potential for high volatility in interest rates and risk premiums. Currently, these are focused on vulnerable euro area economies (see below). However, risks also flow from fiscal policy in the United States, given large funding requirements and heavy reliance on external sources.[5] As discussed in previous issues of the *World Economic Outlook*, there is little risk of a large, broad-based increase in government bond rates in the short term, but there is a chance of sudden changes, especially in risk premiums, that could threaten global financial stability.[6]

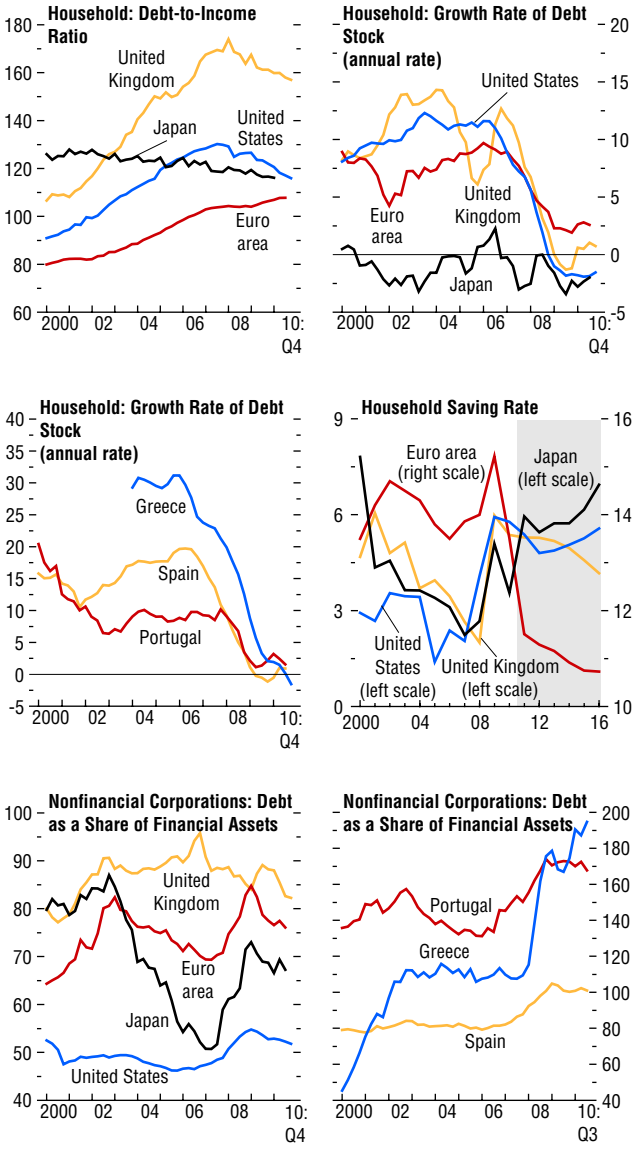
[5]See Box 1.4 in the October 2010 *World Economic Outlook*.

[6]This is because the recovery in advanced economies is forecast to be subdued; savings in surplus emerging market economies are projected to rise relative to investments; and there are few plausible alternative outlets in emerging market economies to the large volume of debt instruments issued by advanced economies (see Chapter 1 of the October 2010 *World Economic Outlook*). Looking further ahead, Dobbs and Spence (2011) argue that the global economy will soon have to cope with too little capital, not too much, as rapid urbanization in emerging and developing economies boosts demand for infrastructure, while demand rebalancing in China and demographic change in advanced economies lower the supply of savings. However, whether or not real interest rates rise depends on many factors that are very hard to predict, such as prospects for investment in aging societies, retirement ages, the relationship between aging and health, financial developments in emerging and developing economies, international migration, technological change, and policy responses, to mention just a few.

Figure 1.9. Balance Sheets and Saving Rates

(Percent)

Deleveraging is ongoing in many advanced economies, mainly in the household sector. However, saving rates are not expected to rise much over the coming two years, suggesting a gradual rise in consumption as employment picks up. Conditions remain vulnerable in peripheral countries of the euro area.

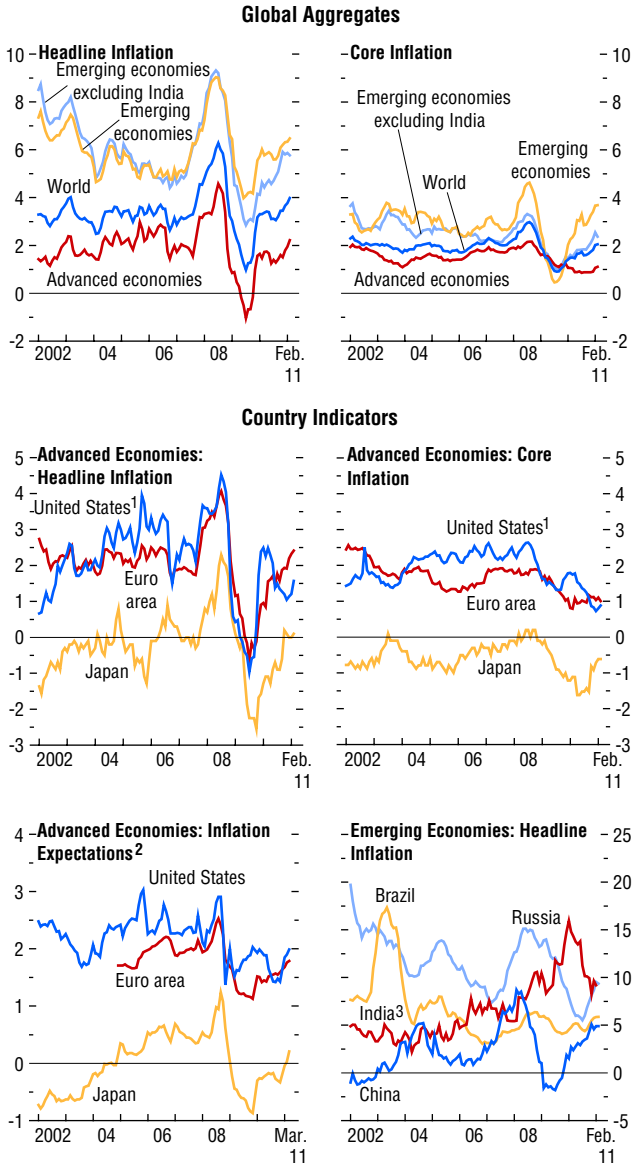


Sources: Haver Analytics; and IMF staff estimates.

Figure 1.10. Global Inflation

(Twelve-month change in the consumer price index unless noted otherwise)

Inflation is rising everywhere. However, core inflation and wages remain subdued in advanced economies, held back by high unemployment. In many emerging and developing economies, inflation pressures are broadening amid accommodative macroeconomic policies and increasingly binding capacity constraints.



Sources: Consensus Economics; Haver Analytics; and IMF staff calculations.
[1]Personal consumption expenditure deflator.
[2]One-year-ahead *Consensus Forecasts*. The December values are the average of the surrounding November and January values.
[3]Consumer price index for industrial workers.

- *Imbalances in real estate markets:* Real estate markets are moribund in a number of advanced economies. Downside risk from a shadow inventory of homes at risk of foreclosure in the United States is still significant—this is discussed in more depth in the April 2011 *Global Financial Stability Report*. In the meantime, new risks are building because of booming real estate markets in emerging market economies.
- *Overheating in emerging market economies:* Growth in these economies could surprise on the upside in the short term because of relatively loose macroeconomic policies (see below), but medium-term risks are to the downside. These risks are explored in Box 1.2, which presents an alternative scenario to the WEO projections that is based on tighter cyclical conditions in emerging market economies than assumed in the WEO projections. Under this scenario, higher interest rates, weaker future income growth, and the impact of fiscal adjustment correct excesses that have built up during the boom phase but at the price of a global economic bust, including a large drop in commodity prices. Global imbalances between advanced economies and emerging Asia would widen again under such a scenario, while imbalances involving commodity exporters would diminish.

The most tangible downside risk still arises from tension in the euro area periphery, which may spread to the core European economies. Despite increasing clarity, markets remain apprehensive about the sufficiency of funding available under the European Financial Stability Facility and European Financial Stability Mechanism and the functioning of the permanent European Stability Mechanism. The hollowing out of the traditional investor base for government bonds in the most vulnerable euro area sovereigns continued as new rules for bondholder bail-ins were announced at the same time that markets question the sustainability of public debt levels in some economies. Risks are exacerbated by continuing weakness among financial institutions in much of Europe, a lack of transparency about their exposures, and weak sovereign balance sheets. Although the periphery accounts for only a small portion of the euro area's overall output and trade, substantial financial linkages with core countries,

as well as financial spillovers through higher risk aversion and lower equity prices, could generate a significant slowdown in demand. A pessimistic scenario created for the January 2011 *WEO Update* suggests that if these risks materialize, they could lower euro area output by 3 percentage points and global output by 1 percentage point relative to the baseline forecast.

At the same time, there are some upside risks:

- *Consumption in advanced economies:* Demand for consumer durables may continue to recover faster than expected in advanced economies, as household saving rates stabilize and fears of job losses recede. This would be both good and bad news: activity would be stronger, but where household balance sheets are still weak, vulnerabilities would persist and global imbalances would widen again—that is, the sustainability of the recovery would not improve.
- *Recovering investment:* Investment in machinery and equipment may rebound more vigorously, owing to strong corporate profits and balance sheets. This has already taken place to some extent in the United States, although the investment-to-GDP ratio remains well below precrisis readings.
- *Short-term demand buoyancy in emerging and developing economies:* Upside surprises in advanced economies would add to demand pressures in emerging and developing economies while boosting energy prices. In the short term, growth in emerging market economies could also surprise on the upside for domestic reasons. However, over the medium term, the aforementioned downside risk of overheating predominates.

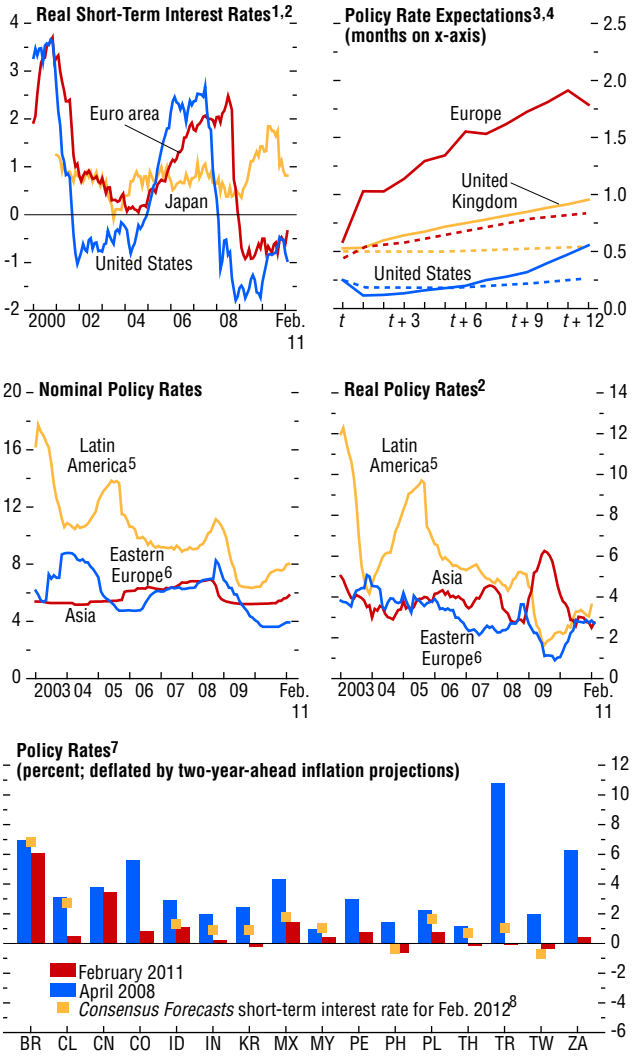
Differences in the Pace of Activity Present Short-Term Policy Challenges

The conjunctural setting—sobering for advanced economies and positive for emerging and developing economies—is creating new tensions, especially in key emerging and developing economies. Rising commodity prices and diminishing excess capacity are pushing up inflation in these economies. Key emerging market economies are also experiencing a credit boom. At the same time, authorities are often reluctant to tighten macroeconomic policies because

Figure 1.11. Measures of Monetary Policy and Liquidity in Selected Advanced and Emerging Economies

(Percent, unless noted otherwise)

Short-term real interest rates are appropriately low in many advanced economies and not expected to rise much over the coming year. However, interest rates appear low in many emerging market economies as well. Significant policy rate hikes are generally not expected over the coming year.

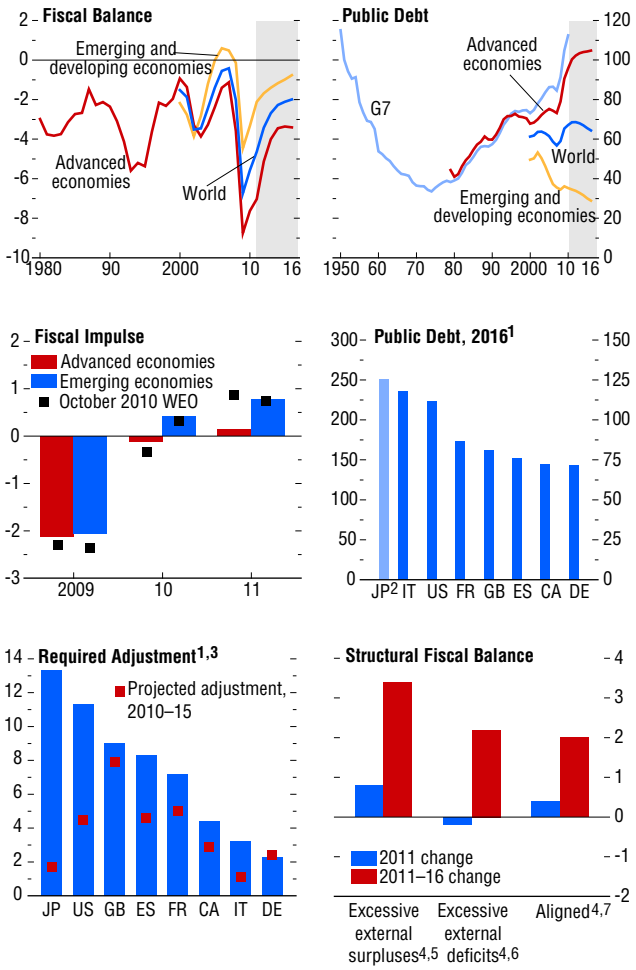


Sources: Bloomberg Financial Markets; Consensus Economics; Eurostat; Haver Analytics; and IMF staff calculations.
[1]Three-month treasury bill.
[2]Relative to core inflation.
[3]Expectations are based on the federal funds rate for the United States, the sterling overnight interbank average rate for the United Kingdom, and the euro interbank offered forward rates for Europe; updated April 4, 2011.
[4]Dashed lines are from the October 2010 WEO.
[5]Argentina, Brazil, Chile, Colombia, Mexico, and Peru.
[6]Bulgaria, Hungary, Latvia, Lithuania, and Poland.
[7]BR: Brazil; CL: Chile; CN: China; CO: Colombia; ID: Indonesia; IN: India; KR: Korea; MX: Mexico; MY: Malaysia; PE: Peru; PH: Philippines; PL: Poland; TH: Thailand; TR: Turkey; TW: Taiwan Province of China; ZA: South Africa.
[8]As of February 2011; overnight interbank rate for Turkey.

Figure 1.12. General Government Fiscal Balances and Public Debt

(Percent of GDP unless noted otherwise)

Fiscal deficits and public debt are very high in many advanced economies. Although policy became much less stimulatory in 2010, real GDP growth picked up, suggesting a handoff from public to private demand. For 2011, fiscal consolidation is expected to be modest in advanced economies. As a result, the adjustment required to achieve prudent debt levels by 2030 remains very large. Fiscal adjustment will be larger in economies with high external surpluses than in economies with high deficits, which is consistent with widening global imbalances.



Sources: IMF, *Fiscal Monitor;* and IMF staff calculations.

[1]CA: Canada, DE: Germany, ES: Spain, FR: France, GB: United Kingdom, IT: Italy, JP: Japan, US: United States.

[2]Left scale for Japan.

[3]Cyclically adjusted primary balance adjustment needed to bring the debt ratio to 60 percent by 2030. For Japan, the scenario assumes a reduction in net debt to 80 percent of GDP; this corresponds to a gross debt target of about 200 percent of GDP.

[4]Based on the IMF staff's Consultative Group on Exchange Rate Issues (CGER). CGER economies include Argentina, Australia, Brazil, Canada, Chile, China, Colombia, Czech Republic, euro area, Hungary, India, Indonesia, Israel, Japan, Korea, Malaysia, Mexico, Pakistan, Poland, Russia, South Africa, Sweden, Switzerland, Thailand, Turkey, United Kingdom, and United States. For a detailed discussion of the methodology for the calculation of exchange rates' over- or undervaluation, see Lee and others (2008).

[5]These economies account for 18.5 percent of global GDP.

[6]These economies account for 27.4 percent of global GDP.

[7]These economies account for 39.2 percent of global GDP.

they fear that growth in advanced economies could disappoint, higher domestic interest rates could lead to exchange rate overshooting or unmanageable capital flows, and lower public spending could add to pain inflicted by rising food prices. In response, a number of emerging market economies are resorting to prudential tightening, and some have adopted capital controls to mitigate potential costs related to overheating. However, insufficient macroeconomic policy tightening raises the risk of a hard landing.

The rise in commodity prices is easier to manage for advanced economies. The three main challenges facing many of these economies are to preserve or regain fiscal credibility, repair and reform the financial sector, and reduce high unemployment.

Despite these differences, the policy challenges facing both advanced and emerging and developing economies are tightly linked. Advanced economies' policy responses, such as easy monetary policy, have spillover effects on emerging and developing economies. Conversely, the policies adopted by emerging and developing economies, such as exchange rate policies and capital controls, are affecting not only the advanced economies but also other emerging and developing economies. However, spillovers do not in themselves indicate that there are fundamental macroeconomic policy conflicts of interest between countries. In general, stronger and more far-sighted policies would deliver not only better national outcomes but also better global outcomes than projected here.

Advanced Economies Need to Repair Public and Financial Balance Sheets

In many advanced economies, output gaps are still large and are projected to close only gradually over the medium term, and unemployment rates remain stubbornly high. In the United States and the euro area, respectively, unemployment rates are close to 9 percent and 10 percent, and output gaps for 2010 are estimated at somewhat less than 5 percent and 3 percent of potential GDP. Among major advanced economies, the United States and Spain suffered by far the largest increases in unemployment relative to precrisis levels; others saw increases of about 2½ percentage points or less. Quick reductions in these rates appear unlikely because output gaps are projected to

close only gradually as fiscal policy is tightened and financial sector repair occurs over time. Furthermore, employment-intensive activities take a long time to recover after banking or housing crises.[7]

Monetary Policy Can Remain Accommodative in Most Economies

Many advanced economy central banks can accommodate hikes in food and energy prices mainly because the weight of food and energy in the consumer basket is relatively small, people have learned from experience that such hikes do not set off a cycle of inflation, and excess capacity will exert downward pressure on wages. Moreover, in major economies bank credit is still very sluggish. The Federal Reserve and Bank of Japan are forecast to keep their interest rates very low during 2011, in view of the subdued wage claims and large output gaps (see Figure 1.11, top panel). The European Central Bank (ECB) is expected to raise rates as it sees growing upside risks to price stability, but it has prolonged unconventional support in recognition of still-high financial risks. Economic conditions and underlying price pressures are somewhat stronger in other advanced economies, and these central banks have already raised rates (for example, Australia, Canada, Israel, Korea, Norway, Sweden). Most of their policy rates remain accommodative, in a 1 to 3 percent range, and they will have to do more as unemployment rates fall and food and energy prices put pressure on wages. In this set of economies, markets generally expect hikes on the order of ½ to 1½ percentage points over the coming year.[8]

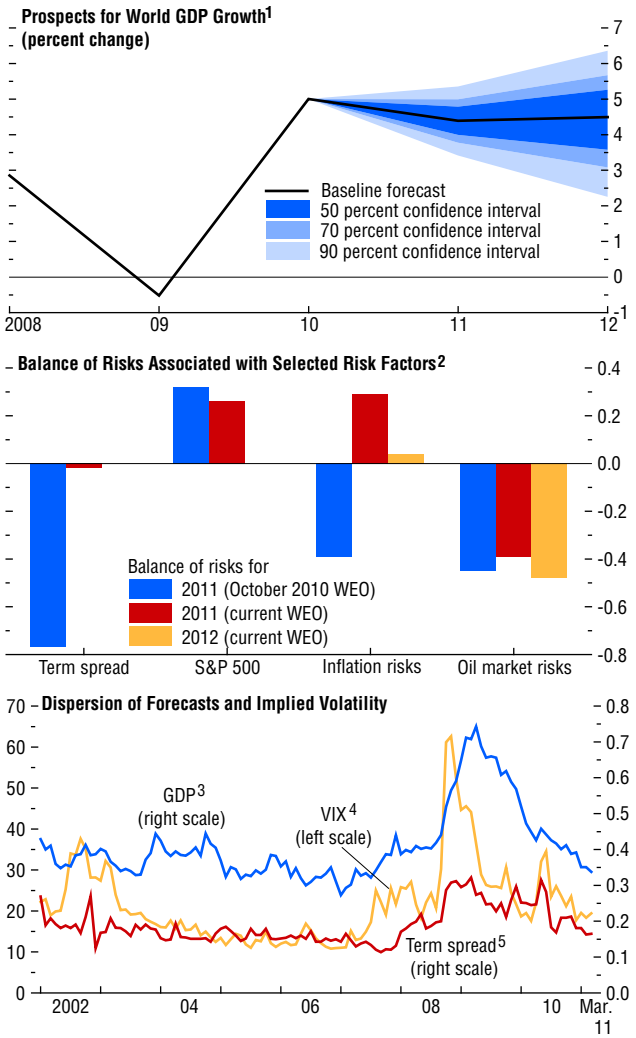
However, even advanced economy central banks with well-established inflation-targeting regimes may struggle to protect their credibility when hit with a succession of one-time price shocks or trend increases in the prices of specific items in consumer baskets. The Bank of England, for example, has seen

[7]See Chapter 3 of the April 2010 *World Economic Outlook* and Dowling, Estevão, and Tsounta (2010).

[8]Another problem faced by some of these economies after the crisis has been accelerating real estate prices in the face of low interest rates—as in a number of emerging market economies the authorities are resorting to macroprudential measures to slow down these price rises (for example, Canada, Hong Kong SAR).

Figure 1.13. Risks to the Global Outlook

Risks to global growth have receded, as evidenced by the falling dispersion of analysts' forecasts. Nonetheless, they remain mainly to the downside. For 2012, this reflects mainly concerns about high oil prices.



