GLOBAL PROSPECTS AND POLICIES

Recent Developments

After suffering a major setback during 2011, global prospects are gradually strengthening again, but downside risks remain elevated. Through the third quarter, growth was broadly in line with the estimates in the September 2011 *World Economic Outlook* (WEO). Real GDP in many emerging and developing economies was somewhat weaker than expected, but growth surprised on the upside in the advanced economies. However, activity took a sharp turn for the worse during the fourth quarter, mainly in the euro area (Figure 1.1, panels 1 and 2).

- The future of the Economic and Monetary Union (EMU) became clouded by uncertainty, as the sovereign debt crisis caused sharp increases in key government bond rates (Figure 1.2, panels 2 and 3). Plummeting confidence and escalating financial stress were major factors in the 1.3 percent (annualized) contraction of the euro area economy. Real GDP also contracted in Japan, reflecting supply disruptions related to floods in Thailand and weaker global demand. In the United States, by contrast, activity accelerated, as consumption and inventory investment strengthened. Credit and the labor market also began to show signs of life.

- Activity softened in emerging and developing economies, with factors unrelated to the euro area crisis also playing an important role, but remained relatively strong (Figure 1.1, panel 3). In emerging Asia and in Latin America, trade and production slowed noticeably, owing partly to cyclical factors, including recent policy tightening. In the Middle East and North Africa (MENA), activity remained subdued amid social unrest and geopolitical uncertainty. In sub-Saharan Africa (SSA), growth has continued largely unabated, helped by favorable commodity prices. In emerging Europe, weak growth in the euro area had a larger impact than elsewhere. However, concerns about a potentially sharp slowdown in Turkey and a weakened policy framework in Hungary also detracted from activity.

Although the recovery was always expected to be weak and vulnerable because of the legacy of the financial crisis, other factors have played important roles. In the euro area, these include EMU design flaws; in the United States, an acrimonious debate on fiscal consolidation, which undermined confidence within financial markets; and elsewhere, natural disasters as well as high oil prices because of supply-side disruptions. Thus, past and present WEO projections for only modest growth have their origins in various developments and regions (Figure 1.1, panel 4). Some of these developments are now unwinding, which will support a reacceleration of activity.

High-frequency indicators point to somewhat stronger growth. Manufacturing purchasing managers' index indicators for advanced and emerging market economies have edged up in the most recent quarter (Figure 1.3, panel 1). The disruptive effects on supply chains caused by the Thai floods appear to be receding, leading to stronger industrial production and trade in various Asian economies. In addition, reconstruction is continuing to boost output in Japan. Global financial conditions have improved: data have come in stronger than expected by markets, and fears of an imminent banking or sovereign crisis in the euro area have diminished. Recent improvements in the ability of major economies on the periphery to roll over sovereign debt, narrower sovereign and interbank spreads relative to December highs, and a partial reopening of bank funding markets have helped reduce these fears, but concerns linger (Figure 1.2, panels 2 and 3). More generally, market volatility has declined and flows to emerging market economies have rebounded (Figure 1.4, panels 1 and 2). Appreciating currencies have prompted renewed exchange rate intervention (for example, in Brazil and Colombia).

Policy has played an important role in recent improvements, but various fundamental problems remain unresolved. The European Central

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

(Percent change unless noted otherwise)

	2010	2011	Year over Year Projections 2012	2013	Difference from January 2012 WEO Projections 2012	2013	Q4 over Q4 Estimates 2011	Projections 2012	2013
World Output[1]	**5.3**	**3.9**	**3.5**	**4.1**	**0.2**	**0.1**	**3.2**	**3.7**	**4.1**
Advanced Economies	**3.2**	**1.6**	**1.4**	**2.0**	**0.2**	**0.1**	**1.2**	**1.6**	**2.2**
United States	3.0	1.7	2.1	2.4	0.3	0.2	1.6	2.0	2.6
Euro Area	1.9	1.4	−0.3	0.9	0.2	0.1	0.7	−0.2	1.4
Germany	3.6	3.1	0.6	1.5	0.3	0.0	2.0	0.9	1.6
France	1.4	1.7	0.5	1.0	0.3	0.0	1.3	0.5	1.4
Italy	1.8	0.4	−1.9	−0.3	0.2	0.3	−0.4	−2.0	0.7
Spain	−0.1	0.7	−1.8	0.1	−0.2	0.4	0.3	−2.5	1.3
Japan	4.4	−0.7	2.0	1.7	0.4	0.1	−0.6	2.0	1.8
United Kingdom	2.1	0.7	0.8	2.0	0.2	0.0	0.5	1.5	2.3
Canada	3.2	2.5	2.1	2.2	0.3	0.2	2.2	2.0	2.3
Other Advanced Economies[2]	5.8	3.2	2.6	3.5	0.0	0.1	2.5	3.6	2.9
Newly Industrialized Asian Economies	8.5	4.0	3.4	4.2	0.1	0.1	3.1	4.8	3.1
Emerging and Developing Economies[3]	**7.5**	**6.2**	**5.7**	**6.0**	**0.2**	**0.1**	**5.8**	**6.3**	**6.4**
Central and Eastern Europe	4.5	5.3	1.9	2.9	0.8	0.5	3.8	1.6	3.6
Commonwealth of Independent States	4.8	4.9	4.2	4.1	0.5	0.3	3.7	3.8	4.0
Russia	4.3	4.3	4.0	3.9	0.7	0.4	3.7	3.9	4.1
Excluding Russia	6.0	6.2	4.6	4.6	0.2	−0.1	. . .	. . .	. . .
Developing Asia	9.7	7.8	7.3	7.9	0.0	0.1	7.2	8.1	7.7
China	10.4	9.2	8.2	8.8	0.0	0.0	8.9	8.4	8.4
India	10.6	7.2	6.9	7.3	−0.1	0.0	6.1	6.9	7.2
ASEAN-5[4]	7.0	4.5	5.4	6.2	0.2	0.6	2.5	8.5	5.5
Latin America and the Caribbean	6.2	4.5	3.7	4.1	0.2	0.1	3.6	3.9	4.8
Brazil	7.5	2.7	3.0	4.1	0.1	0.1	1.4	4.7	3.4
Mexico	5.5	4.0	3.6	3.7	0.1	0.2	3.7	3.6	3.8
Middle East and North Africa (MENA)	4.9	3.5	4.2	3.7	0.6	−0.2	. . .	. . .	. . .
Sub-Saharan Africa	5.3	5.1	5.4	5.3	−0.1	0.0	. . .	. . .	. . .
South Africa	2.9	3.1	2.7	3.4	0.1	0.0	2.6	3.0	3.7
Memorandum									
European Union	2.0	1.6	0.0	1.3	0.1	0.1	0.9	0.2	1.7
World Growth Based on Market Exchange Rates	4.2	2.8	2.7	3.3	0.3	0.1	2.3	2.7	3.4
World Trade Volume (goods and services)	**12.9**	**5.8**	**4.0**	**5.6**	**0.2**	**0.2**	**. . .**	**. . .**	**. . .**
Imports									
Advanced Economies	11.5	4.3	1.8	4.1	−0.2	0.2	. . .	. . .	. . .
Emerging and Developing Economies	15.3	8.8	8.4	8.1	1.3	0.4	. . .	. . .	. . .
Exports									
Advanced Economies	12.2	5.3	2.3	4.7	−0.1	0.0	. . .	. . .	. . .
Emerging and Developing Economies	14.7	6.7	6.6	7.2	0.5	0.2	. . .	. . .	. . .
Commodity Prices (U.S. dollars)									
Oil[5]	27.9	31.6	10.3	−4.1	15.2	−0.5	20.8	10.8	−6.2
Nonfuel (average based on world commodity export weights)	26.3	17.8	−10.3	−2.1	3.7	−0.4	−6.4	0.1	−2.4
Consumer Prices									
Advanced Economies	1.5	2.7	1.9	1.7	0.3	0.4	2.8	1.7	1.6
Emerging and Developing Economies[3]	6.1	7.1	6.2	5.6	0.0	0.1	6.5	5.5	4.5
London Interbank Offered Rate (percent)[6]									
On U.S. Dollar Deposits	0.5	0.5	0.7	0.8	−0.2	−0.1	. . .	. . .	. . .
On Euro Deposits	0.8	1.4	0.8	0.8	−0.3	−0.4	. . .	. . .	. . .
On Japanese Yen Deposits	0.4	0.3	0.6	0.1	0.0	−0.1	. . .	. . .	. . .

Note: Real effective exchange rates are assumed to remain constant at the levels prevailing during February 13–March 12, 2012. 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 the G7 (Canada, France, Germany, Italy, Japan, United Kingdom, United States) and Euro Area countries.

[3]The quarterly estimates and projections account for approximately 80 percent of the emerging and developing economies.

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

[5]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 $104.01 in 2011; the assumed price based on futures markets is $114.71 in 2012 and $110.00 in 2013.

[6]Six-month rate for the United States and Japan. Three-month rate for the euro area.

Bank's (ECB's) three-year longer-term refinancing operations (LTROs) have forestalled an imminent liquidity squeeze that could have led to a banking crisis. Together with the recent commitment to increase the euro area firewall as well as fiscal and structural reforms (notably in Italy and Spain), this lowered sovereign risk premiums, notwithstanding some widening again lately. The recent extension of payroll tax relief and unemployment benefits has averted excessive fiscal tightening that would have harmed the U.S. economy. Nonetheless, markets are still very concerned about prospects in the euro area's weaker economies. Moreover, the challenges posed by risk sharing and governance in the euro area and by medium-term fiscal consolidation in the United States and Japan demand further action.

What Went Wrong in the Euro Area?

The euro area crisis is the product of the interaction among several underlying forces. As in other advanced economies, these forces include mispriced risk, macroeconomic policy misbehavior over many years, and weak prudential policies and frameworks. These interacted with EMU-specific flaws, accelerating the buildup of excessive public and private sector imbalances in several euro area economies, which were exposed in the aftermath of the Great Recession. The resulting crisis has had drastic consequences.

While the overall public and external debt levels of the euro area are lower than those of the United States and Japan, the crisis has exposed flaws in EMU governance. The Stability and Growth Pact was devised to bring about fiscal discipline but failed to forestall bad fiscal policies. Markets became increasingly integrated, with enormous cross-border bank lending, but supervision and regulation remained at a national level. The ECB was explicitly *not* allowed to be a lender of last resort, yet markets operated under the assumption that the authorities—governments and central banks—would be ready with a safety net if things went wrong. The perception that economies or banking systems were too big or too complex to fail underlay the idea that their liabilities had implicit guarantees. Under these circumstances, market forces did not function properly: sovereign and credit risks

Figure 1.1. Global Indicators

Indicators of global trade and production retreated during the second half of 2011. The forecast is for a reacceleration of activity starting in the second quarter of 2012. Disappointments relative to past projections are related to developments in the United States and Japan in 2011 and in Europe, notably the euro area, in 2012.
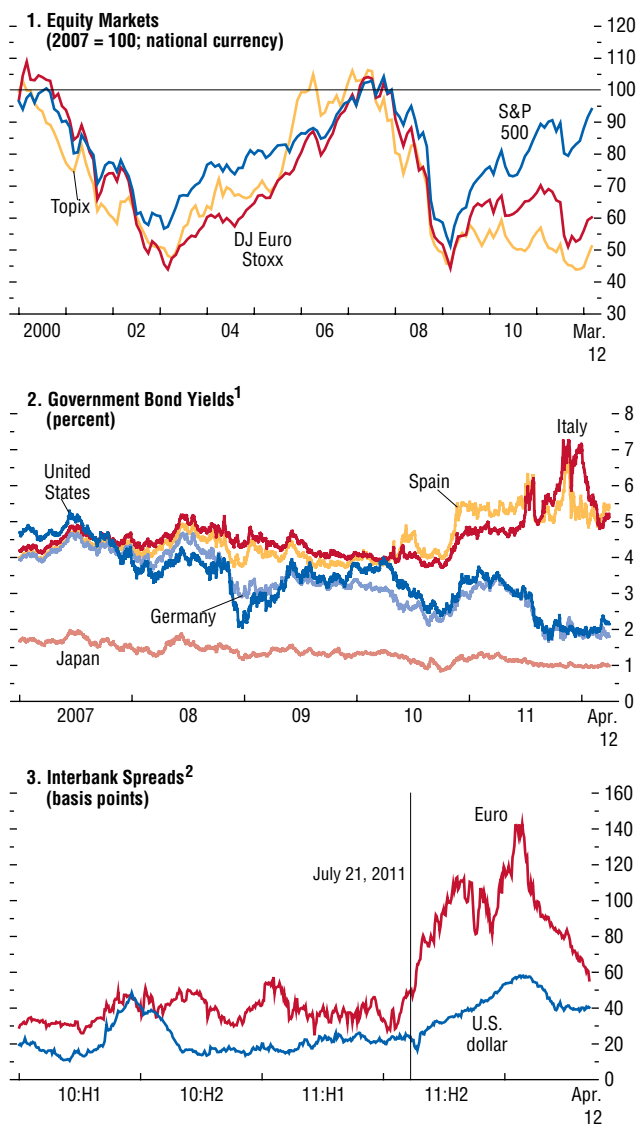

1. Industrial Production
(annualized percent change of three-month moving average over previous three-month moving average)

Real GDP Growth
(annualized quarterly percent change)

2. Advanced Economies

3. Emerging and Developing Economies

4. Contributions to Revisions in Global GDP Growth
(percentage points; WEO publication on *x*-axis)
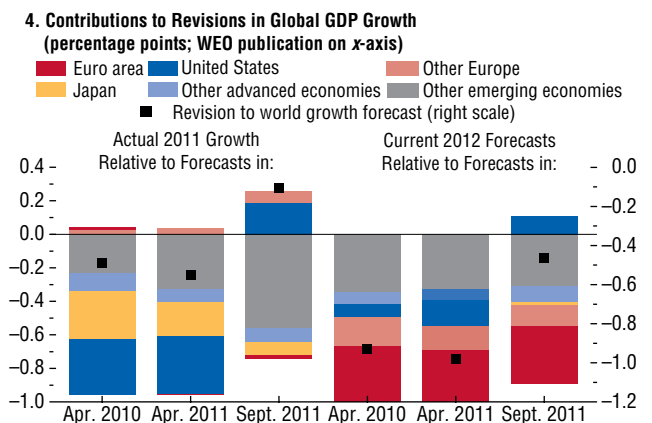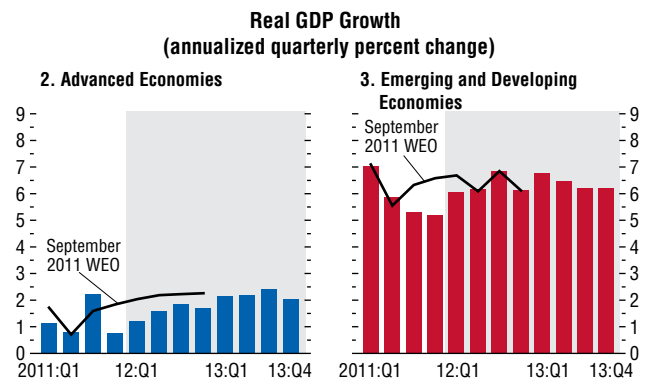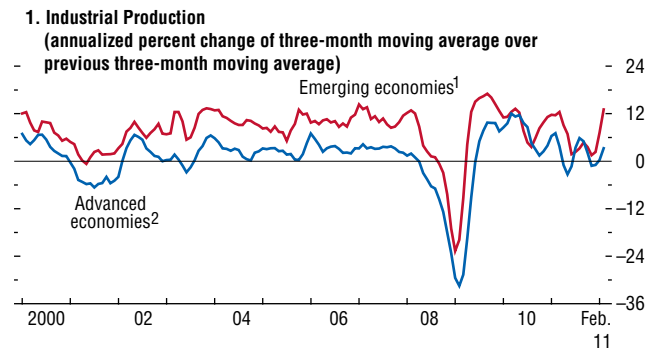
Source: IMF staff estimates.
[1]Argentina, Brazil, Bulgaria, Chile, China, Colombia, Hungary, India, Indonesia, Latvia, Lithuania, Malaysia, Mexico, Pakistan, Peru, Philippines, Poland, Romania, Russia, South Africa, Thailand, Turkey, Ukraine, and Venezuela.
[2]Australia, Canada, Czech Republic, Denmark, euro area, Hong Kong SAR, Israel, Japan, Korea, New Zealand, Norway, Singapore, Sweden, Switzerland, Taiwan Province of China, United Kingdom, and United States.

Figure 1.2. Recent Financial Market Developments

Financial conditions worsened appreciably in the fall of 2011 but have since improved. Economic data have surprised on the upside, most notably in the United States, and policy actions have brought down sovereign and bank risk premiums in the euro area.

1. Equity Markets
(2007 = 100; national currency)

S&P 500

Topix

DJ Euro Stoxx

2. Government Bond Yields[1]
(percent)

Italy

Spain

United States

Germany

Japan

3. Interbank Spreads[2]
(basis points)

Euro

July 21, 2011

U.S. dollar

Sources: Bank of America/Merrill Lynch; Bloomberg Financial Markets; Citigroup; and IMF staff calculations.
[1]Ten-year government bonds.
[2]Three-month London interbank offered rate minus three-month government bill rate.

were underestimated and mispriced, resulting in large cross-country divergences in fiscal and external current account balances.

Since the crisis hit, the euro area has had to develop new mechanisms of support to heavily indebted members while implementing severe fiscal restraint. Concerns about bailing out investors and burdening public budgets prompted euro area members to entertain sovereign debt restructuring for Greece. The Greek crisis then escalated over the summer as negotiations continued concerning private sector involvement, raising concern in markets that other sovereigns could consider debt restructuring as a partial alternative to strong fiscal restraint and support from their euro area peers. Markets reassessed the riskiness of Italian bonds in particular: corporate, bank, and government securities were marked down. Following European Banking Authority (EBA) stress tests, the euro area initially had neither a clear road map nor visibly available resources to recapitalize banks found to be in need of more capital.

Policy efforts to fix the problems are ongoing. Since September, progress has accelerated. Steps include the recent decision to combine the European Stability Mechanism (ESM) and the European Financial Stability Facility (EFSF), the introduction of three-year LTROs by the ECB, the publication of bank recapitalization plans by the EBA, the December summit decision to advance the implementation of the ESM treaty to mid-2012 and to improve fiscal governance and policy coordination, and national measures to strengthen fiscal balances and introduce structural reforms, including in Spain and Italy. The risk of a crisis has also been reduced as a result of the progress achieved in Greece, although the problems there and in other economies on the euro area periphery will likely persist for a long time.

Prospects

The outlook for the global economy is slowly improving again but is still very fragile. Real GDP growth should pick up gradually during 2012–13 from the trough reached during the first quarter of 2012 (Table 1.1; Figure 1.1, panels 2 and 3). Improved financial conditions, accommodative monetary policies, a similar pace of fiscal tightening as in 2011, and

special factors (reconstruction in Japan and Thailand) will drive the reacceleration. However, the recovery will remain vulnerable to several major downside risks. Regarding risks from Europe, the WEO projections assume that policymakers will prevent a Greek-style downward spiral from taking hold of another economy on the euro area periphery. However, it is assumed that additional support will be forthcoming only in the event of reintensified market turmoil. Thus, sovereign spreads and euro area banking system stress are expected to remain volatile and come down only gradually.

Tighter Financial Conditions, Mainly in the Euro Area

Financial conditions are projected to ease but stay tighter than those assumed in the September 2011 *World Economic Outlook*. The April 2012 *Global Financial Stability Report* underscores the continued high risks to financial stability relative to six months ago, despite policy steps to contain the euro area debt and banking crisis. In the euro area, sovereigns and banks face significant refinancing requirements for 2012, estimated at 23 percent of GDP. Deleveraging pressures are also likely to stay elevated, as banks undergo $2.6 trillion in balance sheet reduction over the next two years. Although these pressures are likely to affect mainly economies in the euro area periphery and in emerging Europe, they will be a drag on growth in core economies that could worsen if funding conditions deteriorate.

The ECB's LTROs have averted a liquidity-driven crisis by replacing private funding with official financing, but fundamental weaknesses remain. The recent EBA assessment of banks' capital plans suggests that, in aggregate, capital measures will adequately address the shortfalls, which will limit the negative impact on lending to the real economy. The LTROs also have helped boost demand for sovereign paper (including by banks), contributing to lower risk spreads. Lower spreads have supported a recovery of equity prices and mitigated pressures for rapid deleveraging by banks. In addition, the LTROs may have been interpreted by markets as signaling greater ECB resolve to do what it takes to stabilize financial conditions.

Nonetheless, stress in sovereign funding markets remains and will likely recede only slowly from pres-

Figure 1.3 Current and Forward-Looking Growth Indicators[1]

Leading indicators suggest that activity is bottoming out. Global output may be boosted by inventory rebuilding and investment as supply-side disruptions from the earthquake and tsunami in Japan and the floods in Thailand continue to unwind. Oil prices are projected to rise much less than in 2011, which will give some support to consumption growth.

1. Purchasing Managers' Index (manufacturing index)

2. Estimated Change in Global Inventories (index)[4]

3. Real Private Consumption (annualized quarterly percent change)

4. Real Gross Fixed Investment (annualized quarterly percent change)

5. Food and Oil Prices
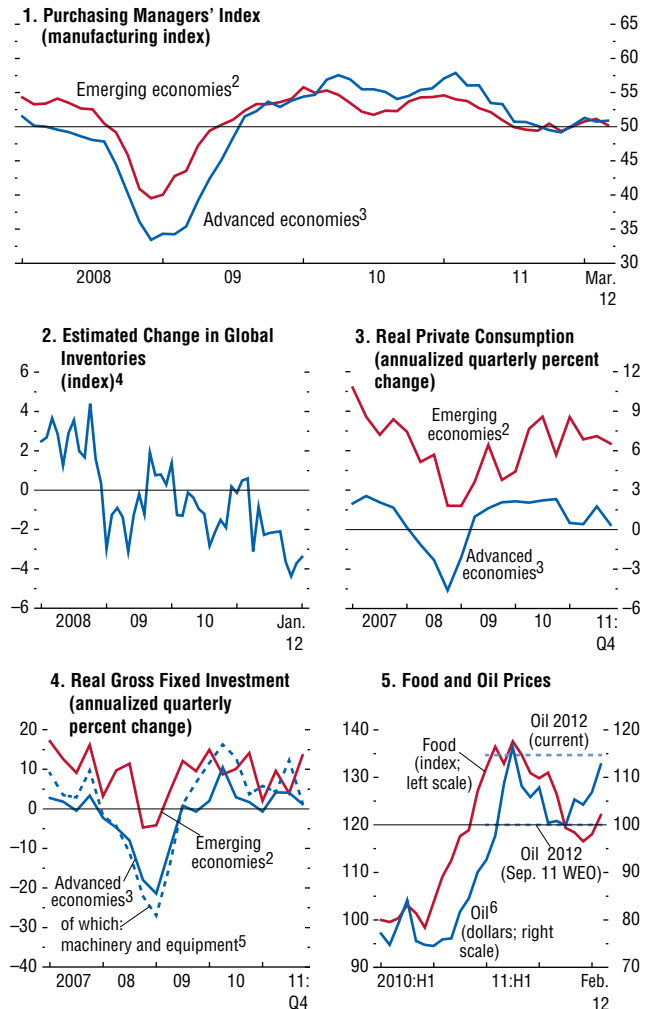
Sources: Haver Analytics; and IMF staff calculations.
[1]Not all economies are included in the regional aggregations. For some economies, monthly data are interpolated from quarterly series.
[2]Argentina, Brazil, Bulgaria, Chile, China, Colombia, Hungary, India, Indonesia, Latvia, Lithuania, Malaysia, Mexico, 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.
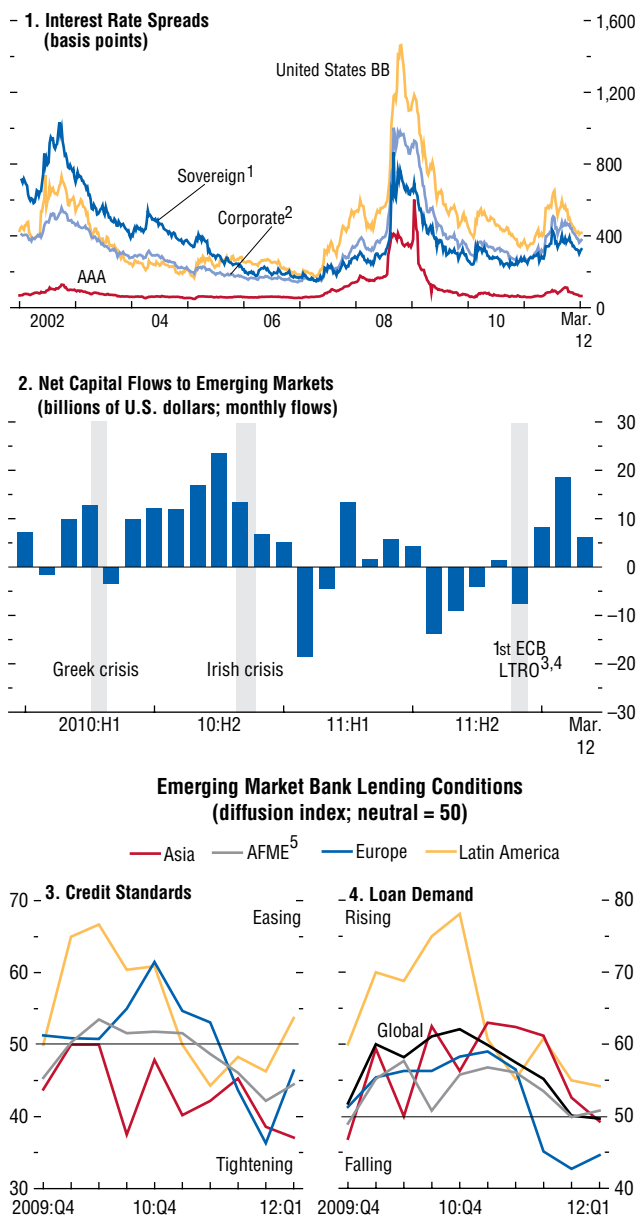[4]Based on deviations from an estimated (cointegral) relationship between global industrial production and retail sales.
[5]Purchasing-power-parity-weighted averages of metal products and machinery for the euro area, plants and equipment for Japan, plants and machinery for the United Kingdom, and equipment and software for the United States.
[6]U.S. dollars a barrel: simple average of spot prices of U.K. Brent, Dubai Fateh, and West Texas Intermediate crude oil.

