CHAPTER 1

RECENT DEVELOPMENTS AND PROSPECTS

Global activity strengthened during the second half of 2013 and is expected to improve further in 2014–15. The impulse has come mainly from advanced economies, although their recoveries remain uneven. With supportive monetary conditions and a smaller drag from fiscal consolidation, annual growth is projected to rise above trend in the United States and to be close to trend in the core euro area economies. In the stressed euro area economies, however, growth is projected to remain weak and fragile as high debt and financial fragmentation hold back domestic demand. In Japan, fiscal consolidation in 2014–15 is projected to result in some growth moderation. Growth in emerging market economies is projected to pick up only modestly. These economies are adjusting to a more difficult external financial environment in which international investors are more sensitive to policy weakness and vulnerabilities given prospects for better growth and monetary policy normalization in some advanced economies. As a result, financial conditions in emerging market economies have tightened further compared with the October 2013 World Economic Outlook *(WEO), while they have been broadly stable in advanced economies. Downside risks continue to dominate the global growth outlook, notwithstanding some upside risks in the United States, the United Kingdom, and Germany. In advanced economies, major concerns include downside risks from low inflation and the possibility of protracted low growth, especially in the euro area and Japan. While output gaps generally remain large, the monetary policy stance should stay accommodative, given continued fiscal consolidation. In emerging market economies, vulnerabilities appear mostly localized. Nevertheless, a still-greater general slowdown in these economies remains a risk, because capital inflows could slow or reverse. Emerging market and developing economies must therefore be ready to weather market turmoil and reduce external vulnerabilities.*

The Demand and Activity Perspective

Global growth picked up in the second half of 2013, averaging 3⅔ percent—a marked uptick from the 2⅔ percent recorded during the previous six months. Advanced economies accounted for much of the pickup, whereas growth in emerging markets increased only modestly (Figure 1.1, panel 2). The strengthening in activity was mirrored in global trade and industrial production (Figure 1.1, panel 1).

The latest incoming data suggest a slight moderation in global growth in the first half of 2014. The stronger-than-expected acceleration in global activity in the latter part of 2013 was partly driven by increases in inventory accumulation that will be reversed. Overall, however, the outlook remains broadly the same as in the October 2013 WEO: global growth is projected to strengthen to 3.6 percent in 2014 and then to increase further to 3.9 percent in 2015 (Table 1.1).

- A major impulse to global growth has come from the *United States*, whose economy (Figure 1.2, panel 1) grew at 3¼ percent in the second half of 2013—stronger than expected in the October 2013 WEO. Some of the upside surprise was due to strong export growth and temporary increases in inventory demand. Recent indicators suggest some slowing in early 2014. Much of this seems related to unusually bad weather, although some payback from previous inventory demand increases may also be contributing. Nevertheless, annual growth in 2014–15 is projected to be above trend at about 2¾ percent (Table 1.1). More moderate fiscal consolidation helps; it is estimated that the change in the primary structural balance will decline from slightly more than 2 percent of GDP in 2013 to about ½ percent in 2014–15. Support also comes from accommodative monetary conditions as well as from a real estate sector that is recovering after a long slump (Figure 1.3, panel 5), higher household wealth (Figure 1.3, panel 3), and easier bank lending conditions.
- In the *euro area*, growth has turned positive. In Germany, supportive monetary conditions, robust labor market conditions, and improving confidence have underpinned a pickup in domestic demand, reflected mainly in higher consumption and a tentative revival in investment but also in housing. Across the euro area, a strong reduction in the pace of fiscal

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

(Percent change unless noted otherwise)