Sources: Bloomberg Financial Markets; Chicago Board Options Exchange; Consensus Economics; and IMF staff estimates.

[1]The fan chart shows the uncertainty around the WEO central forecast with 50, 70, and 90 percent probability intervals. As shown, the 70 percent confidence interval includes the 50 percent interval, and the 90 percent confidence interval includes the 50 and 70 percent intervals. See Appendix 1.2 in the April 2009 WEO for details.

[2]Bars depict the coefficient of skewness expressed in units of the underlying variables. The values for inflation risks and oil market risks are entered with the opposite sign, since they represent downside risks to growth. The balance of risk for 2012 is not available for the S&P 500 index and the term spread.

[3]The series measures the dispersion of GDP forecasts for the G7 economies (Canada, France, Germany, Italy, Japan, United Kingdom, United States), Brazil, China, India, and Mexico.

[4]VIX: Chicago Board Options Exchange Market Volatility Index.

[5]The series measures the dispersion of term spreads implicit in interest rate forecasts for Germany, Japan, the United Kingdom, and the United States.

inflation running above its 2 percent midpoint target for much of the period since 2005, reflecting food and energy price increases, value-added tax hikes, and depreciation of the currency. CPI inflation is now about 4½ percent, although wage inflation seems well contained. Households' inflation expectations are creeping up, but other measures of inflation expectations have changed little over the past year. This experience suggests that central bankers will need to communicate very clearly how they intend to respond to one-time or relative price shocks. The objective should be to accommodate foreign price inflation as long as it does not pose significant threats to domestic price inflation.

There is no need to actively unwind unconventional measures, at least not in the near term, as fears that they will stoke inflation pressure are misplaced. As discussed in previous issues of the *World Economic Outlook*, to the extent that these measures inject liquidity, this can be reabsorbed. Unconventional measures fall into two categories:

- Quantitative easing—that is, purchases of government bonds to lower long-term interest rates: In the United States and the United Kingdom, new programs for purchases appear unnecessary, given current prospects for activity and developments in inflation expectations. For Japan, the jury is still out: core inflation is recovering gradually but still running close to zero, and deflation therefore appears far from vanquished.
- Qualitative easing—that is, measures to support the functioning of specific markets or ensure availability of sufficient liquidity: Many of these measures have already unwound naturally. In some economies and some markets, notably the euro area, they need to be maintained until there is a lasting improvement in liquidity. However, the authorities must ensure that these measures do not postpone fundamental bank restructuring.

Available evidence suggests that as long as monetary policy successfully stabilizes output in advanced economies, spillovers to emerging and developing economies will not be detrimental (Box 1.3). By contrast, concerns about detrimental spillovers from insufficiently ambitious fiscal adjustment in advanced economies are quite relevant, given the effects on global interest rates, investment, and potential output. In short, as long as advanced economies implement policies that foster their own sustained recovery, emerging and developing economies will benefit. To the extent that policies in advanced economies disappoint, spillovers from fiscal (and financial) policy shortcomings are likely to be much worse than from monetary shortcomings.

Much Stronger Efforts Are Needed to Maintain or Rebuild Fiscal Credibility

Preserving or regaining fiscal credibility in the face of high public deficits and debt presents a major challenge for many advanced economies. Most of these economies are planning to tighten fiscal policy significantly in 2011, but the pace of fiscal consolidation in 2011 will be far below earlier estimates—the October 2010 *World Economic Outlook* foresaw a reduction in structural deficits of almost 1 percent of GDP, whereas current WEO projections are for a reduction of only ¼ percent of GDP (Figure 1.12, middle panel). This reflects mainly a major change in the policy stance of the United States, where the structural deficit is now projected to widen by 0.6 percent of GDP rather than contract by 0.9 percent of GDP in 2011. Its economy appears sufficiently strong to withstand modest consolidation. Furthermore, the short-term impact of the stimulus deployed in the United States on jobs and growth is likely to be low relative to its cost. Recent measures to trim discretionary spending will reduce the federal deficit for fiscal year 2011 below the projection recently released in the president's draft fiscal year 2012 budget. However, more sizable reductions in medium-term deficits are needed and will require broader reforms, including to Social Security and taxation. In Japan, structural fiscal tightening will also be more gradual than expected in the October 2010 WEO projections, due to a new stimulus program and support for reconstruction after the earthquake. Once reconstruction efforts are under way and the size of the damage is better understood, attention should turn to linking reconstruction spending to a clear fiscal strategy for bringing down the public debt ratio over the medium term.

Elsewhere, fiscal policy is projected to be appropriately contractionary. In the euro area, structural

deficits are projected to fall by about 1 percent of GDP; in the United Kingdom, cutbacks are larger, reaching 1¾ percent of GDP. This is in line with previous budgetary plans.

Some economies under extreme pressure from markets have embarked on ambitious medium-term reforms. Many other advanced economies have defined adjustment strategies in broad terms and have begun to implement them. However, with the exception of those that are front-loading their adjustment and those with strong fiscal frameworks (for example, Canada, Germany, United Kingdom), these economies have generally not explained the measures underlying their adjustment plans in enough detail.[9] In this regard, only limited progress has been made over the past six months, which is not to deny the continuation of discussion and debate. Hence, projections for structural fiscal balances over the medium term are largely unchanged for the major advanced economies relative to those of the October 2010 *World Economic Outlook*. Most advanced G20 economies are still projected to meet their target of halving deficits by 2013 relative to 2010.[10] The United States remains committed to achieving this target. Because of the loosening of fiscal policy for 2011, meeting it now requires about 5 percent of GDP cumulative structural adjustment for the federal government during fiscal years 2012–13, which may be difficult to achieve.[11] Furthermore, under IMF staff estimates, the U.S. gross-debt-to-GDP ratio is not projected to stabilize over the forecast horizon and would exceed 110 percent by 2016, compared with less than 90 percent in the euro area and almost 250 percent in Japan (see Figure 1.12, middle panel).

Among the major euro area countries, all are committed to reducing deficits to below 3 percent of GDP by 2013. However, based on currently announced plans and WEO growth projections, only Germany is forecast to achieve this objective—leaving France, Spain, and—to a much lesser extent—Italy to identify new measures.

Little progress has been made in many economies in specifying measures to redress remaining medium-term imbalances, and so advanced economies will still have to enact very large fiscal adjustments in order to reduce their general government gross-debt-to-GDP ratio to a level of 60 percent by 2030 (Figure 1.12, bottom panel).[12] According to a scenario developed in the IMF's April 2011 *Fiscal Monitor,* the required adjustments amount to more than 10 percent of GDP for Japan and the United States; 5 to 10 percent of GDP for France, Spain, and the United Kingdom; and 3 to 4 percent of GDP for Canada, Germany, and Italy. Among the smaller, vulnerable economies, the required adjustments lie between about 6 percent of GDP for Portugal and more than 10 percent of GDP for Greece and Ireland. These countries have, in fact, recently enacted stringent measures in the face of increased market pressures (see the November 2010 *Fiscal Monitor*).

The absence of well-specified medium-term plans in several economies raises increasingly serious concerns, particularly about the United States. As activity continues to pick up, large sovereign funding requirements will put upward pressure on interest rates, slowing the recovery of the private sector and lowering potential output. This could cause abrupt increases in interest rates in the United States (from especially low levels) that could destabilize global bond markets, with particularly deleterious effects on emerging market economies (Chapter 4). Gradual increases would slow investment and potential growth in advanced as well as emerging and developing economies. While the immediate concern in Japan should be to support reconstruction, measures that support a reduction of its high public debt ratio over the medium term need to be specified to maintain the strong confidence of its investor base.

More generally, as the share of retirees begins to grow more rapidly over the coming decade, fundamental reform of entitlement programs, which is indispensable to attaining sustainable public

[9]For a detailed assessment of medium-term fiscal plans of 25 economies, see Bornhorst and others (2010).

[10]In its fiscal strategy of June 2010, Japan committed to halving the government primary deficit in percent of GDP by fiscal year 2015 and achieving a primary surplus by fiscal year 2020 at the latest.

[11]For the general government, the reduction in the structural deficit would amount to about 4 percent of GDP in calendar years 2012–13.

[12]Similar results are described in the October 2010 *World Economic Outlook*. For Japan, the scenario assumes a reduction in net debt to 80 percent of GDP; this corresponds to a gross debt target of about 200 percent of GDP.

finances, may become even harder to achieve. An increasingly fractionalized political sphere in a number of advanced economies, including Japan and the United States, poses additional fiscal risks, as is well known from the political economy literature on fiscal policy.[13]

Financial Sector Repair Must Be Accelerated

The main short-term challenges relate to instability within the euro area. Policymakers should take advantage of the moderately improved conditions to make real progress in addressing them. At the euro area level, what is needed is sufficient, low-cost, and flexible funding for countries that are facing market pressures and need external help to support adjustment. In addition, major reforms to euro area economic governance are necessary to help prevent the recurrence of such turmoil in the future. Significant progress was made on both fronts during March 2011 but important issues remain to be addressed. In the meantime, the ECB should continue to ensure orderly conditions in funding markets and help prevent excessive volatility in sovereign debt markets. The priorities for countries under pressure are fiscal adjustment and entitlement and structural reform. Also important is a new round of strong, broad, and transparent stress tests, backed by credible restructuring and recapitalization programs, to strengthen confidence in euro area banking systems. This is essential to break the negative feedback loop between sovereign and banking sector instability and to rebuild competitiveness.

There has been major progress over the past year in addressing euro area challenges (Chapter 2). Notwithstanding improving conditions and confidence, even after all these and further efforts are deployed, there is likely to be continued uncertainty while markets monitor the implementation of the new measures and refine their views on public and external debt sustainability. In short, there are no quick solutions, but strong measures are necessary to nurture adjustment and anchor expectations and thereby lower the probability of panic scenarios.

In the meantime, financial repair and reform need to move forward on a variety of other fronts. The challenges are discussed in depth in the April 2011 *Global Financial Stability Report.* In the United States, programs are needed to facilitate principal write-downs of distressed first mortgages and second liens to clear out a large shadow inventory of nonperforming mortgages, including for households facing negative equity in their homes, and avoid unnecessary foreclosures. This would pave the way for further repair and reform of mortgage credit and securitization markets. More generally, in the United States and elsewhere, the postcrisis supervisory and regulatory architecture is still very much a work in progress. The shadow banking system and institutions that are too large, or too complex, to fail pose problems that have not yet been fully addressed. Furthermore, stronger supervision and resolution frameworks are needed for cross-border financial institutions; this will require significantly enhanced international cooperation, including in day-to-day supervision.

Emerging Market Economies Need to Guard against Overheating and Credit Booms

In many emerging and developing economies, output is already above precrisis trends, suggesting that recovery is complete and expansion under way. Output of all emerging and developing economies stands about 2½ percent above precrisis (1997–2006) trends (Figure 1.14, bottom panel). In many of the major emerging market economies outside central and eastern Europe and the CIS, unemployment rates are below precrisis levels. Headline inflation is now exceeding 6 percent, up from 5¾ percent in January 2010—excluding India, the increase in inflation rate amounts to 1¼ percentage points.[14] Over the same period, core inflation increased from about 2 percent to 3¾ percent,

[13]Roubini and Sachs (1989), Roubini and others (1989), Alesina and Drazen (1991), and Poterba (1994) present empirical evidence suggesting that economic shocks prompt action but that more fragmented governments have typically postponed fiscal adjustments. For a general discussion of the role of political economy in distorting fiscal policy, see Alesina and Perotti (1995).

[14]In India, the CPI for industrial workers suggests that inflation fell from about 16 percent in January 2010 to less than 10 percent in December 2010, helped by less food price inflation on account of postdrought recovery in agricultural output. Nonethe-

suggesting that inflation pressure is broadening. In a number of the larger economies, headline inflation is running close to or above central bank targets (Figure 1.15, left panel). Furthermore, some economies are experiencing a credit boom.

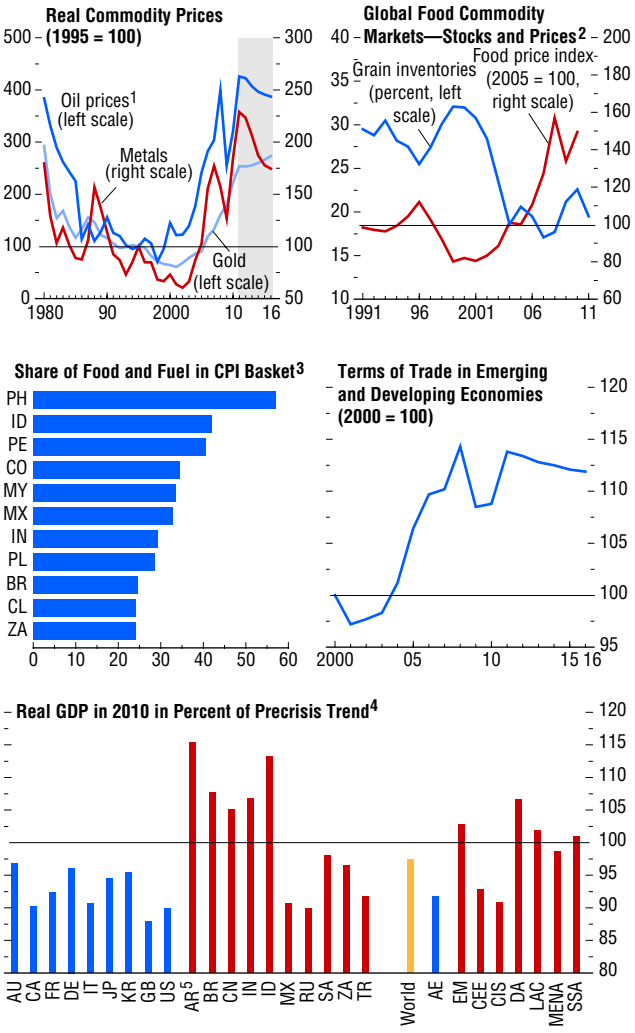
- Output of developing Asia and Latin America stands, respectively, about 7 percent and 2 percent above 1997–2006 trends. Some major economies show clear evidence of appreciable positive gaps. In Argentina and Indonesia, output is about 13 to 15 percent above precrisis trends; in Brazil and India, it is about 7 percent higher. WEO projections assume that potential growth rates in these economies have recently been higher than 1997–2006 averages: accordingly, they place estimates of output gaps for these countries generally in the zero to 1½ percent positive range. In China, output is also appreciably above precrisis trends, although much larger investment in productive capacity than in the other economies has limited constraints on production. In many of these economies, both headline and core inflation either are rising from low levels or are fairly high already.
- Output in sub-Saharan Africa and the Middle East and North Africa has broadly returned to precrisis trends. Some of these economies are already experiencing higher inflation; pressures will build, not least owing to accelerating activity in commodity exporters.
- In Mexico, Russia, and Turkey, output is appreciably below precrisis trends. WEO projections suggest that much of the output lost relative to 1997–2006 trends has been lost permanently and therefore point to much smaller negative or closing output gaps; for Turkey, they even point to a positive output gap.

At the same time, a number of major emerging market economies and a few advanced economies with close links to them feature very buoyant credit and asset price growth (Figure 1.16, top panel). This set of economies accounts for about one-quarter of global GDP in purchasing-power-parity terms or about half of emerging and developing economy output. The issue is whether they are experiencing

less, inflation has remained stubbornly high and well above the central bank's stated objective.

Figure 1.14. Emerging Tensions

Commodity prices have risen fast, and capacity constraints are appearing in a growing number of emerging market economies. Terms of trade of emerging and developing economies have improved again, fueling domestic demand in commodity exporters. The high share of food and fuel in consumer baskets in these countries means their economies are particularly sensitive to food and fuel price shocks.



Sources: U.S. Department of Agriculture (USDA); and IMF staff estimates.

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

[2]Global end-year inventories as a percent of consumption, with USDA projections for 2011.

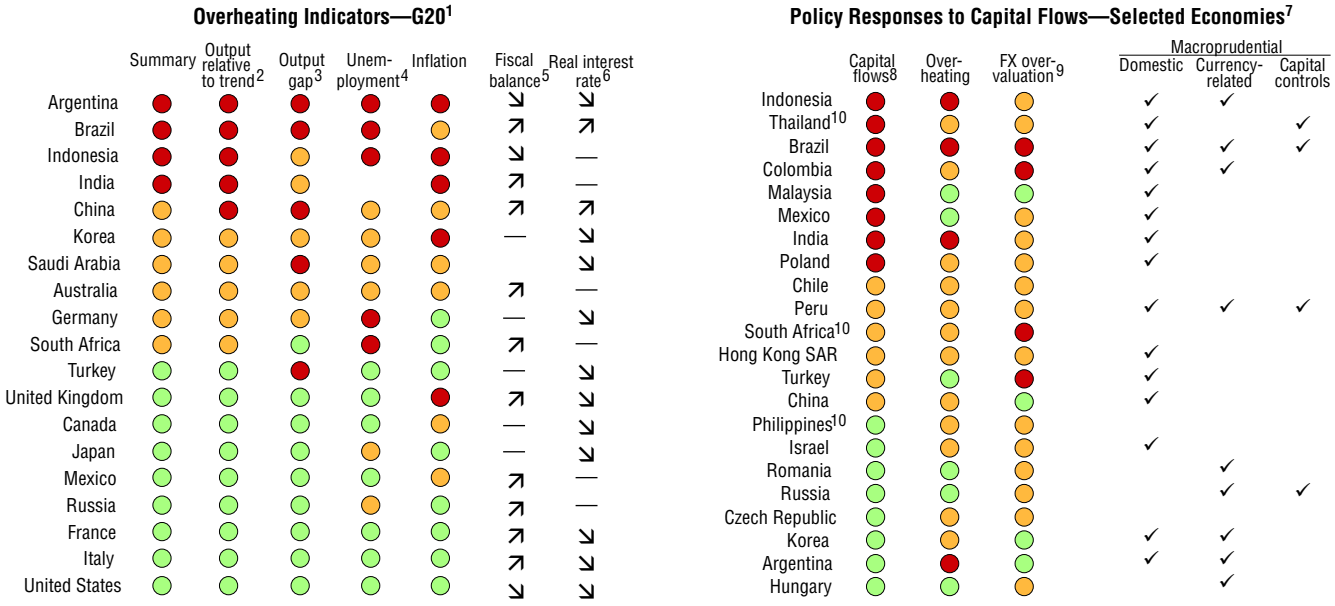
[3]CL: Chile; CO: Colombia; MY: Malaysia; PE: Peru; PH: Philippines; PL: Poland.

[4]Precrisis trend obtained by extrapolating 1996–2006 real GDP growth. AR: Argentina; AE: advanced economies; AU: Australia; BR: Brazil; CA: Canada; CEE: central and eastern Europe; CIS: Commonwealth of Independent States; CN: China; DA: developing Asia; DE: Germany; EM: emerging economies; FR: France; GB: United Kingdom; ID: Indonesia; IN: India; IT: Italy; JP: Japan; KR: Korea; LAC: Latin America and the Caribbean; MENA: Middle East and North Africa; MX: Mexico; RU: Russia; SA: Saudi Arabia; SSA: sub-Saharan Africa; TR: Turkey; US: United States; ZA: South Africa.

[5]Private analysts are of the view that real GDP growth was significantly lower than the official estimates in 2008 and 2009, although the discrepancy between private and official estimates of real GDP growth has narrowed in 2010. This may affect the estimates of output relative to trend.

Figure 1.15. Overheating Indicators and Capital Inflows

Among G20 economies, a growing number of emerging market economies and a few advanced economies either are close to or are already overheating. Macroeconomic policies in these economies are still accommodative. Capital inflows have also rebounded, exceeding precrisis averages in a number of emerging market economies. With limited recourse to capital controls, these economies have relied widely on prudential measures.



Sources: Haver Analytics; and IMF staff calculations.

[1]For each indicator, except inflation, economies are assigned "traffic lights" based on where they stand relative to other G20 economies. For inflation, economies with an inflation-targeting regime are assigned a red light if inflation is above the upper bound of their target and a yellow light if inflation is in the upper half of the target range; for nontargeters, a red light denotes historically high inflation, and a yellow light denotes rising inflation (above historically moderate levels). Individual indicators vary for idiosyncratic reasons (e.g., South Africa has a red light for unemployment because the rate is currently lower than precrisis levels, even though unemployment is still above 20 percent). For this reason, a summary column is included, which shows the average across individual indicators; economies are ranked according to this average.

[2]Output above the precrisis trend is indicated by a red light. Output less than 95 percent of the trend is indicated by a green light.

[3]An output gap above zero is indicated by a red light. A gap below 2 percent is indicated by a green light.

[4]The unemployment indicator is based on a comparison of current unemployment levels to average precrisis levels during 2002–07.

[5]Arrows in the fiscal balance column represent the forecast change in the structural balance as a percent of GDP over the period 2010–11. An increase of more than 0.5 percent of GDP is indicated by an up arrow; a decrease of more than 0.5 percent of GDP is indicated by a down arrow.

[6]Real policy interest rates below zero are identified by a down arrow; real interest rates above 3 percent are identified by an up arrow.

[7]For the purposes of this figure, policy responses are divided into three categories: (1) domestically focused macroprudential measures are those affecting the domestic activities of banks, such as loan-to-valuation ratio limits; (2) currency-related measures aim to limit institutions' and residents' exposure to currency fluctuations; and (3) capital controls are measures that distinguish between residents and nonresidents.

[8]Gross capital flows over the past year compared with the average during 2000–07. Current flows above 150 percent of the average are assigned a red light; a yellow light denotes flows above 100 percent. Economies are ranked based on this ratio.

[9]Economies with exchange rates higher than warranted by medium-term fundamentals are assigned a red light. Economies with lower-than-warranted exchange rates are assigned a green light. FX = foreign exchange.

[10]Has relaxed capital outflow restrictions.

the kind of credit boom that inevitably ends with a bust. Evidence is not reassuring in this regard.

- Credit and asset price behavior is disconcerting in China and Hong Kong SAR, showing boom-like dimensions (Figure 1.16, middle and bottom panels).[15] In both economies, the authorities have adopted various macroprudential measures to rein in excesses and stand ready to do more. In the case of China, the authorities have managed credit, increased reserve requirements, and raised interest rates several times. Nonetheless, in both economies credit growth remains high compared with the run-ups to previous credit booms and busts, and there

[15]To identify a "credit boom," real credit and credit-to-GDP ratios are detrended with the help of a Hodrick-Prescott filter, in line with the methods adopted by Mendoza and Terrones (2008) and Gourinchas, Valdés, and Landerretche (2001). A credit boom exists when the cyclical component of credit exceeds the average historical cyclical component by 1.75 times the standard deviations of the credit variable.

are mounting concerns about the potential for steep corrections in property prices and their implications.