Figure 1.4. Emerging Market Conditions

Financial conditions in emerging markets began to tighten during the fall of 2011. Amid a general flight from risk, interest rate spreads rose. Funding conditions worsened for banks, contributing to a tightening of lending standards, and capital inflows diminished. However, these flows are now returning with new vigor, and risk spreads have come down again.

1. Interest Rate Spreads
(basis points)

United States BB

Sovereign[1]

Corporate[2]

AAA

2. Net Capital Flows to Emerging Markets
(billions of U.S. dollars; monthly flows)

Greek crisis

Irish crisis

1st ECB LTRO[3,4]

Emerging Market Bank Lending Conditions
(diffusion index; neutral = 50)

Asia   AFME[5]   Europe   Latin America

3. Credit Standards

Easing

Tightening

4. Loan Demand

Rising

Global

Falling

Sources: Bloomberg Financial Markets; Capital Data; EPFR Global; Haver Analytics; IIF Emerging Markets Bank Lending Survey; and IMF staff calculations.
[1]JPMorgan EMBI Global Index spread.
[2]JPMorgan CEMBI Broad Index spread.
[3]ECB = European Central Bank.
[4]LTRO = Longer-term refinancing operations.
[5]AFME = Africa and Middle East.

ent levels, as governments gradually regain the trust of investors through successful consolidation and structural reform. Together with weaker activity, this stress will continue to affect corporate funding markets. In the meantime, the risk of a renewed flare-up will continue to weigh on financial conditions.

Under these circumstances, bank lending in the crisis-hit economies of the euro area, which has already dropped sharply, is likely to stay very low (Figure 1.5, panel 1) as banks seek to strengthen their balance sheets with a view to staving off public intervention or resolution and to regain access to market funding.[1] In the core economies, financial conditions will likely remain much less tight than in the economies on the periphery. Nonetheless, even if subject to a considerable amount of uncertainty, it appears from the April 2012 *Global Financial Stability Report* calculations for a "current policies" scenario that balance sheet deleveraging could result in an appreciable drop in lending for the euro area as a whole, with the bulk of the reduction falling on economies on the periphery.

Outside Europe, spillovers from the euro area are likely to have limited effects on economic activity for as long as the euro area crisis is contained, as is assumed in the projections. The key channels are lower confidence, less trade, and greater financial tension (Figure 1.6). These are discussed in more depth in Chapter 2 and in the Spillover Feature in Chapter 2.

- The bond markets of Germany, Japan, Switzerland, the United Kingdom, and the United States have experienced safe haven inflows, which has lowered long-term government bond rates (see Figure 1.2, panel 2). This has offset the effects of rising risk aversion on the cost of corporate funding in some of these markets. In Japan and Switzerland, the inflows have led to significant exchange rate volatility, prompting official intervention.
- Contagion from the turbulence in the euro area caused a significant drop in capital inflows to many emerging market economies, resulting in higher interest spreads and lower asset prices. However, the recent easing of strains has already

[1]However, reduced lending is expected to contribute only modestly to raising core Tier 1 capital ratios to the 9 percent level recommended by the EBA, according to banks' plans (see also the April 2012 *Global Financial Stability Report*).

caused a sharp reversal in flows (see Figure 1.4, panel 2). The real effects of the outflows were small in most regions, not least because they helped bring down overvalued currencies and lower pressure on overheating sectors. Capital flows are likely to stay volatile, complicating policymaking. As noted in the April 2012 *Global Financial Stability Report*, with many emerging market economies at a later stage in the credit cycle, there is now less room to ease credit policies if capital flows deteriorate.

Spillovers from bank deleveraging are being felt more strongly, mainly in Europe (Figure 1.6, panel 2). Central and eastern European (CEE) and various Commonwealth of Independent States (CIS) economies are most vulnerable and already saw appreciable deleveraging during the third quarter of 2011; this likely continued at a more rapid pace during the fourth quarter. However, some of the larger economies are continuing to see significant portfolio inflows. In other emerging market economies, exposure to European bank deleveraging either is more limited or local institutions have the capacity to step in—albeit at higher cost. However, if disruptions in the euro area worsen, access to funding is very likely to tighten everywhere.

Domestic developments generally point to modest financial tightening elsewhere in the world, except in the United States. U.S. bank lending behavior and recent surveys suggest gradually easing conditions, but from very tight levels. Lending by midsize and small banks may be constrained for some time by market funding issues and weak real-estate-related portfolios. In many emerging markets, lending surveys suggest tightening conditions as a result of more difficult access to local and international funding (Figure 1.4, panels 3 and 4). Bank loan growth has slowed in China and India amid concerns about deteriorating loan quality. Continued elevated or accelerated loan growth is, to varying degrees, raising concern in Argentina, Brazil, Colombia, Indonesia, and Turkey.

Modestly Easing Global Monetary Conditions

Monetary policy is generally expected to maintain an easy stance (Figure 1.7, panel 1). Many central

Figure 1.5. Credit Market Conditions

Lending conditions tightened noticeably in the euro area recently, and credit growth slumped in late 2011. Developments were more positive in the United States and Japan. Looking ahead, conditions can be expected to ease somewhat. While the central bank balance sheet has expanded noticeably in the United States and the euro area, it has not done so in Japan. Broad money growth has remained very subdued in the euro area and Japan but has picked up in the United States, consistent with improving activity.
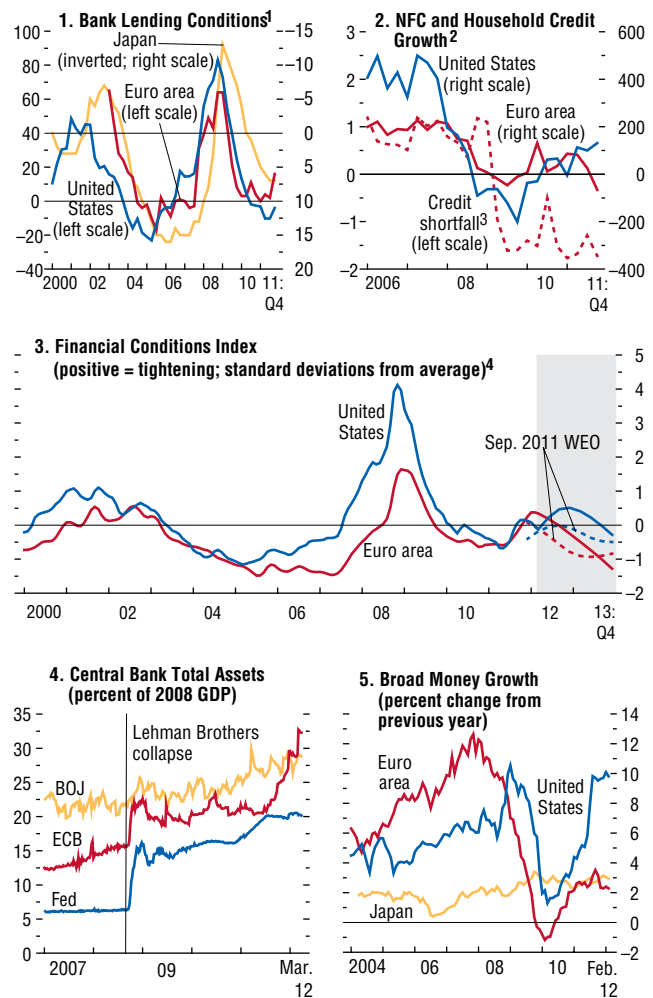
Sources: Bank of Japan (BOJ); Bloomberg Financial Markets; European Central Bank (ECB); Federal Reserve (Fed); Haver Analytics; and IMF staff estimates.
[1]Percent of respondents describing lending standards as tightening "considerably" or "somewhat" minus those indicating standards as easing "considerably" 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 attitude of financial institutions for Japan.
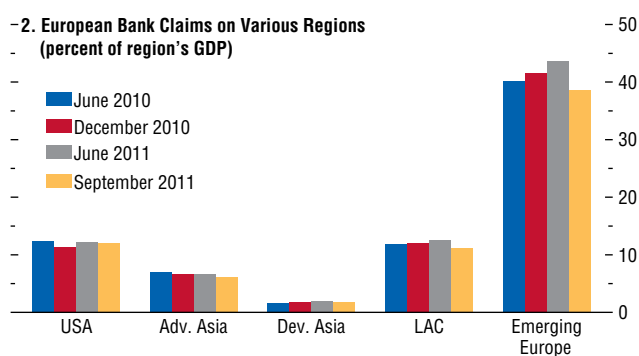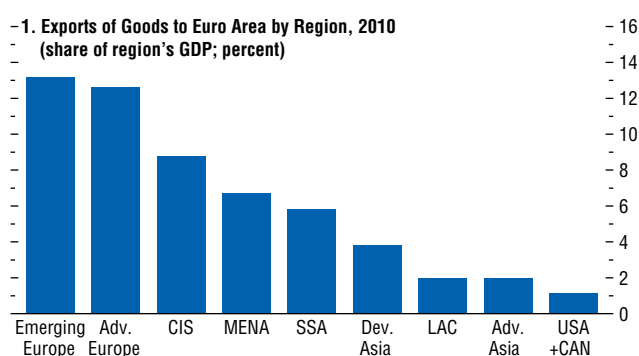[2]NFC: nonfinancial corporation. Level change in amounts outstanding in billions of local currency units.
[3]Credit shortfall is the residual from a regression of real private sector credit growth on real GDP growth for the euro area.
[4]Historical data are monthly, and forecasts are quarterly.

Figure 1.6. Euro Area Spillovers[1]

Spillovers from the euro area to activity elsewhere are likely to be limited, except elsewhere within Europe, where there are strong trade and banking linkages.

1. Exports of Goods to Euro Area by Region, 2010 (share of region's GDP; percent)

2. European Bank Claims on Various Regions (percent of region's GDP)

June 2010
December 2010
June 2011
September 2011

Sources: Bank for International Settlements; IMF, *Direction of Trade Statistics;* and IMF staff calculations.

[1]Adv. Asia: advanced Asia; Adv. Europe: advanced Europe excluding euro area countries; CAN: Canada; CIS: Commonwealth of Independent States; Dev. Asia: developing Asia; LAC: Latin America and the Caribbean; MENA: Middle East and North Africa; SSA: sub-Saharan Africa; USA: United States.

banks have already responded to slowing activity by cutting policy rates (Australia, Brazil, euro area, Indonesia, Israel, Philippines, Romania, Thailand, Turkey). Recently, the Bank of Japan and Bank of England expanded their unconventional policy interventions, and the Federal Reserve signaled its conditional intention to maintain exceptionally low interest rates at least through late 2014; this may have helped lower interest rates further into the future and weakened the U.S. dollar.

- Rates are expected to stay close to the zero lower bound in the United States and Japan for at least the next two years. For the euro area, markets are pricing in modest easing; policy rates in other advanced economies are expected to stay on hold or decline modestly.
- Across emerging market economies, rates are generally expected to be stable or decline somewhat. In economies where macroprudential measures have successfully dampened overheating real estate markets, the authorities may lighten some of these measures.

Continued Tightening of Fiscal Policy

Fiscal policy at the global level will tighten in 2012 by slightly less than in 2011, mainly because of reconstruction efforts in Japan and substantially less tightening in emerging market economies. The tightening will be concentrated in the advanced economies (Figure 1.7, panels 2 and 3).

- In the euro area, the fiscal withdrawal in 2012 is projected to amount to about 1½ percent of GDP, up from about 1 percent of GDP in 2011. In the United States, the projected tightening for 2012 is about 1¼ percent of GDP, up from less than ¾ percent of GDP in 2011. In Japan, earthquake-related reconstruction spending (equivalent to ¾ percent of GDP) will contribute to raising the structural deficit by about ½ percent of GDP. In 2013, the pace of tightening is expected to drop off in the euro area but pick up in the United States and Japan.
- In emerging and developing economies, the pace of fiscal tightening is projected to drop from about 1¼ percent of GDP in 2011 to less than ¼ percent of GDP in 2012, primarily as a result

of less ambitious fiscal restraint in some major emerging market economies (for example, China, India, Russia).

Gross-debt-to-GDP ratios will rise further in many advanced economies, with a particularly steep increase in the G7 economies, to about 130 percent by 2017. Without more action than currently planned, debt ratios are expected to reach 256 percent in Japan, 124 percent in Italy, close to 113 percent in the United States, and 91 percent in the euro area over the fore-cast horizon. In the G7 economies of the euro area, these ratios would be reached in 2013, after which they would fall, whereas in Japan and the United States the debt ratios are projected to rise through the forecast horizon, which extends to 2017. In a striking contrast, many emerging and developing economies will see a decline in debt-to-GDP ratios, with the overall ratio for the group dropping to below 30 per-cent by 2017. The April 2012 *Fiscal Monitor* provides more detail at the country level and discusses the role of growth and interest rate assumptions in driving the debt dynamics.

Volatile or Falling Commodity Prices

Oil prices rose sharply during 2010 and early 2011 to about $115 a barrel, then eased to about $100 a barrel, and now are back up to about $115 a barrel (Figure 1.3, panel 5). Production recovered in Libya but fell in various other Organization of Petroleum Exporting Countries (OPEC) producers, and non-OPEC output remained relatively weak. In addition, geopolitical risks—notably those centered on the Islamic Republic of Iran—have boosted oil prices. Projections for 2012–13 assume that oil prices recede to about $110 a barrel in 2013, in line with prices in futures markets, but in the current environment low stocks and limited spare capacity present important upside risks.

Other commodity prices have recently been given a temporary boost by better-than-expected macro-economic results, but they continue to run much lower than in 2011. WEO projections assume a decline in the nonfuel commodity price index of 10.3 percent in 2012 and 2.7 percent in 2013 (see Table 1.1). An important factor here is improved prospects for the food supply during 2012. Stocks

Figure 1.7. Monetary and Fiscal Policies

Policy rates are expected to stay on hold for a prolonged period in advanced economies. Fiscal policy is projected to continue tightening in 2012 but at broadly the same pace as in 2011: more in advanced economies but much less in emerging and developing economies. Public debt is projected to reach a very high level in advanced economies in 2017 but to stay low in emerging and developing economies.
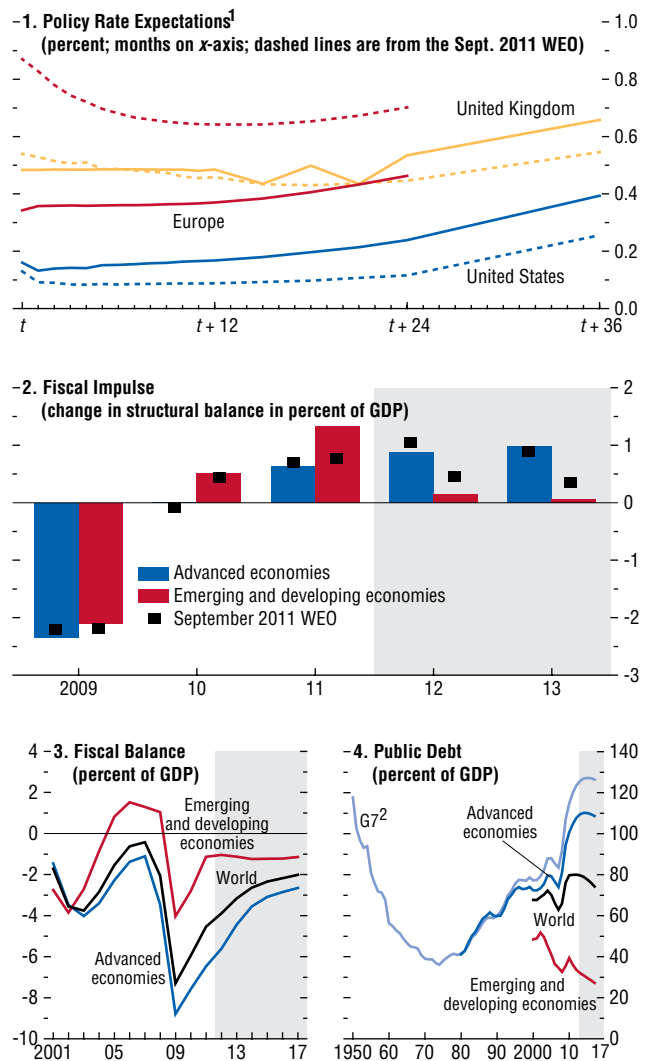
Sources: Bloomberg Financial Markets; and IMF staff estimates.
[1]Expectations are based on the federal funds rate for the United States, the sterling overnight interbank average rate for the United Kingdom, and the euro interbank offered forward rates for Europe; updated April 3, 2012.
[2]G7 comprises Canada, France, Germany, Italy, Japan, United Kingdom, and United States.

are still low, which poses risks, but a return to more normal levels appears to be under way. This is good news for many vulnerable households.

Forecast for 2012–13

Real GDP growth is forecast to slow to about 3½ percent in 2012, from about 4 percent in 2011, and to return to 4 percent in 2013 (see Table 1.1). In the advanced economies, growth is projected at about 1½ percent in 2012 and 2 percent in 2013. Because of weak confidence, fiscal consolidation, and still-tight financial conditions in a number of economies, euro area GDP is forecast to contract in 2012 by about ¼ percent, after expanding by about 1½ percent in 2011. Helped by improving financial conditions and less fiscal tightening, growth should rebound to about 1 percent in 2013—nonetheless, the output gap would stay above 2 percent of potential GDP, up from about 1½ percent in 2011. U.S. real GDP growth is projected to strengthen somewhat relative to 2011, at about 2 to 2½ percent during 2012–13, implying only modest change in the 5 percent of GDP output gap. In Japan, real GDP growth is projected at about 2 percent in 2012, recovering from the output losses in 2011 related to the earthquake and Thai floods. Labor market conditions are likely to remain very difficult in many advanced economies. A further concern is that much of the increase in GDP since the trough has flowed to profits (Box 1.1), and it is likely to be some time before conditions favor sustained real wage increases. Accordingly, governments must provide adequate assistance to the unemployed in the form of income support, skill building and professional training, and job search resources.

Expansion in the emerging and developing economies is projected to remain at about 5½ to 6 percent through 2013. Modest negative spillovers from the euro area are expected to be largely offset by monetary easing and reduced fiscal policy tightening—except in various CEE and CIS economies. In emerging Asia, recovery from the Thai floods and more demand from Japan will help propel output. In Latin America, financial conditions and commodity prices remain favorable; the recent policy tightening will weigh on activity for some time, but prospects should improve later in 2012. In the MENA region, the near-term

outlook is challenging. Oil importers' growth is not expected to pick up given heightened domestic uncertainty and difficult external conditions, and the outlook for oil exporters is also muted, reflecting flat oil and gas production. (The increase in growth projected for 2012 reflects the rebound of activity in Libya.) In SSA economies, activity should remain relatively strong, helped by growing production of both crude oil and minerals. The labor market challenges in emerging and developing economies vary widely. Unemployment rates are very high in various CEE and CIS economies that have been hit by the crisis as well as in the MENA region, where job creation has been subdued but many young people are entering the labor force. By contrast, unemployment rates are relatively low in many emerging Asian and Latin American economies, thanks to strong growth in recent years.

Consumption dynamics are forecast to improve modestly in 2012 relative to 2011. Continued deleveraging by households and governments means that household consumption will not accelerate much in the major advanced economies (Figure 1.3, panel 3). This stands in sharp contrast to the consumption dynamics in the emerging and developing economies, which have been a hallmark of the recovery thus far (Box 1.2). In the United States, consumption is expected to withstand the fiscal tightening, thanks to improvements in the labor market and fewer energy and food price hikes. The saving rate is projected to be broadly stable, at about 4 to 4½ percent. Low real estate prices are depressing net worth, which encourages saving, even as debt-to-income ratios have fallen back to 2004 levels (Figure 1.8, panel 1). In the euro area, prospects for consumption are generally weak because of fallen confidence, employment, and incomes and high debt in various economies on the periphery. Germany and a few other countries may break the pattern. In many emerging and developing economies, consumption is expected to stay robust, consistent with strong labor markets.

Greater uncertainty, accelerated deleveraging by banks in the euro area, and credit tightening in selected emerging market economies suggest that the growth of fixed investment is likely to slow (Figure 1.3, panel 4). Investment (including inventories) may be boosted temporarily by a need to expand capacity

as production makes up the losses related to natural disasters (Figure 1.3, panel 2). But high uncertainty and tighter financial conditions will push in the opposite direction in the euro area and the CEE and CIS economies. In various emerging market economies, notably China, real estate markets are cooling down, which implies slowing investment in construction.

Despite appreciable slack in the major advanced economies, other economies will operate close to or above full capacity, and thus inflation dynamics will vary (Figure 1.9).

- Commodity price hikes have held up headline inflation in major advanced economies. At the same time, core inflation and wage gains have remained low. In the United States and the euro area, unit labor costs have receded or stagnated, respectively, over the past few years. As labor markets improve only very gradually, headline inflation in the United States is projected to fall to about 2 percent in 2013 (Figure 1.9, panel 1). The projection for the euro area is about 1½ percent for 2013. Prices in Japan are projected to move broadly sideways.

- Inflation prospects are more diverse across emerging market economies (Figure 1.9, panels 3 and 4). As discussed in Chapter 2, the recent easing of inflation is partly a result of lower commodity prices. In emerging Europe the picture is mixed, but pressures are expected to ease during 2012. In emerging Asia, headline inflation is slowing and expected to continue on this path. However, inflation is projected to stay elevated in parts of the region, notably in India, and to accelerate in Indonesia. In Latin America, many of the major economies are operating close to full capacity and inflation is forecast to decline only modestly. In the CIS, MENA, and parts of SSA, inflation pressure is expected to stay quite elevated, reflecting accommodative macroeconomic policies and supply-side disruptions.