	Year over Year						Q4 over Q4		
			Projections		Difference from January 2014 WEO Update		Estimates	Projections	
	2012	2013	2014	2015	2014	2015	2013	2014	2015
World Output[1]	**3.2**	**3.0**	**3.6**	**3.9**	**–0.1**	**–0.1**	**3.3**	**3.6**	**3.7**
Advanced Economies	**1.4**	**1.3**	**2.2**	**2.3**	**0.0**	**0.0**	**2.1**	**2.1**	**2.4**
United States	2.8	1.9	2.8	3.0	0.0	0.0	2.6	2.7	3.0
Euro Area[2]	–0.7	–0.5	1.2	1.5	0.1	0.1	0.5	1.3	1.5
Germany	0.9	0.5	1.7	1.6	0.2	0.1	1.4	1.6	1.7
France	0.0	0.3	1.0	1.5	0.1	0.0	0.8	1.2	1.6
Italy	–2.4	–1.9	0.6	1.1	0.0	0.0	–0.9	0.7	1.4
Spain	–1.6	–1.2	0.9	1.0	0.3	0.2	–0.2	1.1	0.9
Japan	1.4	1.5	1.4	1.0	–0.3	0.0	2.5	1.2	0.5
United Kingdom	0.3	1.8	2.9	2.5	0.4	0.3	2.7	3.0	1.9
Canada	1.7	2.0	2.3	2.4	0.1	0.0	2.7	2.1	2.4
Other Advanced Economies[3]	1.9	2.3	3.0	3.2	0.1	0.0	2.9	2.7	3.6
Emerging Market and Developing Economies[4]	**5.0**	**4.7**	**4.9**	**5.3**	**–0.2**	**–0.1**	**4.8**	**5.2**	**5.3**
Commonwealth of Independent States	3.4	2.1	2.3	3.1	–0.3	0.1	1.3	2.0	2.5
Russia	3.4	1.3	1.3	2.3	–0.6	–0.2	1.1	1.6	2.5
Excluding Russia	3.3	3.9	5.3	5.7	1.2	1.4	. . .	. . .	. . .
Emerging and Developing Asia	6.7	6.5	6.7	6.8	0.0	0.0	6.4	6.7	6.8
China	7.7	7.7	7.5	7.3	0.0	0.0	7.7	7.6	7.2
India[5]	4.7	4.4	5.4	6.4	0.0	0.0	4.7	5.7	6.5
ASEAN-5[6]	6.2	5.2	4.9	5.4	–0.2	–0.2	. . .	. . .	. . .
Emerging and Developing Europe	1.4	2.8	2.4	2.9	–0.5	–0.2	3.6	2.5	2.9
Latin America and the Caribbean	3.1	2.7	2.5	3.0	–0.4	–0.3	1.9	3.1	2.5
Brazil	1.0	2.3	1.8	2.7	–0.5	–0.2	1.9	2.0	2.9
Mexico	3.9	1.1	3.0	3.5	0.0	0.0	0.6	4.5	2.4
Middle East, North Africa, Afghanistan, and Pakistan	4.2	2.4	3.2	4.4	–0.1	–0.4	. . .	. . .	. . .
Sub-Saharan Africa	4.9	4.9	5.4	5.5	–0.7	–0.3	. . .	. . .	. . .
South Africa	2.5	1.9	2.3	2.7	–0.5	–0.6	2.1	2.1	3.0
Memorandum									
European Union	–0.3	0.2	1.6	1.8	0.2	0.1	1.1	1.7	1.7
Low-Income Developing Countries	5.7	6.1	6.3	6.5	–0.3	0.1	. . .	. . .	. . .
Middle East and North Africa	4.1	2.2	3.2	4.5	–0.2	–0.5	. . .	. . .	. . .
World Growth Based on Market Exchange Rates	2.5	2.4	3.1	3.3	0.0	0.0	2.8	3.0	3.2
World Trade Volume (goods and services)	**2.8**	**3.0**	**4.3**	**5.3**	**–0.1**	**0.1**	**. . .**	**. . .**	**. . .**
Imports									
Advanced Economies	1.1	1.4	3.5	4.5	0.1	0.3	. . .	. . .	. . .
Emerging Market and Developing Economies	5.8	5.6	5.2	6.3	–0.7	–0.1	. . .	. . .	. . .
Exports									
Advanced Economies	2.1	2.3	4.2	4.8	0.2	0.1	. . .	. . .	. . .
Emerging Market and Developing Economies	4.2	4.4	5.0	6.2	–0.4	–0.1	. . .	. . .	. . .
Commodity Prices (U.S. dollars)									
Oil[7]	1.0	–0.9	0.1	–6.0	0.4	–0.8	2.6	–2.3	–6.3
Nonfuel (average based on world commodity export weights)	–10.0	–1.2	–3.5	–3.9	2.7	–1.5	–3.0	–3.2	–3.0
Consumer Prices									
Advanced Economies	2.0	1.4	1.5	1.6	–0.2	–0.1	1.2	1.6	1.7
Emerging Market and Developing Economies[4]	6.0	5.8	5.5	5.2	–0.2	–0.1	5.3	5.1	4.7
London Interbank Offered Rate (percent)									
On U.S. Dollar Deposits (six month)	0.7	0.4	0.4	0.8	0.0	0.3	. . .	. . .	. . .
On Euro Deposits (three month)	0.6	0.2	0.3	0.4	–0.1	–0.2	. . .	. . .	. . .
On Japanese Yen Deposits (six month)	0.3	0.2	0.2	0.2	0.0	0.0	. . .	. . .	. . .