- Brazil, Colombia, India, Indonesia, and Turkey have experienced a noticeable pickup in real credit growth, generally close to or well into a 10 to 20 percent range (more in the case of Turkey). Over the past five years, credit almost doubled in real per capita terms in these economies. Such expansions are close to those experienced before previous credit booms and busts (see Figure 1.16, middle and bottom panels).[16] Other telltale signs of an emerging credit boom include accelerating inflation and rapid increases in the prices of property. In India, credit growth has just begun to increase again, after a boom through much of 2007 was followed by a sharp slowdown during 2008–09. Nonetheless, from a five-year perspective, per capita real credit growth has been very buoyant, with much flowing into real estate and large infrastructure projects. Similar considerations apply to Peru, where credit is also generated outside the banking system.[17]
- Conditions are less buoyant in Malaysia and Singapore. Real credit growth in these economies has exceeded 10 percent on only a few occasions over the past five years. Both raw and cyclically adjusted credit indicators suggest that conditions do not match those seen just ahead of previous busts. However, their real exchange rates have appreciated significantly and asset markets have boomed.

Macroeconomic and Prudential Policies Need to Tighten

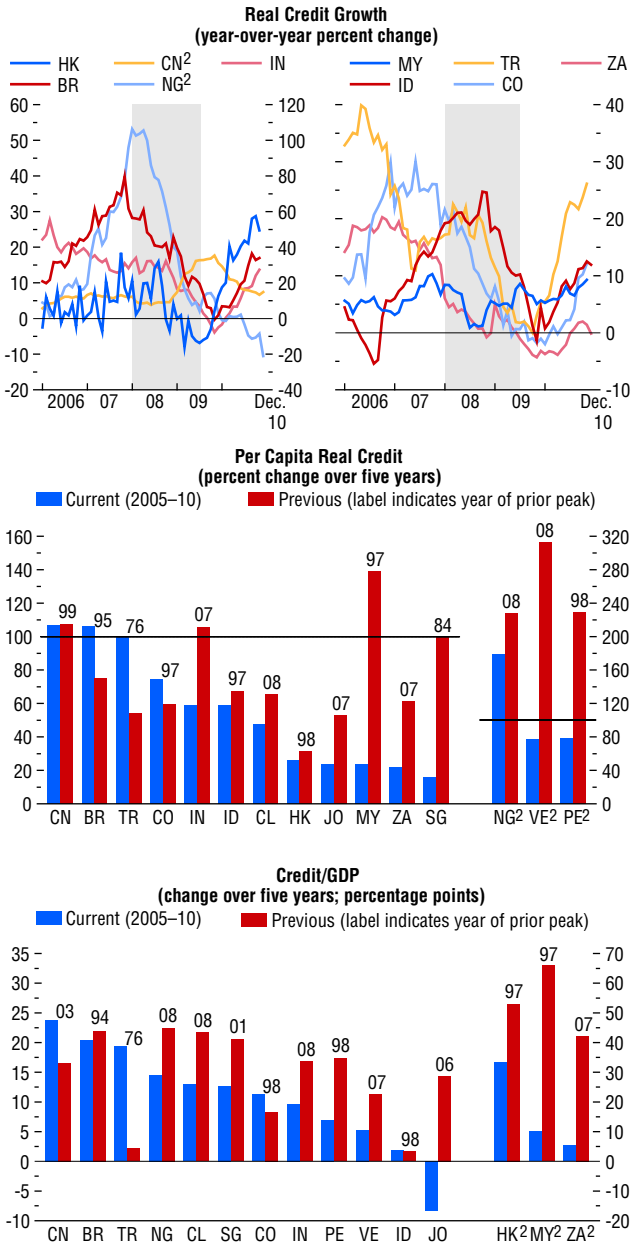
There is a risk that these boom-like conditions may intensify over the coming year. Inflation pressure is likely to build further in response to growing capacity constraints, with large food and energy price increases—which weigh heavily in consumption baskets—motivating demands for higher wages.

[16]The increase in credit has been ongoing for some time. Because the detrending methods cited previously remove much of this increase, these countries do not meet the necessary criteria under a strict definition of a credit boom.

[17]In Nigeria, a number of banks were found to be insolvent or undercapitalized in 2009, following a credit boom in the preceding years.

Figure 1.16. Emerging Market Economies with Strong Credit Expansion[1]

A number of major emerging market economies (EMEs) and a few advanced economies with close links to these economies feature very buoyant credit and asset price growth. The EMEs with such conditions account for about one-quarter of global GDP in purchasing-power-parity terms, or about half of EME output. Furthermore, these economies have been experiencing relatively strong credit growth for a number of years, raising concerns about the quality of this credit.



Sources: IMF, *International Financial Statistics;* and IMF staff calculations.
[1]BR: Brazil; CL: Chile; CN: China; CO: Colombia; HK: Hong Kong SAR; ID: Indonesia; IN: India; JO: Jordan; MY: Malaysia; NG: Nigeria; PE: Peru; SG: Singapore; TR: Turkey; VE: Venezuela; ZA: South Africa.
[2]Right scale.

Real interest rates are still low. Fiscal policies are still much more accommodative than before the crisis, and public expenditures may rise on account of greater outlays for food subsidies. Households are becoming increasingly leveraged, with rapid consumer credit growth adding to rapid mortgage credit growth. And demand for exports is likely to pick up as durables consumption and investment in advanced economies recover further.

Food and energy prices pose significant risks of second-round effects

The risk that food and energy price increases will start an inflationary spiral is much greater in emerging and developing economies than in advanced economies. Households typically spend large shares of their incomes on food and energy (Figure 1.14, middle panel). In addition, excess capacity has generally been eroded or is eroding fast, and monetary authorities are, to varying degrees, still building their credibility. Food price shocks have had an especially severe impact on the poor, exerting political pressure for wage hikes and a more accommodative fiscal policy stance—this should be met with well-targeted social support programs. Furthermore, oil prices may well continue to surprise on the upside.

Policy interest rates appear too low

In many emerging market economies, monetary conditions appear very accommodative (Figure 1.11, middle panel). A number of these economies have already hiked policy rates (for example, Brazil, China, India, Indonesia, Malaysia, Peru, Poland, Russia, Thailand, Uruguay), increased cash reserve requirements (for example, China, India, Indonesia, Russia, Turkey), or restrained credit growth (for example, China). However, real interest rates remain far below precrisis levels in many of these economies, and the extent of expected tightening seems limited relative to what is needed (Figure 1.11, bottom panel).

Fiscal policy seems too accommodative, given the strength of activity

Although rising commodity and asset prices have given government revenues an unexpected boost, current projections are for a limited decline in budget deficits of emerging and developing economies, by about 1½ percentage points of GDP in 2011 (Figure 1.12, top panel) and ½ percentage point in 2012. The deficit would still reach about 1 percent of GDP in 2012, even though output growth is expected to be above precrisis trend. During 2006–08, in contrast, budgets in these economies were in surplus. Although robust output growth is expected to lower the debt-to-GDP ratio, a number of emerging market economies with high public debt should take advantage of strong activity and terms-of-trade-related revenues to rebuild fiscal room for policy maneuvering.

Policies need to tighten to varying degrees

Many emerging market economies will need to tighten policies to lower the risk of a hard landing. Requirements differ according to cyclical and external positions, and Chapter 2 presents more detailed assessments for the various regions. In most economies, further removal of monetary accommodation appears indispensable, as does prudential tightening to rein in rapid growth in real estate and some other sectors. Economies with high public debt should take advantage of strong cyclical conditions to improve their public balance sheets (for example, Brazil, India). Furthermore, in most economies, some appreciation of the exchange rate is called for because of either cyclically large current account surpluses (for example, China), terms-of-trade improvements, or greater resilience to shocks. In short, policies required to achieve internal and external balance go in broadly the same direction.

A number of emerging market economies have seen a historically sharp turnaround in capital flows following the crisis. Once U.S. policy tightening begins, flows could slow abruptly. This is an additional reason for emerging market economies to ensure that their domestic policies are suitably countercyclical and that banking regulation and supervision are well targeted. Provided appropriate macroeconomic and prudential policies are in place, capital controls can be helpful in limiting damage caused by volatile capital flows. In fact, when inflows

bypass regulated financial institutions and lead to vulnerability on nonfinancial entities' balance sheets (for example, in the case of direct borrowing from abroad), capital controls may be the only instrument available to the authorities in the short term. However, the effectiveness of capital controls beyond the short term remains in question, and their benefits should be weighed against likely costs, including multilateral disruptions. As Chapter 4 argues, over the medium term, deeper and better supervised and regulated financial and product markets are critical for containing vulnerabilities related to volatile capital flows.

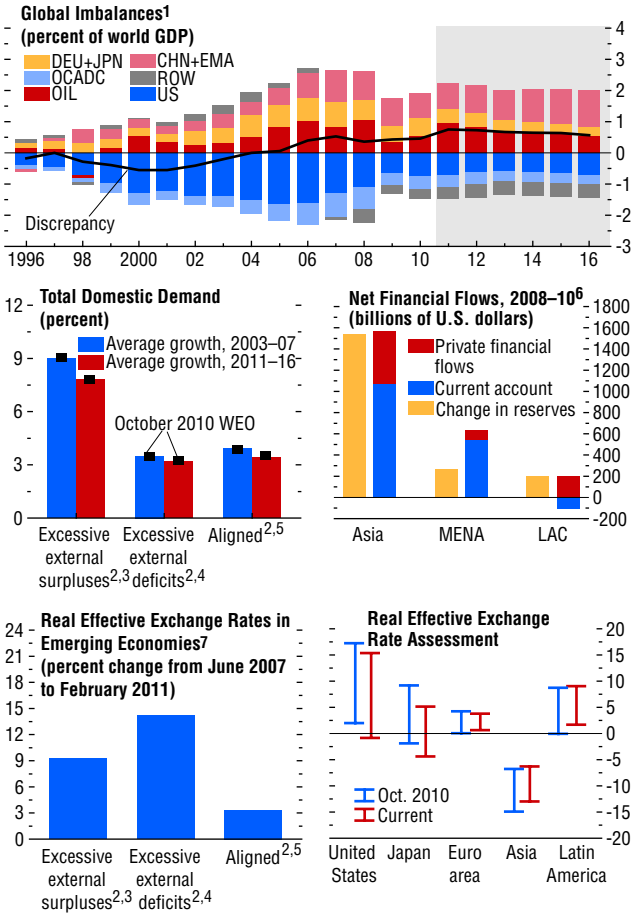
In economies where real exchange rate overshooting relative to medium-term fundamentals exceeds what can be justified by their cyclically more advanced positions posing serious concerns, and where further accumulation of reserves seems undesirable, measures to curb capital inflows can complement macroeconomic and prudential policies. However, policymakers need to bear in mind that such measures are not substitutes for general macroeconomic tightening. A reading of what emerging market economies have done recently suggests that recourse to capital controls has been limited; where they have been adopted, fiscal policy has often been tightened, but sometimes not by enough to control growing pressure on real interest rates and capacity constraints (see Figure 1.15).

Global Demand Rebalancing Is Not Progressing

Previous issues of the *World Economic Outlook* underscored the importance of global demand rebalancing for sustained, healthy recovery, with an increase in net exports in deficit economies and a decrease in net exports in surplus economies, notably in emerging Asia. The two interact in strong ways, as increased net exports in advanced economies offset the loss of demand implied by fiscal consolidation. Capital flows are spurring the reallocation of global demand toward emerging market economies. However, a disproportionate burden of demand rebalancing since the beginning of the crisis has been borne by economies that do not have large current account surpluses but attract flows because of the openness

Figure 1.17. Global Imbalances

Global imbalances are projected to widen again over the medium term because domestic demand growth in economies with large surpluses is not expected to be higher than before the crisis. Demand growth in deficit economies is not expected to be much lower, as significant fiscal adjustment has yet to be specified. Reserve accumulation in economies with excessive current account surpluses has dwarfed private capital inflows, motivated primarily by concerns about competitiveness. Exchange rates of emerging economies with deficits have appreciated disproportionately. The IMF staff's assessment of the valuation of real exchange rates has remained broadly unchanged relative to October 2010, with the U.S. dollar strong and Asian currencies (other than the yen) undervalued relative to medium-term fundamentals.



Sources: Federal Reserve; and IMF staff estimates.

[1]CHN+EMA: China, Hong Kong SAR, Indonesia, Korea, Malaysia, Philippines, Singapore, Taiwan Province of China, and Thailand; DEU+JPN: Germany and Japan; OCADC: Bulgaria, Croatia, Czech Republic, Estonia, Greece, Hungary, Ireland, Latvia, Lithuania, Poland, Portugal, Romania, Slovak Republic, Slovenia, Spain, Turkey, and United Kingdom; OIL: oil exporters; ROW: rest of the world; US: United States.

[2]Based on the IMF staff's Consultative Group on Exchange Rate Issues (CGER). CGER countries include Argentina, Australia, Brazil, Canada, Chile, China, Colombia, Czech Republic, euro area, Hungary, India, Indonesia, Israel, Japan, Korea, Malaysia, Mexico, Pakistan, Poland, Russia, South Africa, Sweden, Switzerland, Thailand, Turkey, United Kingdom, and United States. For a detailed discussion of the methodology for the calculation of exchange rates' over- or undervaluation, see Lee and others (2008).

[3]These economies account for 18.5 percent of global GDP.

[4]These economies account for 27.4 percent of global GDP.

[5]These economies account for 39.2 percent of global GDP.

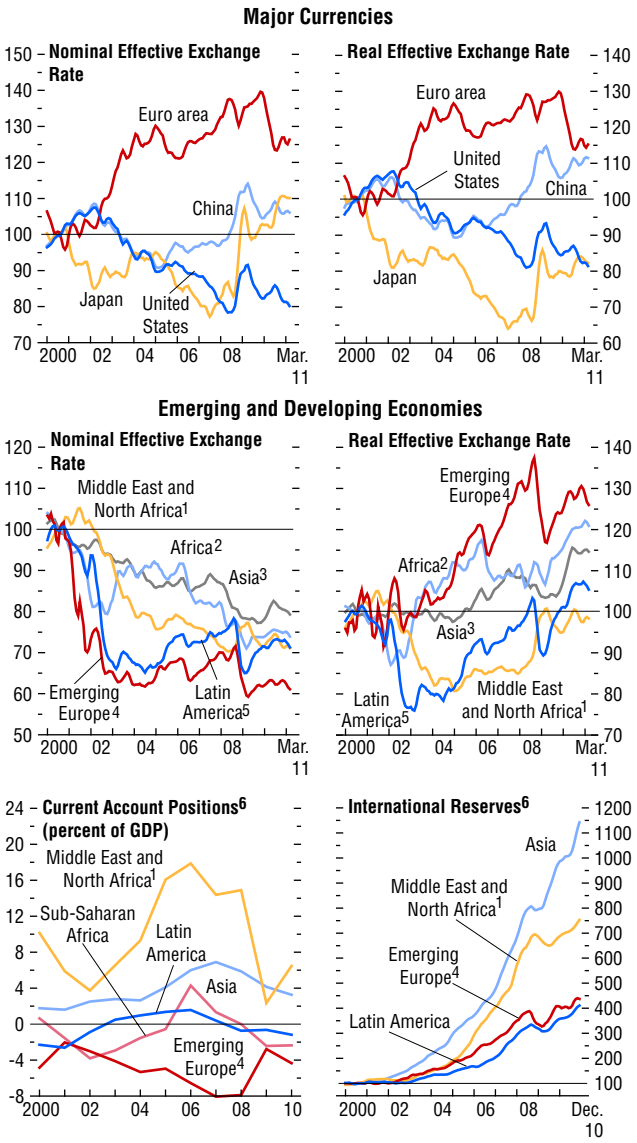
[6]Asia: developing Asia; MENA: Middle East and North Africa; LAC: Latin America and the Caribbean.

[7]Emerging CGER economies only.

Figure 1.18. External Developments

(Index, 2000 = 100; three-month moving average unless noted otherwise)

After depreciating significantly, the euro has regained some strength lately, while the U.S. dollar weakened modestly. The yen has continued to appreciate while the renminbi has moved broadly sideways in real effective terms. Currencies of most other emerging economies have tended to appreciate. International reserves are now higher than before the crisis in all emerging and developing economy regions.



Sources: IMF, *International Financial Statistics;* and IMF staff calculations.
[1]Bahrain, Djibouti, Egypt, Islamic Republic of Iran, Jordan, Kuwait, Lebanon, Libya, Oman, Qatar, Saudi Arabia, Sudan, Syrian Arab Republic, United Arab Emirates, and Republic of Yemen.
[2]Botswana, Burkina Faso, Cameroon, Chad, Republic of Congo, Côte d'Ivoire, Equatorial Guinea, Ethiopia, Gabon, Ghana, Guinea, Kenya, Madagascar, Mali, Mauritius, Mozambique, Namibia, Niger, Nigeria, Rwanda, Senegal, South Africa, Tanzania, Uganda, and Zambia.
[3]Asia excluding China.
[4]Bulgaria, Croatia, Hungary, Latvia, Lithuania, Poland, Romania, and Turkey.
[5]Argentina, Brazil, Chile, Colombia, Mexico, Peru, and Venezuela.
[6]Regional groupings follow WEO classifications.

and depth of their capital markets (Figure 1.17, bottom panel).

Current account balances of key surplus economies—for example, China, Japan, and oil exporters—have receded, as have those of deficit economies—for example, the United States, Spain, and eastern Europe (Figure 1.17, top panel). However, this has taken place mainly via declining demand growth in deficit economies rather than stronger demand growth in surplus economies.[18] It reflects both structural factors (for example, lowered expectations about future incomes in deficit economies; the appreciation of the yen) and cyclical factors (for example, the depressed state of demand for investment goods and consumer durables in deficit economies and lower prices for commodity-exporting surplus economies). Although temporary fiscal stimulus in China and other surplus economies has helped, sustained, positive rebalancing—accelerated domestic demand in surplus economies relative to precrisis trends—has played only a modest role (Figure 1.17, middle panel). Since publication of the October 2010 *World Economic Outlook*, external surplus economies have made little additional progress in rebalancing demand.

There has been significant realignment of real effective exchange rates among advanced economies relative to precrisis levels but only limited realignment in emerging market economies with large surpluses (Figure 1.18). This has created tensions. Emerging market economies with flexible exchange rates, open capital accounts, and relatively deep markets have seen large capital inflows that have pushed up their exchange rates, in some cases into overvaluation territory (for example, Latin America). Others with managed exchange rates (for example, most of emerging Asia) are reluctant to allow revaluation as long as systemic surplus economies are not moving decisively.

- Among advanced economies, the appreciation of the yen and the depreciation of sterling by more than 20 percent in real effective terms are most noteworthy. Official intervention recently helped stabilize the yen at about pre-earthquake levels,

[18]History suggests that levels of imports of countries hit by crises tend to stay below precrisis trends for a long time (see Chapter 4 of the October 2010 *World Economic Outlook*).

following an abrupt and unwarranted appreciation. The euro has depreciated by roughly 10 percent. All three currencies are now broadly in line with medium-term fundamentals. The U.S. dollar is about 5 percent below its 2007 level yet still remains somewhat high relative to its fundamentals (Figure 1.17, bottom panel).

- Among emerging market surplus currencies, the renminbi and the currencies of other Asian surplus economies (for example, Malaysia, Singapore, Thailand) have appreciated by 5 to 10 percent. Nonetheless, Asian currencies are weak relative to medium-term fundamentals (Figure 1.17, bottom panel). The currency of China still appears substantially weaker than warranted by medium-term fundamentals; the Korean won, which depreciated by some 25 percent during the crisis, is also weaker than warranted.
- A few emerging market economies are bearing a disproportionate share of global demand rebalancing. This may reflect their more flexible exchange rates and more open capital accounts than their peers in Asia. Latin American currencies have typically appreciated in real effective terms, as have the currencies of other emerging market economies (see Figure 1.18, middle and bottom panels)—this has raised competitiveness concerns, for example, in Brazil, Colombia, South Africa, and Turkey.

Accumulation of official foreign exchange reserves in the major surplus economies presents an important obstacle to global demand rebalancing. During 2008–10, surplus economies in Asia—mostly China—used inflows on current and private capital accounts to accumulate reserves (see Figure 1.17, middle panel). Although these economies understandably want to have an adequate buffer against the volatility of capital flows, a key motivation for the acquisition of foreign exchange reserves seems to be to prevent nominal exchange rate appreciation and preserve competitiveness. In some economies, this is delaying required internal adjustments, contributing to excessively rapid credit growth and asset price booms; in others, sterilization presents a growing budgetary burden, without having much effect on the fundamental drivers of capital flows.

A pessimistic reading of developments in global imbalances and their role in further recovery is confirmed by the latest developments and WEO projections. Global current account imbalances are projected to remain wide (Figure 1.17, top panel). Specifically, projections foresee no domestic demand acceleration relative to precrisis trends in Asian economies with excessive current account surpluses. Savings-investment projections tell a similar story (Table A16 in the Statistical Appendix). Consistent with a soft landing, saving rates in developing Asia are projected to rise by about 1¼ percentage points of GDP through 2016, while investment rates move broadly sideways—similar to projections in the October 2010 *World Economic Outlook*. As a share of global GDP, savings in developing Asia would rise noticeably, exceeding precrisis levels sometime around 2013. Moreover, as discussed in Box 1.2, if conditions in Asia are already more overheated than is captured in the WEO projections, global imbalances could again widen appreciably unless exchange rates are allowed to appreciate.