Medium-Term Prospects and Global Imbalances

Medium-term prospects remain very challenging for advanced economies but much better for emerging and developing economies. A key question is whether the forecasts for emerging Asia and Latin America are too optimistic, considering the downward revisions to the

Figure 1.8. Balance Sheets and Saving Rates
(Percent unless noted otherwise)

Balance sheets have improved in the United States but household net worth remains low, weighing on consumption. Saving rates are projected to move broadly sideways. In the euro area, balance sheets have strengthened to a lesser extent, and house prices may need to correct further.
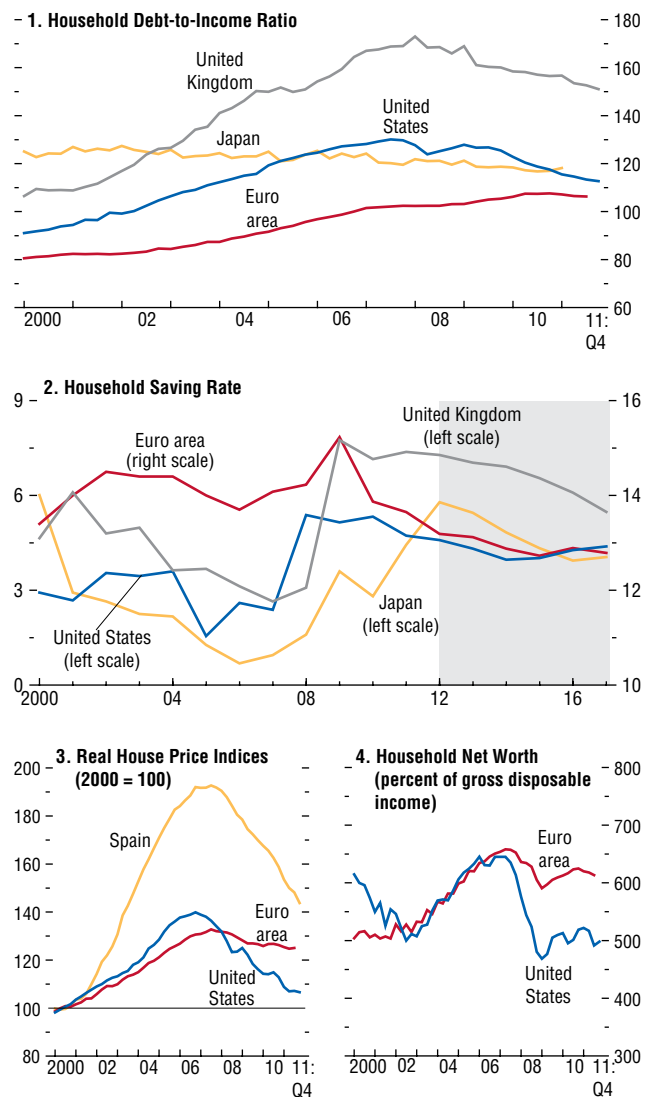

Sources: Haver Analytics; Organization for Economic Cooperation and Development; and IMF staff estimates.

Figure 1.9. Global Inflation

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

Inflation pressure is easing. In the major advanced economies, domestic inflation pressure, as measured by the GDP deflator, is low. In emerging market economies, pressure varies widely but is generally projected to recede modestly.

Advanced Economies

Emerging Market Economies
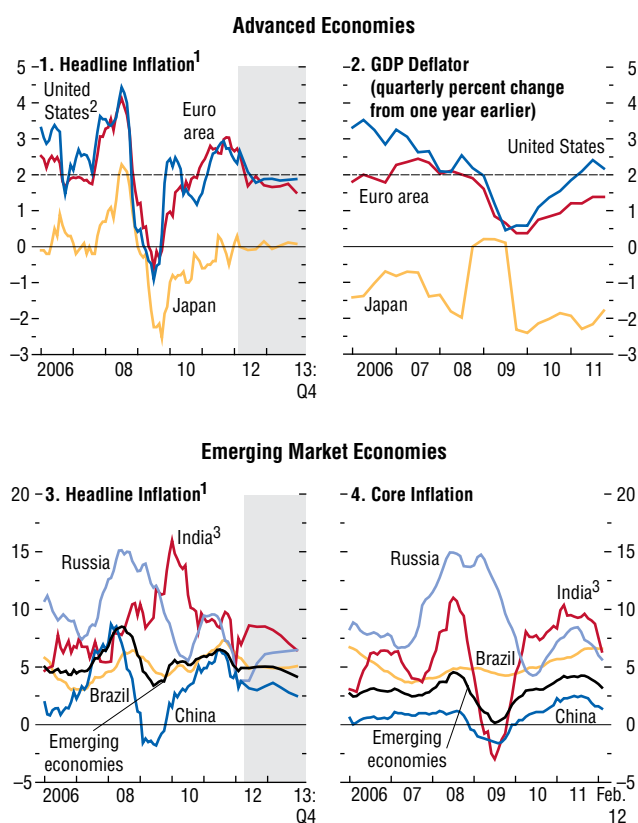
Sources: Haver Analytics; and IMF staff estimates.
[1] Historical data are monthly, and forecasts are quarterly.
[2] Personal consumption expenditure deflator.
[3] Consumer price index for industrial workers for headline inflation; wholesale price index excluding food and energy for core inflation.

potential output of advanced economies (Figure 1.10, panel 1) and modest but persistent disappointments over the past couple of years (see Figure 1.1, panel 4). Previous issues of the *World Economic Outlook* have cited high credit growth rates (Figure 1.10, panels 2 and 3), booming real-estate-related activity, and strong commodity prices as drivers of growth. Evidence suggests that episodes of high credit and GDP growth are typically followed by episodes of much lower growth. This also holds following episodes with booming commodity prices, which is discussed further in Chapter 4. Policymakers therefore should not assume that strong recent performance that largely reflects these same factors is a good guide to future performance.

The latest WEO projections suggest that global imbalances are no longer expected to widen, reflecting mainly the contribution of lower surpluses from Japan and the oil exporters and of lower deficits from the United States and elsewhere (Figure 1.11, panel 3). Because the sharp drop in consumption relative to precrisis projections in the United States and other deficit economies has not been offset by higher domestic demand growth in surplus economies, including China, the result has been a major drop in global demand relative to precrisis projections. This outcome reflects excesses in the deficit economies that had to unwind and policy shortcomings in surplus economies.

The implications of the new current account projections are still under study as a new methodology for assessing the multilateral consistency of the real effective exchange rate is being developed. The main change among the major currencies since publication of the September 2011 *World Economic Outlook* is a 6 to 7 percent increase in the real effective exchange rates of the U.S. dollar and the renminbi and a large downward revision to the medium-term forecast for China's current account surplus. However, its surplus is still expected to rise from present levels as cyclical factors unwind (Box 1.3) and to reach a relatively high share in global GDP. Thus the contribution of emerging Asia to current account balances in not forecast to narrow (see Figure 1.11, panel 3). In addition, the decline in China's external imbalance has been accompanied by growing tension from internal imbalances—high levels of investment and low consumption—which remain to be addressed. This calls for additional structural reforms and exchange rate adjustment to shift incentives away from investment,

particularly in the tradables sector, and toward higher household income and greater consumption.

Many emerging market economies continue to build up international reserves or other foreign assets (Figure 1.11, panel 2). In some instances, this behavior is understandable; in others, reserves have reached very high levels, and the continued accumulation reflects a desire to maintain a competitive exchange rate.

Risks

Recent policy actions have helped bring down risks, as borne out by various market risk metrics, but the global economy remains unusually vulnerable. The two most immediate risks are renewed escalation of the euro area crisis and heightened geopolitical uncertainty, which could trigger a sharp increase in the price of oil. Other risks include growing disinflation pressure, especially in parts of the euro area and—over the medium term—disruptions to global bond markets from accident-prone political economies and high budget deficits and debt in the United States and Japan and unwinding credit booms in some emerging market economies. There are also upside risks: growth might turn out stronger than projected if there is more rapid recovery in the United States and the euro area, thanks to a stronger policy response to the euro area crisis and improved confidence, and if the geopolitical tensions recede and the risk premium in oil prices dissipates. Greater confidence and waning supply-side disruptions could also foster a more forceful rebound in global durables consumption and investment, helped by generally healthy corporate balance sheets and less costly capital.

The standard fan chart suggests that risks have receded relative to the September 2011 *World Economic Outlook* (Figure 1.12, panel 1). The width of the forecast's 90 percent confidence band is now somewhat narrower than in September. This narrowing reflects a smaller dispersion in analysts' forecasts for the term spread, oil prices, and the VIX—the Chicago Board Options Exchange Market Volatility Index (Figure 1.12, panel 3). In the September 2011 *World Economic Outlook*, quantitative indicators implied that the risk of a serious global slowdown—that is, global growth falling below 2 percent in 2012—was about 10 percent. According to the IMF

Figure 1.10. Emerging Market Economies[1]

Many emerging market economies in Asia and Latin America are growing above precrisis trends and are projected to continue to do so, unlike many advanced economies. However, WEO projections still see some slack. Credit growth in these economies is also still high. Usually, periods of high real GDP and credit growth are followed by periods of lower real GDP growth.
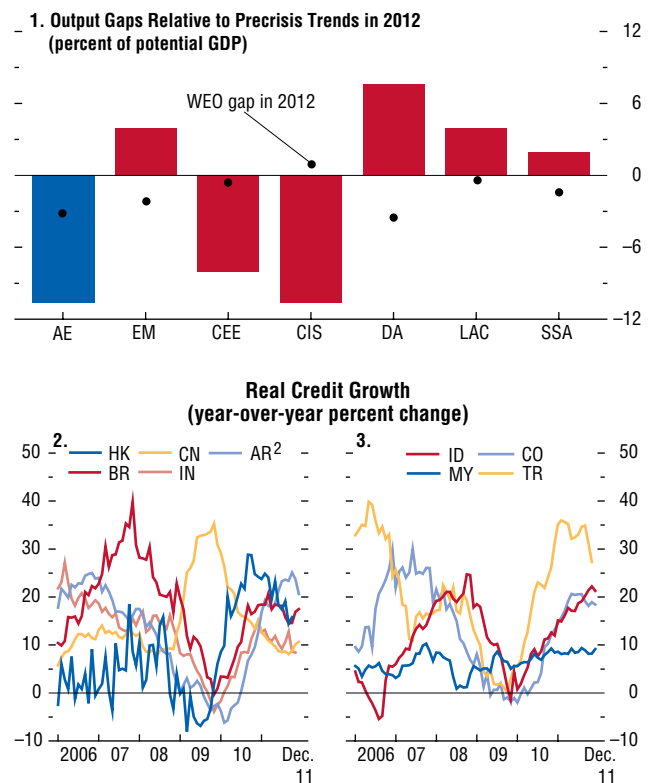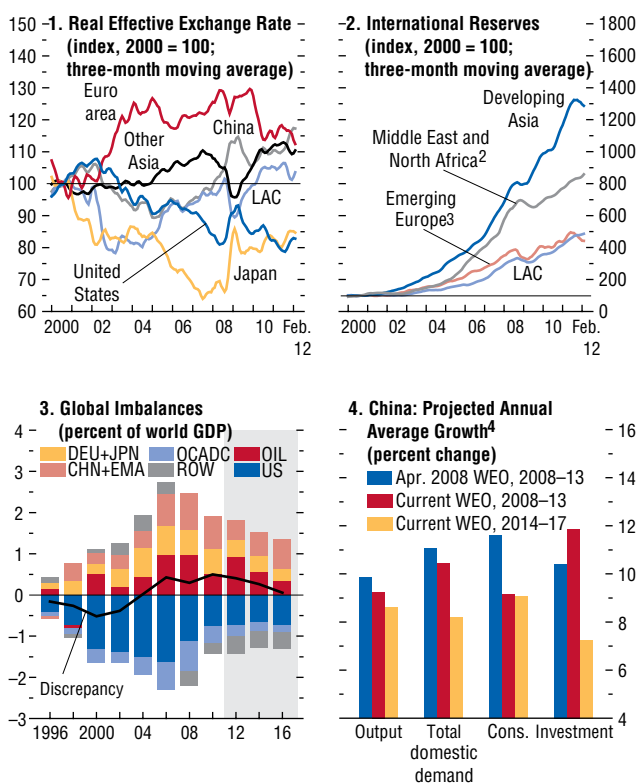

Sources: IMF, *International Financial Statistics;* and IMF staff calculations.
[1]AR: Argentina; AE: advanced economies; BR: Brazil; CEE: central and eastern Europe; CIS: Commonwealth of Independent States; CN: China; CO: Colombia; DA: developing Asia; EM: emerging economies; HK: Hong Kong SAR; ID: Indonesia; IN: India; LAC: Latin America and the Caribbean; MY: Malaysia; SSA: sub-Saharan Africa; TR: Turkey. Credit refers to bank credit to the private sector.
[2]Nominal credit is deflated using the IMF staff's estimate of average provincial inflation.

Figure 1.11. Global Imbalances[1]

Recently, the U.S. dollar, yen, and renminbi have appreciated in real effective terms, while most other currencies have depreciated. Major emerging market economies, with the exception of China, have continued to build up international reserves. Global imbalances are no longer projected to widen. The latest revision to medium-term current account projections mainly reflects a lower surplus in China.

1. Real Effective Exchange Rate
(index, 2000 = 100;
three-month moving average)

2. International Reserves
(index, 2000 = 100;
three-month moving average)

3. Global Imbalances
(percent of world GDP)

DEU+JPN OCADC OIL
CHN+EMA ROW US

4. China: Projected Annual
Average Growth[4]
(percent change)

Apr. 2008 WEO, 2008–13
Current WEO, 2008–13
Current WEO, 2014–17

Sources: IMF, *International Financial Statistics;* 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; LAC: Latin America and the Caribbean; 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]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.
[3]Bulgaria, Croatia, Hungary, Latvia, Lithuania, Poland, Romania, and Turkey.
[4]Variables in real terms. Cons. is total consumption.

staff's methodology, the probability has declined to about 1 percent for 2012. There are four risk indicators underlying the fan chart (Figure 1.12, panel 2):

- *Term spread:* Judging by *Consensus Forecasts* for interest rates, risks to growth are to the upside for 2012.
- *S&P 500:* Options prices suggest that risks to growth are to the upside for 2012.
- *Inflation:* For 2012, there is an upside risk for global inflation, which, based on the fan chart, means a downside risk for global growth.[2]
- *Oil market:* Risks through 2013 remain to the upside for oil prices and thus to the downside for global growth.

The fan chart provides a market perspective on risks, whereas the Global Projection Model (GPM) uses the IMF staff's model-based analysis and projections for GDP and inflation. GPM estimates suggest that there is still substantial risk of a new (or prolonged) recession in several advanced economies. The probability of negative output growth in 2012 is about 55 percent for the euro area, 15 percent for the United States, 14 percent for Japan, and 3 percent for Latin America (Figure 1.13, panel 1). New shocks or policy mistakes could push one of the major advanced economies into prolonged deflation.

Over the medium term, the threat of a debt-deflation spiral continues to loom in several economies, especially in the euro area, where the GDP deflator growth has been about 1 percent only for three years already. The GPM inflation forecasts suggest that in the final quarter of 2013, the probability of a fall in consumer prices is above 25 percent for the euro area and above 35 percent in Japan (Figure 1.13, panel 2). By contrast, the corresponding probability for the United States is less than 10 percent. As gauged by a composite indicator, the risks of sustained deflation at the global level have retreated since 2008 (Figure 1.13, panel 3).[3] Nevertheless, deflation pressure is

[2]Based on past experience, the fan chart methodology assumes that causation goes from inflation to growth rather than vice versa. A risk of lower inflation then means that monetary policy could ease more than expected, which would generate higher growth. For further discussion, see Elekdag and Kannan (2009). At present, however, in the major advanced economies there is much less room than usual for cutting interest rates.

[3]For details on the construction of this indicator, see Decressin and Laxton (2009).

prominent in various economies on the periphery of the euro area (Greece, Ireland, Spain).

### Increased Bank and Sovereign Stress in the Euro Area

In the near term, a key downside risk is reintensification of adverse feedback loops between bank asset quality and sovereign risk in the euro area. Figure 1.14 presents this downside scenario, which assumes that banks tighten lending standards and constrain credit growth to rebuild capital buffers, consistent with the April 2012 *Global Financial Stability Report* "weak policies" scenario. Given the resulting weaker growth outlook, concerns over fiscal sustainability intensify and sovereign spreads rise. In addition, increased market concern means that several euro area sovereigns are forced into more front-loaded fiscal consolidation, which further depresses near-term demand and growth. This in turn leads to further deterioration of bank asset quality—owing to higher losses on sovereign debt holdings—and an increase in nonperforming loans to the private sector, prompting further tightening in credit standards, and so on. In the simulation, private investment declines by almost 15 percent (relative to WEO projections). Euro area output falls by 3½ percent relative to the WEO forecast, and domestic inflation would fall close to zero. Assuming that credit contractions in other regions follow those contained in the *Global Financial Stability Report* weak policies scenario, and taking into consideration spillovers via international trade, global output would be lower than the WEO projections by about 2 percent. The repercussions of this scenario for the various regions are discussed in Chapter 2.

Adverse Oil Supply Shock

The impact on oil prices of a potential or actual disruption in oil supplies involving the Islamic Republic of Iran—the world's third largest exporter of crude oil—would be large if not offset by supply increases elsewhere. A halt of Iran's exports to Organization for Economic Cooperation and Development (OECD) economies (if not offset) would likely trigger an initial oil price increase of about 20 to 30 percent, with other producers or

Figure 1.12. Risks to the Global Outlook

Risks around the WEO projections have diminished, consistent with market indicators, but they remain large and tilted to the downside. The various indicators do not point in a consistent direction. Inflation and oil price indicators suggest downside risks to growth. The term spread and S&P 500 options prices, however, point to upside risks.
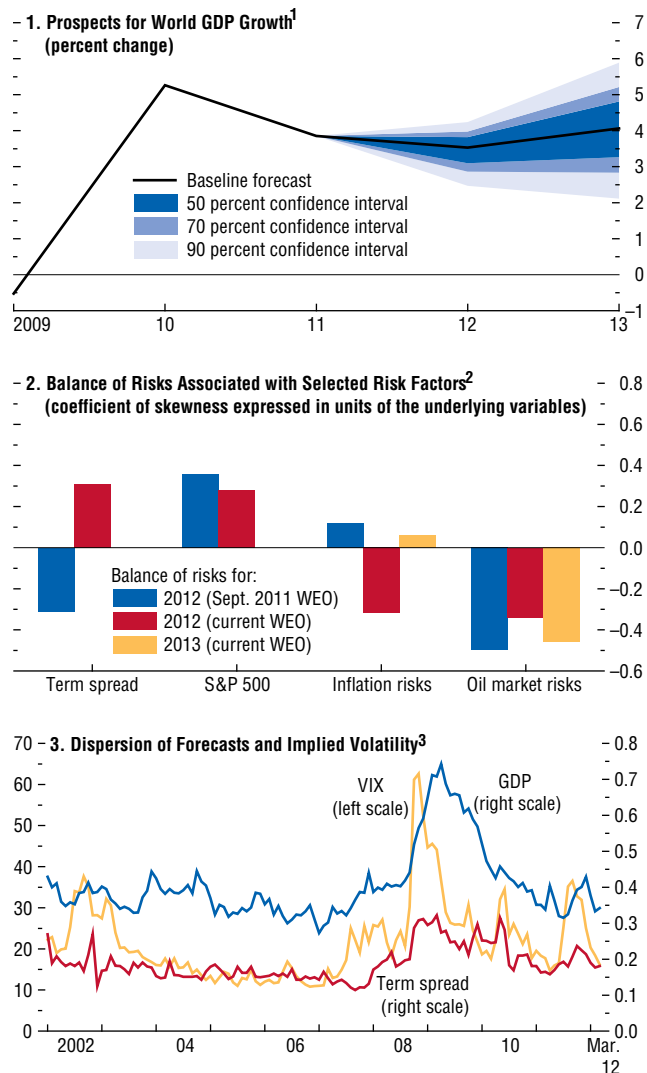
Sources: Bloomberg Financial Markets; Chicago Board Options Exchange; Consensus Economics; and IMF staff estimates.
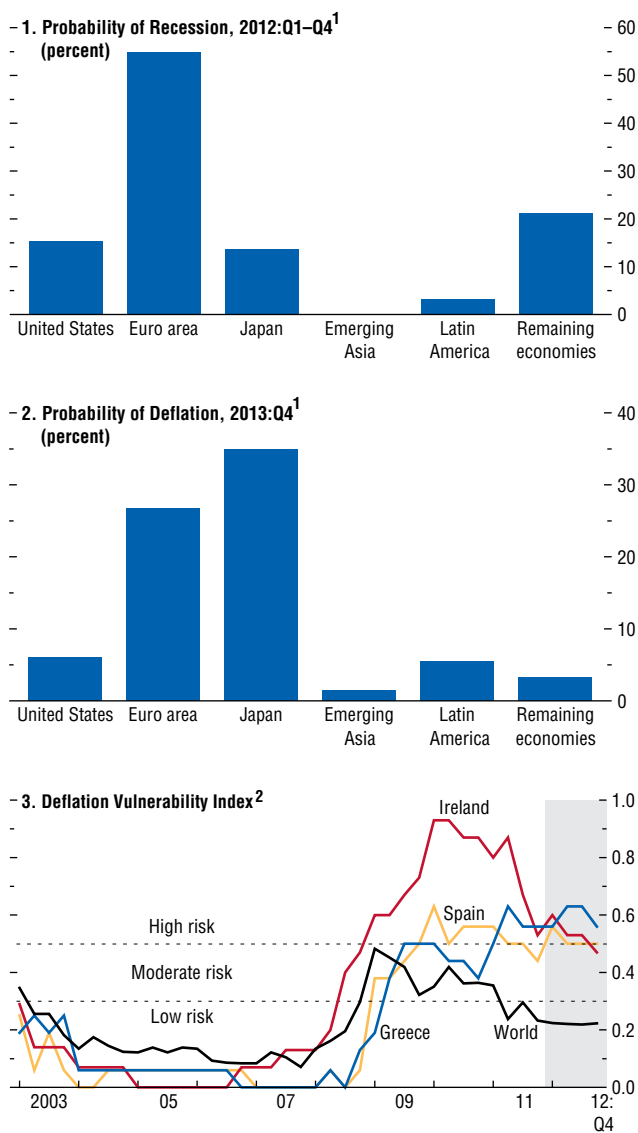[1]The fan chart shows the uncertainty around the WEO central forecast with 50, 70, and 90 percent confidence intervals. As shown, the 70 percent confidence interval includes the 50 percent interval, and the 90 percent confidence interval includes the 50 and 70 percent intervals. See Appendix 1.2 in the April 2009 *World Economic Outlook* for details.
[2]The values for inflation risks and oil market risks are entered with the opposite sign, since they represent downside risks to growth.
[3]GDP measures the dispersion of GDP forecasts for the G7 economies (Canada, France, Germany, Italy, Japan, United Kingdom, United States), Brazil, China, India, and Mexico. VIX: Chicago Board Options Exchange Market Volatility Index. Term spread measures the dispersion of term spreads implicit in interest rate forecasts for Germany, Japan, United Kingdom, and United States.

Figure 1.13. Recession and Deflation Risks

Risks for a prolonged recession and for sustained deflation are elevated in the euro area, notably in economies on the periphery. While the risk of a recession is low in Japan, the risk of deflation continues to be a problem. In other areas, the risks are significantly lower.

1. Probability of Recession, 2012:Q1–Q4[1]
   (percent)

2. Probability of Deflation, 2013:Q4[1]
   (percent)

3. Deflation Vulnerability Index[2]

Source: IMF staff estimates.
[1]Emerging Asia: China, Hong Kong SAR, India, Indonesia, Korea, Malaysia, Philippines, Singapore, Taiwan Province of China, and Thailand; Latin America: Brazil, Chile, Colombia, Mexico, and Peru; remaining economies: Argentina, Australia, Bulgaria, Canada, Czech Republic, Denmark, Estonia, Israel, New Zealand, Norway, Russia, South Africa, Sweden, Switzerland, Turkey, United Kingdom, and Venezuela.
[2]For details on the construction of this indicator, see Kumar (2003) and Decressin and Laxton (2009). The indicator is expanded to include house prices.

emergency stock releases likely providing some offset over time—a part of this is likely priced in already. Further uncertainty about oil supply disruptions could trigger a much larger price spike. Figure 1.15 presents a downside scenario in which a negative supply shock raises the real price of oil by slightly more than 50 percent on average over the first two years. This reduces the already sluggish growth of real household income and raises production costs, eroding profitability. These factors undermine the recovery in private consumption and investment growth for economies in all regions, except for net oil exporters. At the global level, output is reduced by about 1¼ percent. The short-term impact could be significantly larger if the adverse oil shock damages confidence or spills over to financial markets, effects that are not included in this scenario.