Note: Real effective exchange rates are assumed to remain constant at the levels prevailing during January 31–February 28, 2014. When economies are not listed alphabetically, they are ordered on the basis of economic size. The aggregated quarterly data are seasonally adjusted. Projections for Ukraine are excluded in the April 2014 WEO due to the ongoing crisis but were included in the January 2014 *WEO Update*. Latvia is included in the advanced economies; in the January 2014 *WEO Update,* it was included in the emerging and developing economies.

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

[2]Excludes Latvia.

[3]Excludes the G7 (Canada, France, Germany, Italy, Japan, United Kingdom, United States) and euro area countries but includes Latvia.

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

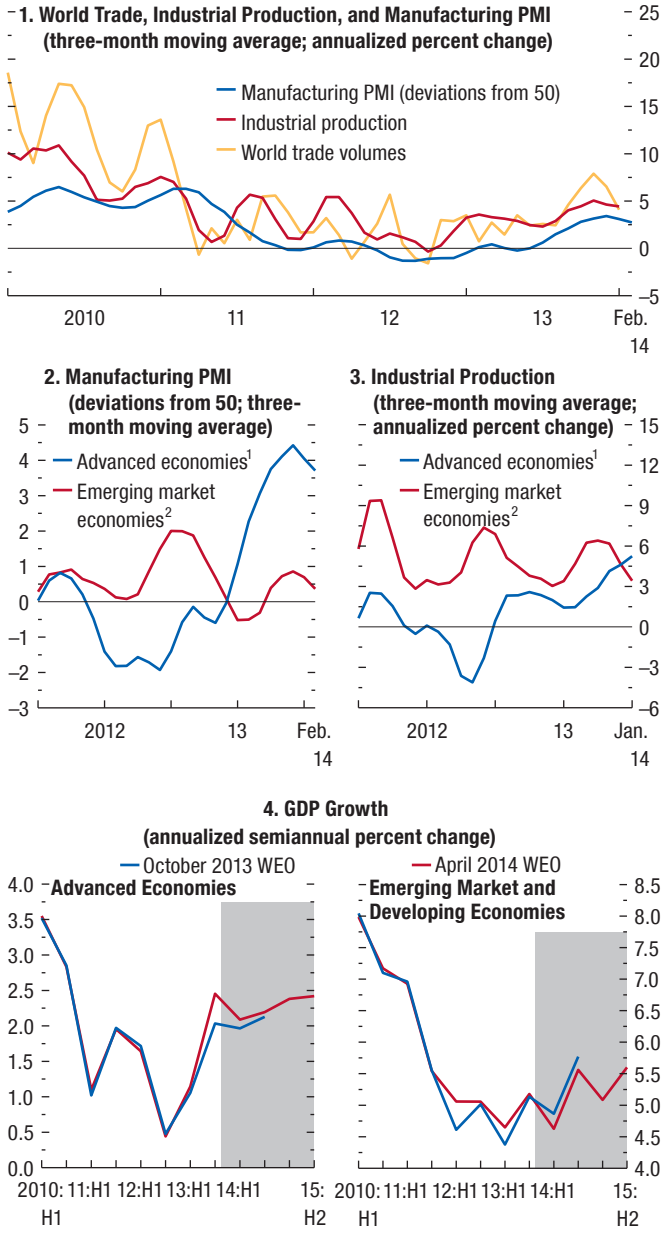
[5]For India, data and forecasts are presented on a fiscal year basis and output growth is based on GDP at market prices. Corresponding growth forecasts for GDP at factor cost are 4.6, 5.4, and 6.4 percent for 2013, 2014, and 2015, respectively.