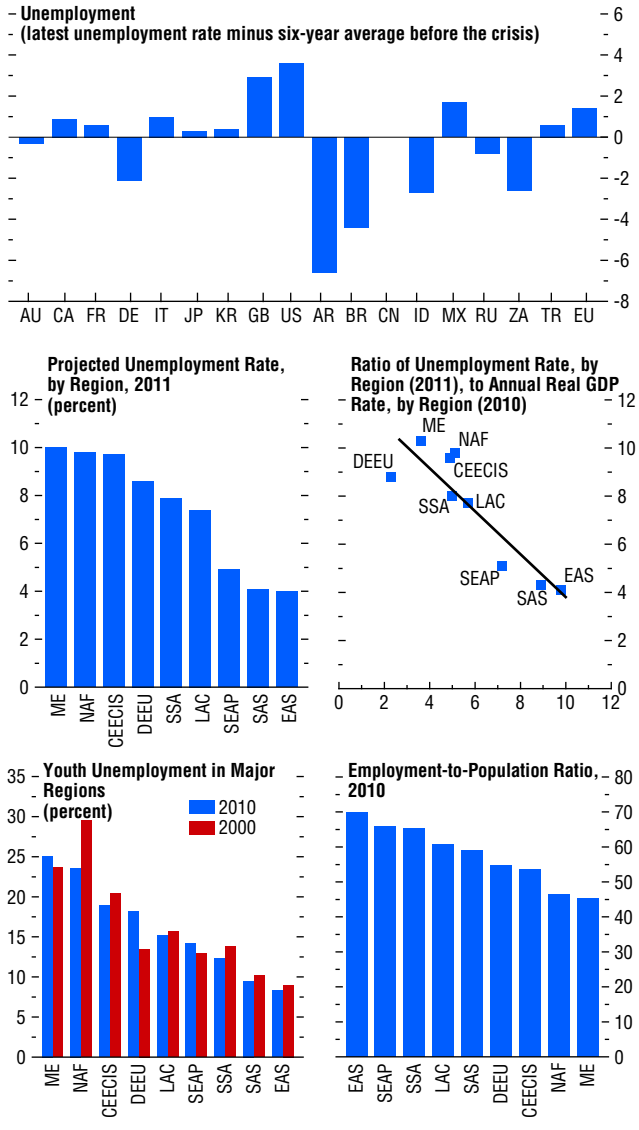
Emerging market surplus economies remain hesitant about allowing their exchange rates to appreciate. Some point to the experience of Japan following the Plaza Agreement as cause for concern about such a strategy. However, a reading of this experience and that of others suggests that rebalancing away from foreign demand need not come at the expense of strong growth.[19] The conditions facing Japan were in many ways unique, and the bad post-Plaza outcome was due largely to a credit bubble that developed after exceptional policy stimulus was combined with financial sector deregulation. When the bubble burst, exposing underlying vulnerabilities, political economy constraints meant that restructuring progressed too slowly (Box 1.4). The Japanese experience thus underlines the importance of prompt corrective policy actions in emerging market as well as advanced economies.

In sum, global demand rebalancing remains a major concern for the sustainability of the recovery over the medium term. Activity in the United States may firm up during 2011. Little real exchange rate appreciation may be boosting activity in China,

[19]See Chapter 4 of the April 2010 *World Economic Outlook*.

Figure 1.19. Unemployment[1]

Unemployment remains above precrisis levels in many economies, including the United States. Globally, unemployment is expected to average about 6 percent this year, with rates ranging from 4 percent in east Asia to 10 percent in the Middle East. Unemployment rates are projected to be lower in regions where growth was higher last year. Youth unemployment remains high, at 25 percent in the Middle East and between 15 and 20 percent elsewhere. Employment-to-population ratios are low in many regions suggesting that many people are being forced into the informal sector.



Sources: Haver Analytics; International Labor Organization; and IMF staff estimates.
[1]AR: Argentina; AU: Australia; BR: Brazil; CA: Canada; CEECIS: central and southeastern Europe (non-EU) and Commonwealth of Independent States; CN: China; DE: Germany; DEEU: developed economies and European Union; EAS: east Asia; EU: euro area; FR: France; GB: United Kingdom; ID: Indonesia; IT: Italy; JP: Japan; KR: Korea; LAC: Latin America and the Caribbean; ME: Middle East; MX: Mexico; NAF: north Africa; RU: Russia; SAS: south Asia; SEAP: southeast Asia and the Pacific; SSA: sub-Saharan Africa; TR: Turkey; US: United States; ZA: South Africa.

while fundamental reforms to boost consumption are being put in place. But unless fiscal adjustment soon starts in earnest in the United States, the exchange rate of the renminbi becomes more market-determined, currencies of other emerging surplus economies appreciate, and various European and emerging economies implement ambitious structural reforms, little progress will be made with respect to global demand rebalancing, and the recovery will stand on increasingly hollow legs over the medium term.[20]

Unemployment Needs to Be Reduced

Unemployment poses grave economic and social challenges, which are being amplified in emerging and developing economies by high food prices (Figure 1.19). The young face particular difficulties. Historically, for Organization for Economic Cooperation and Development countries the unemployment rate for young people ages 15 to 24 has been about two and a half times the rate for other groups. Though youth unemployment typically increases sharply during recessions, the increase this time was greater than in the past: in a set of eight countries for which long time-series of youth unemployment are available, the increase averaged 6½ percentage points during the Great Recession, compared with 4 percentage points in previous recessions.

The three lines of defense against unemployment are supportive macroeconomic policies, financial sector repair, and specific labor market measures. Monetary policy is expected to stay easy in advanced economies. However, there is an urgent need to accelerate bank restructuring and recapitalization to relaunch credit to small and medium-size firms, which account for the bulk of employment. Temporary employment subsidies targeted at these firms could help restart hiring. Such programs may subsidize the hiring of many workers who would have found jobs anyway or cause replacement of those currently employed with the targeted group of unemployed.[21] However, to the extent that subsidies flow to small and medium-size firms, they may at

[20]For a full-fledged scenario to illustrate the benefits of joint policy action along these lines, see Group of Twenty (2010).
[21]See Chapter 3 of the April 2010 *World Economic Outlook*.

least help alleviate the effects of still-tight bank lending conditions. Where unemployment has increased for structural reasons or where it was high even before the crisis, broader labor and product market reforms are essential to create more jobs.

The high and increasing burden of unemployment on young people poses risks to social cohesion.[22] Youth unemployment tends to be high in economies with labor markets that offer strong job protection to experienced workers, feature high minimum wages, and offer insufficient apprenticeship programs and vocational training. In many emerging and developing economies, strong job protection in the formal sector pushes employment, especially of the young, into the informal sector. The right policy response is to find a middle ground—through appropriate product and labor market regulation—between the protected/formal and unprotected/informal segments of the labor market. Spain, for example, has initiated reforms in this direction. Lowering the fixed costs of employment supports hiring in times of high uncertainty. In addition, strong apprenticeship programs are needed for those who cannot attend university.

Policies Are Not Yet Sufficiently Proactive

Many old policy challenges remain unaddressed, while new ones come to the fore. Old challenges that continue to loom large include repairing and reforming financial sectors; specifying medium-term fiscal adjustment plans and entitlement reform in advanced economies; and implementing exchange rate and structural policies that foster global demand rebalancing in emerging market economies with large external surpluses. The main new challenges relate to disruptions to the supply of commodities and growing macroeconomic and financial risks in key emerging market economies. In the meantime, unemployment is very high in many advanced and a number of emerging market economies. Addressing the various macroeconomic and financial policy challenges is essential for stronger output and employment growth.

Advanced economies urgently need to make more progress in addressing medium-term problems. High on the priority list are financial repair and reforms and medium-term fiscal adjustment. Financial sector measures hold the key to more rapid macroeconomic policy normalization, which would help guard against the buildup of new imbalances, including in emerging market economies. In general, more certainty about policy prospects could help support the recovery of investment and employment while anchoring financial markets.

Many emerging and developing economies appear to have enjoyed a large improvement in output-inflation performance over the past decade, akin to what has been termed the "Great Moderation" in advanced economies. The challenge for emerging and some developing economies is to ensure that this "real" moderation is not harmed by rising food and commodity prices and growing financial excesses. With changes in monetary or fiscal stances affecting the economy only with appreciable lags, the time for policymakers to act is now, lest another boom-bust cycle develop. Appropriate action differs across economies, depending on their cyclical and external conditions. However, a tightening of macroeconomic policies is needed in many economies. In emerging economies with large external surpluses, exchange rate appreciation is necessary to maintain internal balance—reining in inflation pressure and excessive credit growth—and assist in global demand rebalancing. Prudential tools and capital controls can play a useful complementary role but should not serve as substitutes for macroeconomic tightening. Social policies need to offer the poor sufficient protection from high food prices.

Greater progress in advancing global demand rebalancing is essential to put the recovery on a stronger footing over the medium term. This will require actions by many, notably fiscal adjustment in key external deficit economies and greater exchange rate flexibility and structural reforms that eliminate distortions that boost saving in key surplus economies.

The broad contours of the macroeconomic policy response sketched here were very well received at the G20 meeting in Seoul in November 2010. However,

[22]Surveys conducted in the United States from 1972 to 2006 found that individuals who have lived through a recession during the formative years between 18 and 25 tend to believe less in personal effort, perceive stronger inequalities, and have less confidence in public institutions (see Giuliano and Spilimbergo, 2009). There is also evidence that the adverse effects on lifetime earnings are most pronounced for those who are unemployed when they are 18 to 25 years old (see Kahn, 2010).

with the peak of the crisis behind policymakers, the imperative for action and willingness to cooperate are diminishing. It would be a mistake for advanced economies to delay fiscal adjustment until emerging market surplus economies remove distortions that are holding back global demand rebalancing. While the removal of distortions that boost saving in key emerging external surplus economies would help support growth and achieve fiscal consolidation in key advanced economies, insufficient progress on this front should not serve as an excuse for fiscal inaction. Furthermore, many emerging market economies cannot afford to wait until advanced economies tighten their policies before proceeding to enact substantial tightening themselves. The task facing policymakers is to convince their national constituencies that these policies are in their best economic interests, regardless of what others are doing.

Policymakers will need to ensure that adjustment and structural reform do not hollow out support for globalization. On the one hand, it is reassuring that economies eschewed protectionism during the Great Recession. On the other hand, it is disconcerting that support for open markets seems to be waning, as evidenced, for example, by disappointing progress in the Doha Round. Open trade has been a strong engine of growth. If the design of expenditure and taxation policies and structural reforms does not foster popular support for globalization, there is a risk that activity in advanced and emerging as well as developing economies will settle on a much lower growth path than during the decade preceding the crisis. Policymakers will thus need to pay greater attention than ever to the impact of adjustment on income distribution.

Appendix 1.1. Financial Conditions Indices

The author of this appendix is Troy Matheson.

Financial Conditions Indices (FCIs) have recently been developed for the United States and the euro area for use in assessing current financial conditions and how they may evolve over the medium term.[23] This appendix discusses the methodology and indicators used to develop the FCIs, provides a brief description of how the FCIs are forecast, and assesses historical FCI-based output gap forecasts.

FCIs can be broadly considered as a weighted average of various indicators of financial conditions. They are standardized to have a zero mean and a standard deviation of 1—positive values represent a tightening of financial conditions and negative values represent an easing. One useful feature of the FCIs is that they can be decomposed into contributions from each of the indicators that went into their construction. Figure 1.20 shows FCIs for the United States and the euro area, along with total contributions from three types of indicators: spreads (interest rates, interest spreads, yield curves), prices (exchange rates, prices), and quantities (money, credit, bank lending surveys).

Estimating FCIs

The FCIs are estimated using a dynamic factor model (DFM).[24] The DFM assumes that each standardized indicator of financial conditions, y_t, can be decomposed into a common component, χ_t, and an idiosyncratic component, ε_t.The common component captures the bulk of the covariation between y_t and the other indicators in the data set, whereas the idiosyncratic component is assumed mainly to affect only y_t:

$$y_t = \chi_t + \varepsilon_t, \text{ where } \varepsilon_t \sim N(0, \psi), \qquad \text{(A.1.1.1)}$$

where $\chi_t = \lambda F_t$. The common component is thus simply a scaled common factor, F_t, which is estimated using the entire set of financial indicators. The FCI is defined to be this common factor.

The dynamics of the FCI are captured by an autoregressive process:

$$F_t = \Sigma_{i=1}^{p} \beta_i F_{t-i} + \nu_t, \text{ where } \nu_t \sim N(0, 1), \qquad \text{(A.1.1.2)}$$

where the β_is are coefficients and p is the lag length of the process. The lag length, p, is selected using the Swartz-Bayesian information criteria (SBIC).

[23]Swiston (2008) developed an FCI for the United States using a different methodology from the one used here.

[24]See Giannone, Reichlin, and Small (2008); Matheson (2010, 2011); and Liu, Romeu, and Matheson (forthcoming). The detailed assumptions underlying the model and its estimation with the Kalman filter can be found in Giannone, Reichlin, and Sala (2005).

A key advantage of this framework is that FCIs can be estimated when values for some indicators are missing due to publication lags, which allows all available information to be used in a timely fashion.

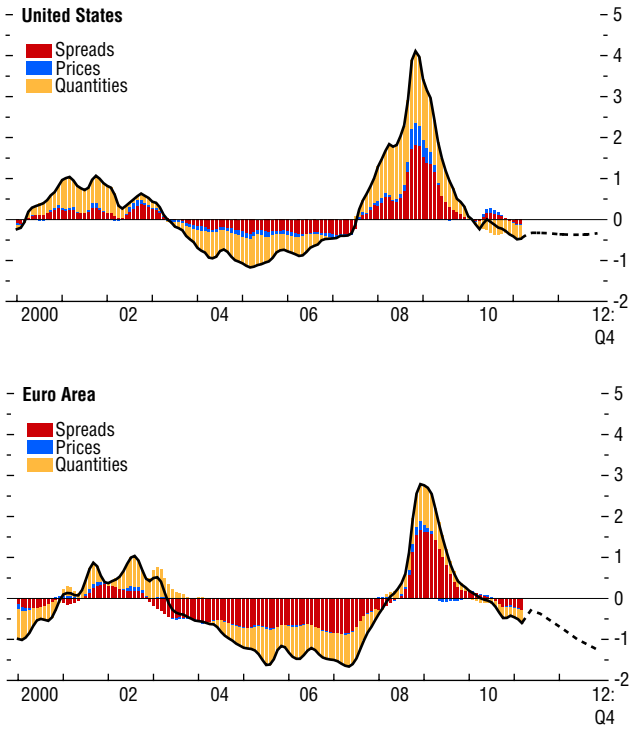
Data Description

For each country, selecting data from a broad set of financial indicators is a crucial step. Most series are measured at a monthly frequency, with the remainder measured at daily or quarterly frequencies. Before estimation, all series are converted to monthly frequency, transformed to be free of long-term trends (nonstationarity), if necessary, and standardized.[25] The sample period for the FCIs used here begins in 1994. Indicators that are not available for the entire period, such as survey data for the euro area, are backdated using the DFM. In practice, the FCIs are forecast to the end of the quarter for which the most recent financial indicators are available.

The indicators used in each country's FCI and information about how the indicators are classified and transformed are available online (www.imf.org/weoforum). The online tables also include estimated factor loadings, χ, which reflect the weight of each indicator. Each loading can take a positive or negative value, depending on whether a high or low value of the indicator in question implies a tightening or an easing in financial conditions. The Senior Loan Officer Survey (SLOS) data (for which a positive number indicates a tightening of financial conditions) generally have high positive factor loadings. Some of the indicators in the "spreads" category also have high factor loadings, such as the BAA/10-year government bond spread in the United States and the high-yield corporate/10-year government bond spread in the euro area. Negative loadings generally predominate in the "prices" categories, reflecting a tendency for prices to rise when financial conditions ease.

Figure 1.20. Financial Conditions Indices[1]

(Positive = tightening; standard deviations from average)



Sources: Haver Analytics; and IMF staff calculations.
[1]Historical data are monthly, and forecasts (dashed lines) are quarterly.

[25]The quarterly series are interpolated, whereas the daily series are converted to monthly averages. Quarterly log differences are taken of the nonstationary indicators. The remaining indicators are not transformed.

Forecasting Financial Conditions

To forecast the FCIs, we adopt the following baseline closed economy quarterly vector-autoregressive model (VAR):

$$\begin{bmatrix} Y_t \\ \pi_t \\ r_t \end{bmatrix} = \Sigma_{i=1}^{k} \begin{bmatrix} A_{Y,Y,i} & A_{Y,\pi,i} & A_{Y,r,i} \\ A_{\pi,Y,i} & A_{\pi,\pi,i} & A_{\pi,r,i} \\ A_{r,Y,i} & A_{r,\pi,i} & A_{r,r,i} \end{bmatrix} \begin{bmatrix} Y_{t-i} \\ \pi_{t-i} \\ r_{t-i} \end{bmatrix} + \begin{bmatrix} \mu_{Y,t} \\ \mu_{\pi,t} \\ \mu_{r,t} \end{bmatrix}, \quad \text{(A.1.1.3)}$$

where Y_t is the output gap, π_t is headline inflation, and r_t is a short-term real interest rate (As are coefficients, μs are residuals, and the lag length of the process is k).[26]

For each country, the FCI is added to this baseline VAR, and FCI forecasts are made conditional on the projected paths for the other variables. Specifically, given forecasts for the output gap, inflation, and real interest rates,[27] the augmented VAR is essentially used to "back out" the implied FCI forecast.

Forecasting Performance

An out-of-sample forecast evaluation exercise is conducted for the period from the first quarter of 2004 to the present to gauge the reliability of the FCI forecasts. The FCI is estimated once every quarter using all data that would have been available at the beginning of the third month of each quarter.[28] All variables are forecast using the VAR (with no conditioning information). Using the latest available estimates of the output gap as the target for the forecasts, root mean squared errors (RMSEs) are computed for forecasts two and four quarters ahead of the real GDP data that would have been available at the time.

For comparison purposes, RMSEs are also computed for a variety of other forecasts: an autoregressive forecast (AR); a forecast from the baseline VAR, without the FCI; and forecasts from the baseline VAR augmented with each of the underlying indicators separately.[29] The RMSEs for each model relative to those of the AR are displayed in the right panels of the tables; a number less than 1 indicates that the forecast is more accurate than the AR forecast.

For both the United States and the euro area, the forecasting performance of the VAR augmented with the FCI is good relative to the other models. The FCI forecast outperforms the AR and all other VAR forecasts for the United States. For the euro area, the FCI forecast is at least as accurate as almost all other models, with the VAR augmented with an indicator from the SLOS the only exception.

Appendix 1.2. Commodity Market Developments and Prospects

The authors of this appendix are Thomas Helbling, Shaun Roache, and Joong Shik Kang. Nese Erbil, Marina Rousset, and David Reichsfeld provided research assistance.

Overview of Recent Developments and Prospects

Prices of all major commodities have risen strongly since mid-2010, rather than broadly stabilizing as expected at the time of the October 2010 *World Economic Outlook*. The overall IMF commodity price index rose by 32 percent between June 2010 and February 2011. The price index has now recovered more than half the decline from the cyclical peak in July 2008 and remains high in real terms. Food price gains were particularly prominent in the second half of 2010, while oil supply risks have taken center stage with the unrest in the Middle East and North Africa (MENA) since late January 2011.

The spread of unrest to oil exporters in the MENA region has raised oil supply risks and led to some small oil supply disruptions, as output losses in Libya have largely been offset by higher production in Saudi Arabia and other producers in the Persian

[26]Inflation and the real interest rate are de-meaned prior to estimation.

[27]These are taken from a much larger, more sophisticated model—the Global Projection Model, GPM (Carabenciov and others, forthcoming).

[28]Due to a lack of available data, the data vintages that would have existed in real time are not used. Instead, the most recent vintage of data is used to simulate the data available each time a forecast is made. Real-time output gaps and short-term real interest rates are simply truncated from the most recent GPM estimates.

[29]In each quarter, all VARs and ARs are reestimated, and all lag lengths are reselected using the SBIC.

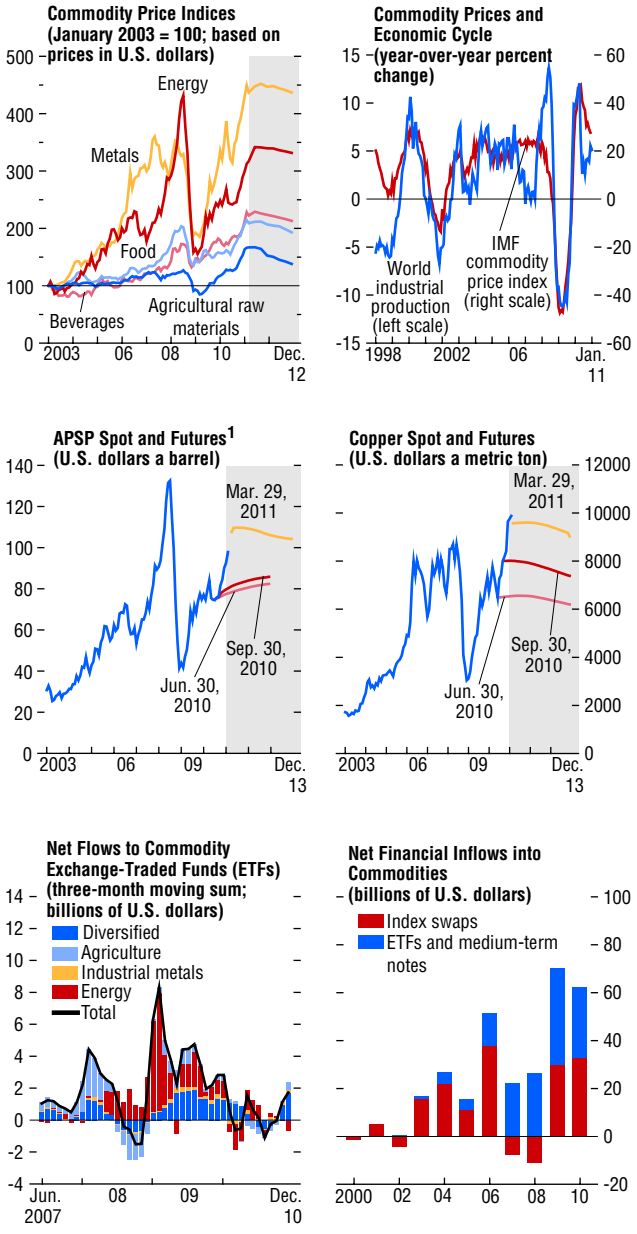
Gulf. In response to this shock, oil prices rose from about $95 a barrel in late January to $110 in early March, partly reflecting increases in desired inventories for precautionary reasons.

Beyond this so far mild oil supply shock, however, much of the unexpected commodity price strength since mid-2010 has reflected easing fears of a double dip due to financial stress in the euro area and cyclical momentum, given steady upward revisions to global economic growth last year (Figure 1.21, top panels). Commodity-intensive emerging economies, including China, remain important contributors to demand growth, but consumption, particularly of energy, has also recovered rapidly in advanced economies. In some cases, demand growth has been stronger than expected, given past relationships between economic growth and commodity consumption, which highlight the uncertainty caused by structural changes in commodity markets due to fast, commodity-intensive growth in emerging market economies. The supply response to stronger-than-anticipated demand has as usual been limited, as reflected in low short-term supply price elasticities. As a result, market equilibrium was achieved with unexpectedly large draws on inventories for many commodities. Tightening in physical commodity markets is evident in the flattening of futures curves and, in some cases including oil and copper, a shift into backwardation (Figure 1.21, middle panels).

Weather-related supply shocks were important in food markets in the second half of 2010. Specifically, adverse weather conditions during 2010 led to harvest shortfalls in wheat (Russia, Ukraine), rice, rubber, cotton, and local vegetables (south and southeast Asia), corn (United States), and sugar (India). One of the strongest La Niña weather events in 50 years contributed to some of these conditions, particularly in Asia. Demand remained robust, partly reflecting a sharp rebound in biofuel production. The price responses to supply setbacks were exacerbated by trade restrictions (for example, grain export bans in Russia and grain export quotas in Ukraine in 2010). All of these developments delayed restocking and kept inventories for some important crops very low.