Reevaluation of Potential Output Growth in Emerging Market Economies

Another downside risk stems from a fundamental reevaluation of sustainable growth in emerging market economies. This could be precipitated by banks and authorities tightening lending standards, given concerns about the quality of loan portfolios as they reevaluate the viability of some investment projects financed during recent rapid credit expansion. Figure 1.16 presents a downside scenario in which credit growth in emerging Asia is lower by 3 percent each year over five years relative to the path implicit in WEO projections. The scenario also assumes that the long-term level of potential GDP in emerging Asia is lower by roughly 10 percent because previous investment was based on an overly optimistic view of external demand growth. In this scenario, lower demand from Asia causes a fall in commodity prices, which has an adverse impact on commodity exporters. Expectations for potential growth are downgraded for these economies, the level of output is reduced by about 5 percent, and credit growth slows proportionately. In advanced economies, there is also a mild slowdown in credit growth, and the monetary policy response to the adverse external shock is assumed to be constrained by the zero interest rate bound. Nevertheless, the deleterious effects

on the real economy are smaller than in emerging market economies but noticeable, with output levels declining by 3 percent in Japan, 2¼ percent in the euro area, and 1¼ percent in the United States.

Improving Euro Area Prospects and Easing Tensions in Global Credit and Oil Markets

This scenario assumes a variety of improvements. Policies in the euro area are stronger than projected, consistent with the April 2012 *Global Financial Stability Report* "complete policies" scenario, fostering a larger-than-expected easing in banking and sovereign stress (Figure 1.17). The average euro area sovereign risk premium is assumed to decline by 50 basis points and, relative to the baseline, credit to the private sector expands. Outside the euro area, credit conditions also ease, most notably in the United States, where lending to small and medium-size firms is assumed to pick up much more quickly than in the WEO baseline scenario. Geopolitical tensions are assumed to ease, with the price of oil assumed to be roughly 10 percent below that in the baseline. Under this scenario, in 2013, global GDP is roughly 1½ percent higher, led by an improvement of about 2¼ percent in the euro area, roughly 1½ percent in the United Sates, close to 1½ percent in emerging Asia, and ¾ percent in Japan. The improvement in Latin America is more modest, reflecting the drag from lower oil prices on oil exporters in the region.

Tail Risks

Several tail risks are hard to quantify but merit attention:
- The potential consequences of a disorderly default and exit by a euro area member are unpredictable and thus not possible to map into a specific scenario. If such an event occurs, it is possible that other euro area economies perceived to have similar risk characteristics would come under severe pressure as well, with a full-blown panic in financial markets and depositor flight from several

Figure 1.14. WEO Downside Scenario for Increased Bank and Sovereign Stress in the Euro Area
(Percent or percentage point deviation from WEO baseline)

This scenario uses a six-region version of the Global Economy Model (GEM) to estimate the global impact of heightened adverse feedback between banking and sovereign stress in the euro area. The scenario assumes that banks tighten lending standards and constrain credit growth to rebuild capital buffers, consistent with the April 2012 *Global Financial Stability Report* (GFSR) "weak policies" scenario. The resulting weaker growth outlook amplifies concern over fiscal sustainability, and sovereign spreads rise temporarily by roughly 100 basis points. Given increased market concern, several euro area sovereigns are forced into more front-loaded fiscal consolidation, averaging to an additional 1 percentage point of GDP in 2012 and 2013, which further depresses near-term demand and growth. Also, credit in other regions of the world is assumed to contract as it does in the GFSR weak policies scenario. Monetary policy in many advanced economies is constrained by the zero lower bound on nominal interest rates, amplifying the negative impact on activity of these adverse conditions. The global macroeconomic implications are presented below.


1. GDP Loss after Two Years

2. Decrease in Inflation after One Year
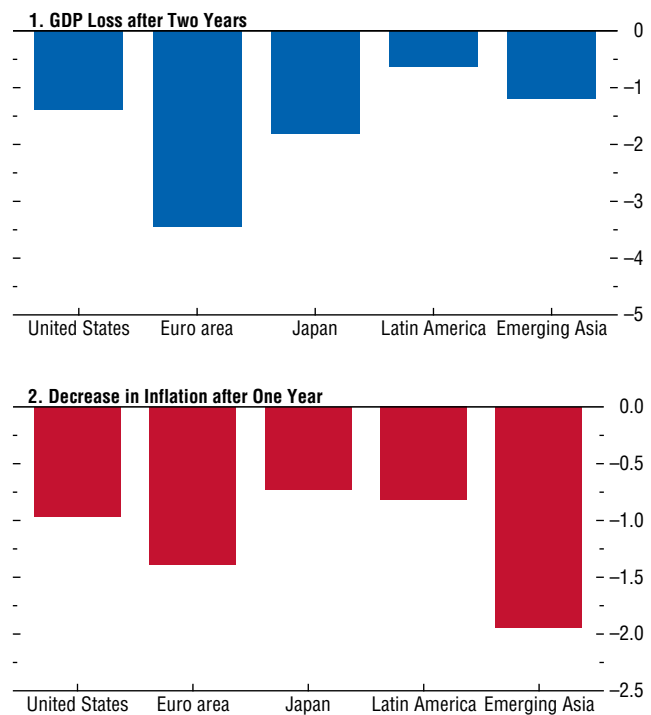
Source: GEM simulations.

Figure 1.15. WEO Downside Scenario for a Disruption in the Global Oil Supply[1]

(Percent or percentage point deviation from WEO baseline)

This scenario uses a six-region version of the Global Economy Model (GEM) to estimate the global impact of a disruption in global oil supply. The impact on oil prices of intensified concern about an Iran-related oil supply shock (or an actual disruption) would be large if not offset by supply increases elsewhere, given limited inventory and spare capacity buffers, as well as the still-tight physical market conditions expected throughout 2012. Here a negative supply shock raises the real price of oil to average a little over 50 percent above the WEO baseline during the first two years, after which it settles about 40 percent above the baseline. This reduces the already sluggish growth of real household incomes and raises production costs, eroding profitability. These factors undermine the recovery in private consumption and investment growth in all regions except those that are net oil exporters. The macroeconomic impact is presented below. The short-term impact could be significantly larger than suggested if the adverse oil shock damages confidence or spills over to financial markets, effects that are not included in this scenario.
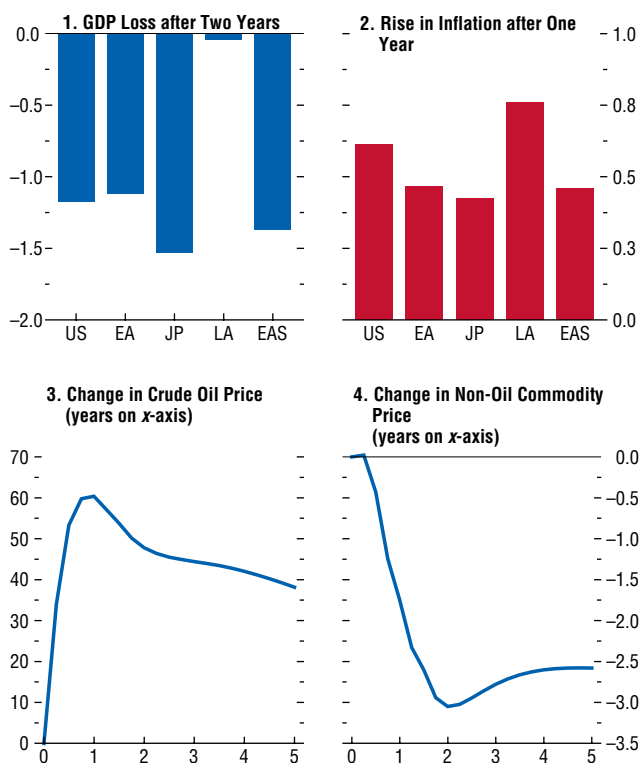
Source: GEM simulations.
[1]US: United States; EA: euro area; JP: Japan; LA: Latin America; EAS: emerging Asia.

banking systems. Under these circumstances, a breakup of the euro area could not be ruled out. The financial and real spillovers to other regions, especially emerging Europe, would likely be very large. This could cause major political shocks that could aggravate economic stress to levels well above those after the Lehman collapse.

- In the current environment of limited policy room, there is also the possibility that several adverse shocks could interact to produce a major slump reminiscent of the 1930s. For instance, intensified concern about an oil supply shock related to the Islamic Republic of Iran could cause a spike in oil prices that depresses output in the euro area, amplifying adverse feedback loops between the household, sovereign, and banking sectors. In the meantime, the oil price shock could also trigger a reassessment of the sustainability of credit booms and potential growth in emerging Asia, leading to hard landings in these economies. This could, in turn, prompt a collapse in non-oil commodity prices that would hurt many emerging and developing economies, especially in Latin America and Africa. More generally, a concurrent rise in global risk aversion could lead to a sudden reversal of capital flows to emerging and developing economies.

- Sovereign debt markets in Japan and the United States have remained calm and have even benefited from safe haven flows. However, continued failure to adopt and implement strong medium-term consolidation plans could erode the safe haven status of these economies, a risk that is particularly pertinent for Japan. This could severely destabilize global bond markets, with potentially large effects on global output.

Policy Challenges

The main concern is that the global economy will continue to be susceptible to major downside risks that weigh on consumer and investor confidence and that the recovery will remain anemic in the major advanced economies, with large output gaps persisting for some time. These challenges call for more policy action, especially in advanced economies: implementing agreed medium-term fiscal

consolidation plans without overdoing adjustment; maintaining a very accommodative monetary policy stance and providing ample liquidity to help repair household and financial sector balance sheets; and resolving the euro area crisis without delay. More rapid progress could greatly lower the risk of self-perpetuating pessimism and bad equilibriums. With respect to emerging and developing economies, policies must be geared toward ensuring a soft landing in economies that have seen sustained, very strong credit growth.

Policies in Advanced Economies

The major advanced economies are still reeling from the shocks that triggered the Great Recession. Overcoming these shocks requires a continuation of exceptionally low monetary policy rates and unconventional support, limited fiscal consolidation in the short term where possible, and major fiscal adjustment in the medium and long term. Further efforts are also needed to strengthen and reform financial sectors. In the euro area, governance reforms and structural policies to improve competitiveness can, over time, counter the negative impact on output from balance sheet deleveraging. The most immediate challenge, however, is to contain the spillovers from the crisis in the periphery.

Structural and institutional reforms are essential to repair the damage done by the crisis and lower the chance of future crises. These reforms must address a broad range of issues: pensions and health care systems, labor and product markets, housing sectors, and, perhaps most important, financial sectors. The specific requirements vary across economies and are discussed in depth in the following sections.

Progressing toward more sustainable public finances

Given still-large output gaps in many advanced economies, the best course for fiscal policy is to adopt measures that do the least short-term harm to demand and preclude unsustainable long-term paths. Economies that are not under market pressure and where tax rates are not high could usefully undertake balanced-budget fiscal expansion (including around present consolidation paths) and major measures to

Figure 1.16. WEO Downside Scenario for a Reevaluation of Potential Output Growth in Emerging Market Economies

(Percent or percentage point deviation from WEO baseline)

This scenario uses a six-region version of the Global Economy Model (GEM) to estimate the global impact of a reevaluation of potential output growth in emerging market economies that also leads to slower credit growth. Here credit growth in emerging Asia is lower by 3 percent each year over five years relative to the path implicit in WEO projections. The scenario also assumes that the level of potential GDP in emerging Asia is lower in the long term by roughly 10 percent, since investment was previously based on overly optimistic expectations of growth in external demand. In this scenario, lower demand from emerging Asia causes a fall in commodity prices, which has an adverse impact on emerging markets, particularly Latin America. Expectations about potential growth are downgraded for these economies, and the level of potential output is reduced by about 5 percent in the long term, with a proportionate slowing in credit growth. In advanced economies, there is also a mild slowing in credit growth, and the monetary policy response to the external shock is assumed to be constrained, as policy rates are at the zero lower bound. The macroeconomic implications of this scenario are presented below.
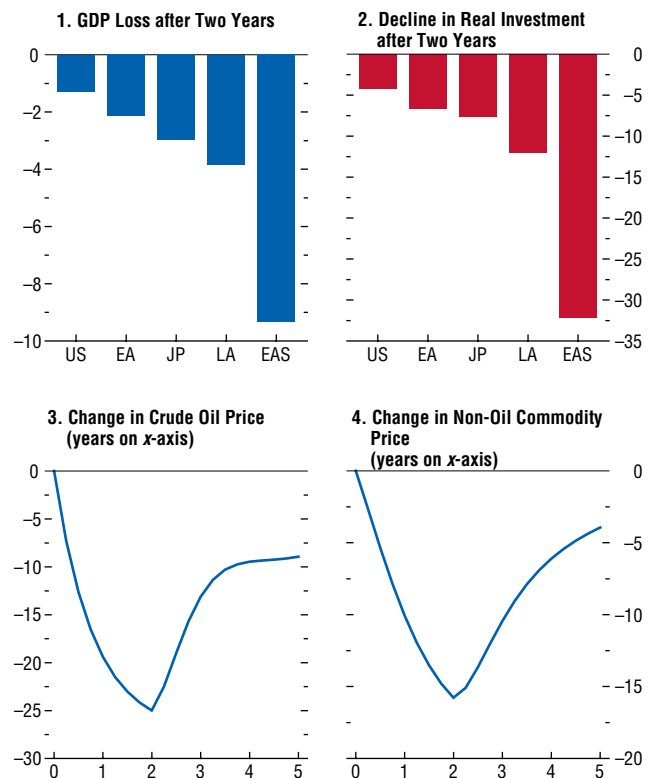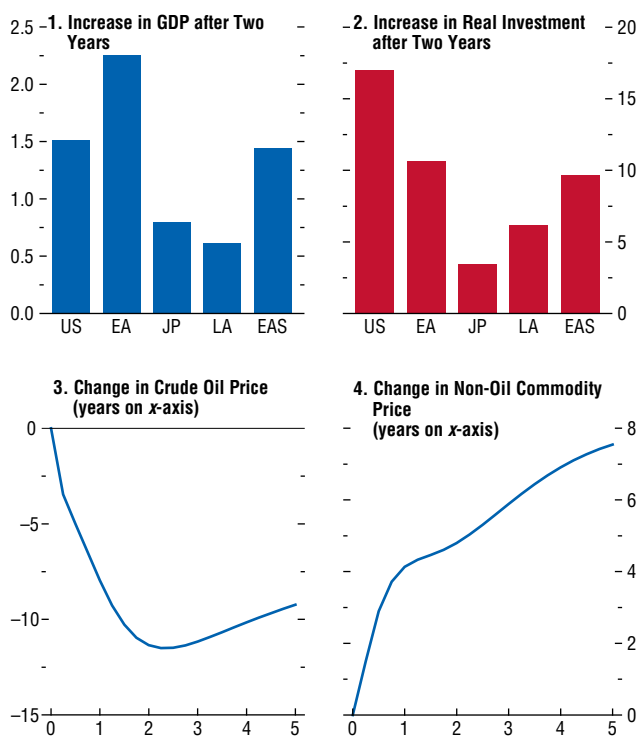

Source: GEM simulations.
[1] US: United States; EA: euro area; JP: Japan; LA: Latin America; EAS: emerging Asia.

Figure 1.17. WEO Upside Scenario[1]
(Percent or percentage point deviation from WEO baseline)

This scenario uses a six-region version of the Global Economy Model (GEM) to estimate the global impact of a larger-than-expected easing in banking and sovereign stress in the euro area, an improvement in private market credit conditions in other regions, and lower global oil prices. The average euro area sovereign risk premium is assumed to decline by 50 basis points and, relative to the baseline, credit expansion to the private sector is consistent with the April 2012 *Global Financial Stability Report*'s "complete policies" scenario. Outside the euro area, credit conditions also ease, most notably in the United States. The price of oil is assumed to be roughly 10 percent below the price in the WEO baseline. The macroeconomic implications of this scenario are presented below.

Source: GEM simulations.
[1] US: United States; EA: euro area; JP: Japan; LA: Latin America; EAS: emerging Asia.

build credibility and cut entitlement spending in the future.

- Given concerns about fiscal room, a balanced-budget fiscal expansion could support activity and employment while keeping fiscal consolidation plans on track. For example, temporary tax hikes matched by increases in government purchases—for much-needed infrastructure—could lead to an almost equal rise in output.[4] Government spending targeted to distressed households that spend all their disposable income will yield a similar increase in output. Alternatively, low-multiplier spending could be cut while high-multiplier spending is increased. By supporting activity, such balanced-budget fiscal expansion could also support the targeted reduction in government-debt-to-GDP ratios.

- The April 2012 *Fiscal Monitor* underscores the benefits of strengthening fiscal institutions, adopting and committing to respect sound fiscal rules, and reforming entitlement programs (for example, linking retirement age to life expectancy and improving incentives in the health care sector). Reforms of entitlement programs appear to be the most promising path because they demonstrate policymakers' ability to act. Depending on their design, such reforms can reduce off-balance-sheet public liabilities with only limited short-term negative impact on output. In this regard, several advanced economies are aggressively tackling pension and health care reform, which offers by far the largest potential benefits.[5] Progress with respect to improving fiscal rules and governance has been better, but markets continue to question the enforceability of those rules and have lingering concerns about broader governance issues.

Realistic medium-term plans for fiscal adjustment are necessary to maintain or rebuild credibility and help anchor expectations. Many advanced economies have already adopted such plans. Given the weak

[4]Simulations of policy models developed at six institutions—the Federal Reserve, ECB, European Commission, OECD, Bank of Canada, and IMF—are consistent with this result. See Coenen and others (2012). Note that balanced-budget fiscal policy changes are a double-edged sword. On the downside, matched temporary decreases in taxes and expenditures will lead to decreases in output.

[5]See Statistical Table 9 in the September 2011 *Fiscal Monitor*.

growth prospects in the major economies, those with room for fiscal policy maneuvering, in terms of strength of their fiscal accounts and credibility with markets, can reconsider the pace of consolidation. Others should let automatic stabilizers operate freely for as long as they can readily finance higher deficits and should consider measures that achieve balanced-budget fiscal expansion. In the meantime, the United States and Japan should urgently adopt credible medium-term fiscal adjustment plans. From the near-term perspective, under current U.S. laws many tax provisions begin to expire in 2013, just when deep automatic spending cuts kick in. If this were to materialize, it would significantly undermine the economic recovery. To minimize attendant uncertainties, policymakers should agree as soon as possible on their fiscal plans for next year as well as for the medium term. Given the relatively low revenue ratio, policymakers should adopt spending cuts as well as tax increases over the medium term. Japan intends to cut the primary deficit in half by 2015 and achieve a primary surplus by 2020, and the authorities have proposed a set of measures to achieve the first milestone, including doubling the consumption tax to 10 percent by 2015. Nonetheless, more needs to be done to put debt on a downward path. Possible measures and their pros and cons are discussed in the April 2012 *Fiscal Monitor* and in several earlier issues.

Strengthening financial sectors

There are major challenges confronting prudential authorities, as discussed in the April 2012 *Global Financial Stability Report*. In many large economies, financial sectors became bloated and overleveraged during the decade before the financial crisis. Over time, shrinkage and deleveraging are necessary steps to improving system stability: financial excesses were both a major source of shocks and a major factor in undermining the system's capacity to absorb shocks of any origin.

The challenge for policymakers now, most immediately in Europe, is to prevent disorderly and destructive deleveraging of the banking system and to promote an adequate flow of credit to the private sector. This involves finding the right balance between addressing and alleviating short-term

pressures and sustained adjustment over the medium term. Just as fiscal adjustment that is too rapid can become self-defeating, so can drastic balance sheet deleveraging. The dilemma in Europe is that even though the scale of bank recapitalization, restructuring, or resolution has been inadequate, rapid tightening of bank credit is the opposite of what the economy needs. Supervisors must ensure that deleveraging is achieved in a way that limits harm to the economy. For example, if banks shed legacy assets or sell noncore businesses to strong institutions, it will not reduce credit to the economy as much as if they curtail new loan originations or reduce credit lines and loan portfolios. The specific policy implications for euro area authorities are discussed below.

Policymakers elsewhere should stand ready to backstop liquidity in their banking systems. The effects of deleveraging in the euro area are not projected to have a major impact outside Europe. However, if the euro area downside scenario materializes, financial spillovers could be much larger. Policymakers should consider offering liquidity backstops— for example, through swap lines with the Federal Reserve to alleviate dollar shortages, regional pooling arrangements or IMF support, drawing down the large stock of foreign reserves (in some economies), and enhanced deposit guarantees. Thinly capitalized banks should be directed to increase their capital buffers. Policymakers should also remain alert to the need for a continuing supply of credit to credit-rationed agents (small and medium-size firms, households) and the maintenance of trade financing, possibly stepping in through temporary government programs.

Better prudential policies and frameworks remain essential for rebuilding the global financial system. Much progress has been made in strengthening the prudential frameworks for banks, even in the face of the continued problems posed by institutions too big or too complex to fail. Nonetheless, many challenges remain, including implementing consensus regulations (such as Basel III) at the national level, improving regulation and supervision of shadow banking, ensuring that banks are not too reliant on fickle wholesale funding, and bringing transparency to large derivatives markets. Furthermore, day-to-day cross-border collaboration between supervisory

authorities must be stepped up. The uneven or limited progress in these domains is of growing concern.

Maintaining an accommodative monetary policy

In past financial crises, interest rate cuts and currency devaluations helped pull economies out of recession. Neither of these options has much scope in the largest advanced economies, except in the euro area.

- The ECB has some room to further lower the policy rate, given that inflation is projected to fall appreciably below the ECB's "close to but below" 2 percent inflation target over the medium term and that risks of second-round effects from high oil prices or tax and administrative price hikes appear small—WEO projections see headline consumer price index inflation falling to about 1½ percent by 2013, below the ECB's target.[6] Low levels of domestic inflation can hinder much-needed improvement in debtors' balance sheets and stand in the way of much-needed adjustments in competitiveness. The ECB's unconventional policies need to continue to ensure orderly conditions in funding markets and thereby facilitate the pass-through of monetary policy to the real economy.
- Policy rates in Japan, the United Kingdom, and the United States are already close to or at the lower bound. Should downside risks to the growth outlook threaten to materialize, their central banks could step up their unconventional policies, preferably in a way that eases credit conditions for small and medium-size firms and households. Given very low domestic inflation pressure in Japan, further monetary easing may in any case be needed to ensure achievement of the inflation objective over the medium term.

Policymakers could also consider other actions targeted to credit-constrained agents. As discussed in Chapter 3, fiscal programs to restructure mortgages can offer efficient ways to relieve indebted households. In the United States, for example, programs have reached far fewer households than initially envisaged, but additional measures have now been adopted. Borrowing costs could be directly lowered for small and medium-size firms through temporary subsidies and programs by public development banks.

Central banks' balance sheets, and the scope for losses in their financial accounts, have expanded appreciably as they have stepped up purchases of securities and broadened collateral standards (Figure 1.5, panel 4). However, the size of these balance sheet expansions tells very little about the risk of inflation. Because of increased uncertainty, banks and other economic agents are holding much more liquidity than before the crisis. As economic conditions improve and the supply of credit accelerates, central banks can absorb this liquidity—for example, by allowing refinancing operations to lapse, selling securities they bought earlier, or issuing their own paper. Problems arise when the public sector faces political or practical limits on the longer-term capacity to cut deficits. Chronically high inflation would result only if such an impasse were highly likely. To guard against this, central banks must maintain the independence to pursue a low inflation target, and government budgets must be sustainable over time, in terms of political feasibility as well as the projected size of the deficit.[7] The more effectively fiscal policy addresses this intertemporal challenge, the more leeway monetary policy has to act in a supportive manner.

Dealing with the euro area crisis

The near-term focus must be on crisis management so as to prevent the downside risks discussed earlier from materializing. Supplying sufficient liquidity will help forestall abnormal funding costs for sovereigns and banks and help avoid contagion. To that end, the euro area requires a credible firewall that is large, robust, and flexible enough to stem contagion and facilitate the adjustment process in the highly indebted countries. The recent decision to combine the ESM and the EFSF is thus welcome and, along with other recent European efforts, will strengthen the European crisis mechanism and support the IMF's efforts to bolster the global firewall. The crisis facilities (EFSF/ESM) should also have the flexibility to take

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[6]An average inflation rate of 1½ percent will have very different manifestations in the core and in the periphery of the euro area.