Monetary policy developments and improving financial conditions also contributed to higher commodity

Figure 1.21. Commodity Prices



Sources: Bloomberg Financial Markets; and IMF staff estimates.
[1]APSP (average petroleum spot price) denotes an equally weighted average of three crude spot prices: West Texas Intermediate, Dated Brent, and Dubai Fateh.

prices, in part by keeping inventory financing costs lower for longer than expected earlier in 2010. In addition, renewed U.S. dollar depreciation has also played a role.

The financialization of commodity markets continued apace, with commodity assets under financial management reaching a new high of about $376 billion at the end of 2010.[30] Net flows into both exchange-traded products and commodity index swaps were substantial and similar to levels seen in 2009, indicating strong interest among both retail and institutional investors (Figure 1.21, bottom panels). The effects of these flows remain the subject of debate but, in theory, the price impact of commodity financial investment is ambiguous. On one hand, well-informed, rational investors should add liquidity to the commodity derivatives markets and thereby lower price volatility. Their presence should also facilitate price discovery and keep prices more closely aligned with underlying demand-supply fundamentals. On the other hand, ill-informed investors could follow their emotions or rigid investment rules rather than fundamentals, which would add to price volatility. Mirroring the ambiguities on the theoretical side, there is no solid empirical evidence to support the claim that commodity financial investment has been a major factor in recent price cycles or in commodity price formation more generally.

Outlook

Macroeconomic prospects remain supportive for commodity prices. WEO growth projections suggest that emerging market economies, including China, will continue leading the expansion. Demand growth is expected to slow somewhat, however, partly because economic growth in some major emerging market economies is projected to moderate. In addition, commodity consumption may realign with activity levels rather than growing faster than activity as in 2010. The supply response to higher demand is widely expected to pick up, and futures prices reflect expectations that spare capacity will be tapped in some sectors at current high prices (oil) and that weather conditions will return to normal (food). Overall, the commodity price projections are thus predicated on some easing in demand-supply balances and for a moderation of upward price pressures.

Commodity price risks remain tilted to the upside, however, with the possibility of supply shortfalls still being the main concern. Oil price risks are a particular concern, given the combination of somewhat weaker but still strong global growth, reduced downside risks to global growth from other sources, and increased geopolitical oil supply hazards. So far, the market response to the supply disruptions in Libya has been modest in historical comparison, given the magnitude of lost supply. Offsetting production increases by other members of Organization of Petroleum Exporting Countries (OPEC) have provided an element of stability, but perceptions of oil supply risks could still become more volatile, especially in an environment of robust growth. Food price risks remain elevated because of low inventory buffers.

Beyond the next 12 months, the capacity for supply to keep pace with the level of demand consistent with WEO growth projections has become more uncertain for a broad range of resources, including crude oil as highlighted in Chapter 3. Over the medium term, real commodity prices will likely need to stay high, or even rise further, to ensure additional supplies of higher-cost resources.

Energy Market Developments and Prospects

Oil prices have surged to about $110 a barrel, as precautionary demand and risk premiums have increased in response to the oil supply shock triggered by events in the MENA region. Before the onset of the unrest in the region, oil prices had already moved decisively above the $70–$80 range that had anchored price fluctuations through much of 2010. Short-term oil price volatility (as measured by implied volatility on three- and six-month oil futures call options) has remained low, notwithstanding increased oil supply risks, close to the average levels registered before the global financial crisis.

The run-up in oil prices preceding the onset of the oil supply shock reflected a number of factors. Annual growth in oil demand in 2010 was 3.4 percent, the highest rate since 2004 and roughly twice the rate expected at the beginning of the year (Table 1.2; Figure 1.22, top-right panel). Part of

[30]According to estimates by Barclays Capital.

Table 1.2. Global Oil Demand and Production by Region

(Millions of barrels a day)

						Year-over-Year Percent Change							
	2009	2010	2011 Proj.	2010 H1	2010 H2	2004–06 Avg.	2007	2008	2009	2010	2011 Proj.	2010 H1	2010 H2
Demand													
Advanced Economies	44.9	45.7	45.6	45.2	46.2	0.5	–0.4	–3.5	–4.0	1.8	–0.2	0.6	2.9
Of Which:													
United States	19.1	19.5	19.6	19.3	19.7	1.1	–0.1	–5.9	–3.7	2.4	0.3	1.6	3.2
Euro Area	10.5	10.5	10.3	10.3	10.6	0.1	–1.5	–0.6	–6.0	–0.3	–1.1	–2.8	2.2
Japan	4.4	4.4	4.3	4.4	4.4	–1.4	–3.1	–4.9	–8.8	1.3	–2.8	0.7	1.9
Newly Industrialized Asian Economies	4.6	4.9	4.9	4.8	4.9	1.5	4.5	–1.5	3.5	5.5	1.4	5.8	5.2
Emerging and Developing Economies	40.1	42.2	43.8	41.6	42.8	4.4	4.3	3.1	1.9	5.2	3.6	5.4	5.0
Of Which:													
Commonwealth of Independent States	4.0	4.3	4.4	4.2	4.4	1.2	2.5	2.7	–5.4	7.1	2.5	6.3	7.8
Developing Asia	23.6	24.9	25.9	24.8	24.9	4.9	5.2	1.7	5.6	5.5	4.2	6.1	4.8
China	8.4	9.4	10.0	9.1	9.6	9.4	4.6	2.3	8.0	12.0	6.5	14.5	9.9
India	3.3	3.3	3.4	3.4	3.3	3.9	6.5	4.0	5.7	2.3	3.2	2.6	2.0
Middle East and North Africa	8.7	9.0	9.3	8.8	9.1	5.3	3.6	5.4	3.2	3.2	3.0	3.7	2.8
Western Hemisphere	5.6	5.9	6.1	5.8	6.0	4.4	5.7	5.4	0.1	5.0	3.3	4.8	5.1
World	85.0	87.9	89.4	86.8	89.0	2.1	1.6	–0.6	–1.3	3.4	3.5	2.9	3.9
Production													
OPEC (current composition)[1,2]	33.5	34.5	35.7	34.2	34.8	4.4	–1.0	2.9	–6.0	4.7	3.5	2.9	3.1
Of Which:													
Saudi Arabia	9.5	9.8	. . .	9.6	9.9	2.4	–4.7	4.2	–9.1	3.1	. . .	1.7	4.6
Nigeria	2.1	2.4	. . .	2.3	2.5	2.3	–4.7	–8.2	–0.4	16.1	. . .	16.3	16.0
Venezuela	2.4	2.4	. . .	2.4	2.4	3.2	–7.8	–2.0	–7.8	3.1	. . .	4.7	1.5
Iraq	2.5	2.4	. . .	2.4	2.4	15.5	9.9	14.3	2.5	–2.2	. . .	–1.1	–3.3
Non-OPEC[2]	51.7	52.8	53.6	52.6	53.1	0.8	0.8	–0.2	1.8	2.2	1.5	2.6	1.8
Of Which:													
North America	13.6	14.1	14.2	14.0	14.3	–1.2	–0.5	–3.8	2.2	3.7	0.3	3.6	3.7
North Sea	4.2	3.8	3.7	4.0	3.6	–6.8	–5.0	–5.0	–4.3	–8.8	–2.0	–7.4	–10.4
Russia	10.2	10.5	10.5	10.4	10.5	4.8	2.4	–0.7	2.0	2.4	0.6	3.0	1.7
Other Former Soviet Union[3]	3.1	3.1	3.2	3.1	3.1	9.0	11.5	3.2	9.2	1.1	2.7	2.2	0.0
Other Non-OPEC	20.6	21.4	22.0	21.1	21.6	1.7	1.1	3.2	1.8	3.6	3.2	4.0	3.2
World	85.2	87.4	89.4	86.8	87.9	2.2	0.1	1.0	–1.4	3.2	1.6	2.7	2.3
Net Demand[4]	**–0.2**	**0.6**	**0.0**	**–0.1**	**1.2**	**–0.4**	**1.3**	**–0.3**	**–0.2**	**0.7**	**. . .**	**–0.1**	**1.3**

Sources: International Energy Agency, Oil Market Report, March 2011; and IMF staff calculations.

[1]OPEC = Organization of Petroleum Exporting Countries. Includes Angola (subject to quotas since January 2007) and Ecuador, which rejoined OPEC in November 2007 after suspending its membership from December 1992 to October 2007.

[2]Totals refer to a total of crude oil, condensates, natural gas liquids, and oil from nonconventional sources.

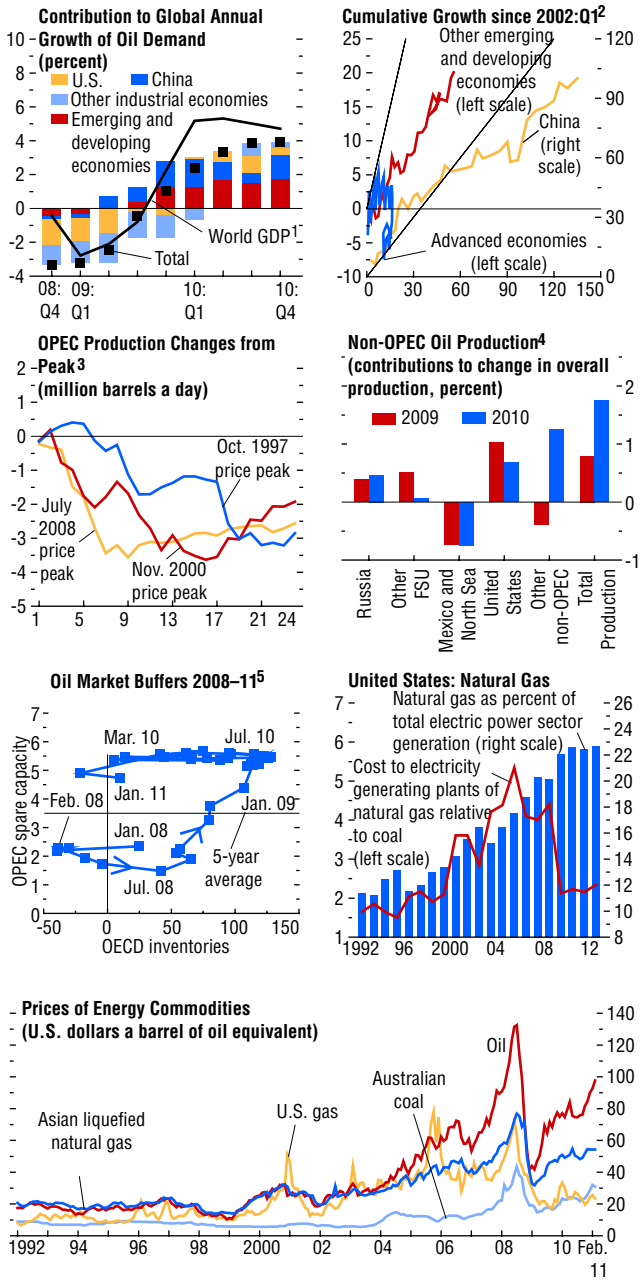
[3]Other Former Soviet Union includes Azerbaijan, Belarus, Georgia, Kazakhstan, Kyrgyz Republic, Tajikistan, Turkmenistan, Ukraine, and Uzbekistan.

[4]Difference between demand and production. In the percent change columns, the figures are percent of world demand.

the stronger-than-expected oil demand growth is explained by faster actual global economic growth in 2010, on the order of 1 to 1½ percent compared with forecasts in late 2009 and early 2010. Another part of the oil demand surprise reflects oil-specific factors, including energy policy shifts in China that reduced the supply of electricity to some sectors and led to increased diesel demand. Upward surprises in oil demand were also recorded in major advanced economies, notably the United States, where fuel demand was stronger than expected, and in Japan, where oil-generated power substituted for maintenance-related losses in nuclear power for part of the year (Figure 1.22, top-left panel).

Oil supply responded to the unexpected increase in oil demand, but not to the full extent possible. Global oil production is estimated to have increased by 3.2 percent in 2010. Higher-than-expected non-OPEC production contributed about half of the surprise increase in supply (Figure 1.22, upper-middle-right

Figure 1.22. World Energy Market Developments



Sources: IMF Primary Commodity Price System; International Energy Agency, *Oil Market Report*, March 2011; and IMF staff calculations.

[1]Annual change, in percent.

[2]Data through 2010:Q4 for advanced economies and China; through 2010:Q3 for emerging economies. GDP growth on x-axis, and oil demand growth on y-axis.

[3]Organization of Petroleum Exporting Countries (OPEC) membership as of the first month of each episode. Months from oil price peak on x-axis.

[4]North Sea: Norway and United Kingdom. Other FSU: other former Soviet Union.

[5]Organization for Economic Cooperation and Development (OECD) stocks, deviations from five-year average (million barrels) on x-axis, OPEC effective spare capacity (million barrels a day) on y-axis.

panel). Declines in the North Sea were more than offset by higher production elsewhere, notably in Brazil, China, Russia, and the United States, reflecting incentives for investment and field decline management embodied in rising oil prices and, in the case of Russia, changes to the tax regime to cover high production and development costs. OPEC crude oil production, which is subject to production quotas, rose by 1.8 percent, contributing one-quarter to the increase in global supply (Figure 1.22, upper-middle-left panel). OPEC production of natural gas liquids (NGLs, including ethane, propane, butane, and natural gasoline) rose by more than 10 percent, contributing another quarter of global supply growth.

With supply growth lagging, market clearing required an unexpectedly strong draw on inventories from the second half of 2010, and inventory-to-use ratios are now approaching average levels over past cycles (Figure 1.22, lower-middle-left panel). Similarly, oil futures curves flattened rather than sloping upward as in the earlier stages of the global recovery, indicating an end to cyclical weakness in oil market conditions. More recently, futures curves have moved into backwardation, indicating a further tightening in physical markets that is anticipated to ease somewhat through 2011.

Near-term oil market prospects depend importantly on prospects for greater stability in some oil exporters in the MENA region and the interaction between the strength of the global expansion, oil demand dynamics, and the supply response. Current WEO projections point to moderating global economic growth over the next 12 months, suggesting a slowing of oil demand growth momentum. This should be reinforced by a partial unwinding of the overshoot in oil demand that typically accompanies the early stages of recovery in global activity (see Chapter 3).

On the supply side, modest capacity growth is expected in non-OPEC countries in 2011, reflecting in part the oil investment bottlenecks of 2006–08. As a result, the call on OPEC will increase markedly in 2011 under the WEO baseline projections.[31]

[31]The "call on OPEC" is the difference between global demand and supply from sources other than OPEC crude oil production, including OPEC NGL production. In Table 1.2, the figure for OPEC production in 2011 reflects the call on OPEC and OPEC NGL production.

OPEC production decisions will thus play a key role in determining oil market outcomes. OPEC members have already begun to tap their spare capacity to offset losses from supply disruptions in other MENA region producers. This commitment has helped keep oil supply risks in check. However, ensuring oil market stability with continued robust global growth will likely require increases in OPEC crude oil production above and beyond those necessitated by supply disruptions in the MENA region. The acceleration in OPEC crude oil production in December 2010 and January 2011—when oil prices were closing in on the $100 a barrel threshold—suggests that OPEC members remain concerned about accelerated price increases. Nevertheless, the absence of an elastic production response when prices moved beyond the $70–$80 range has led to some uncertainty in markets about OPEC producers' implicit price targets.

The magnitude of the actual oil supply shock has, in historical comparison, been moderate to date. However, MENA oil supply risks will probably only gradually unwind through 2011. The oil supply risks and continued robust global activity—notwithstanding some slowing—means that upside risks to oil prices will remain high. Oil derivative markets have indeed started to price in higher risks of price spikes over the next few years. Against this backdrop, oil market risks have become an important concern for global economic stability, as discussed previously in the chapter. In contrast, the oil market risks from the replacement of nuclear by thermal power in Japan because of the damage to nuclear plants after the Tohoku earthquake should be minor. The replacement will eventually lead to higher fossil fuel imports in Japan, but the impact on global oil demand should remain limited, on the order of 0.1 to 0.3 percent. Past experience and incentives from current energy prices suggest that more than half of the increased fossil fuel needs will be met through increased imports of liquefied natural gas and, to a lesser extent, coal.

In the medium term, even assuming that supply disruptions in the MENA region are short-lived, oil prices are expected to remain high, reflecting the tension between continued robust oil demand growth and the downward shift in the trend growth rate of global oil production. The tensions are expected to remain moderate in the WEO baseline. As discussed in greater detail in Chapter 3, they could intensify however, and on balance risks to prices remain on the upside given downside risk to supply, reflecting above- and below-ground constraints on oil investment and, as highlighted by events in the MENA region, geopolitical risks.

Price differences across fossil fuels remain large, and the shift in market share away from crude oil is likely to continue (Figure 1.22, bottom panel). Natural gas prices in the North American market have remained low compared with those of crude oil, reflecting the additional supply from shale gas extraction. The market share for natural gas will thus continue to increase in the United States, as end-user demand responds further to price incentives (Figure 1.22, lower-middle-right panel). Natural gas could also play a more prominent role in the energy mix elsewhere, given that large shale gas deposits have also been identified in other regions.[32] Similarly, coal is relatively cheaper than crude oil, and coal consumption growth has exceeded that of other fossil fuels over the past decade, highlighting the importance of coal in meeting rapidly growing world demand for primary energy.

Metal Market Developments and Prospects

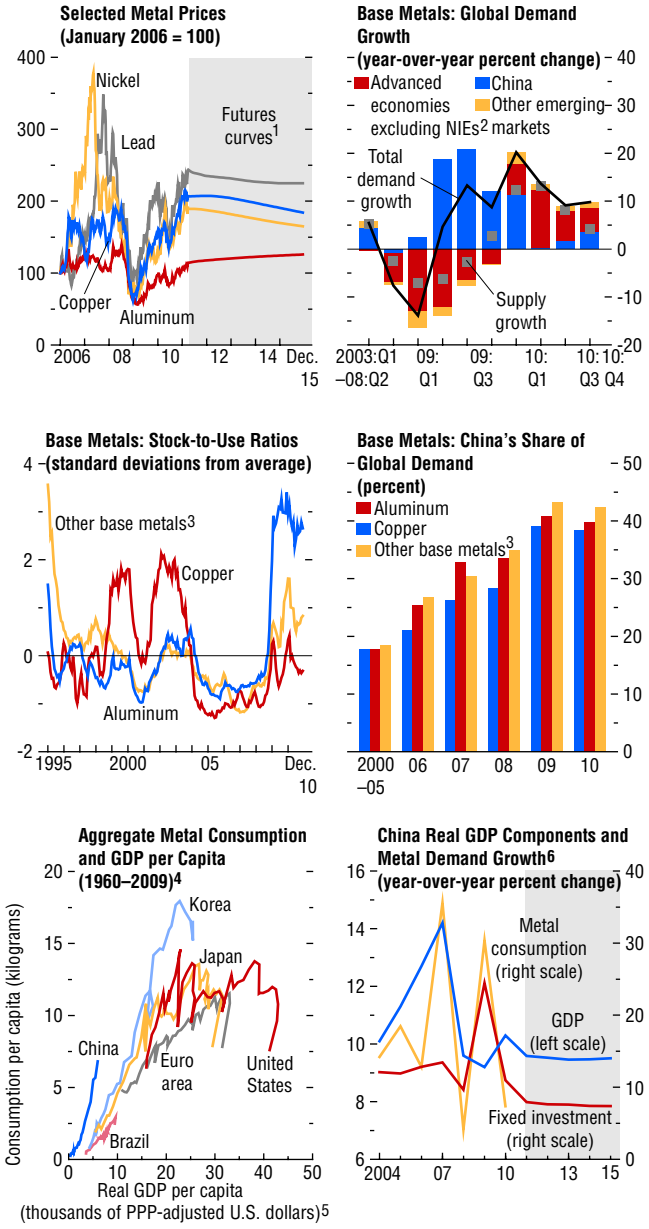
Metal prices rallied strongly in the second half of 2010 and early 2011, with the IMF base metal price index increasing by 40 percent (Figure 1.23, top-left panel).[33] As for commodities more generally, the sharp price increases were driven largely by the stronger-than-expected recovery both in emerging market and in advanced economies, although supply disruptions also played a role. Reflecting the influence of common macroeconomic factors and increases in risk appetite across financial markets, the comovement between metal prices and global equity prices remained strong throughout 2010.

Global consumption of all base metals except tin is estimated to have reached a new high in 2010

[32]Box 3.2 analyzes prospects for moving the U.S. shale gas "revolution" to the global stage.

[33]Copper and tin prices reached record highs.

Figure 1.23. Developments in Base Metal Markets



Sources: Bloomberg Financial Markets; London Metal Exchange; Thomson Datastream; World Bureau of Metal Statistics; and IMF staff estimates.

[1]Prices as of March 30, 2011.

[2]NIEs = newly industrialized Asian economies, which include Hong Kong SAR, Korea, Singapore, and Taiwan Province of China.

[3]Weighted average of lead, nickel, tin, and zinc.

[4]Aggregate of aluminum, copper, lead, nickel, tin, and zinc.

[5]PPP = purchasing power parity.

[6]GDP and components in real terms, metal consumption in volume terms.

(Figure 1.23, top-right panel).[34] Supply responded to rising prices but only sluggishly, reflecting in part the impact of stricter environmental standards (for example, power-related aluminum production cuts in China) and labor disputes (for example, strikes in Chile's copper mines). As a result, inventory buffers have been declining, normalizing to historical averages. The stock-to-use ratio for copper is already below its historical average (Figure 1.23, middle-left panel). The impact on overall inventory movements of newly introduced exchange-traded funds (ETFs) backed by physical holdings of base metals has so far been limited, reflecting features of these investment vehicles that are less attractive than futures-backed alternatives under current market conditions.[35] As of end-February, the share of London metal exchange stocks accounted for by these products varied between 0.1 to 2.3 percent.

Turning to the outlook, the analysis in Box 1.5 of the October 2010 *World Economic Outlook* suggests that base metal markets are in a phase of increased scarcity, as reflected in the rise of the trend component in prices over the past decade or so. Increased scarcity in base metals is due in part to increasing metal demand from emerging market economies, particularly China. During 2003–07, China contributed two-thirds of the increase in world consumption of aluminum and copper and almost all the increase in world consumption of lead, tin, and zinc (Table 1.3). Since 2008, China's contribution has exceeded even net world consumption growth for all metals, with consumption of copper, lead, and nickel increasing by more than 50 percent. Reflecting this strong growth, China's share in global base metal consumption has doubled to about 40 percent during the past 10 years (Figure 1.23, middle-right panel).

[34]Base metal demand grew by more than 8 percent (year over year) during the second half of 2010, whereas global economic growth was less than 5 percent (year over year) during the same period.

[35]Physically backed ETFs for copper, nickel, and tin were introduced in December 2010. Because these metals are trading in backwardation, a capital loss is expected from holding inventories in addition to the high physical carrying costs of inventories. In contrast, the time spread works in favor of futures-backed alternatives, which can benefit from a positive roll yield.

Table 1.3. Consumption of Base Metals
(Annual percent change unless noted otherwise)

	Growth in Consumption of							
	Aluminum	Copper	Lead	Nickel	Tin	Zinc	World GDP	China's Industrial Production
1995–2002 World	**3.2**	**3.4**	**3.1**	**2.2**	**1.5**	**3.7**	**3.4**	**10.9**
Of Which:								
China (percent)	46.1	57.5	54.5	29.4	14.9	39.6	6.8	. . .
Other Emerging Markets[1] (percent)	13.5	19.3	29.2	–8.9	14.5	11.2	. . .	. . .
2003–07 World	**8.0**	**3.8**	**4.7**	**3.0**	**6.0**	**3.8**	**4.7**	**16.6**
Of Which:								
China (percent)	67.6	67.4	94.2	130.3	95.7	99.3	9.4	. . .
Other Emerging Markets[1] (percent)	7.7	19.7	–0.7	–5.6	0.6	11.2	. . .	. . .
2008–10 World	**1.9**	**2.1**	**3.6**	**3.6**	**1.7**	**2.9**	**2.4**	**13.1**
Of Which:								
China (percent)	159.5	226.3	175.5	153.0	104.3	166.7	12.3	. . .
Other Emerging Markets[1] (percent)	5.2	–12.8	–9.3	–7.7	41.0	–0.3	. . .	. . .

Sources: World Bureau of Metal Statistics, *World Metal Statistics Yearbook* (various issues).
[1]Brazil, India, Mexico, and Russia.

China's metal consumption is currently higher than that of other countries at a similar stage of development, likely reflecting the exponential growth in its manufacturing sector over the past two decades (Figure 1.23, bottom-left panel). However, China's metal consumption growth is expected to moderate during 2011 and subsequent years, given recent efforts to restrain bank lending and infrastructure investment and the potential for a gradual rebalancing of the economy away from metal-intensive sources of growth (Figure 1.23, bottom-right panel). The moderation in base metal consumption growth in China is expected to be partly offset by increased demand from advanced economies, where base metal consumption still is some 15 percent below precrisis levels despite ongoing recovery. The global demand impact of temporarily higher metal demand due to the reconstruction in Japan after the Tohoku earthquake, however, is likely to be minor.

Production and capacity growth, though responding to high prices, is not expected to rise in lockstep with demand, especially for copper, due to slow development of mining capacity and rising energy costs. Risks to the price outlook remain to the upside, as inventory buffers for most metals have been declining. Demand growth in China is expected to moderate, but there is potential for upside surprises given continued large-scale infrastructure construction and public housing projects in the pipeline.[36]

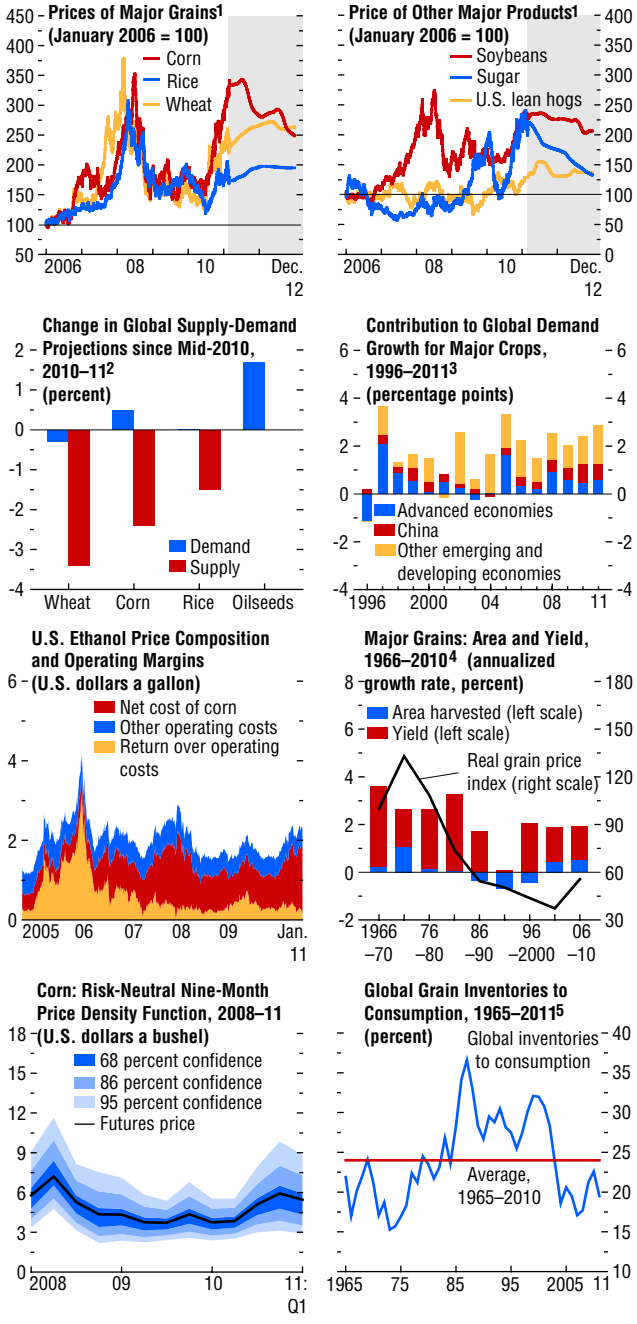
Food Market Developments and Prospects

The IMF Food Price Index reached a new high during early 2011 after rising by about 41 percent since mid-2010. Price increases have been broad-based and led by an 82 percent surge in grain prices, but some major grains, including rice, are still significantly below their 2008 highs (Figure 1.24, top-left panel). Other food groups with higher income elasticity are pushing past previous highs, however, including oilseeds, meat, sugar, and seafood (Figure 1.24, top-right panel). No single factor explains the resurgence in food prices, but the catalyst was a series of weather-related supply shocks, including drought and wildfires in Kazakhstan, Russia, and Ukraine (wheat); a hot and wet summer in the United States (corn); and the more widespread effects of a particularly strong La Niña weather pattern around the Pacific rim (rice, sugar, local vegetables). Together these shocks contributed to a 2.7 percent downward revision to global grain production for 2010–11 (Figure 1.24, upper-middle-left panel).[37]

[36]Described in China's new five-year plan, which went into effect in January 2011.

[37]Refers to the projections by U.S. Department of Agriculture for the international marketing year 2010/11 for corn (maize), rice, and wheat.

Figure 1.24. Developments in Markets for Major Food Crops



Sources: Bloomberg Financial Markets; Chicago Mercantile Exchange; Iowa State University Center for Agriculture and Rural Development; UN Food and Agriculture Organization; U.S. Department of Agriculture (USDA); and IMF staff calculations.

[1]Futures prices for March 2011 through December 2012.

[2]USDA projection for the international year 2010/11.

[3]Includes grains and oilseeds. Demand for 2011 is projected by the USDA.

[4]Area-weighted yield for nine grains and prices.

[5]End-year inventories as a percent of consumption, with USDA projections for 2011.

While supply has disappointed, demand for major food crops has remained robust, largely reflecting growth in emerging market economies. During the most recent global recession, demand growth was unusually strong and has now picked up to about 2.5 percent (Figure 1.24, upper-middle-right panel). Emerging market economies, including China, account for 70 to 80 percent of demand growth during the past three years. One notable recent development has been the increasing presence of China as an importer in global grain markets, especially corn, after many years of self-sufficiency. Consumption of oilseeds, including soybeans, has been particularly strong, reflecting their higher income elasticity, and China remains the world's largest oilseed importer by a large margin.

Demand for biofuel feedstock has also rebounded more rapidly than expected as the U.S. corn ethanol sector recovered from the widespread bankruptcies of 2008–09. Ethanol operating margins remain thin, but the sector has retained considerable policy support, which serves to buttress ethanol prices (Figure 1.24, lower-middle-left panel). Higher prices of alternative feedstock, particularly sugar, have also supported demand for corn-based ethanol. About 40 percent of the U.S. corn harvest—equivalent to 14 percent of total global corn consumption—was used as ethanol feedstock in 2010, a 5 percentage point increase over the previous year.

All these factors contributed to tighter physical markets that delayed the rebuilding of inventories depleted during the nine years preceding the first global food price surge in 2008. For some food crops, especially corn, stocks remain very low, which has exacerbated price volatility.

The outlook for food prices over the near term and beyond will depend largely on supply developments. History suggests that more normal weather conditions over the next 12 months should allow harvests to recover most of the losses incurred during 2010.[38] For example, during years in which global wheat output declined by more than 5 percent, the subsequent year recorded an increase of 7 percent, significantly above trend growth. Over the medium term, supply should continue to rise in response to higher prices. Yield

[38]The best-fitting univariate time-series models of annual global production also indicate that supply shocks are typically reversed quickly.

growth has slowed somewhat in recent years, possibly due to reduced state funding of agricultural research and development in advanced economies.[39] Offsetting slower yield growth, acreage under cultivation has begun to increase, after two decades of stagnation, but the pace of expansion may remain gradual, in part reflecting the relative scarcity of productive well-irrigated land in regions with a well-established distribution infrastructure (Figure 1.24, lower-middle-right panel).

Improving supply should ease tightness somewhat and allow prices to retreat modestly from their recent highs through 2011, but risks to the price outlook remain decisively to the upside. This view is reflected by market pricing, with futures curves relatively flat or backwardated, indicating that tightness should ease, whereas options suggest that risks have become more skewed to the upside (Figure 1.24, bottom-left panel, for corn). The most immediate risk is that the final phases of the current La Niña weather pattern will continue to threaten yields in the Southern Hemisphere. Other risks include persistently higher energy prices or the imposition of international trade restrictions in response to supply shocks. Most important, global food inventories remain low, particularly for grains (Figure 1.24, bottom-right panel). The process of rebuilding stocks will take time, and until these buffers return to more normal levels, food prices will remain highly sensitive to shocks that tighten physical markets.

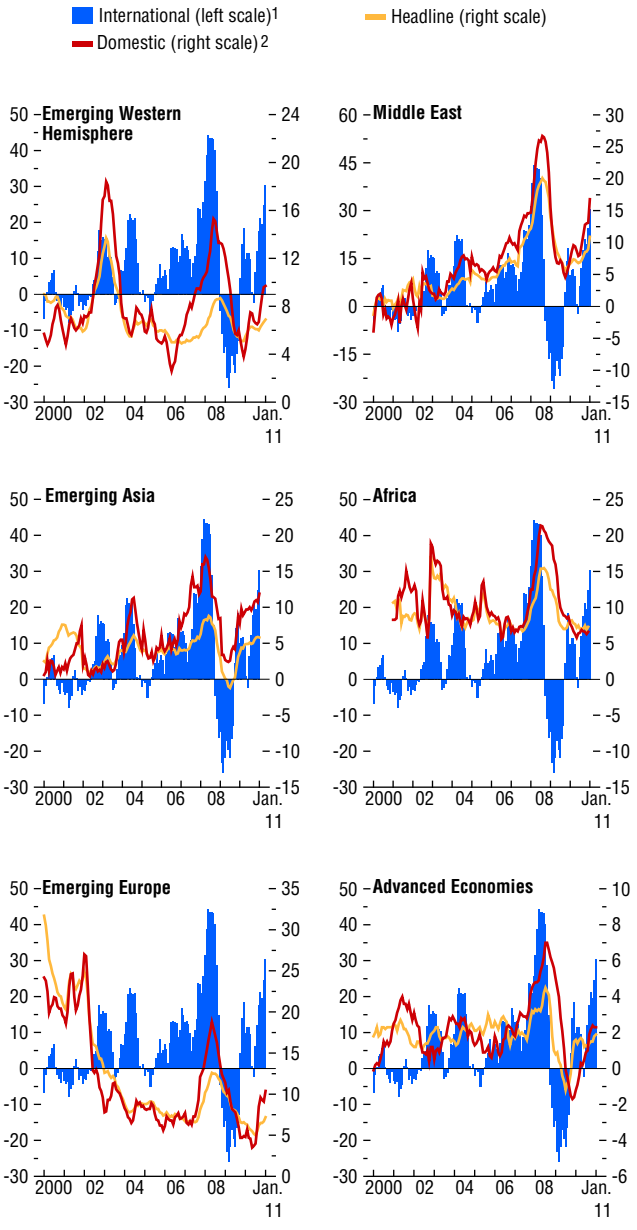
Recent Commodity Market Developments: Implications for the Global Economy

The challenges posed by high and rising commodity prices are most immediate for emerging and developing economies for two main reasons. First, the share of food in the typical consumption basket is larger in these economies than in advanced economies. As a result, the pass-through of food prices in international markets to headline inflation tends to be higher in these economies. Second, there is greater potential that changes in commodity prices will affect their terms of trade and trade balances, given relatively larger shares of commodities in both imports and exports.

[39]Discussed in Appendix 1.1 of the April 2010 *World Economic Outlook*.

Figure 1.25. Changes in International and Domestic Food Prices and Headline Inflation

(Monthly; year-over-year percent changes)



Sources: Haver Analytics; IMF Primary Commodity Price System; and IMF staff calculations.
[1]IMF commodity food and beverage price index in U.S. dollars.
[2]Food and beverage inflation.

The upturn in headline inflation across many emerging and developing economies has coincided with a pickup in commodity prices since mid-2010 (Figure 1.25). In particular, higher food prices have contributed significantly to higher inflation. This reflects the pass-through of world food prices, but also—in some significant cases, including China and India—higher prices in local food markets, such as for fresh fruit and vegetables. Headline and fuel inflation have risen most in the Middle East, a region that is a large net food importer, followed by emerging Asia, a region hit hard by bad weather in the second half of 2010 and output gaps that are either closing or already positive. In contrast, food prices and headline inflation are little changed in sub-Saharan Africa, where many economies are less integrated into global food markets and have enjoyed relatively bountiful local harvests over the past 12 months. The prices of some important staple crops, including corn (maize), have thus remained relatively stable in much of the region, indicating that international food prices are only one factor in determining local food inflation.

Further pass-through of recent commodity price increases to headline inflation seems likely across the global economy. Food prices remain the most important source of risk due to tight market conditions, which should ease only gradually, and their higher pass-through to domestic prices in emerging and developing economies. Some of the factors behind rising commodity prices are temporary, and first-round effects on headline inflation should generally be accommodated, but country-specific circumstances may require a monetary policy response. The cost-push from large commodity price increases is more likely to result in second-round effects, including rising long-term inflation expectations, in economies where the weight of food and energy in the consumer price index is relatively large and monetary policy credibility not yet solidly established—primarily in some emerging and developing economies (see Chapter 1).[40]

Recent commodity price developments have also had a broad impact on the terms of trade and trade balances. The estimated direct (first-round) effects of the expected price increases under the IMF's updated baseline projections for commodity prices are substantial. The latest baseline anticipates increases in prices for crude oil, food, and metals of about 31, 26, and 24 percent, respectively, in 2011, compared with the October 2010 WEO baseline. Overall, the terms-of-trade gains from higher commodity prices are expected to improve the trade balances of emerging and developing economies by about 1¼ percent of GDP in 2011. However, variation across regions and economies is wide, as shown in Figure 1.26. Large terms-of-trade gains from high oil export prices should more than offset losses from high food import prices in the Middle East; economies in emerging Asia and emerging Europe are generally expected to experience declines in their trade balances, reflecting their high dependence on commodity imports. Within Africa, economies without any major commodity resources to export, especially oil and metals, would suffer most from high food prices. However, many net food importers benefit from the natural hedge provided by their exports of metals, oil, and other commodities. Most advanced economies are expected to experience a modest deterioration in their terms of trade.

To assess the effects of further significant increases in commodity prices, the same exercise was conducted using price levels consistent with a plausible shock derived from prevailing market expectations embedded in commodity futures options. These derivative prices can provide an indication of the probability distribution of prices over various time horizons.[41] In a scenario that compares the effects of higher food prices relative to the current baseline, food prices are assumed to be on average about 58 percent higher in 2011 than the previous year. A scenario involving broad increases in commodity prices was also considered in which, in addition to higher food prices, all energy prices are assumed to be 53 percent higher than the previous year, and base metal prices are assumed to increase by 40 percent. A summary of these assumptions and the comparison with the current baseline are provided in Table 1.4.

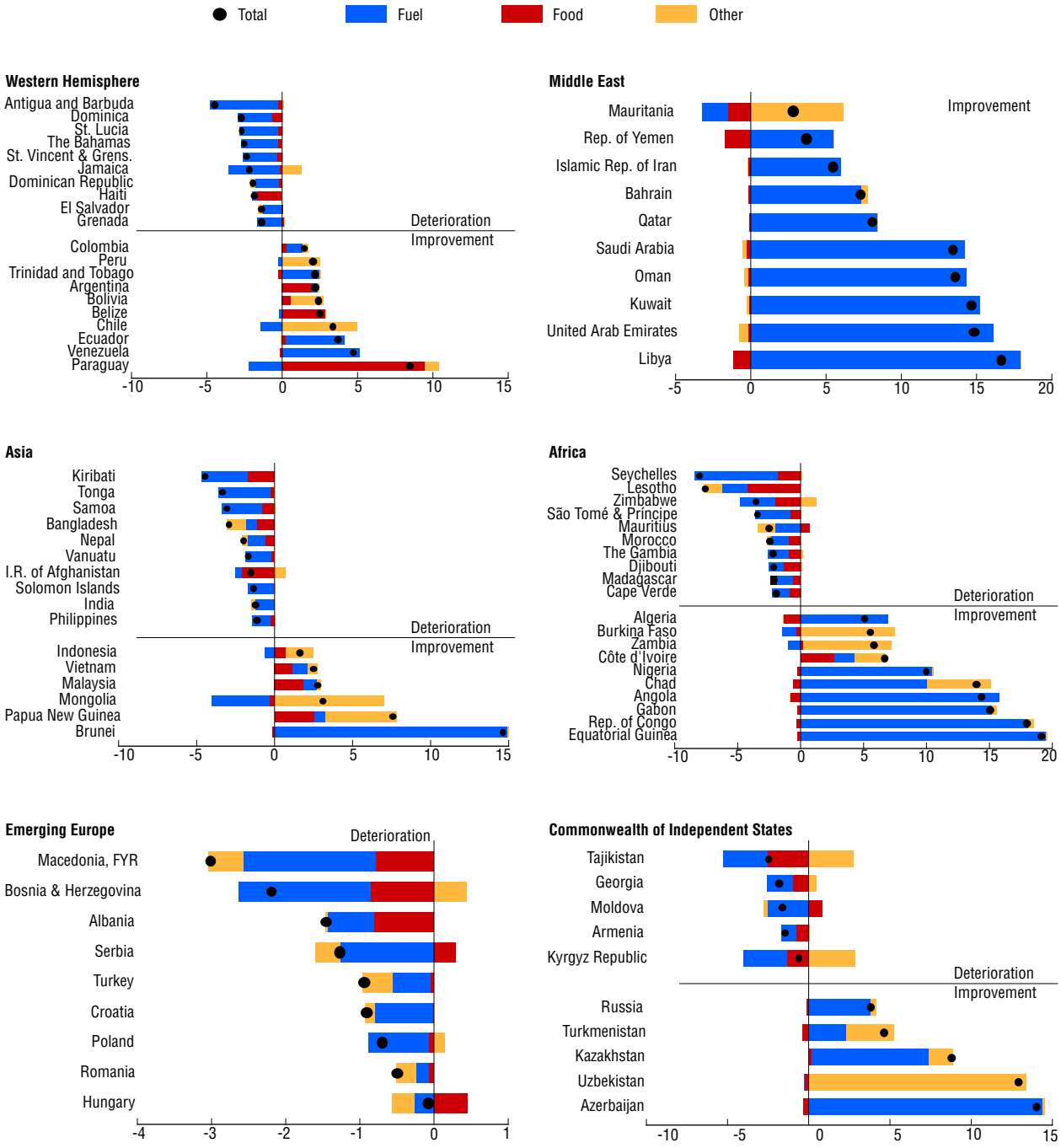
The impact of higher food prices varies by region (Table 1.5). The overall effect on Africa is marginal,

[40]As noted in Chapter 3 of the October 2008 *World Economic Outlook,* emerging and developing economies are more likely than advanced economies to lack monetary policy credibility and solidly anchored inflation expectations.

[41]Specifically, the upper standard deviation bound of the risk-neutral density function for the commodity price was selected as the upside scenario.

Figure 1.26. First-Round Impact of Commodity Price Changes on the Trade Balances of Selected Emerging and Developing Economies[1]

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



Source: IMF staff calculations.

[1]Country export and import weights by commodities were derived from trade data for 2005–08. Economies are ranked by the overall change in the trade balance, with the largest 10 improvements and deteriorations shown in each figure, subject to data availability.

Table 1.4. Annual Price Changes for Key Commodities
(Percent)

	Food		Oil		Metals		Energy	
	2011	2012	2011	2012	2011	2012	2011	2012
Baseline	24.1	–4.7	35.6	0.8	26.5	–0.8	31.9	0.1
Food Price Shock	57.5	7.3	. . .	. . .	. . .	. . .	. . .	. . .
Overall Price Shock	57.5	7.3	53.4	18.2	39.8	12.1	53.4	18.2

Source: IMF staff calculations.

but this masks large terms-of-trade losses for net food importers, about 0.5 percent of GDP in 2011, relative to the baseline. The Middle East would also experience large trade balance deterioration, by more than 0.4 percent of GDP in 2011. In contrast, the dominance of food exporters in Latin America would lead to a significant improvement of about 0.4 percent in the trade position.

The effects of broadly higher commodity prices improve the external position of emerging economies, although regional variations are important. In particular, large improvements for the Middle East, the former Soviet Union, Latin America, and Africa are partially offset by deterioration in emerging Asia and emerging Europe (Table 1.5).

Higher prices of food, fuel, and other commodities also have important distributional effects. The urban poor, especially in emerging and developing economies, are more likely to suffer from high prices than other income groups. For the rural poor, much will depend on land ownership, because farmers benefit from higher prices. Recent commodity price developments are likely to be another setback to the poverty reduction achieved in the early to mid-2000s. Hence, another policy priority will be to mitigate the effects of higher prices of food and other commodities on the poor through targeted and cost-effective social safety nets.[42]

[42] See Chapter 3 of the October 2008 *World Economic Outlook* and Coady and others (2010) on social safety net policies and high commodity prices.