[7]Central banks' capital and revaluation reserves are not a major consideration. Accounting losses do not matter as long as central banks are independent and fiscal policies are considered sustainable.

direct stakes in banks and assist in the restructuring of financial institutions where necessary. This will help stem the negative feedback loop between banking and sovereign risks in the euro area.

It is also critical to break the adverse feedback loops between subpar growth, deteriorating fiscal positions, increasing bank recapitalization needs, and deleveraging, which raise the risk of a prolonged period of deflation. The ECB should implement additional monetary easing to ensure that inflation develops in line with its target over the medium term and guard against deflation risks, thereby also facilitating much-needed adjustments in competitiveness.[8] Moreover, country banking authorities should work together with host supervisors to monitor and limit deleveraging of their banks at home and abroad. Bank supervisors must do whatever possible to avoid excessively fast deleveraging that curtails lending to the real economy. To that end, more capital must be injected into euro area banks. This may require the use of public funds for recapitalization—including from the EFSF/ESM.

The key challenge is to chart a way back to sustained growth. Structural reform gaps vary across countries, but there is a widespread need for efforts to lower barriers to entry in product and services markets and to allow labor markets to deliver higher employment. Economies with weak external positions face the prospect of having to achieve very low inflation or deflation—"internal devaluations"—to help restore competitiveness because the channel of currency depreciation is unavailable to them as members of a currency union. Internal devaluations, however, would add to the problem of debt overhang in the short to medium term..

Over the medium term, many difficult decisions will be required to remedy EMU design flaws that contributed to the crisis.

- A strong mechanism that delivers responsible fiscal policies is urgently needed. In this regard, the recently agreed "fiscal compact" marks important progress in improving fiscal credibility with little detriment to fiscal flexibility—which is important given the period of weak growth ahead. However,

enforcement will be key, and this might mean that EU institutions will need to be actively involved in national budgetary plans, as envisaged by current proposals (the "two pack"). The fiscal compact will also need to be complemented by greater fiscal risk sharing to ensure that economic dislocation in one country does not develop into a costly fiscal and financial crisis for the entire region.

- There is also need for a mechanism to share private sector risks that is grounded in a more integrated euro area financial system.[9] This could be achieved by moving toward a model of common supervision and resolution, including a shared backstop and common deposit insurance—with joint responsibility for supervision comes joint responsibility for financial support. The current absence of such a common system distorts monetary policy and competition in the financial system: healthy banks in economies on the periphery can now obtain market funding only at much greater cost than their peers in the core economies—if they can obtain it at all—because of the weakness of their sovereigns. The ECB's LTROs are helping correct this but can do so only temporarily.

- There must be better adjustment to real as well as fiscal and financial imbalances. Accelerating the completion of the single market for goods and services and reforms to labor markets could help boost growth and adjustment. Various economies in the euro area periphery are in the process of implementing major reforms, especially to labor markets. The importance of progress in these domains for a well-functioning monetary union cannot be overemphasized.

Policies in Emerging and Developing Economies

Emerging and developing economies need to avoid overstimulating activity to make up for less demand from advanced economies. Overheating pressures from strong activity, high credit growth, and still-elevated commodity prices remain in a variety of economies (Figure 1.18). Among the overheating indicators, it is mainly those related to

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[8]Broad indicators of domestic (GDP) inflation have been running close to 1 percent since 2009. Under such conditions, internal rebalancing is very challenging to achieve.

[9]The financial sector, including ownership of diversified financial assets, accounts for a great deal of risk sharing in the United States (see Asdrubali, Sorensen, and Yosha, 1996).

Figure 1.18. Overheating Indicators for the G20 Economies[1]

Various indicators suggest that overheating pressure has diminished in emerging market economies. However, this reflects mostly a reduction in capital flows and financial market developments, which are now turning around and could lead to renewed overheating.

2012 estimates above the 1997–2006 average by:

● Less than 0.5 standard deviation   ● Greater than or equal to 0.5 but less than 1.5 standard deviations   ● Greater than or equal to 1.5 standard deviations
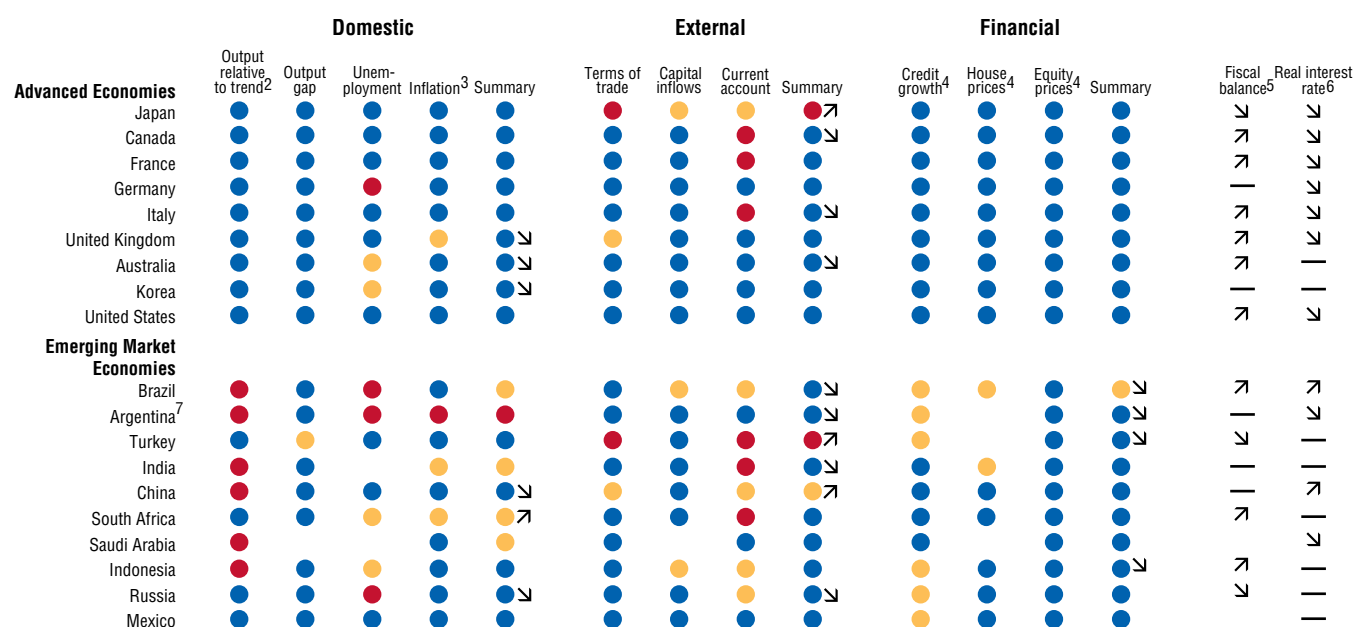
Sources: Australia Bureau of Statistics; Bank for International Settlements; CEIC China Database; Global Property Guide; Haver Analytics; IMF, *Balance of Payments Statistics;* IMF, *International Financial Statistics;* Organization for Economic Cooperation and Development; and IMF staff estimates.

[1]For each indicator, except as noted below, economies are assigned colors based on projected 2012 values relative to their precrisis (1997–2006) average. Each indicator is scored as red = 2, yellow = 1, and blue = 0; summary scores are calculated as the sum of selected component scores divided by the maximum possible sum of those scores. Summary colors are assigned red if the summary score is greater than or equal to 0.66, yellow if greater than or equal to 0.33 but less than 0.66, and blue if less than 0.33. Arrows up (down) indicate hotter (colder) conditions compared with the September 2011 WEO predicted values for 2011.

[2]Output more than 2.5 percent above the precrisis trend is indicated by red. Output less than 2.5 percent below the trend is indicated by blue.

[3]For the following inflation-targeting economies, the target inflation rate was used instead of the 1997–2006 average in the calculation of the inflation indicator: Australia, Brazil, Canada, Indonesia, Korea, Mexico, South Africa, Turkey, United Kingdom. For the non-inflation-targeting economies, red was assigned if inflation is approximately 10 percent or higher, yellow if inflation is approximately 5 to 9 percent, and blue if inflation is less than 5 percent.

[4]The indicators for credit growth, house price growth, and share price growth refer to the latest 2012 values relative to the 1997–2006 average of output growth.

[5]Arrows in the fiscal balance column represent the forecast change in the structural balance as a percent of GDP over the period 2011–12. An improvement of more than 0.5 percent of GDP is indicated by an up arrow; a deterioration 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. Real policy interest rates are deflated by two-year-ahead inflation projections.

[7]Calculations are based on Argentina's official GDP data. The IMF has called on Argentina to adopt remedial measures to address the quality of the official GDP data. The IMF staff is also using alternative measures of GDP growth for macroeconomic surveillance, including data produced by private analysts, which have shown significantly lower real GDP growth than the official data since 2008. Nominal variables are deflated using the IMF staff's estimate of average provincial inflation.

external developments that augur some reprieve, but this could change quickly because capital flows are returning. Appropriate policy responses will vary. For economies that have largely normalized macroeconomic policies, the near-term focus should be on responding to moderating domestic demand and slowing external demand from advanced economies. At the same time, these economies must be prepared to cope with adverse spillovers from advanced economies and with volatile capital flows. Other economies should avoid further stimulus and instead continue to rebuild fiscal room, remove monetary accommodation, and strengthen prudential policies and frameworks.

IMF staff models point to a need for only limited, if any, monetary tightening. However, requirements vary across G20 economies. To differing degrees, more tightening may be needed in Argentina, India, Indonesia, Russia, and Turkey (Figure 1.19, panels 1 and 2). Economies with diminishing inflation pressure can afford to hold steady (China, Mexico), although China has to manage lending to overheating sectors (such as real estate). Where inflation expectations have moved above target, room for policy maneuvering is now more limited (Brazil). Inflation pressure is still strong in a number of MENA and SSA economies, and they may have to further tighten monetary and credit conditions. If downside risks to external demand materialize, monetary policy should generally be the first line of response. Regarding the risks posed by higher oil prices, central banks must take heed that these do not translate into broader inflation pressure—fortunately, lower prices for food, which typically accounts for a much larger share of household spending, are helping contain these risks.

Fiscal policy in emerging and developing economies should respond to the different conditions and risks they face but, in general, should continue to rebuild policy room (Figure 1.19, panel 3). Against this backdrop, the modest fiscal tightening that is in the works appears appropriate (see Figure 1.7, panel 2). A number of economies in emerging Asia have room to make policy more supportive of economic activity (a notable exception is India), given favorable debt dynamics. Among G20 economies, more tightening than currently projected

Figure 1.19. Policy Requirements in Emerging Market Economies

Most emerging market economies should, in principle, not cut interest rates, despite some easing of inflation pressure. These economies are operating with limited (if any) slack, still-high credit growth, and lower real interest rates than before the crisis. However, given downside risks, those with relatively high interest rates can pause or even cut policy rates a little. In the meantime, many emerging market economies must continue to rebuild room for fiscal policy maneuvering.
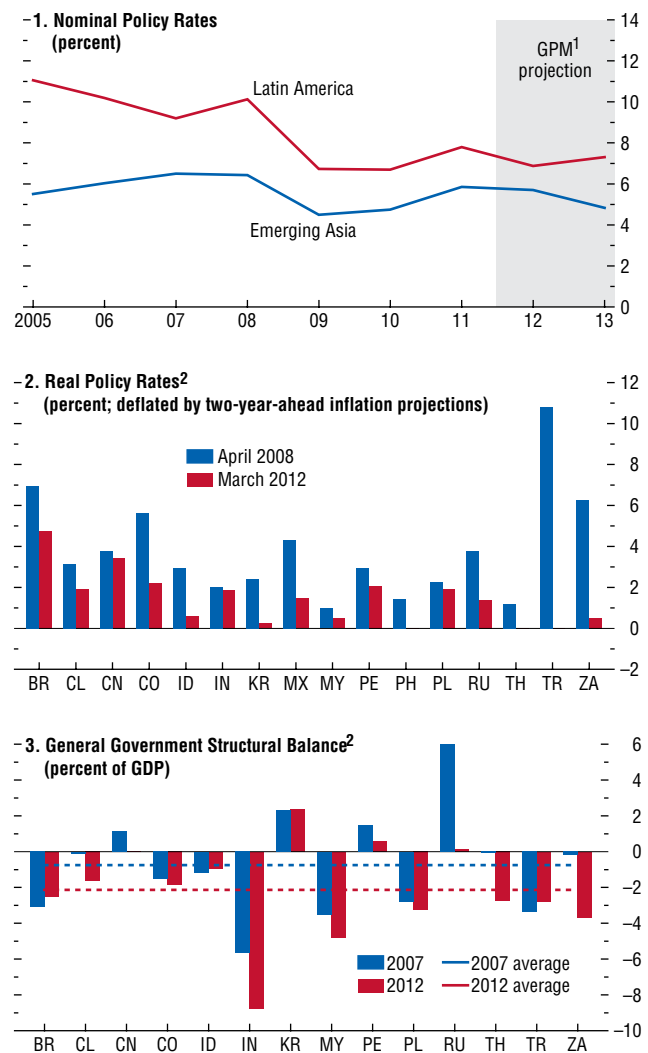
Source: IMF staff estimates.
[1]GPM = Global Projection Model.
[2]BR: Brazil; CL: Chile; CN: China; CO: Colombia; ID: Indonesia; IN: India; KR: Korea; MX: Mexico; MY: Malaysia; PE: Peru; PH: Philippines; PL: Poland; RU: Russia; TH: Thailand; TR: Turkey; ZA: South Africa.

appears necessary in Argentina, India, Russia, and Turkey. In other economies, higher deficits than before the crisis mean that further stimulus should be avoided, while automatic stabilizers should be allowed to operate freely. Emerging and developing economies that are highly dependent on commodity revenues and external inflows must also cautiously assess the risks of a large and protracted deceleration in such funding. In general, if external downside risks to growth materialize, automatic stabilizers should be allowed to operate, as long as financing is available and sustainability concerns permit. In economies with low deficit and debt levels, there may also be room to use discretionary fiscal stimulus. In China, fiscal policy should be the first line of defense against weakening external demand and should foster more consumption—the credit overhang from the 2008–09 stimulus is still working its way through the system, and a renewed lending boom could jeopardize bank loan portfolios. Risks to fiscal balances from energy subsidies should be contained by narrowly targeting subsidies to the most vulnerable households. The specific requirements are discussed in more detail in the April 2012 *Fiscal Monitor*.

It is important to further improve prudential policies and frameworks to address financial fragility. In recent years, many emerging and developing economies expanded rapidly, supported by ample credit growth and buoyant asset prices. To some extent, the credit booms were due to financial deepening, which is positive for growth. However, in most cases, they raise serious concerns about the eventual quality of banks' loan portfolios. In this setting, stronger prudential policies and frameworks are essential to address growing financial stability risks.

In a highly uncertain global environment, managing volatile capital inflows could be another policy challenge for many emerging market economies. Some economies have already started using macroprudential measures designed to manage capital inflows, such as taxes on certain inflows, minimum holding periods, and currency-specific requirements. For example, Brazil and India rolled back the level of such taxes and restrictions as capital flows slackened. Brazil has recently changed tack again as inflows have resumed. Other macroeconomic tools for responding to restive capital flows remain as options: allowing the exchange rate to respond, adjusting international foreign reserve levels, and calibrating monetary and fiscal policies. Better prudential policies and frameworks could also play an important role in ameliorating the impact of volatile capital flows on financial stability.

Special Feature: Commodity Market Review

Global commodity markets lost some of their luster in 2011. Commodity prices, while still high in real terms, declined during much of 2011 (Figure 1.SF.1, panel 1), except for the price of crude oil, which became increasingly driven by geopolitical supply risks toward the end of the year. Commodity prices rebounded in the first quarter of 2012, but generally remain below their levels at the end of 2010. A number of developments have led to doubts about whether commodity prices have broad further upside potential, as reflected, for example, in recent downgrades of commodity assets to underweight from the customary overweight rating of the past few years.

The leading factor behind the commodity price declines in 2011 was higher-than-usual uncertainty about near-term global economic prospects. Second, growth in emerging and developing economies slowed more than expected, and the slowdown in the Chinese real estate market has renewed concerns about a hard landing there. Third, the broad-based boom in commodity markets started about a decade ago (with some differences across commodities), and there are doubts about its continued sustainability, given that high prices have begun to elicit supply responses, especially for some major grains and base metals.

Crude oil prices have diverged from broader commodity price trends in recent months. They did not fall along with other commodity prices when global growth expectations for 2012 were downgraded in the second half of 2011. As of mid-March 2012, oil prices had risen above previous peak values reached in April 2011 immediately after the Libyan supply disruptions. Increased geopolitical risks explain much recent oil price divergence, but other supply setbacks over the past year also illustrate how difficult and fragile continued growth in global oil production remains.

The Commodity Market Review analyzes the factors underlying recent developments and discusses

The authors are Thomas Helbling, Joong Shik Kang, and Shaun Roache, with support from Marina Rousset.

Figure 1.SF.1. Commodity Prices and the Global Economy
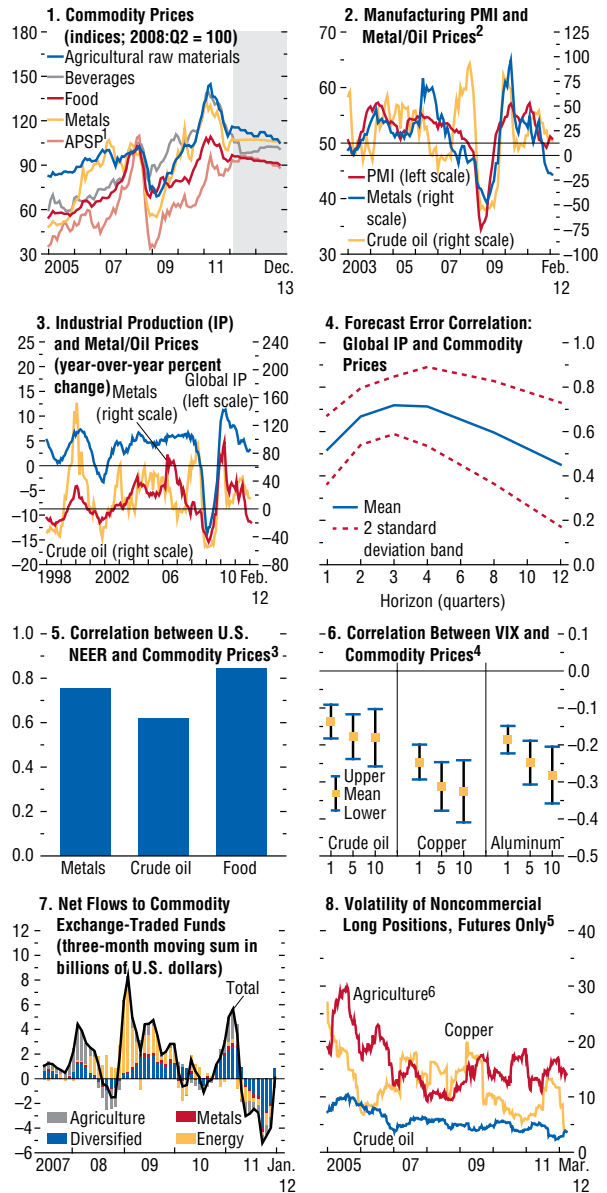
Sources: IMF, Primary Commodity Price System; and IMF staff calculations.

[1]Average petroleum spot price (APSP) is a simple average of Brent, Dubai Fateh, and West Texas Intermediate spot prices.

[2]Global manufacturing Purchasing Manager's Index (PMI): values above 50 indicate expansion. Commodity prices are in year-over-year percent change.

[3]Correlation between rolling two-year standard deviations of monthly changes in the U.S. nominal effective exchange rate (NEER) and commodity prices.

[4]Chart shows forecast error correlation derived with bivariate vector autoregressions with daily data; upper and lower denote 2 standard deviation band; days on x-axis.

[5]Rolling 26-week standard deviations of weekly changes in positions.

[6]Sum of corn, wheat, and soybeans.

Table 1.SF.1. Share of Commodity Price Variance Associated with Static Common Factors[1]
(Based on optimal number of common factors)

	Including Great Recession (2008:Q3–2009:Q1)			Excluding Great Recession (2008:Q3–2009:Q1)		
	Full Sample	Mid-Size Sample	Short Sample	Full Sample	Mid-Size Sample	Short Sample
	1979:Q1–2011:Q2	1995:Q1–2011:Q2	2003:Q1–2011:Q2	1979:Q1–2011:Q2	1995:Q1–2011:Q2	2003:Q1–2011:Q2
Agricultural Raw Materials Average	0.42	0.48	0.60	0.37	0.40	0.51
Food and Beverages Average	0.43	0.43	0.52	0.41	0.38	0.58
Base Metals Average	0.54	0.51	0.64	0.60	0.40	0.51
Energy						
Crude Oil, Dated Brent	0.95	0.87	0.86	0.95	0.85	0.56
Crude Oil, West Texas Intermediate	0.91	0.86	0.85	0.89	0.80	0.53
Natural Gas, U.S.	0.25	0.31	0.37	0.18	0.17	0.19
Average	0.67	0.68	0.72	0.62	0.58	0.47
Average, All Commodities	0.49	0.50	0.59	0.44	0.43	0.54

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

[1]Based on logarithmic first differences of commodity prices in constant U.S. dollars.

their implications for the near-term commodity market outlook.

Commodity Prices and the Global Economy

Global economic factors, such as industrial activity, are common influences on all commodity prices. They affect prices through the same channels, including the demand for commodities and the cost of carrying inventories. There is robust empirical evidence that just a few common factors, typically one or two, explain a large share of price fluctuations (as measured by the variance of price changes) across all major commodity groups (Table 1.SF.1).[10]

The aggregate common factor in commodity prices is closely related to fluctuations in global industrial production—a proxy measure for global economic activity. This close relationship is reflected in the

synchronization of commodity price cycles with cycles in global economic activity (Figure 1.SF.1, panel 2). Indeed, turning points in commodity prices tend to overlap with turning points in global economic activity.[11] Global industrial production also has predictive content for commodity prices in the sample and, in some cases, even outside the sample (for example, Alquist, Kilian, and Vigfusson, 2011, for crude oil—Figure 1.SF.1, panel 3). Conversely, forecast errors in global industrial production and the common factor in commodity prices are strongly and positively correlated (Figure 1.SF.1, panel 4).

Against this backdrop, the recent commodity price declines in response to the increasingly widespread downgrading of projections for global growth in 2011 and 2012 reflect standard patterns. Conversely, when leading indicators in the first quarter, notably manufacturing purchasing managers' indices, suggested an uptick in near-term activity, cyclical commodity prices rebounded, especially for base metals and crude oil.

Other global economic and financial developments also weighed on commodity prices in 2011. In particular, when the euro area crisis began to escalate in late summer, the U.S. dollar appreciated against most other currencies thanks to safe haven flows, while general financial market volatility

[10]Table 1.SF.1 is based on an approximate factor model approach applied to a panel including the prices of 36 commodities. The common factors were estimated using principal components, a consistent estimate even in the presence of some serial and cross-sectional correlation as well as heteroscedasticity in the idiosyncratic errors in individual prices (see, for example, Bai and Ng, 2002). The number of static factors was determined using information criteria (Bai and Ng, 2002). The static factors embody an underlying structure driven by an even smaller number of dynamic factors (Bai and Ng, 2007). For the panel of 36 commodity prices, the optimal number of static factors is on the order of three to four, depending on the sample period; the optimal number of dynamic factors is one to two.

[11]See Box 5.2 in the April 2008 *World Economic Outlook*.

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increased. Commodity prices in U.S. dollars, the unit of account for most international commodity market transactions, tend to be negatively correlated with shocks to the external value of the U.S. dollar, given the shifts in purchasing power and costs outside the dollar area implied by U.S. currency movements (Figure 1.SF.1, panel 5).