Table 1.5. Trade Balance Impact of Higher Prices[1]
(Changes from baseline in percent of 2009 GDP)

	Higher Food Prices		Higher Overall Prices	
	2011	2012	2011	2012
Advanced Economies	**0.0**	**0.0**	**–0.4**	**–0.3**
United States	0.0	0.0	–0.3	–0.3
Japan	–0.1	–0.1	–0.8	–0.6
Euro Area	–0.1	0.0	–0.7	–0.5
Emerging and Developing Economies	**0.1**	**0.0**	**0.8**	**0.7**
Africa	–0.1	–0.1	2.5	2.0
Of Which: Net Food Importers	–0.5	–0.3	3.8	3.3
Asia and Pacific	0.1	0.0	–0.5	–0.5
Of Which: Net Food Importers	–0.1	–0.1	–0.6	–0.6
Commonwealth of Independent States	–0.2	–0.1	2.7	2.4
Of Which: Net Food Importers	–0.3	–0.1	3.1	2.6
Europe	–0.1	0.0	–0.8	–0.5
Of Which: Net Food Importers	–0.1	0.0	–0.7	–0.5
Middle East	–0.4	–0.2	5.6	5.2
Of Which: Net Food Importers	–0.4	–0.2	5.6	5.2
Western Hemisphere	0.4	0.2	1.0	0.7
Of Which: Net Food Importers	–0.2	–0.1	0.9	0.9

Source: IMF staff calculations.

[1] Country export and import weights by commodities were derived from trade data for 2005–08.

Box 1.1. House Price Busts in Advanced Economies: Repercussions for Global Financial Markets

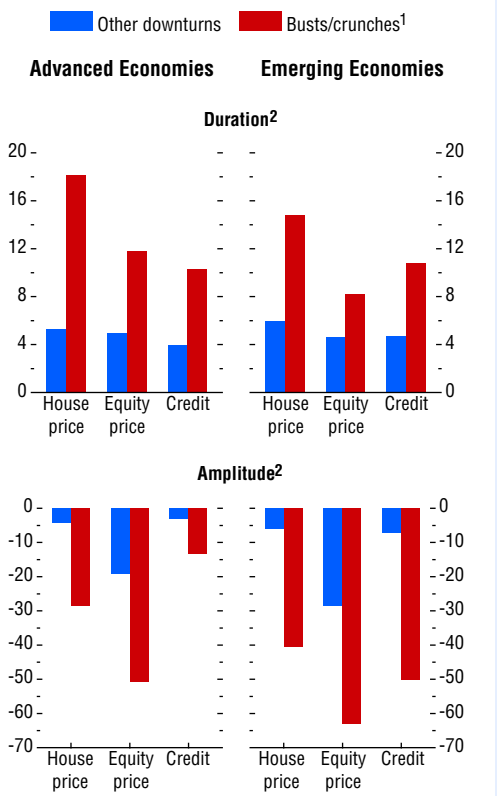
Financial booms and busts in the advanced economies can have profound effects on global financial markets and global economic activity. Most recently, a bust that started in a small segment of the U.S. housing market interacted with financial imbalances and vulnerabilities elsewhere, turning into the deepest global recession since the Great Depression. But house price busts are nothing new. This raises the questions of how and why this time was different from previous cycles and what we can learn from this episode.

This box addresses these questions by building on recent research by Claessens, Kose, and Terrones (2011 and forthcoming). The main findings are that recent house price busts in advanced economies had more severe implications for global financial markets because of (1) how widespread house price busts were this time around compared with earlier episodes and (2) the unusual synchronization and buoyancy of advanced and emerging market financial conditions in the run-up to the crisis. Global factors that drive financial cycles seem to have become stronger while country-specific factors have receded, including in house price cycles.

How Did This Cycle Differ from Previous Cycles?

House price busts in advanced economies generally last 18 quarters and are associated with a 30 percent house price drop (Figure 1.1.1).[1] In emerging markets, busts last for 15 quarters and are associated with a 40 percent house price drop. A key difference from previous cycles is that the recent house price busts in the advanced economies were shorter and shallower, yet more violent—the average price decline per quarter was steeper than in the past.[2] Although some busts are ongoing, the duration of completed house price busts was only 40 percent of the historical average, and the drop in house prices was only 60 percent of the norm.[3]

Figure 1.1.1. Financial Disruptions



Source: IMF staff estimates.

[1]Busts refer to the bottom quartile of house and equity price drops, respectively. Crunches refer to the bottom quartile of credit contractions.

[2]Duration is the number of quarters between peak and trough. Amplitude is the decline during the downturn. Duration corresponds to sample means, whereas amplitude corresponds to sample medians. Disruptions refers to the bottom quartile of the downturn of each financial variable.

The main author of this box is Marco E. Terrones.

[1]House price busts are defined as more intense forms of house price contractions. To be considered a bust, real house prices need to fall (from peak to trough) by more than 15 percent. House price busts are typically associated with sharp contractions in economic activity. Moreover, they are longer lasting and (by design) more severe than other downturns.

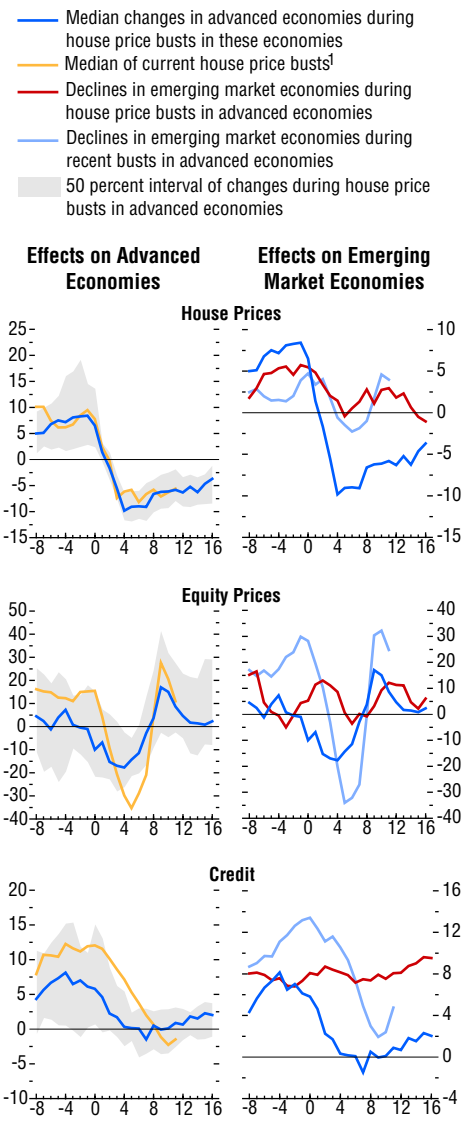
[2]Twenty-eight house price bust episodes were observed in the advanced economies during 1970:Q1–2007:Q4. The advanced economies that have experienced at least one such bust include Austria, Canada, Denmark, Finland, France, Ireland, Italy, Japan, Netherlands, New Zealand, Norway, Spain, Sweden, Switzerland, and United Kingdom. House price series are mostly from the Organization for Economic Cooperation and Development and correspond to various measures of indices of house or land prices, depending on the source country.

[3]Among ongoing house price busts, depth and duration are similarly less than what was typically observed in previous busts at comparable stages.

Box 1.1 *(continued)*

Figure 1.1.2. Effect of Advanced Economy House Price Busts

(Percent change from one year earlier;t = 0 denotes peak; quarters on the x-axis)



Source: IMF staff calculations.
[1]Including ongoing busts in the United States and Spain.

Financial markets in advanced and emerging market economies also experienced sharper swings in this cycle compared with previous cycles. Figure 1.1.2 plots median growth rates for house prices, equity prices, and real credit for advanced economies that experienced a house price bust and, in the panels on the right, for all emerging market economies at about the time of these busts. Overlaid on this figure are data on current house price busts (left panels) and financial effects in emerging markets (right panels). Note that during house price busts in advanced economies, house prices decline for an extended period, typically about four years. In contrast, house price growth rates in emerging market economies slow down somewhat during the first year of the event and then accelerate slightly.

Figure 1.1.2 also shows that recent house price busts were accompanied by a sharp drop in equity prices and a slowdown in credit. Credit and housing markets in many advanced economies remain weak: households are highly leveraged and banks are restructuring their balance sheets. Unlike in the past, however, the drop and recovery in equity prices have been rapid and steep. Also in contrast with past experience, the effects of the recent price busts in emerging markets have been more severe:

- House and equity prices in emerging market economies have been more responsive to financial developments in advanced economies; however, they have recovered rapidly. In some economies, house and equity prices are already reaching very high levels, which in some cases exceed precrisis levels.
- The rate of credit expansion in emerging markets slowed significantly in the aftermath of the house price busts. In part, this is because a number of emerging market economies experienced a credit boom in the run-up to the financial turmoil.[4] Credit growth in most emerging markets has started to accelerate recently, and in one group of economies credit is very buoyant once again.

[4]Following Mendoza and Terrones (2008), credit booms are defined as excessive real credit expansions above trend. Some of the economies that experienced a boom during 2007–08 include India, South Africa, and Venezuela. Hong Kong SAR is currently experiencing a credit boom, and China is near boom territory. (There is also evidence that several eastern European economies and Nigeria, which are not included in the sample of emerging market economies, also experienced a credit boom.)

Box 1.1 *(continued)*

Why Did This Cycle Differ from Previous Cycles?

Two main factors contributed to the difference between this cycle and previous cycles. First, in this cycle, an unusually large number of countries experienced either a house price contraction or bust at the same time. Data through the third quarter of 2010 indicate that virtually all 21 advanced economies experienced a price contraction[5] and that five economies have experienced (Denmark, New Zealand, United Kingdom) or are experiencing (Spain, United States) a house price bust. The closest historical episode to the current one was observed in the early 1990s. A key difference from the past, however, is that this is the first time the United States, which accounts for the lion's share of global financial transactions, has experienced a house price bust.

Second, the degree of financial market synchronization across countries was higher this time. The cross-country synchronization for a financial variable can be measured with a concordance index, which shows the fraction of time the variable is in the same cyclical phase in two economies. The historical analysis examines the nature and interaction of financial cycles for 21 advanced economies and 23 emerging market economies using quarterly data over 1960–2007. The results are set out in Table 1.1.1.

As shown, house prices, equity prices, and credit are in the same cyclical phase at least half the time. In the run-up to the global financial crisis (that is, 2003–07), however, financial cycles were more synchronized across economies, particularly in credit and equity markets.[6] This could reflect a variety of factors, including the growing importance of global factors in determining financial fluctuations, the growing role of large international financial institutions, and increased international financial integration.

These are some additional key findings:

- Equity markets in advanced and emerging market economies are highly synchronized, but housing markets are less so. These findings are consistent with the notion that equity markets are more closely integrated internationally and housing markets are less integrated but not independent of each other. The latter reflects the fact that, even though housing is the quintessential nontradable asset, the key determinants of house prices (such as income and interest rates) do tend to move together internationally.
- Credit markets are strongly synchronized across advanced economies and between advanced and emerging market economies. However, they are less synchronized between emerging market economies. This may reflect the strong cross-border linkages of banks in advanced economies and their important role in emerging market economies. In addition, credit shocks originating in large advanced economies, such as the United States, have a significant effect on credit conditions in emerging markets. In the run-up to the financial crisis, credit markets across advanced and emerging market economies were particularly synchronized, reflecting in part

[5]A few of these house price contractions, including in Canada, Greece, and Japan, are ongoing and are short of being categorized as price busts.

[6]These results are not driven by the experience in emerging Europe, which is highly financially integrated with western Europe, because these economies are not included in the sample due to a lack of data.

Table 1.1.1. Cross-Country Financial Market Synchronization

	Advanced Economies	Emerging Market Economies	Advanced and Emerging Market Economies
House Prices	0.59	0.49	0.50
2003–07	0.74	0.49	0.60
Equity Prices	0.71	0.62	0.61
2003–07	0.90	0.80	0.81
Credit	0.74	0.48	0.65
2003–07	0.92	0.83	0.87

Source: IMF staff estimates.

Note: The reported statistics correspond to the median of the country averages.

Box 1.1 *(continued)*

accommodative monetary conditions, including low interest rates in advanced economies.

Implications for Policy

In the past, macroeconomic and prudential policies were based primarily on domestic considerations. The much greater synchronization of financial and housing markets evident in this cycle means that surveillance and domestic policies need to take much greater account of international developments than in the past. It may not be sufficient to ensure that loans made to residents by domestic financial institutions are prudently managed and that the domestic housing market is sound. In the future, policymakers may need to be aware of developments in geographically distant financial markets and take action to protect their financial institutions from risks emanating from these markets.

More immediately, financial markets in emerging market economies have rapidly recovered from the adverse impact of the recent house price busts in advanced economies. Fueled by accommodative macroeconomic policies and strong capital inflows, house and equity prices in these economies are buoyant and, in some cases, have already surpassed precrisis levels. The authorities need to carefully monitor these developments, consider tightening macroeconomic policy, and strengthen macroprudential regulation.

In contrast, credit and housing markets in advanced economies are still weak, which is typical following house price busts. Action to accelerate mending of household balance sheets and bank restructuring would help end the ongoing house price downturns and busts and improve credit conditions.

Box 1.2. *World Economic Outlook* Downside Scenarios

The scenarios presented here use the IMF's Global Integrated Monetary and Fiscal Model (GIMF) to consider the possible implications for the world outlook if potential output in some regions of the world is overestimated in the baseline forecast. Although there is general consensus that potential output is now lower than projected before the recent financial crisis, there is a risk that the downward revisions were not large enough. The scenarios consider plausible misperceptions of the current level of potential output and its growth over the WEO forecast horizon in the United States, emerging Asia, and some other emerging economies. The results illustrate how these misperceptions could lead to notably higher inflation in the near term and sharply lower growth and increasing external imbalances once policymakers and markets recognize the error.

Two alternative scenarios are considered. In the first, the implications of the policy errors associated with the overestimation of potential output are simply greater macroeconomic volatility as the economies affected converge to the true level of potential output. In the second, the policy errors are more costly. The initial acceleration in inflation becomes more entrenched in expectations, and a more prolonged period of below-potential growth is required to re-anchor inflation expectations.

Estimating sustainable economic output from historical data is difficult in the best of times. However, it is even more challenging when the most recent data contain a boom-bust episode like the one the global economy just endured. Estimates of the current level of potential output for many economies may not have fully accounted for the extent of capital destruction wrought by the financial crisis or its impact on structural unemployment. Projected potential output growth rates may be overly optimistic, assuming that too much of the growth momentum over the past decade reflected underlying fundamentals rather than being symptomatic of the financial excesses that eventually led to the crisis.

In these scenarios it is assumed that the baseline forecast overestimates the level of potential output in 2015 by roughly 6 percent in China, 4 percent in emerging Asia excluding China, 3 percent in the United States, and 2.5 percent in the remaining countries.[1] Estimates of potential output in the euro area and Japan are assumed to be broadly correct. Where applicable, both the initial starting points and the rates of growth over the WEO forecast horizon contain errors. It is assumed that starting point errors at end-2010 are approximately 1.5 percent in the United States and the remaining countries and 2 percent in China and emerging Asia excluding China. The remaining errors arise from overestimating potential output growth for each year of the forecast horizon. This implies errors in the annual growth rate of potential output of roughly ¾ percentage point in China, ½ percentage point in other emerging Asian economies, and ¼ percentage point in the United States and the remaining countries. It is assumed that no one recognizes the error until 2013.[2]

In the first scenario, once policymakers recognize the error, monetary policy must be tightened sharply to return inflation to target. Markets also respond and drive lending rates up by an additional amount that is roughly proportional to the magnitude of the misperception about supply capacity. Essentially, the realization that monetary conditions have been excessively loose for an extended period raises concerns about underlying asset quality. Consequently, the scenario incorporates temporary but persistent increases in private market interest rates of an additional 150 basis points in China, 100 basis points in the United States and emerging Asia excluding China, and 50 basis points in the euro area and the remaining countries (Figure 1.2.1).

In the first two years, real GDP grows according to the baseline forecast. However, given the misperception of supply capacity, demand pressures emerge in many regions of the world, and inflation

The main author of this box is Benjamin Hunt. Mika Kortelainen and Stephen Snudden contributed.

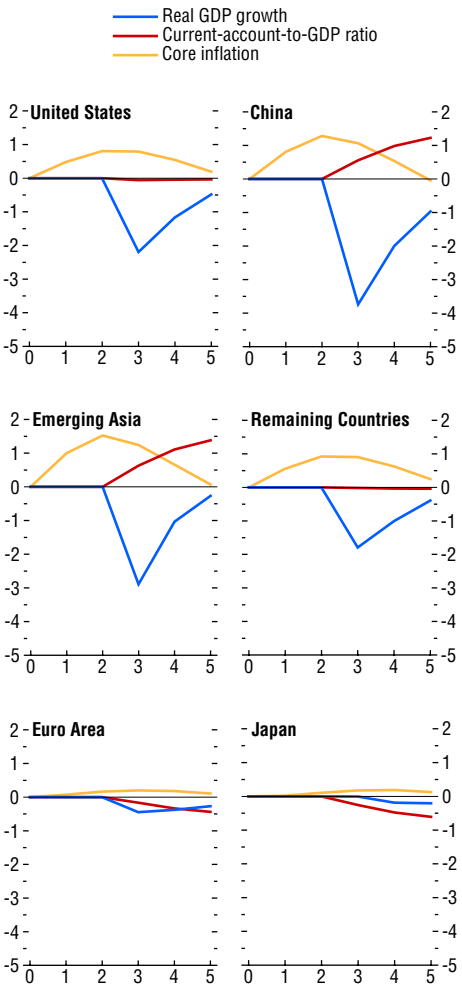
[1]The block of remaining countries includes all the world economies except the United States, the euro area, Japan, China, and emerging Asia.

[2]An alternative approach would be to have policymakers learn gradually about their misperceptions regarding the level of potential output and start to tighten policy prior to 2013. If this were the case, then real GDP would turn out to be below the baseline prior to 2013, and the subsequent macroeconomic volatility would be reduced.

Box 1.2 *(continued)*

Figure 1.2.1. WEO Downside Scenario 1: Implications of Overestimating Potential Output

(Percentage point difference from baseline)



Source: Global Integrated Monetary and Fiscal Model simulations.

rises above the baseline forecast. It rises most sharply in China and other emerging Asian economies, but it also rises in the United States and the remaining countries. Although not explicit in the analysis, it is likely that the demand and inflation pressures would be most acute in the emerging market economies contained within the block of remaining countries, notably those heavily dependent on commodity exports. Even though rising inflation would signal the potential output error to the Federal Reserve, slow recovery in the labor market coupled with an overly optimistic view of the level for structural unemployment could prevent a timely adjustment in monetary conditions. Competitiveness concerns in other regions of the world could lead to conditions remaining too loose there also, despite high inflation.

Policymakers and markets do not recognize the true level of potential output and its future path until 2013. This leads to tightening in monetary policy rates and additional increases in private market interest rates. Higher interest rates, recognition of weaker future income growth, and the consequent fiscal adjustment would all contribute to a sharp slowdown in private consumption and investment growth. Real GDP growth declines in 2013 by almost 4 percent in China, 3 percent in other emerging Asian economies, and roughly 2 percent in the United States and the remaining countries. The declines in growth are much milder in the euro area and Japan. Growth remains notably below the WEO baseline in 2014, but returns close to the baseline by 2015. The sharp slowdown in growth is sufficient to return inflation close to the baseline by 2015.

Under this scenario, global imbalances would widen further. Economies that already have high surpluses (China and other emerging Asian economies) experience an improvement in their current account balances because aggregate demand adjustment is largest in those regions. As consumption and investment demand slow rapidly, import growth falls sharply, leading to a rising trade balance. In the United States and the remaining countries, current accounts are largely unchanged as weaker import growth broadly matches the pace of slowing export growth. For the euro area and Japan, with no required adjustment in domestic demand, weaker trading partner growth translates to slower export growth, and their current accounts deteriorate.

In the second scenario, the initial burst in inflation becomes more entrenched in expectations, which is conceivable in a global environment where high and rising commodity prices are likely to be fueling

Box 1.2 *(continued)*

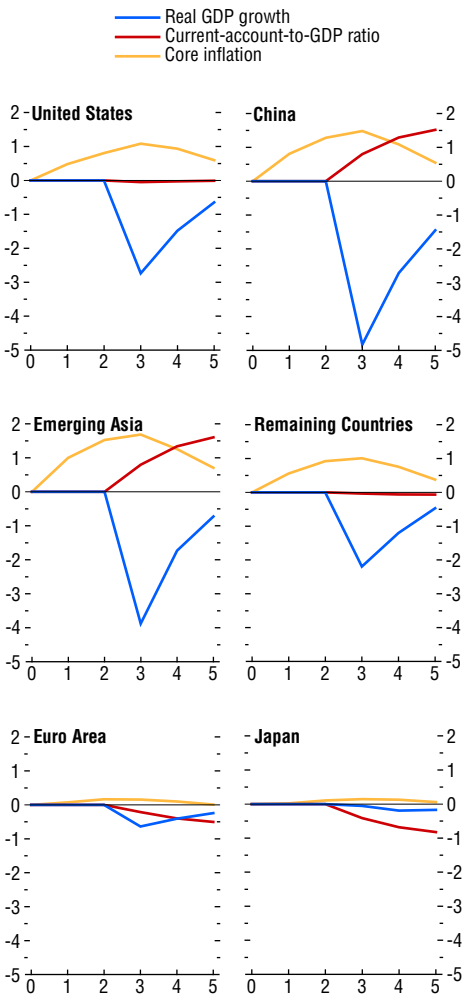
headline rates well above recent historical experience. In addition to more persistent high inflation, it is assumed that market concerns over asset quality following the boom are more acute. Consequently, once policymakers recognize the error and tighten policy rates, markets drive lending rates up further than in the first scenario. Market interest rates rise above policy rates by an additional 300 basis points in China, 200 basis points in the United States and emerging Asia excluding China, and 100 basis points in the euro area and remaining countries (Figure 1.2.2).

Again the scenario assumes that in the first two years GDP growth rates match those in the baseline, but with potential output lower than expected, excess demand pressures drive inflation above the paths in the baseline. Once monetary policymakers and markets recognize the error in 2013, the larger response in interest rates leads to a sharper slowdown in growth. The slowdown is most dramatic in China, where GDP growth falls by roughly 5 percentage points, followed by emerging Asia, where growth declines by almost 4 percentage points. Growth falls by close to 3 percentage points in the United States and by just over 2 percentage points in the remaining countries. The greater persistence in inflation means that interest rates must remain higher for longer to keep GDP growth rates considerably below baseline in 2014 and 2015. Despite substantial excess supply opening up in these economies, inflation has not returned to target by the end of the WEO forecast horizon, implying that growth would need to be maintained below its potential rate beyond 2015. Not surprisingly, with real activity more adversely affected by the misperception of the level of potential output in this scenario, global imbalances widen even further.