Unexpected changes in financial market volatility also tend to be negatively associated with global commodity prices. Shocks to the VIX, a widely used proxy for financial market volatility, usually are negatively correlated with commodity prices (Figure 1.SF.1, panel 6). The negative correlation can be explained in part by increased uncertainty about near-term economic prospects when the VIX increases.[12] Increased uncertainty also feeds into financial conditions, which tighten in response. The related increases in risk premiums in turn affect commodity markets. In commodity derivative markets, noncommercial investors seek higher risk premiums on their derivative positions, which raises hedging costs.[13] This rise, together with higher risk premiums on commodity-related credit, raises the carry costs of inventories. With higher uncertainty about future activity and lower incentives for inventory holdings, spot prices tend to fall.

Because commodity derivatives are in effect high-beta assets based on near-term global economic prospects, the increase in uncertainty has also had an effect on investor sentiment. In addition, the continued strong correlation between commodity prices and global equity prices, both driven by uncertainty, has made commodity assets less attractive for diversification purposes. Investors withdrew funds from commodity funds through much of 2011 (Figure 1.SF.1, panel 7). Overall, cumulative withdrawals during 2011 exceeded those during the 2008–09 global financial crisis. The increased volatility of noncommercial futures positions in late 2011 is another reflection of what appears to be greater reluctance to take risks in commodity derivative markets (Figure 1.SF.1, panel 8).

In the constrained global growth environment expected for 2012–13, commodity prices are projected to remain broadly unchanged. Cyclical

[12]See, among others, Bloom (2009).
[13]See, for example, Etula (2009) and Acharya, Lochstoer, and Ramadorai (2010).

commodity prices may pick up, if global growth is stronger than currently expected. This pickup would likely remain moderate, however, because growth in 2012 is not likely to recover above the rates expected before renewed escalation of uncertainty in 2011. Similarly, the expected reduction in potential growth in China and other emerging market economies, even if moderate, would dampen cyclical upward pressure.

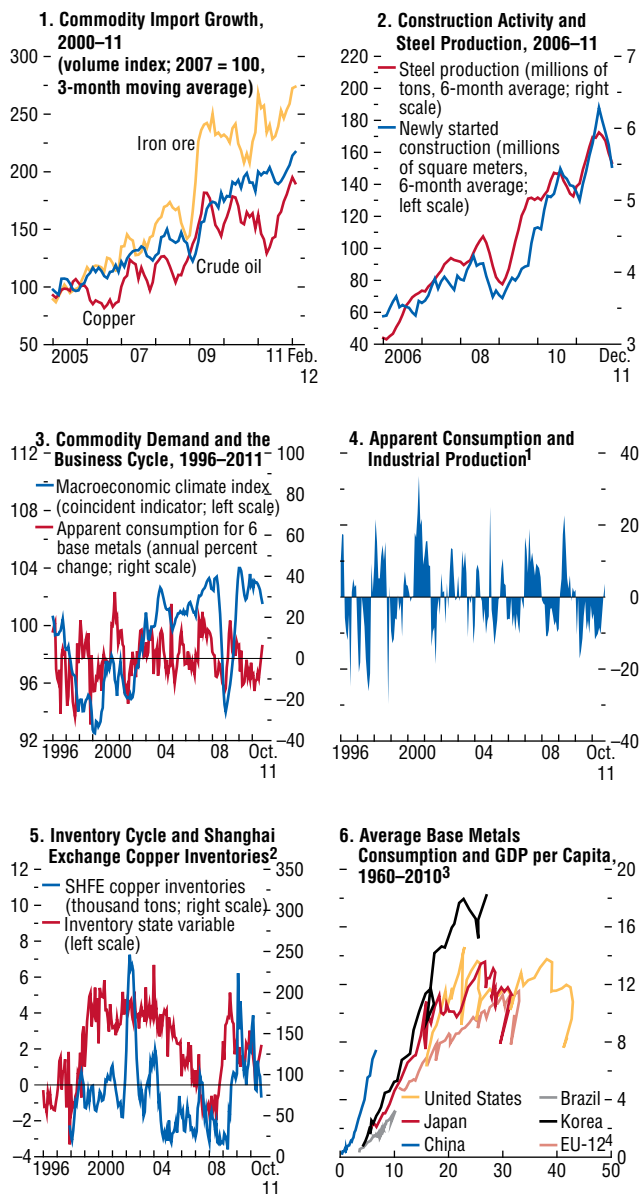## Growth Slowdown and the Inventory Cycle in China

China's growth has moderated since mid-2011, and there is so far little sign of a sharp correction in the potentially overheated real estate sector and most related activities, despite widespread concerns about a hard landing (Figure 1.SF.2, panel 1). At the same time, commodity imports and apparent consumption of more cyclical commodities—especially base metals but also crude oil—have increased at a robust pace, in part due to continued solid domestic investment growth (Figure 1.SF.2, panels 2 and 3).

Another concern is commodity inventory levels in China. In retrospect, it appears that inventory demand accounted for much of the sharp increase in China's commodity demand in 2009 and early 2010. Identifying China's position on the inventory cycle is more difficult than for other large economies because of the key role of state-owned reserve management agencies, notably the State Reserve Bureau. Official holdings of commodities are quite usual in a number of areas, notably for strategic purposes (for example, crude oil) and in agriculture (for food security and as a result of government intervention in agricultural markets). In China, however, there is also important public sector involvement in other areas. For example, recent estimates put China's total copper inventory (excluding what is held in exchange-bonded warehouses) at about 1.78 million tons, or 9 percent of total annual production for 2011. (More conservative estimates put it at about 1 million tons). At the same time, China's agencies disclose very little information about the size of their stocks. For crude oil and products, for example, the authorities do not provide data on inventory levels, which complicates the assessment of global oil market developments. An assessment of China's

Figure 1.SF.2. China: Recent Commodity Market Developments

1. Commodity Import Growth, 2000–11
(volume index; 2007 = 100, 3-month moving average)

Iron ore
Crude oil
Copper

2. Construction Activity and Steel Production, 2006–11

- Steel production (millions of tons, 6-month average; right scale)
- Newly started construction (millions of square meters, 6-month average; left scale)

3. Commodity Demand and the Business Cycle, 1996–2011

- Macroeconomic climate index (coincident indicator; left scale)
- Apparent consumption for 6 base metals (annual percent change; right scale)

4. Apparent Consumption and Industrial Production[1]

5. Inventory Cycle and Shanghai Exchange Copper Inventories[2]

- SHFE copper inventories (thousand tons; right scale)
- Inventory state variable (left scale)

6. Average Base Metals Consumption and GDP per Capita, 1960–2010[3]

- United States
- Japan
- China
- Brazil
- Korea
- EU-12[4]

Sources: CEIC; Haver Analytics; World Bureau of Metal Statistics; IMF, *World Economic Outlook;* and IMF staff calculations.
[1]Difference between annual growth rate of apparent consumption and industrial production, in percentage points.
[2]State variable calculated using the Kalman filter and a four-variable latent factor model; SHFE = Shanghai Futures Exchange.
[3]Aggregate of aluminum, copper, lead, nickel, tin, and zinc. Real GDP per capita in thousands of purchasing-power-parity-adjusted U.S. dollars on the *x*-axis; metal consumption per capita in kilograms on the *y*-axis.
[4]Aggregate for Austria, Belgium, Denmark, Finland, France, Germany, Italy, Netherlands, Norway, Sweden, Switzerland, and United Kingdom.

inventory cycle must therefore rely on circumstantial evidence. Given that cyclical commodities such as base metals are used as inputs in the production process, one indicator might be the gap between indicators of economic activity (such as imports) and indicators of demand for these commodities (such as "apparent consumption," defined as domestic production, plus imports, minus exports). If activity picks up when apparent consumption declines, this might indicate that inventories are falling (and vice versa). If China's inventory holders target a "normal" level of stock over the cycle, this would also provide some clues to the prospects for inventory demand, with high inventory accumulation suggesting weaker future demand (Figure 1.SF.2, panel 4).

A dynamic factor model that tries to uncover movement in China's unobservable base metals inventory cycle provides an alternative perspective. This approach considers the comovement of a number of indicators that should be useful in identifying changes in base metals demand. The results shown here are from a four-variable model, which includes China's macroeconomic coincident indicator (including industrial production, employment, and other activity variables), apparent consumption and imports for six base metals, and inventories of copper held in Shanghai futures exchange bonded warehouses.[14] This final indicator is narrower than the others, reflecting in part data availability. It is assumed that these variables are a function of two unobserved (latent) variables that are interpreted to be the business cycle and the inventory cycle. In particular, the business cycle is assumed to affect all four of these variables, while the inventory cycle affects only the base-metals-specific demand and inventory indicators. In China, fluctuations in key sectors are also likely to contribute significantly—and separately from the broader

[14]The model is specified in a state-space framework. The four signal equations included the seasonally adjusted monthly log change in the China macroeconomic indicator, China's apparent consumption and imports for a number of base metals, and Shanghai exchange inventories of copper. Each observable variable is estimated as a function of one or both latent variables (a business cycle and a commodity inventory cycle), both of which follow stationary AR(1) processes. The shocks to the latent variables are assumed to be orthogonal, and the estimated latent variables are recovered using the Kalman filter. The model is estimated using maximum likelihood and monthly data over a sample period from January 1995 through October 2011.

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business cycle—to changes in base metals demand, particularly those related to the construction and real estate sectors. These effects are not explicitly identified in this model due to a lack of data.[15]

The base metals inventory cycle generated by this model shows a pattern similar to the gap between apparent consumption and industrial production, but there are noticeable differences in publicly available exchange inventories (Figure 1.SF.2, panel 5). In particular, the variable for the inventory state has a longer duration cycle, and its turning points have, in the past, preceded those for exchange stockpiles. In the run-up to the global financial crisis, as commodity prices surged, China appeared to run down its inventories significantly. Following the rapid buildup in stocks before China's fiscal stimulus in 2009, there was steady destocking until the middle of 2011, after which inventories began to rise again. This analysis suggests that base metals inventories are now broadly close to "normal" levels. China's demand in the near term may therefore rely much more on real economic activity than on large swings in desired inventory holdings.

China's impact on global commodity markets in the near term will depend on its ability to engineer a soft landing for growth in 2012 and the evolution of its inventory cycle. Current *World Economic Outlook* projections anticipate annual growth of 8.2 percent in 2012, which is consistent with continued robust, albeit less buoyant, Chinese demand across a broad range of commodities. These projections assume that China does not unexpectedly enter another period of destocking. In fact, the recent increase in canceled warrants relative to total stocks in London Metal Exchange warehouses, which is a leading indicator of declining metal inventory buffers in the near term, reflects expectations of robust growth in the demand for base metals—consistent with waning concern about a hard landing in China and incoming data suggesting stronger-than-expected activity in the United States (Figure 1.SF.3, panel 1).[16]

The prospect for China's commodity demand over the medium term depends on the pace and composition of its economic growth. Investment growth has remained rapid in the aftermath of China's 2009–10 macroeconomic stimulus, in part due to cyclical factors. Structural factors also help explain the persistently large share of investment in China's economy—including an artificially low cost of capital—that lies behind its highly commodity-intense economic growth. China's government has committed to rebalancing demand away from investment and exports and toward consumption, which may gradually moderate the growth of demand for many commodities. But, compared with the experience of other economies, China's per capita commodity demand will continue to increase as incomes rise, given current income levels (Figure 1.SF.2, panel 6). Against this backdrop, the main risk to global commodity demand will remain closely related to China's growth prospects. In contrast, risks of a transition to less commodity-intensive growth do not seem imminent. More generally, industrialization, urbanization, and income convergence in emerging and developing economies will remain important sources of commodity demand growth.

Commodity Price Divergence and Supply Developments

Common factors play an important role in commodity price fluctuations, as noted above. Nevertheless, there can also be substantial divergence in price changes across commodities because of specific factors. One measure of price divergence, the 75–25 interquartile range of price changes—defined as the difference between the 75th and 25th percentiles of the cross section of price changes of all 51 commodities included in the IMF's commodity price index—shows that divergence narrowed to below the 30-year average during the second half of 2011 (Figure 1.SF.3, panel 2). This narrowing followed an unusually large widening that started during the fuel and food crisis of 2007–08. The divergence between price changes in crude oil and other commodities, however, widened noticeably during the second half of 2011. The price divergence between base metals

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[15]Lack of data on activity in specific sectors at a monthly frequency (and a relatively long history) precludes this type of analysis. In practical terms, sectoral effects would be identified in this model by including a range of observable activity variables (for example, construction activity or new building starts) in the measurement equations that, together with commodity demand, are determined in part by unobservable sectoral cycles.

[16]Metal on warrant represents inventories stored at the warehouse; canceled warrants represent metal earmarked for delivery.

Investors cancel their warrants because they want to take it out of the warehouse.

Figure 1.SF.3. Commodity Supply and Inventory Developments I
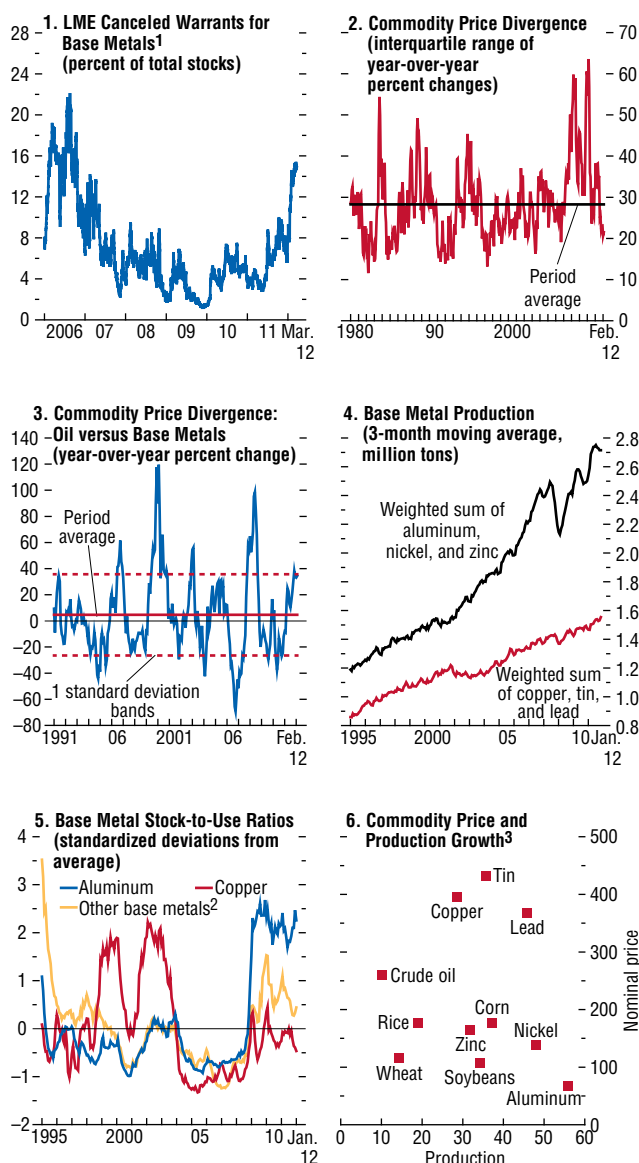
Sources: Bloomberg; IMF, Primary Commodity Price System; International Energy Agency; United States Department of Agriculture; World Bureau of Metal Statistics; and IMF staff estimates.

[1]Average across aluminum, copper, lead, nickel, tin, and zinc. LME = London Metal Exchange.

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

[3]Cumulative percent change from 2003 to 2011.

and crude oil—cyclical commodities—is particularly noteworthy (Figure 1.SF.3, panel 3).

Broad-based narrowing in commodity price divergence is consistent with a situation in which commodity-specific factors have become relatively less important compared with common factors. In the short to medium term, commodity-specific factors typically are supply-related events or developments.[17] Indeed, in global food markets, favorable harvest outcomes during the past crop year and expectations of better harvests this crop year led to unwinding within a year—as is usually the case—of the adverse supply shock that hit global grain markets in 2010. In contrast, oil prices have remained high, mirroring tight physical market conditions, largely from supply shocks through much of 2011 and because of geopolitical risks.

Differences in supply and inventory responses also correspond to price divergence over the medium term. Between 2003 and 2011, the cumulative price increases for aluminum and nickel were smaller than for other base metals, reflecting increased inventory buffers supported by stronger production responses to high prices (Figure 1.SF.3, panels 4 and 5). In contrast, copper and tin prices took off, consistent with smaller inventory buffers and more constrained production growth (Figure 1.SF.3, panel 6; Figure 1.SF.4, panel 1).

Global Oil Supply and Geopolitical Risks

Global oil demand in 2011 was lower than projected at the end of 2010, consistent with weaker-than-expected global activity. Nevertheless, the flow-supply shortfall that characterized market conditions in early 2011—a legacy of the spike in oil demand in the second half of 2010—persisted through much of the year, mainly because of supply disruptions in major oil-producing economies (especially Libya) and longer-than-expected maintenance and other outages

[17]Commodity-specific factors include both demand and supply factors. The main commodity-specific factors on the supply side are supply outcomes, notably harvests, and the level of inventory buffers. The latter are important because the effective supply during a period is given by the sum of production and changes in inventories. Technological innovations can be important both on the demand side—changes in the scope for substitution with other commodity inputs or the efficiency of use (for example, of fuels)—or on the supply side (for example, new extraction technologies).

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in producers that are not members of OPEC, the Organization of Petroleum Exporting Countries (Table 1.SF.2; Figure 1.SF.4, panel 2). Additional production in other OPEC members, especially Saudi Arabia, and weakening demand finally led to balanced demand and supply in the late fall. At that time, however, industry oil stocks of Organization for Economic Cooperation and Development (OECD) economies and OPEC spare capacity had fallen below their five-year averages—which are frequently used industry benchmarks (Figure 1.SF.4, panel 3). At the same time, geopolitical risks started increasing again, raising precautionary demand for inventories. These developments took place in an overall context of persistent oil scarcity, with oil production remaining below trend.[18]

Geopolitical oil supply risks were a prominent feature throughout 2011. They first increased in early 2011 with the unrest in the Middle East and North Africa. While Libya-related risks subsided toward the end of the year (by February 2012, Libyan oil production had recovered to about four-fifths of the pre-unrest level), risks have increased elsewhere, including in the Islamic Republic of Iran, the Syrian Arab Republic, the Republic of Yemen, Sudan and South Sudan, and Iraq. Since the International Atomic Energy Agency released its report on Iran's nuclear program in November 2011, Iran-related risks are the biggest concern. As a result of the recent EU oil import embargo, other countries' tighter sanctions, and Iran's partial oil export embargo, the potential Iranian oil supply shock is morphing into an actual shock because lower Iranian oil production and exports seem inevitable during 2012 and beyond. The extent and speed of the decline, however, are difficult to predict: outcomes will depend on economic and strategic considerations of a small number of players, including major emerging net importers.

The larger the reduction in the Iranian oil supply, the greater the risk of global oil market tightening. For example, a reduction in oil exports equal to total exports to OECD economies would amount to about 1½ million barrels a day, equivalent to a shock of about 2.4 times the standard deviation of regular fluctuations in global production (Table 1.SF.3).[19] The global oil supply

[18]See Chapter 3 of the April 2011 *World Economic Outlook*.

[19]From a historical perspective, disruption of this magnitude would constitute an above-average disruption, both in terms of total barrels and as a percent of global production.

Figure 1.SF.4. Commodity Supply and Inventory Developments II
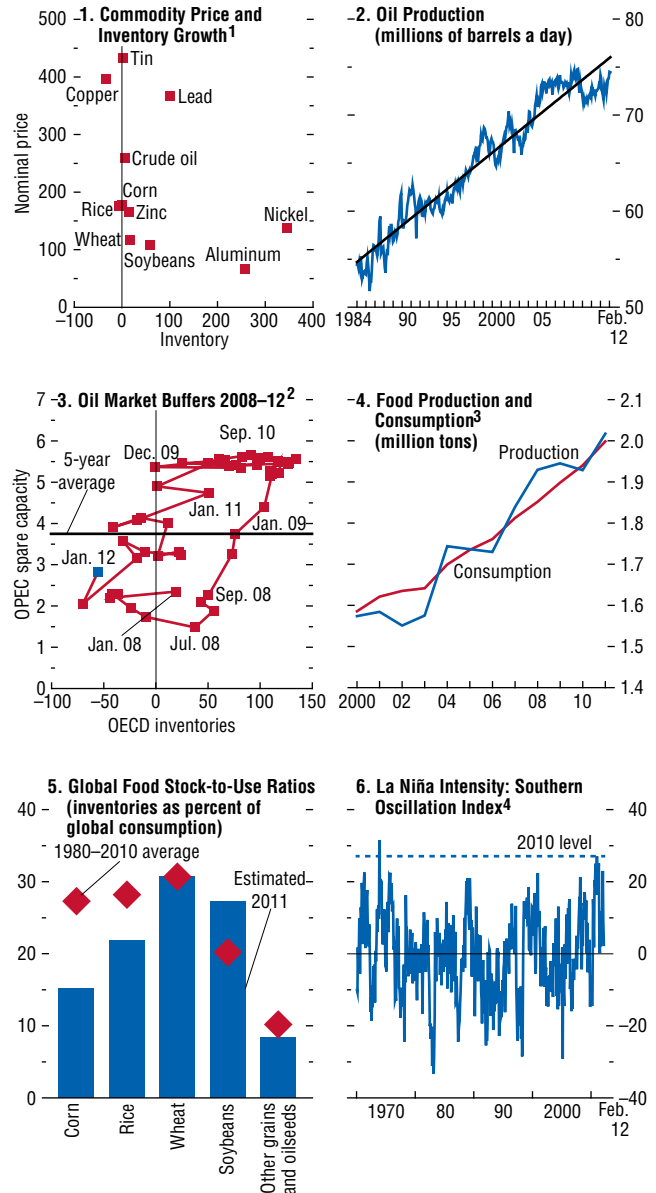
Sources: IMF, Primary Commodity Price System; International Energy Agency; U.S. National Oceanic and Atmospheric Administration; U.S. Department of Agriculture; World Bureau of Metal Statistics; and IMF staff calculations.
[1]Cumulative percent change from 2003 to 2011.
[2]Organization for Economic Cooperation and Development (OECD) stocks, deviations from five-year average (million barrels) on x-axis; Organization of Petroleum Exporting Countries (OPEC) effective spare capacity (million barrels a day) on y-axis (excluding Iraq, Nigeria, and Venezuela for the entire time period, and Libya since November 2011).
[3]Sum of corn, wheat, and milled rice. Crop year on x-axis; 2001 denotes 2000–01 crop year.
[4]Large positive values often indicate La Niña episodes.

Table 1.SF.2. Global Oil Demand and Production by Region
(Millions of barrels a day)

	2009	2010	2011 Proj.	2010: H2	2011: H1	Year-over-Year Percent Change							
						2004–06 Avg.	2007	2008	2009	2010	2011 Proj.	2010: H2	2011: H1
Demand													
Advanced Economies	45.7	45.1	44.7	44.9	45.2	−0.1	−3.5	−3.9	1.5	−1.3	−0.8	−0.6	−2.0
Of Which:													
United States	19.5	19.2	19.1	19.3	19.1	−0.1	−5.9	−3.7	2.2	−1.5	−0.5	−0.1	−2.9
Euro Area	10.6	10.3	10.0	10.2	10.3	−0.4	−0.4	−5.6	−0.2	−2.9	−2.4	−2.0	−3.7
Japan	4.5	4.5	4.5	4.4	4.6	−1.8	−4.9	−8.2	1.3	0.8	0.9	−1.3	2.7
Newly Industrialized Asian Economies	4.8	4.7	4.8	4.7	4.8	2.7	−2.7	3.3	3.9	−1.2	0.7	−1.9	−0.6
Emerging and Developing Economies	42.6	44.0	45.2	43.5	44.5	3.9	2.9	2.1	5.1	3.2	2.7	3.7	2.6
Of Which:													
Commonwealth of Independent States	4.5	4.7	4.8	4.5	4.8	2.3	2.3	−1.2	6.8	5.1	1.9	4.1	6.0
Developing Asia	24.8	25.8	26.7	26.0	25.7	3.5	1.5	4.6	5.9	4.1	3.3	5.1	3.1
China	9.1	9.5	9.9	9.5	9.5	5.4	2.2	4.1	12.5	4.9	3.9	7.8	2.2
India	3.3	3.5	3.6	3.5	3.4	4.9	4.0	4.7	2.4	4.2	3.3	3.5	5.0
Middle East and North Africa	9.3	9.4	9.7	9.2	9.6	5.2	5.0	3.6	3.2	1.1	2.8	1.3	1.0
Western Hemisphere	5.9	6.1	6.3	6.0	6.2	4.4	4.9	0.0	5.3	3.0	2.6	3.4	2.7
World	88.3	89.1	89.9	88.4	89.7	1.6	−0.7	−1.2	3.2	0.8	0.9	1.5	0.2
Production													
OPEC (current composition)[1,2]	34.8	35.8	36.2	35.5	36.1	1.7	3.3	−5.7	2.2	2.7	1.3	2.9	2.6
Of Which:													
Saudi Arabia	9.8	10.7	. . .	10.4	11.1	−0.2	4.9	−9.5	3.1	9.9	. . .	8.3	11.5
Nigeria	2.5	2.6	. . .	2.6	2.6	−1.9	−7.6	−0.4	15.7	3.9	. . .	8.7	−0.3
Venezuela	2.7	2.7	. . .	2.8	2.7	1.8	0.8	−3.6	−4.6	−0.3	. . .	1.8	−2.4
Iraq	2.4	2.7	. . .	2.7	2.8	2.0	14.3	2.5	−2.2	13.3	. . .	13.7	12.9
Non-OPEC[2]	52.6	52.7	53.6	52.5	52.9	0.4	−0.2	1.8	2.1	0.2	. . .	0.3	0.1
Of Which:													
North America	14.1	14.5	15.0	14.3	14.8	−1.2	−3.6	2.1	3.5	3.1	. . .	2.3	3.8
North Sea	3.8	3.4	3.4	3.5	3.3	−7.0	−4.7	−5.3	−8.6	−9.8	. . .	−10.7	−8.8
Russia	10.5	10.6	10.7	10.5	10.6	2.5	−0.7	2.0	2.4	1.2	. . .	1.2	1.3
Other Former Soviet Union[3]	3.1	3.0	3.1	3.1	3.0	9.9	3.1	8.7	1.3	−1.7	. . .	−0.3	−2.9
Other Non-OPEC	21.2	21.1	21.5	21.1	21.2	1.4	3.0	2.0	3.4	−0.2	. . .	0.8	−1.1
World	87.4	88.5	89.9	88.0	89.0	0.9	1.2	−1.4	2.2	1.2	. . .	1.3	1.1
Net Demand[4]	**0.9**	**0.6**	**. . .**	**0.5**	**0.7**	**0.5**	**−0.2**	**0.0**	**1.0**	**0.7**	**. . .**	**0.5**	**0.8**

Sources: International Energy Agency, *Oil Market Report*, August 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.

disruption is likely to be smaller because other producers will make up part of the difference, as Saudi Arabia and other OPEC producers did in the case of the Libyan disruption. Saudi Arabia has indeed signaled its intention to raise production further in case of another large-scale supply disruption. Nevertheless, event study and time series analyses suggest that such offsets rarely compensate for the total difference and that significant local oil supply disruptions are associated with declines in global oil supply, at least temporarily.

Iran-related geopolitical oil supply risks extend beyond the reduction in oil production and exports that appears to be in the making already and is priced in by markets. Iran's location at the Strait of Hormuz, the choke point for shipment of about 40 percent of global oil exports (25 percent of global production), and its geographic proximity to other major oil producers means that there is a risk of a large-scale, possibly unprecedented, oil supply disruption in the event of military conflict or attempts to close the

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Table 1.SF.3. Mean and Standard Deviations of Oil Production
(Based on monthly changes in production)

Producer	1984–2011			2001–11			2006–11		
		Standard Deviation			Standard Deviation			Standard Deviation	
	Mean	Percent	mbd[1]	Mean	Percent	mbd[1]	Mean	Percent	mbd[1]
World	0.1	1.2	0.9	0.1	0.9	0.6	0.0	0.8	0.6
Non-OPEC[2]	0.0	0.9	0.4	0.0	0.8	0.3	0.0	0.9	0.4
OPEC	0.2	3.0	0.9	0.1	1.7	0.5	−0.1	1.5	0.5
Islamic Republic of Iran	0.2	6.5	0.2	0.0	3.5	0.1	−0.2	2.4	0.1
Memorandum									
Iranian exports to OECD[3]									
Ratio to Standard Deviation, World Production[4]						2.36			2.47
Ratio to Standard Deviation, Non-OPEC Production[4]						4.30			3.96
Ratio to Standard Deviation, Iranian Production[4]						11.46			17.24

Source: U.S. Energy Information Administration; International Energy Agency; and IMF staff calculations.

[1]The standard deviation in terms of percent change applied to latest production data available (November 2011); mbd = millions of barrels a day.

[2]OPEC = Organization of Petroleum Exporting Countries.

[3]Crude oil exports as of September 2011; OECD = Organization for Economic Cooperation and Development.

[4]Ratio of crude oil exports to standard deviation of monthly production levels.

strait.[20] Given the low responsiveness of global oil demand to price changes in the short term, such oil supply disruption would require a very large price response to maintain global supply-demand balance.

Geopolitical risk is unlikely to subside soon; this risk has increased precautionary demand for oil inventories. Activity-related oil demand growth is also likely to strengthen as the recovery in global activity advances. With supply outside OPEC expected to increase only modestly in the near term, prospects are for oil market conditions to ease only gradually. Oil futures prices suggest that spot prices are expected to ease gradually but remain above the average 2011 level through 2012–13. Given below-average spare capacity and inventory buffers, upside risks to oil prices remain a prominent concern in this environment, notwithstanding downside risks to global economic growth and oil demand.

Supply Rebound in Global Food Markets

With more favorable harvest outcomes in the past crop year, global food inventories started to be rebuilt in 2011 (Figure 1.SF.4, panel 4).[21] As a

[20]The Strait of Hormuz is also an important choke point for shipments of liquefied natural gas (LNG)—some 20 percent of the global LNG supply according to some estimates.

[21]In the *World Agricultural Supply and Demand Estimates* of the U.S. Department of Agriculture, crop years vary by crop, but they run broadly from the second half of one year to the first half of the next.

result, and against expectations of further harvest improvements this crop year, food prices declined during the second half of 2011, broadly in tandem with cyclical commodity prices. Nevertheless, global demand continues to grow at a robust pace, and vulnerability to adverse weather events and other adverse supply shocks remains a concern (Figure 1.SF.4, panel 5). Global food inventories remain significantly below the average level over the past four decades in terms of stock-to-use ratios, especially for corn and rice. The legacy of the decline in global food inventories during the years before the 2007–08 global food crisis is therefore still present.

The weather pattern known as La Niña represents the most prominent risk to the food supply. Following the strongest La Niña in three decades in 2010, the return of the weather pattern this year has been unexpectedly powerful (Figure 1.SF.4, panel 6). The effects of La Niña on crop yields have historically been ambiguous, but the strength of this current cycle increases the prospect of drought in South America and excessive rain in Asia. Soybeans are the crop most at risk, largely because of their concentrated production in Argentina and Brazil, but also because they have taken the place on the supply side of hitherto higher-priced corn. La Niña also has the potential to reduce rice yields in Asia, but a very large increase in harvested area there should ensure positive supply growth, which will prevent a decline in inventory buffers.

Box 1.1. The Labor Share in Europe and the United States during and after the Great Recession

Inequality has been of concern lately because of its linkages to the sustainability of growth (Berg and Ostry, 2011) and its impact on social cohesion. Changes in the labor share (the share of labor compensation in GDP) are a commonly used measure of inequality.[1] There has been an overall downward trend in the labor share in many advanced economies since the early 1980s for which various explanations have been advanced. These include the college premium (the premium on wages of those with a bachelor's degree), the superstar effect (the disproportionate compensation of the top 1 percent of the income distribution), and the "hollowing out" of the middle class as a result of skill-biased technological change or the offshoring of medium-skill jobs (Rajan, 2010; Atkinson, Piketty, and Saez, 2011; Acemoglu and Autor, 2011). This box, however, focuses more narrowly on the cyclical behavior of the labor share, especially during the Great Recession and the subsequent recovery. Did workers shoulder a larger share of the adjustment during the Great Recession? Have they been left out during the recovery? Is the behavior of the labor share different from that during previous recovery episodes?
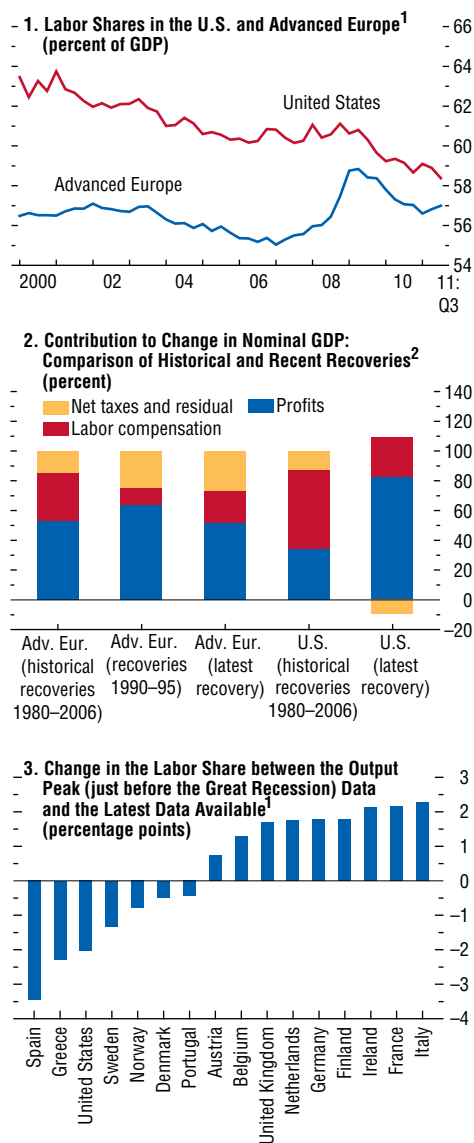
The Theory

Economic theory makes no clear association between fluctuations in aggregate income and the labor share. In many models, the labor share is constant throughout the business cycle. In others, it is positively correlated with the gap between output and potential, but not necessarily with the level of output itself. Finally, when there is labor hoarding during a recession, the labor share is expected to behave countercyclically. However, a number of empirical studies present evidence that the labor share is typically countercyclical—rising during recessions and falling during recoveries.

The main author of this box is Florence Jaumotte, with support from Jair Rodriguez.

[1]While the size of the labor share is commonly associated with inequality, this link is not straightforward. Under some circumstances, a decline in the labor share could imply no change in income inequality, for instance if more workers are compensated by way of stock options.

Figure 1.1.1. Evolution of the Labor Share during the Great Recession and Recovery

1. Labor Shares in the U.S. and Advanced Europe[1] (percent of GDP)

2. Contribution to Change in Nominal GDP: Comparison of Historical and Recent Recoveries[2] (percent)

3. Change in the Labor Share between the Output Peak (just before the Great Recession) Data and the Latest Data Available[1] (percentage points)

Sources: Eurostat; Organization for Economic Cooperation and Development; U.S. Bureau of Labor Statistics; and IMF staff calculations.
[1]The labor share is defined as the ratio of labor compensation to GDP.
[2]The peaks and troughs in output are determined using the Harding and Pagan (2002) version of the Bry and Boschan algorithm. Recovery is defined as four quarters following the trough.

Box 1.1. *(continued)*

This Time Around

Labor share data point to countercyclical behavior, with an increase in the labor share of national income during the Great Recession and a decline (or stabilization) during the recovery (Figure 1.1.1).[2] During the recession, profits were the component that contributed most often to the decline in income. In most economies, labor compensation actually increased, except in Greece, Ireland, Spain, and the United States. The labor share increased only very modestly during the recession in the United States and Spain.[3] During the recovery, although all components of GDP increased, profits rebounded quite strongly in most economies, leading to a decline in the labor share. Labor compensation increased again in all countries, with the exception of Portugal and Spain.

In advanced Europe, the behavior of the labor share during the most recent recovery seems broadly similar to what took place during other recoveries

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[2]National accounts data provide information on the compensation of employees, but do not break down the labor income of other categories of workers (self-employed, employers, family workers), which is included in the category "gross operating surplus and mixed income." The assumption to calculate the labor share is that workers in these other categories command the same compensation per worker as employees.

[3]Net taxes declined in most economies and contributed substantially to lower GDP in a number of them (Italy, Norway, Portugal).

between 1980 and 2006: profits increased quite strongly relative to labor income.[4]

In contrast, the recent recovery in the United States appears unusual from a historical perspective. The rebound in profits relative to labor income is much stronger this time around (although during all recoveries the labor share tends to fall). In fact, the most recent U.S. recovery looks very much like a typical European recovery. One possibility is that workers' fear of long-term unemployment has led to more subdued wages relative to labor productivity growth during the recent recovery. But it will take further research to determine the actual causes.

In many European economies, workers are not worse off after the Great Recession in terms of their share of national income. The labor share is still higher today than just before the Great Recession in many economies. Yet, in the United States and in a few European economies (especially Greece and Spain), the labor share remains well below the pre-crisis peak. Only time will tell the extent to which the latest labor share losses will add to the general trend decline.

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[4]Two definitions of recovery are used: (1) four quarters following the trough (shown in Figure 1.1.1); and (2) the period between the trough and the quarter during which output returns to its precrisis peak (available on request). The findings are broadly similar for both definitions. An alternative definition of recovery not used here is the period between the trough and the quarter during which output returns to trend.

Box 1.2. The Global Recovery: Where Do We Stand?

The recovery from the Great Recession has been unusually uneven: very weak in many advanced economies but surprisingly strong in many emerging and developing economies. The trajectory of the ongoing recovery in advanced economies has so far displayed some disturbing similarities with the sluggish recovery following the much shallower 1991 global recession. More recently, the recovery in advanced economies has weakened, raising concern about the pace and durability of the global recovery. This box explores three major questions to put the ongoing recovery in historical perspective. How different is the current global recovery from past recoveries? How do developments in advanced and emerging economies compare with those during earlier episodes? And where do we stand in the recovery process? To address these questions, this box briefly examines the main features of global recoveries during the past 50 years and the experiences of advanced and emerging market economies during these episodes.

A global recovery is defined as a period (usually the first three years) of increasing economic activity following a global recession. This box focuses on the recoveries that followed the global recessions of 1975, 1982, 1991, and 2009, which involved declines in world real GDP per capita.[5] The 2009 episode stands out as the most severe and synchronized global recession during the postwar period. This raises the question of whether the recovery from the Great Recession differs much from past recoveries. To analyze the dynamics of the global recovery, the behavior of a set of macroeconomic

and financial variables during the current recovery is compared with that of the previous three episodes.

How Similar? How Different?

The ongoing global recovery has several similarities with previous ones but also exhibits some important differences. At the global level, real GDP, trade, credit, and house and equity prices have not displayed an unusual pattern during the current recovery (Figure 1.2.1). In fact, GDP, consumption, and investment have rebounded more strongly than after most past global recessions. However, the declines were much deeper in 2009, and an unprecedented degree of macroeconomic policy expansion has helped drive the current recovery (Figure 1.2.2).[6] Despite the strong rebound in global economic activity, the level of unemployment has remained much higher than during previous episodes. These aggregate observations mask, however, important differences between the recoveries experienced by advanced economies and emerging market economies.

One distinguishing feature of the current recovery is its uneven nature. As documented in Box 1.1 of the October 2010 *World Economic Outlook*, emerging market economies have performed better than in past episodes. In fact, they account for the lion's share of world growth since 2009, driven largely by buoyant domestic demand, vibrant asset markets, strong capital inflows, and expansionary policies.[7] The strong performance of emerging markets reflects in part some structural improvements such as better-regulated financial systems and stronger macroeconomic frameworks that allowed them to pursue more credible and effective countercyclical policies. Notable exceptions are the emerging European economies, which suffered a financial shock qualitatively similar to the shock in many advanced economies.

In contrast, the current recovery in advanced economies has been extremely weak, reflecting in

The authors of this box are M. Ayhan Kose, Prakash Loungani, and Marco E. Terrones. Ezgi O. Ozturk and M. Angela Espiritu provided research assistance.

[5]These global recessions are identified by applying at the global level the two standard methods of dating peaks and troughs in individual country business cycles—statistical procedures and discretionary methods such as the one used by the National Bureau of Economic Research for the United States. Both methods yield the same turning points in global activity (Kose, Loungani, and Terrones, 2009). A per capita measure of global GDP is considered to account for the heterogeneity in population growth rates across countries—in particular, emerging and developing economies tend to have faster GDP growth than advanced economies, but they also have higher population growth.

[6]For a discussion of the scope of expansionary macroeconomic policies following the recent global recession, see Dao and Loungani (2010).

[7]Kose, Otrok, and Prasad (forthcoming) present a detailed account of many differences in cyclical performance between advanced and emerging market economies in recent years.

Box 1.2. *(continued)*

Figure 1.2.1. Dynamics of Global Recoveries: Selected Variables[1]

(Years on x-axis; t *= 0 in the year of the trough; indexed to 100 at the trough; in real terms unless noted otherwise)*
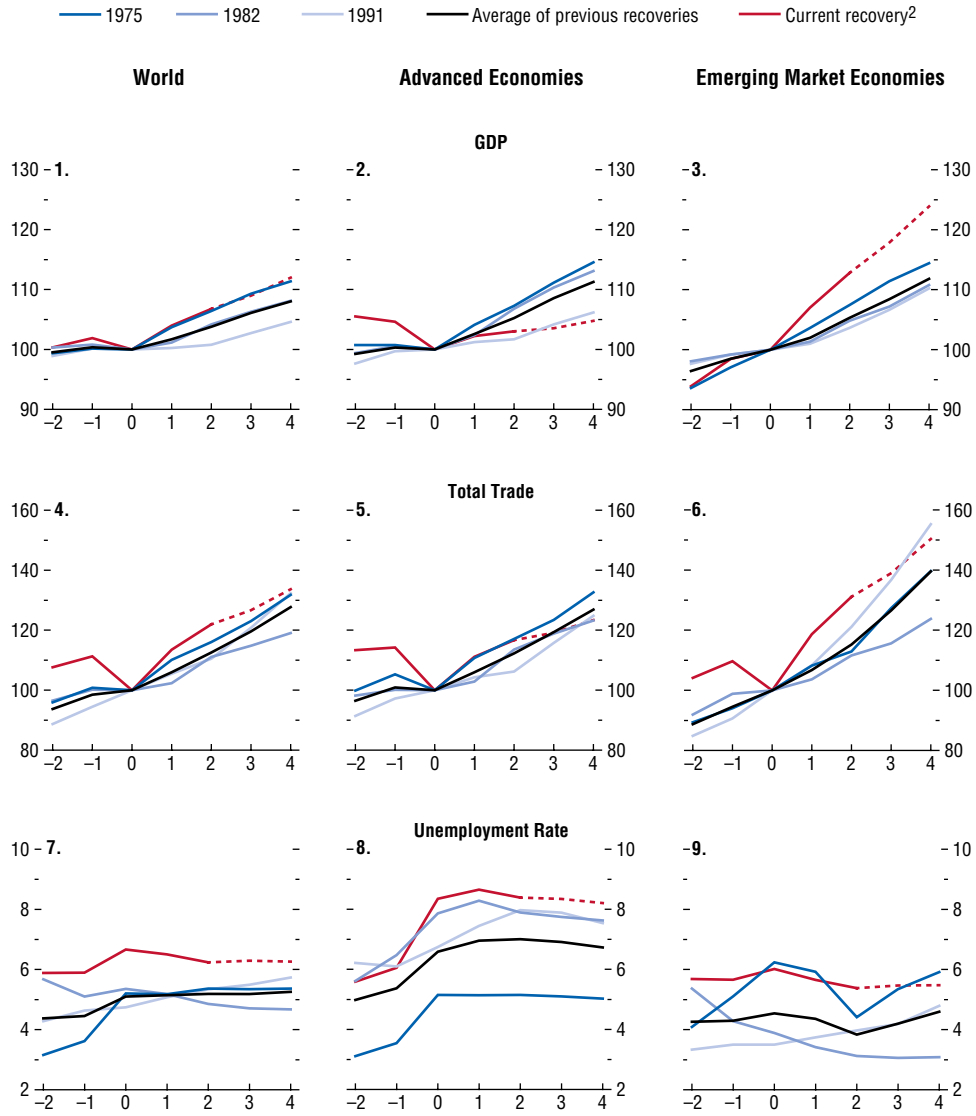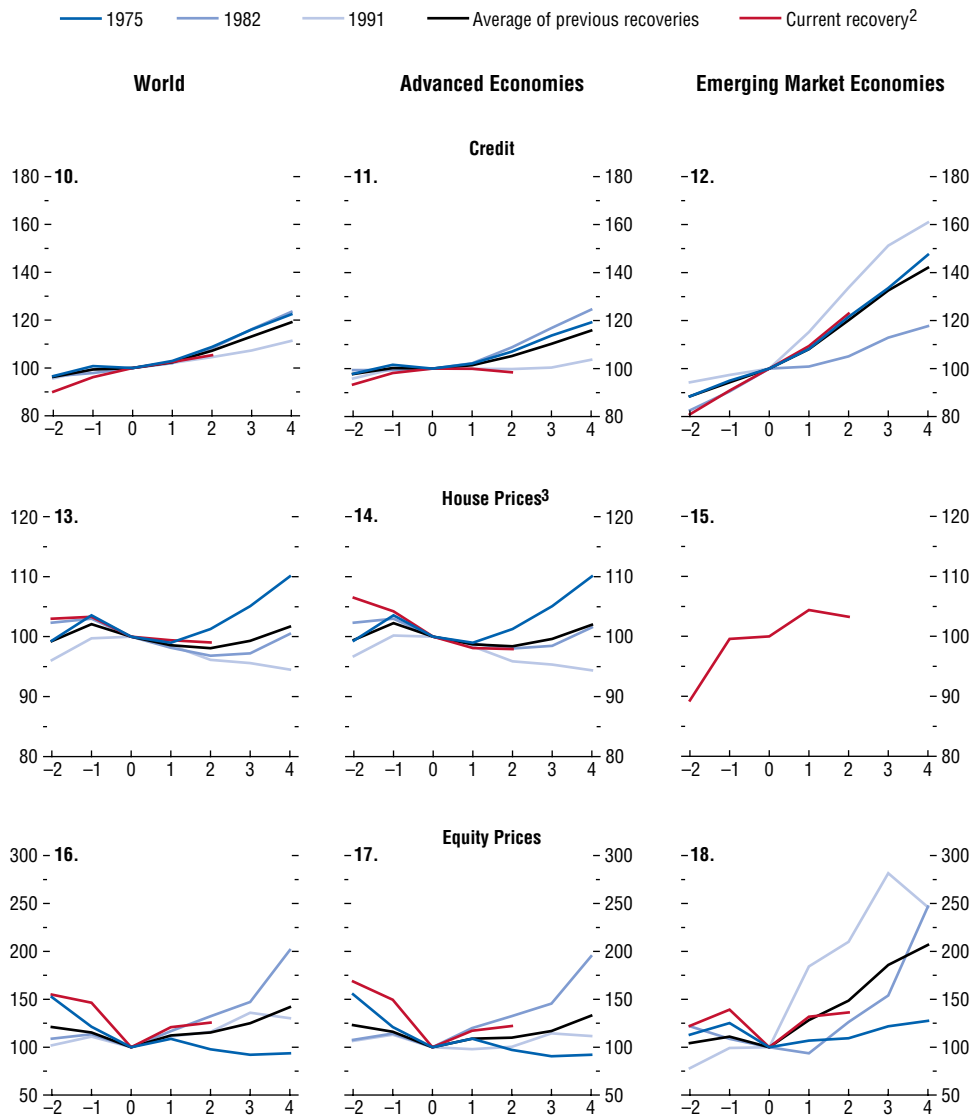
Box 1.2. *(continued)*

Figure 1.2.1. Dynamics of Global Recoveries: Selected Variables[1] *(concluded)*

(Years on x-axis; t *= 0 in the year of the trough; indexed to 100 at the trough; in real terms unless noted otherwise)*

Legend: 1975 — 1982 — 1991 — Average of previous recoveries — Current recovery[2]

Source: IMF staff estimates.