For policymakers, these scenarios illustrate how plausible errors in estimating potential output can lead to considerable volatility in growth and inflation and a widening of global imbalances if the error is only slowly recognized. Further, should high inflation become entrenched in expectations, significant permanent losses in real GDP would be required to reestablish low and stable inflation. Policymakers should look carefully to core inflation outcomes to inform their estimates about underlying potential output and structural unemployment and should be prepared to revise those estimates regularly. For emerging economies already exhibiting signs of overheating, competitiveness concerns should be of secondary importance. Containing inflation pressures early could substantially reduce future economic volatility.

Figure 1.2.2. WEO Downside Scenario 2: Implications of Overestimating Potential Output with Sticky Inflation

(Percentage point difference from baseline)



Source: Global Integrated Monetary and Fiscal Model simulations.

Box 1.3. International Spillovers and Macroeconomic Policymaking

The duration and severity of the Great Recession induced a variety of unconventional policy responses in a number of countries. This is especially true in the United States, where an alphabet soup of liquidity support programs has been complemented by two rounds of so-called quantitative easing. The latest round, dubbed "QE2" by some, has been met with opprobrium in some circles, in part because the Federal Reserve's aggressive attempts to return employment to normal levels are seen as damaging to the interests of smaller economies, particularly those that do not consider themselves to have substantial excess supply. Out of this experience have come renewed calls for international policy coordination. This box takes a selective look at this issue, focusing on monetary policy coordination but with a few words on fiscal policy at the end.

To presage the results, policy coordination can deliver outcomes that are superior to those of policies that are driven only by national interests. However, it turns out that the case for systematic coordination of monetary policy is not as strong as one might think, although the range of models in which this question has been analyzed is still quite limited. More research is clearly warranted. By contrast, the case for coordination is easier to make for fiscal policy.

Popular discussion suggests that the argument in favor of policy coordination—in particular for large economies or collections of small ones—is irrefutable. After all, in times of widespread deficiency in domestic demand, all economies have an incentive to "export their way out of recession," even if the arithmetic of trade accounts makes that an impossible feat. The economic literature, however, is not nearly so clear-cut. In the context of monetary policy, Obstfeld and Rogoff (1995) laid down a marker by showing in a simple two-country model that policies that are "self-oriented" are difficult to beat. Subsequent contributions to the literature have mitigated this result, but arguably not in a way that undermines the case for self-oriented monetary policy, at least as a reasonable approximation of the optimal policy.[1] If the theory is ambiguous, quantitative assessments are even more so, if only because there have been so few.

To illustrate, consider the policy choices available to the monetary authority of a small economy operating in a world that is dominated by a much larger economy. In order to encompass the rigidities and imperfections in exchange rate pass-through emphasized by the literature to date in making a case for coordination, we use a version of the IMF's Global Economic Model (GEM) used in Laxton and Pesenti (2003).[2] Both economies are assumed to implement monetary policy by means of a Taylor-type rule, the most general form of which is

$$R = \alpha_R R_{t-1} + (1 - \alpha_R)(rr^* + \tilde{\pi}_t) + \alpha_y y_t + \alpha_\pi(\tilde{\pi}_t - \pi^*) + \alpha_e(\Delta e_t - \Delta e^*),$$

where R is the nominal policy rate; $\tilde{\pi}$ is (four-quarter) inflation; Δe is the change in the (log of the) real exchange rate; and rr^* is the equilibrium real interest rate. For this exercise, rr^* and the target rate of inflation, π^*, are taken as constants and normalized to zero; some implications of this assumption are discussed below.

Assume that the large economy does not consider the effects of its policy decisions on the small economy—which is natural given the relative sizes of the two economies. One way to characterize the critique of recent U.S. monetary policy is to consider policy rules for the large economy that place a large coefficient on its output gap, sacrificing other objectives in order to rapidly return economic activity to equilibrium levels following shocks. With this

The author of this box is Robert Tetlow.

[1]The case for the coordination of monetary policy usually hinges on rigidities that slow down the pass-through of foreign shocks into domestic aggregate price levels. Incomplete or delayed exchange rate pass-through hinders the adjustment of the real wage to its equilibrium level, inducing fluctuations in employment that would otherwise not occur. An incomplete sampling of references might include Betts and Devereux (2000), Pappa (2004), and Corsetti and Pesenti (2005).

[2]GEM is a linearized microfounded, two-country model with tradable and nontradable goods, monopolistic competition in labor and some goods markets, sticky prices, and incomplete pass-through stemming both from the presence of intermediate goods and from adjustment costs. See Laxton and Pesenti (2003) for details.

Box 1.3 *(continued)*

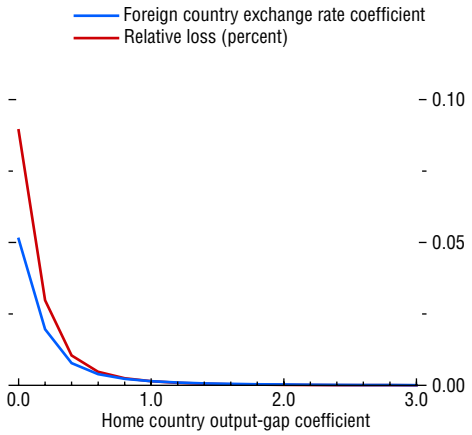
in mind, the exercise below encompasses this and other policy stances by allowing the coefficient on the large economy output gap, α_y, to vary from zero to 3.[3] The small economy takes the large economy's policy rule as given and then chooses the coefficient on the exchange rate term in the small-economy policy rule, holding other coefficients constant to minimize the following loss function:[4]

$$L = \Sigma_{i=0}^{\infty} y_{t+i}^2 + (\tilde{\pi}_{t+i} - \pi^*)^2 + \tfrac{1}{2}(\Delta R_{t+i})^2.$$

If the large economy's policy choice is harmful to the small economy's performance, and if controlling the exchange rate is helpful for offsetting the large economy's policy choices, α_e for the small economy will differ substantially from zero, and the effect on the small economy's economic performance, as measured by its loss function, will be large.[5]

The results of this exercise are summarized in Figure 1.3.1. The coefficient on the large economy's output gap is indexed on the horizontal axis. Focusing first on the blue line, there are several observations of note. First, the downward slope of the line shows that as the large economy places increasing importance on combating output fluctuations, the small economy's exchange rate coefficient *falls;* only when the large economy pays almost no (direct) attention to output is there a reason for the small economy to respond to the exchange rate, at least through standard monetary policy channels. Second, the quantitative implications for monetary policy with respect to the exchange rate are not very large: at no time does the feedback coefficient rise above 0.1.[6] These results suggest that large and small economies' objectives are largely complementary: when the large economy acts to stabilize real activity within its own borders, it reduces what would otherwise be negative demand spillovers to the rest of the world. The fact that the coefficient on the exchange rate in the small economy's policy rule is never very large is a reminder that stabilizing inflation, as the economy does in all cases here, goes a considerable way toward stabilizing output, regardless of the feedback coefficient on the gap.

Figure 1.3.1. Optimized Exchange Rate Coefficient and Relative Loss as a Function of Home Output Gap Response[1]



Source: IMF staff calculations.
[1]All other policy rule coefficients held fixed.

[3]For a model of this class, $\alpha_y = 3$ is a very large coefficient. For the home economy, the baseline parameters for the policy rule are $\alpha_R = 1$, $\alpha_\pi = 0.7$, $\alpha_y = varying$, and $\alpha_e \equiv 0$. Results are similar for different parameterizations of the home economy rule and, in particular, for $\alpha_e \neq 0$. For the foreign country, $\alpha_R = 0.97$, $\alpha_\pi = 0.7$, $\alpha_y = 0.4$, and $\alpha_e = optimized$. The foreign country's coefficients are very close to the optimal coefficients, conditional on no feedback on the exchange rate.

[4]Formally, the optimization is done numerically by minimizing the loss function, subject to the (linear) model; the form of the policy rule; the home economy model, including its policy rule; and the variance-covariance matrix of stochastic shocks. This is the same loss function that is used in Laxton and Pesenti (2003).

[5]The experiment conducted here is a restricted version of one where all four parameters of both economies' policy rules are optimized economy by economy, defining what is known as a Nash strategy in Taylor rules, or jointly using a weighted average of the two economies' loss functions, defining a cooperative strategy in Taylor rules. This broader exercise proved to be numerically problematic for a model as large and complex as the GEM; however, the experiments that were feasible suggested that the same conclusions as described in the text would be forthcoming.

[6]Although this exercise was carried out for particular rules for both economies, the basic conclusions are the same for reasonable specifications. However, the results will differ if the parameterization of the policy rule for the foreign economy is well away from optimal, when the exchange rate term is omitted. Under such circumstances the optimized exchange rate term will crudely proxy for the inappropriate feedback terms on output or inflation.

Box 1.3 *(continued)*

Now consider the red line. The line shows the incremental cost, in percent (right scale), of omitting the exchange rate term altogether. Given how small the feedback coefficients are on the exchange rate term, it is probably not surprising that the loss from eschewing feedback on the exchange rate is very small, never larger than 0.1 percent. The upshot, in this context at least, is the conclusion of Obstfeld and Rogoff (2002): two economies practicing inward-looking policies will produce policy outcomes that are quite good, even if they are not quite optimal. It is important to note that it is not that spillovers from the large economy to the small economy are inconsequential. Rather, a properly designed monetary policy, focused narrowly on key macroeconomic objectives, insulates the small economy well. It does this by aligning private agents' expectations with policymakers' goals; the former becomes an instrument, of sorts, of the latter.[7]

There are, of course, some caveats. First, the results depend on the monetary authorities knowing not only their own economy's model but that of the other economy as well.[8] Second, the optimization exercise was carried out for a computed variance-covariance matrix of shocks, but if the shocks during a particular episode turn out to be atypical, the prescribed policy response might be inappropriate. This is true particularly if the shocks in question alter the dynamic structure of the economy.[9] Third, these results are conditional on the model and all its features, including linearity and rational expectations. These can be important. The linear analysis carried out here, for example, ignores the effective lower bound on nominal interest rates, a binding constraint on some authorities at the moment. And the extant literature has considered only a limited range of distortions that might provide a case for cooperation. Undoubtedly, there is a need for further research on these and other issues. Nevertheless, the results shown here—which are consistent with the economic literature—do suggest that the case for coordination of monetary policy is limited, at least under normal circumstances and with conventional models.

We have seen that the case for monetary policy coordination is not as obvious as might be expected. Does this finding generalize to fiscal policy? It was noted above that the analysis here was conducted taking the equilibrium real interest rate, rr^*, as a constant. This is a reasonable assumption for economies with a record of stable monetary policy. Under such circumstances, the conduct of monetary policy is a relatively simple exercise in stabilizing the economy around a given steady state. The situation for fiscal policy can be quite different. Although it is beyond the scope of this box to demonstrate, fiscal policy can affect the equilibrium real interest rate, the sustainable level of output, and the neutral level of the policy instrument, sometimes in ways that are difficult to measure. Fiscal policy, therefore, involves balancing gains or losses in the short term against permanent but deferred losses or gains in the long term as the economy approaches its new steady state. So if an economy's monetary policy is already broadly reasonable, the stakes when it comes to adjusting fiscal policy are generally higher. Moreover, fiscal policy in large economies, or collections of small ones, can affect the world real interest rate and hence the steady state of other economies. It seems reasonable to conclude, therefore, that the case for coordination of macroeconomic stabilization policies is stronger for fiscal policy than for monetary policy.

[7]Specifically not included in the class of policy regimes covered here is an exchange rate target, de facto or de jure. Under an exchange rate target, the foreign economy inherits whichever monetary policy the home economy adopts. Box 1.1 of the April 2010 *World Economic Outlook* explores exchange rate targeting regimes during the recent crisis.

[8]How serious this misspecification will be depends on the circumstances. It is worth noting that the apparent misspecification of the variance-covariance matrix of shocks is often a symptom of a more generalized misspecification of the underlying model. Frankel and Rockett (1988) provide a quantitative assessment of what can go wrong in policy coordination when decision makers' models are misspecified.

[9]For example, shocks that are larger and more persistent than normal could elicit macroeconomic outcomes that cause private agents to doubt the monetary or fiscal policy regime. Coordinated policies could be used to ensure the reestablishment of rational expectations equilibrium. For an example along these lines, see Eusepi and Preston (2008).

Box 1.4. Did the Plaza Accord Cause Japan's Lost Decades?

The rebalancing debate has sparked renewed interest in Japan's experience since the 1980s. Some argue that this is a cautionary tale, exemplifying the dangers of reorienting economies through currency appreciation (*People's Daily*, 2010). They claim that the appreciation of the yen after the Plaza Accord forced the authorities to introduce an offsetting macroeconomic stimulus, which then led to an extraordinary asset price boom followed by an extraordinarily painful bust. Japan was one of the world's fastest-growing economies for three decades but has averaged only 1.1 percent real GDP growth since 1990, while prices have steadily declined. Consequently, the size of Japan's economy today is about the same as in the early 1990s. The sequence of events is clear and striking. But there are reasons to doubt that it was truly inevitable, whether the Plaza Accord was really the direct cause of Japan's "Lost Decades."

What Happened?

The events began in September 1985, when delegates from the G5 countries met at the Plaza Hotel in New York, declared the U.S. dollar overvalued, and announced a plan to correct the situation.[1] The essence of the plan was that the main current account surplus countries (Japan and Germany) would boost domestic demand and appreciate their currencies. In effect, this agreement marked a major change in policy regime: the Federal Reserve was signaling that after a long and successful fight against inflation, it was now prepared to ease policies, allow the dollar to decline, and focus more on growth. This signal was backed by coordinated currency market intervention and a steady reduction in U.S. short-term rates. Accordingly, it triggered an exceptionally large appreciation of the yen, amounting to 46 percent against the dollar and 30 percent in real effective terms by the end of 1986. (The deutsche mark appreciated similarly.)

As a result, Japan's export and GDP growth essentially halted in the first half of 1986. With the economy in recession and the exchange rate appreciating rapidly, the authorities were under considerable pressure to respond. They did so by introducing a sizable macroeconomic stimulus. Policy interest rates were reduced by about 3 percentage points, a stance that was sustained until 1989. A large fiscal package was introduced in 1987, even though a vigorous recovery had already started in the second half of 1986. By 1987, Japan's output was booming, but so were credit growth and asset prices, with stock and urban land prices tripling from 1985 to 1989. Then, in January 1990, the stock price bubble burst. Share prices lost a third of their value within a year, and two decades of dismal economic performance followed (Figure 1.4.1). Today, nominal stock and land prices are back at their early 1980s levels, one-quarter to one-third of their previous peaks.

The critical question is whether this sequence was inevitable. In other words, did the appreciation force Japan to introduce a powerful stimulus to sustain growth, which then triggered a bubble, which caused the Lost Decades when it collapsed? Let's consider each step in turn.

Was Such a Large Stimulus Needed?

Studies suggest that, in fact, the monetary policy easing may have been excessive. Estimates by Jinushi, Kuroki, and Miyao (2000) and Leigh (2010), among others, suggest that the policy rate was up to 4 percentage points too low during 1986–88 relative to an implicit Taylor rule based on the output and inflation outlook. Why, then, did the central bank sustain such a policy? A key reason is that current inflation remained reasonably well behaved, which led some economists to argue that soaring growth rates did not represent a cyclical boom but rather a "new era" of higher potential growth. This growth was particularly gratifying because it was led by domestic demand, a key commitment under Plaza.

But IMF reports at the time suggest another factor was also at work. The authorities worried that higher interest rates would further strengthen the yen and feared that appreciation would eventually have serious effects on the economy. In the end, external demand did indeed diminish. But it did

The main authors of this box are Joshua Felman and Daniel Leigh.

[1]The G5 comprises France, Germany, Japan, the United Kingdom, and the United States.

Box 1.4 *(continued)*

not collapse. Real exports continued to grow in the five years after Plaza, by an average of 2½ percent a year (half the rate of the previous five years), while the current account surplus diminished by a moderate 2 percentage points of GDP. (Similarly, Germany's currency appreciation failed to derail its export or GDP expansion, even with a smaller monetary response.) Put another way, excessive stimulus was adopted in part because there was excessive concern about the impact of appreciation.

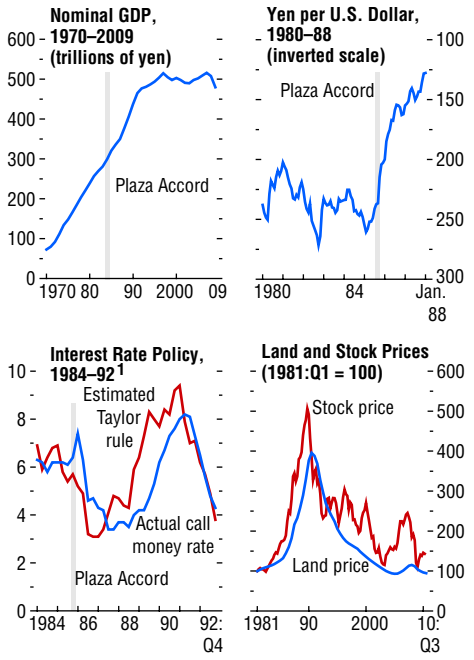
Did the Stimulus Cause the Bubble?

Although the monetary easing was certainly large, it is far from clear that it alone was responsible for the asset price bubble. Chapter 3 of the October 2009 *World Economic Outlook* and Posen (2003) have examined the link between monetary policy and asset price booms in advanced economies over the past 25 years. They conclude that policy easing is neither necessary nor sufficient to generate asset price booms and busts. In Japan's case, two other elements seem to have played a large role. As Hoshi and Kashyap (2000) explain, financial deregulation in the 1970s and early 1980s allowed large firms to access capital markets instead of depending on bank financing, leading banks to lend instead to real estate developers and households seeking mortgages. As a result, bank credit to these two sectors grew by about 150 percent during 1985–90, roughly twice as fast as the 77 percent increase in overall bank credit to the private sector. Finally, because the dangers of real estate bubbles were not well understood in those years, the Japanese government did not deploy countervailing regulatory and fiscal policies until 1990.

Did the Bubble's Collapse Cause the Lost Decades?

The aftermath of the bubble proved extraordinarily painful for Japan. But the collapse of a bubble does not inevitably have such powerful and long-lasting effects. What was special about Japan's case? A key factor was the buildup of considerable leverage in the financial system, similar to what occurred in the United States before 2008. Tier 1 capital of Japanese banks in the 1980s was very low, much lower than elsewhere, as global standards (the Basel

Figure 1.4.1. Japan: Selected Macroeconomic Indicators



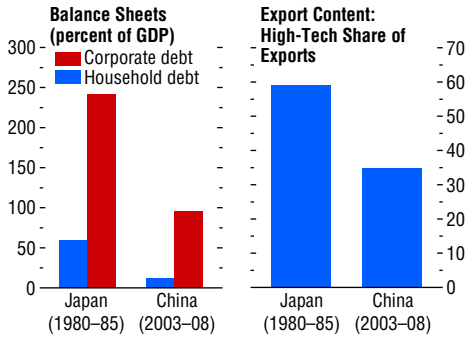
Sources: Bank of Japan; Cabinet Office (Japan); Haver Analytics; and IMF staff estimates.
[1]For details on the estimation of the Taylor rule, see Leigh (2010).

I accord) had not yet gone into effect. Moreover, much of the collateral for loans was in the form of real estate, whereas under the *keiretsu* system a significant portion of bank assets consisted of shares in other firms from the same group. So, when real estate and share prices collapsed, the banking system was badly damaged.

This underlying vulnerability was exacerbated by a slow policy response. The authorities delayed forcing banks to recognize the losses on their balance sheets and allowed them to continue lending to firms that had themselves become insolvent, a process Caballero, Hoshi, and Kashyap (2008) call "zombie lending." This process continued into the early 2000s, stifling productivity growth and prolonging Japan's slump. Why did the authorities not force faster restructuring? Possibly because restructuring

Box 1.4 *(continued)*

Figure 1.4.2. Japan and China: Balance Sheets and Export Content



Sources: Haver Analytics; and IMF staff estimates.

would have required additional bank capital, which they were not in a position to provide in light of the strong political backlash after an initial injection of public capital in 1995. Consequently, the authorities exercised forbearance instead.

The postbubble slump may also have been exacerbated by the macroeconomic policy response and adverse external shocks. Some argue that premature monetary tightening and the lack of a clear commitment to raising inflation led to unduly high real interest rates (Ito and Mishkin, 2006; Leigh, 2010). In addition, the tightening of fiscal policy in 1997 may have undercut the nascent 1995–96 recovery (Posen, 2003; Corbett and Ito, 2010). Finally, adverse external shocks played a role, including the 1997–98 Asian financial crisis.

In sum, Japan's experience shows that currency appreciation does not, in fact, inevitably lead to "lost decades." The appreciation did not inevitably require such a large macroeconomic stimulus. The stimulus did not inevitably lead to the bubble. Nor did the bubble's collapse inevitably lead to the Lost Decades. Instead, it was the particular combination of circumstances and choices that led to that result.

Lessons for Rebalancing Today

Calibrating a policy response to exceptionally large appreciations and movements in asset prices remains an extraordinarily difficult task. But some pointers can be gleaned from Japan's experience. The keys are to

- avoid an excessive macroeconomic response to currency appreciations;
- use prudential policies to prevent vulnerabilities from building up, especially in the form of leverage;
- address banking problems quickly if they do materialize; and
- provide significant macroeconomic support when banking systems and economies come under stress.

An even broader lesson is that bubbles can prove dangerous. Accordingly, Japan has introduced a two-perspective framework for monetary policy, with one pillar focusing on price stability and the other looking out for financial imbalances such as asset price bubbles.

But even as Japan's experience offers lessons to countries considering rebalancing today, the direct parallels are limited. Most notably, circumstances in China today differ from those in Japan in the 1980s in ways that should help it avoid Japan's disappointing outcomes (Figure 1.4.2). First, the leverage of households, corporations, and the government in China is lower now than it was in Japan before the bubble (N'Diaye, 2010), and the risk of excessive borrowing may thus be smaller. Second, as Chapter 4 of the April 2010 *World Economic Outlook* and Igan, Fabrizio, and Mody (2007) find, climbing the quality ladder helps offset the impact on growth of currency appreciation, and China has more room to climb the export quality ladder than Japan did. (At the same time, the impact on labor-intensive industries may be greater.) Third, Japan had a floating exchange rate regime in the 1980s, but China has a managed exchange rate supported by vast foreign currency reserves and strong restrictions on capital inflows. This difference in currency regimes should help China avoid the sharp appreciation observed in Japan. Most important, China should be able to reap the benefits of learning from Japan's experience.

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