[1]Aggregates for GDP are purchasing-power-parity-weighted per capita real GDP indices. Aggregates for total trade are trade-weighted real trade indices. Aggregates for unemployment rate are labor-force-weighted unemployment rates in percent. Aggregates for real credit, real house prices, and real equity prices are market-weighted by GDP in U.S. dollars.

[2]Dashed lines denote WEO forecasts, where available.

[3]House price series for the previous global recoveries are not available for emerging market economies.

Box 1.2. *(continued)*

part the legacy of the global financial crisis, particularly the ongoing need for balance sheet repair in the household and financial sectors.[8] Specifically, the 2012 forecast of economic activity, if realized, would mean that the current recovery is the weakest for advanced economies during the postwar era. In a number of advanced economies, output has not yet rebounded to the levels observed before the recession, unemployment remains well above historical norms, and cumulative growth in consumption and investment has been much smaller.

Another distinct feature of the current recovery is a sharp and sustained contraction in investment in structures in advanced economies. The severity of the contraction can be traced to deterioration in the credit and housing markets. Still, developments in these market segments have thus far not been significantly worse than after the 1991 recession.

Interestingly, equity markets have performed better on average than after previous recessions. One explanation is that many nonfinancial corporations now operate on a global level and have benefited from the overall improvement in global activity, particularly in emerging markets—which, as noted, have recovered better than after previous worldwide recessions.

Advanced Economies: Reliving the Early 1990s?

Despite the fact that the Great Recession was markedly more severe than the 1991 global recession, the underlying causes of these two episodes and the evolution of activity during the succeeding recoveries are remarkably similar for the advanced economies.

- These two recoveries were preceded by recessions associated with a bust in credit and housing markets in key advanced economies.[9] In particular, the 1991 recession was associated with disrup-

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[8]In many ways, this outcome was expected. For example, Claessens, Kose, and Terrones (forthcoming) present evidence suggesting that recoveries following turmoil in financial markets tend to be weaker. They also find that recoveries associated with rapid growth in credit and house prices are often stronger.

[9]Before both the 2008–09 global financial crisis and the ERM crisis, advanced economies experienced highly synchronized credit booms (Mendoza and Terrones, forthcoming).

Figure 1.2.2. Growth during Global Recessions and Recoveries: Selected Variables
(Annual percent change; in real terms)
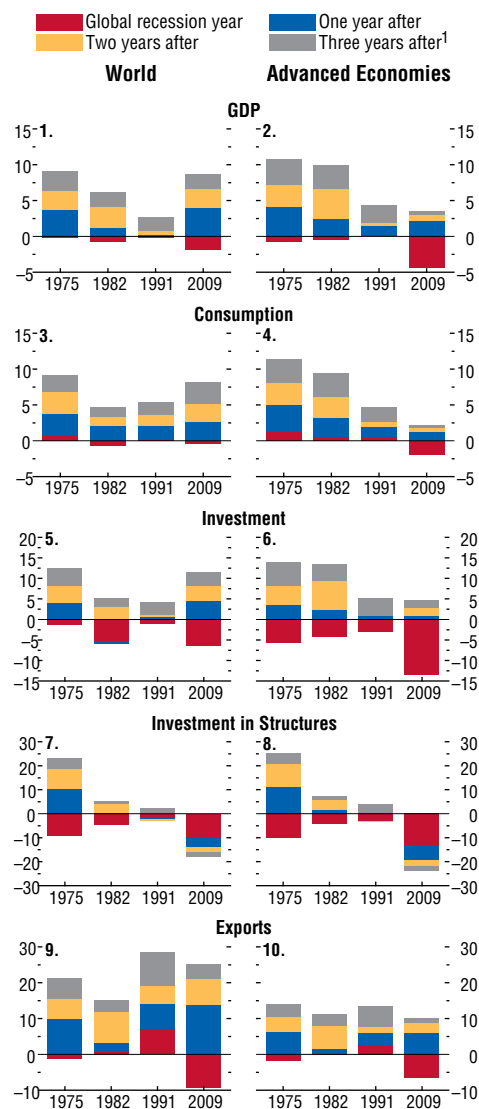
Source: IMF staff estimates.
Note: Each bar represents the percent change in the respective variable in the years of the global recessions and recoveries. Growth rates of all variables, except exports, are per capita and weighted for purchasing power parity. Investment in structures includes both residential investment and other buildings and structures. Export growth is weighted by the U.S. dollar value of total trade as a share of the group's total trade.
[1]Figures for 2012 (global recession year 2009) are forecasts.

Box 1.2. *(continued)*

tions in credit and asset markets in the United States and Japan. Similarly, the Great Recession involved severe problems in credit and housing markets in the United States and a number of other advanced economies, including Ireland, Spain, and the United Kingdom.

- Both recoveries were slowed down in part by challenges in Europe. The earlier recovery episode was shaped by downturns in many European economies during the European Exchange Rate Mechanism (ERM) crisis of 1992–93. Interest rates had to be raised during that period to defend the exchange rate arrangement, and several advanced European economies were forced to reduce their large fiscal deficits. This suppressed economic activity and further depressed credit and housing markets in the region. Currently, high sovereign risk premiums are inflicting similar or even worse damage on fiscal balances and growth. In both cases, lack of a timely, credible, and coordinated policy strategy heightened the financial turmoil.

- The trajectories of the two recoveries were quite similar because advanced economies experienced meager growth in both cases. In part, this is a result of the disappointing growth in domestic consumption and investment driven by the legacy of the financial crisis—balance sheet repair, weak credit expansion, and lingering problems in housing markets—and loss of competitiveness in some economies. Both episodes are also marked by persistently high unemployment.[10] However, considering the

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[10]Loungani (2012) discusses evidence for the theory that the drop in output through aggregate demand channels

deep fall in output in 2009, the rise in unemployment has been more limited. This is particularly true in Europe and may well reflect policies involving more job-friendly wage setting and greater labor hoarding in some of these economies.

Conclusions

Although the strong rebound in world output during this global recovery is comparable with previous episodes, the divergence of advanced and emerging market economies' fortunes sets the current recovery apart. Emerging market economies have rebounded strongly and have been the engine of world growth during this recovery. The robust performance of these economies can be explained in part by their strong macroeconomic frameworks and structural reforms.

In contrast, for advanced economies, the current recovery is predicted to be the weakest of the postwar era. The trajectory of the ongoing recovery in advanced economies has so far paralleled the recovery following the 1991 recession to a surprising degree. Both of these recoveries were hampered by housing and financial market problems in these economies. These problems are likely to continue sapping the strength of the recovery unless policymakers adopt stronger policies to address them.

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explains much of the increase in unemployment in advanced economies. For the United States, labor market slack could be better reflected in the persistent drop in the employment-to-population ratio.

Box 1.3. Where Is China's External Surplus Headed?

China's current account surplus has declined from a precrisis peak of 10.1 percent of GDP in 2007 to 2.8 percent of GDP in 2011—a reversal that was sharper and more persistent than expected. It has long been challenging to forecast China's current account, given the economy's rapid structural change, the uncertainties surrounding prospects for the terms of trade, the *World Economic Outlook* forecast assumption of a constant real exchange rate, and the volatility of the global economy in recent years. This box examines the links between the recent decline in China's current account surplus, shifts in domestic spending, changes in global prices and trade patterns, and domestic costs and external competitiveness. It also considers the implications and outlook for China's external surplus over the medium term.

The primary cause of the decline in the current account surplus is a compression of the trade surplus, although the income balance contributed as well (Figure 1.3.1). This took place in the context of cyclically weak demand from China's main trading partners, which was 6½ percentage points lower for 2008–11 than forecast in early 2008. Demand was especially weak in the United States and the euro area, which account for about 40 percent of China's exports.

At the same time, investment became increasingly important in supporting growth (Figure 1.3.2). Investment was initially boosted by stimulus measures, which raised public spending on infrastructure in response to the rapidly deteriorating global economic conditions during the Great Recession. However, as public stimulus waned after mid-2009, there was a significant pick-up in private capital formation, first in housing construction and, more recently, for renewed expansion of manufacturing capacity, often in relatively higher-end industries. This investment proved to be significantly more import-intensive than domestic consumption, which put downward pressure on the trade balance.

Another factor in the reversal of the current account surplus has been ongoing secular deteriora-

The main authors of this box are Ashvin Ahuja, Nigel Chalk, Malhar Nabar, and Papa N'Diaye. The box draws on Ahuja and others (forthcoming).

Figure 1.3.1. China's Current Account and Components, 1971–2011
(Percent of GDP)
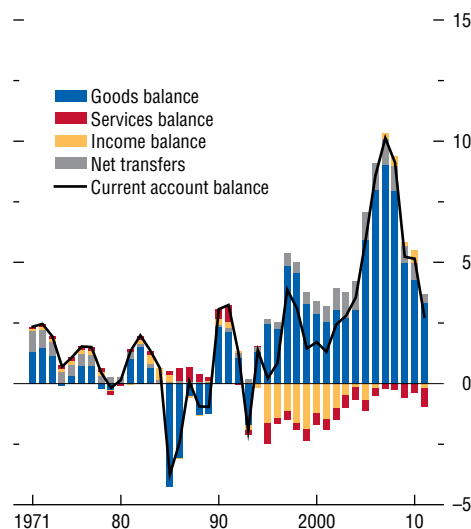
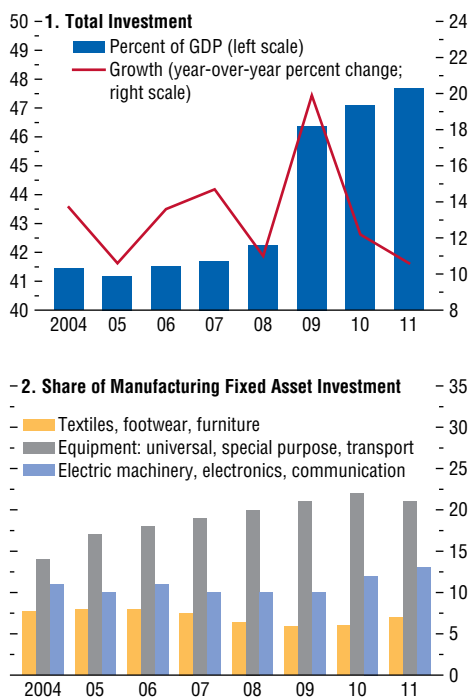Source: IMF staff calculations.

tion in China's terms of trade.[1] As noted, the run-up in investment spending was more import-intensive, particularly for commodities and minerals, for which global supply is relatively inelastic and prices have been rising. At the same time, exports became increasingly tilted toward machinery and equipment, for which global supply is relatively elastic, competition is significant, and relative prices have been falling. In fact, because of its economic size, China is no longer a price taker in global markets, so its strong investment has added to downward pressure on the prices of its export goods. As a consequence, aside from a temporary rebound in 2009, China's terms of trade have declined by 10½ percentage points more than forecast in early 2008.

[1]From a historical perspective, the secular terms-of-trade deterioration is not surprising. Other economies in the region—notably Japan and the newly industrialized Asian economies—also suffered similar, lasting terms-of-trade declines as they gained significant export market share and moved along their development path.

Box 1.3. *(continued)*
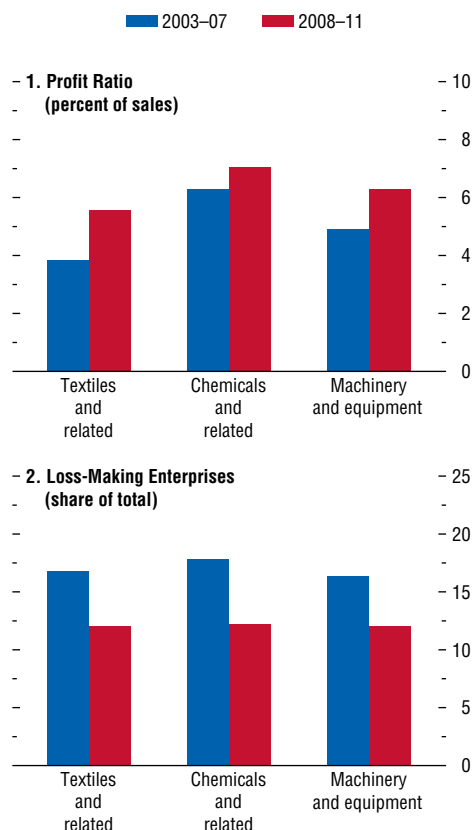
Figure 1.3.2. China's Fixed Asset Investment, 2004–11

(Percent unless noted otherwise)

Figure 1.3.3. Profitability of China's Manufacturing Sector, 2003–11

Source: IMF staff calculations.

Rising domestic costs are also cited as a reason for the decline in China's trade surplus. There is significant anecdotal evidence of rising costs, and official data suggest that nominal wages have been rising at about 15 percent a year. At the same time, the renminbi has been appreciating in real, trade-weighted terms (14¾ percent between April 2008 and the end of 2011). However, there is not yet strong evidence suggesting that these rising costs are making a large impact on competitiveness. Indeed, profit margins have been rising, and there has been a decline in the share of loss-making enterprises across a range of industries (Figure 1.3.3.). Several developments have contained the impact of rising domestic costs and facilitated productivity improvements, including relocation of industries away from the coastal provinces to lower-

cost inland areas, economies of scale associated with a growing domestic market, and the continuing low cost of key inputs (land, water, energy, capital).

How much has each of these factors contributed to the observed decline in China's current account surplus? There is no easy answer to this question because all factors are interrelated and influenced by other developments. Their individual contributions are therefore difficult to identify precisely. Nevertheless, illustrative IMF staff calculations using simplifying assumptions can shed some light on this question. The calculations compare actual developments against a counterfactual scenario for

Box 1.3. *(continued)*

Table 1.3.1. Estimated Contributions to Decline in China's Current Account Surplus, 2007–11[1]
(Percent of GDP)

	Estimated Trade Elasticities[2]	Reduced-Form Current Account Equation
Actual 2007	10.1	10.1
Actual 2011[3]	2.8	2.8
Change, 2007–11	−7.3	−7.3
Contributing Factors		
Terms of Trade	−1.6	−3.6
Foreign Demand	−1.1	−1.4
Investment	−1.8	−2.6
Real Effective Exchange Rate	−2.1	−1.3
Others	−0.8	1.5

Source: IMF staff calculations.

[1]See Ahuja and others (forthcoming).

[2]Elasticities based on estimated calculations for exports and imports of goods and services.

[3]Preliminary.

the four key variables and are based on two different approaches to obtain the relevant elasticities.[2] The counterfactual scenario assumes that growth in China's trading partners remains at potential during 2007–11, that the real exchange rate stays constant, and that China's terms of trade and investment-to-GDP ratio remain at their 2007 levels. The calculations suggest that the terms-of-trade decline caused between one-fifth and two-fifths of the decline in the current account surplus over the past four years (Table 1.3.1). The acceleration in investment accounted for one-quarter to one-third of the decline, while the appreciation of the currency contributed between one-fifth and one-third. Below-potential growth in partner countries had a slightly smaller effect. Overall, the conclusion is that growing domestic investment, worsening terms of trade, weakening external demand, and a rising real effective exchange rate (REER) explain a large share of the postcrisis decline in the current account surplus. That said, these calculations are based on a partial equilibrium approach and therefore must be interpreted with some caution, in

[2]Again see Ahuja and others (forthcoming).

Figure 1.3.4. China's Current Account Balance as a Share of World GDP, 2006–17
*(Percent of world nominal GDP)*
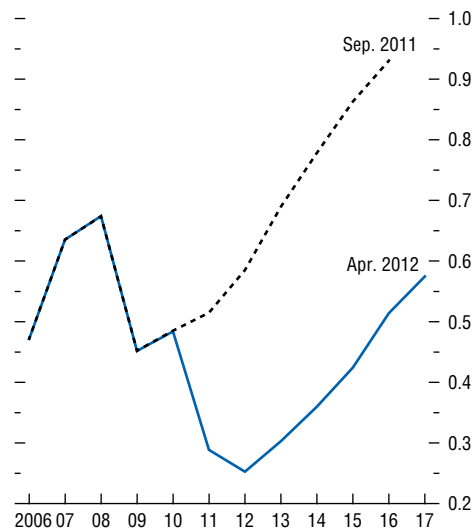
Source: IMF staff estimates.

particular because they do not account for feedback effects between the various factors (such as linkages between high investment in China and rising global commodity prices).

The forecast in this issue of the *World Economic Outlook* projects another rise in China's current account surplus—but at most to about 4 to 4½ percent of GDP by 2017, a much smaller external imbalance than in previous forecasts. However, China will still account for a rising share of the overall global current account surplus as its economy grows (Figure 1.3.4). These projections assume that many of the recent shifts underpinning the current account reversal will persist. In particular, the terms of trade are assumed to deteriorate steadily (by ½ percent a year) and the investment ratio to remain close to current levels while the rebalancing toward consumption gradually gains traction. China also is assumed to gain global market share at the same average pace as over the past decade. The projections are also based on the

Box 1.3. *(concluded)*

Figure 1.3.5. Change in China's Global Market Share, 2001–10
(Change from previous year; percentage points)
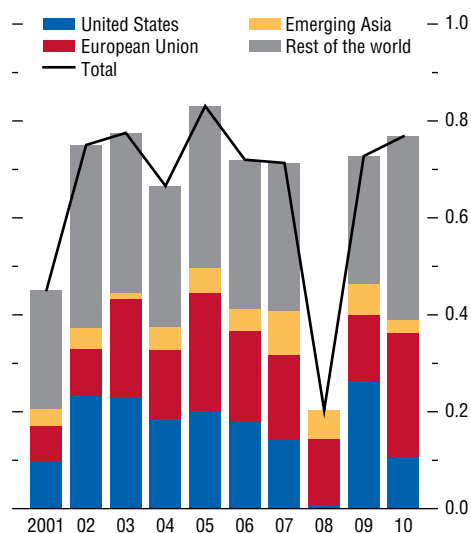
Source: IMF staff calculations.
Note: The 27 EU member countries are listed in Table C of the Statistical Appendix.

usual WEO assumption that the REER will remain at the level prevailing when the current WEO forecasts were prepared. Under these conditions, net exports will likely improve in real terms as global demand recovers, but the current account surplus is not expected to rise to anywhere near the levels recorded before the Great Recession.

The downside risks to the current account projections are considerable. They are tied in part to the global outlook but also to uncertainty about the pace of structural change in China's economy. The rapid growth of China's export market share during the past decade was the result of a variety of factors that have largely run their course, including the beneficial impact of World Trade Organization accession, strong growth in manufacturing productivity, large-scale relocation of global production facilities to China, and low production costs (Figure 1.3.5). Continued export growth will involve a shifting product mix toward higher-end manufacturing, a process that will face headwinds from the slow recovery in global demand. In addition, existing markets will become saturated, there will be fewer opportunities for productivity gains from technology transfer, and fewer overseas production facilities will relocate to China.

In conclusion, the decline in China's external surplus has been sizable and has contributed to a changing constellation of global imbalances. However, this adjustment has largely been the result of very high levels of investment. Available official data on consumption and saving, which cover the period until the end of 2010, do not yet indicate that domestic consumption is rising as a share of GDP or that national saving is falling. The policy thrust of the 12th Five-Year Plan, however, is focused on raising household income, boosting consumption, and facilitating expansion of the service sector. If these ongoing structural reforms are implemented, China has the potential for domestic consumption, rather than investment, to drive future declines in its current account surplus. This would ultimately be a more lasting transformation that would increase the welfare of the Chinese people and contribute significantly to strong, sustained, and balanced global growth.

References

Acemoglu, Daron, and David Autor, 2011, "Skills, Tasks and Technologies: Implications for Employment and Earnings," in *Handbook of Labor Economics,* Vol. 4*,* ed. by Orley Ashenfelter and David E. Card (Amsterdam: Elsevier).

Acharya, Viral, Lars Lochstoer, and Tarun Ramadorai, 2010, "Limits to Arbitrage and Hedging: Evidence from Commodity Markets" (unpublished; New York: New York University).

Ahuja, Ashvin, Rudolf Bems, Nigel Andrew Chalk, Malhar Nabar, Papa M'B. P. N'Diaye, and Nathaniel John Porter, forthcoming, "An End to China's Imbalances," IMF Working Paper (Washington: International Monetary Fund).

Alquist, Ron, Lutz Kilian, and Robert Vigfusson, 2011, "Forecasting the Price of Oil," Working Paper No. 2011-15 (Ottawa: Bank of Canada).

Asdrubali, Pierfederico, Bent Sorensen, and Oved Yosha, 1996, "Channels of Interstate Risk Sharing: United States 1963–90," *Quarterly Journal of Economics*, Vol. 111, pp. 1081–110.

Atkinson, Tony, Thomas Piketty, and Emmanuel Saez, 2011, "Top Incomes in the Long Run of History," *Journal of Economic Literature*, Vol. 49, No. 1, pp. 3–71.

Bai, Jushan, and Serena Ng, 2002, "Determining the Number of Factors in Approximate Factor Models," *Econometrica*, Vol. 70, No. 1, pp. 191–221.

———, 2007, "Determining the Number of Primitive Shocks in Factor Models," *Journal of Business and Economics Statistics*, Vol. 25, pp. 52–60.

Berg, Andrew, and Jonathan Ostry, 2011, "Inequality and Unsustainable Growth: Two Sides of the Same Coin?" IMF Staff Discussion Note No. 11/08 (Washington: International Monetary Fund).

Bloom, Nicholas, 2009, "The Impact of Uncertainty Shocks," *Econometrica*, Vol. 77, No. 3, pp. 623–85.

Claessens, Stijn, M. Ayhan Kose, and Marco E. Terrones, forthcoming, "How do Business and Financial Cycles Interact?" *Journal of International Economics*.

Coenen, Günter, Christopher J. Erceg, Charles Freedman, Davide Ferceri, Michael Kumhof, René Lalonde, Douglas Laxton, Jesper Lindé, Annabelle Mourougane, Dirk Muir, Susanna Mursula, Carlos de Resende, John Roberts, Werner Roeger, Stephen Snudden, Mathias Trabandt, and Jan in 't

Veld, 2012, "Effects of Fiscal Stimulus in Structural Models," *American Economic Journal*, Vol. 4, No. 1, pp. 22–68.

Dao, Mai, and Prakash Loungani, 2010, "The Human Cost of Recessions: Assessing It, Reducing It," IMF Staff Position Note No. 10/17 (Washington: International Monetary Fund).

Decressin, Jörg, and Douglas Laxton, 2009, "Gauging Risks for Deflation," IMF Staff Position Note No. 09/01 (Washington: International Monetary Fund).

Elekdag, Selim, and Prakash Kannan, 2009, "Incorporating Market Information into the Construction of the Fan Chart," IMF Working Paper No. 09/178 (Washington: International Monetary Fund).

Etula, Erkko, 2009, "Broker-Dealer Risk Appetite and Commodity Returns," Staff Report No. 406 (New York: Federal Reserve Bank).

Harding, Don, and Adrian Pagan, 2002, "Dissecting the Cycle: A Methodological Investigation, *Journal of Monetary Economics,* Vol. 49, No. 2, pp. 365–81.

Kose, M. Ayhan, Prakash Loungani, and Marco E. Terrones, 2009, "Out of the Ballpark," *Finance & Development,* Vol. 46, No. 2, pp. 25–28.

Kose, M. Ayhan, Christopher Otrok, and Eswar Prasad, forthcoming, "Global Business Cycles: Convergence or Decoupling?" *International Economic Review.*

Kumar, Manmohan S., 2003, *Deflation: Determinants, Risks, and Policy Options,* IMF Occasional Paper No. 221 (Washington: International Monetary Fund).

Lee, Jaewoo, Gian Maria Milesi-Ferretti, Jonathan Ostry, Alessandro Prati, and Luca Antonio Ricci, 2008, *Exchange Rate Assessments: CGER Methodologies,* IMF Occasional Paper No. 261 (Washington: International Monetary Fund).

Loungani, Prakash, 2012, "Unemployment through the Prism of the Great Recession," *IMF Research Bulletin* (March).

Mendoza, Enrique, and Marco E. Terrones, forthcoming, "An Anatomy of Credit Booms and Their Demise," ed. by Carmen Reinhart and Miguel Fuentes, *Capital Mobility and Monetary Policy*.

Rajan, Raghuram G., 2010, *Fault Lines: How Hidden Fractures Still Threaten the World Economy* (Princeton, New Jersey: Princeton University Press).