[6]Indonesia, Malaysia, Philippines, Thailand, Vietnam.

[7]Simple average of prices of U.K. Brent, Dubai Fateh, and West Texas Intermediate crude oil. The average price of oil in U.S. dollars a barrel was $104.07 in 2013; the assumed price based on futures markets is $104.17 in 2014 and $97.92 in 2015.

Figure 1.1. Global Activity Indicators

Global activity strengthened in the second half of 2013, as did world trade, but the pickup was uneven: broad based in advanced economies, but mixed in emerging market economies. Although export growth improved, domestic demand growth remained mostly unchanged.

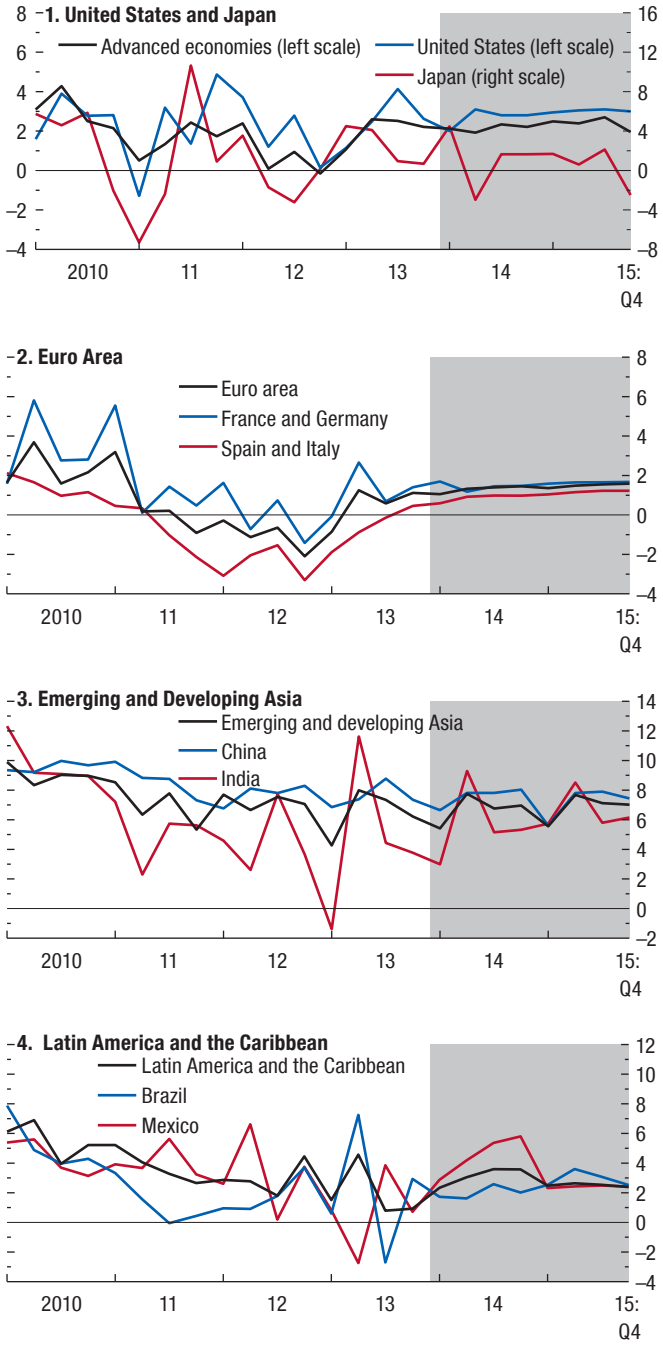


Sources: CPB Netherlands Bureau for Economic Policy Analysis; Haver Analytics; Markit Economics; and IMF staff estimates.
Note: IP = industrial production; PMI = purchasing managers' index.
[1]Australia, Canada, Czech Republic, Denmark, euro area, Hong Kong SAR (IP only), Israel, Japan, Korea, New Zealand, Norway (IP only), Singapore, Sweden (IP only), Switzerland, Taiwan Province of China, United Kingdom, United States.
[2]Argentina (IP only), Brazil, Bulgaria (IP only), Chile (IP only), China, Colombia (IP only), Hungary, India, Indonesia, Latvia (IP only), Lithuania, Malaysia (IP only), Mexico, Pakistan (IP only), Peru (IP only), Philippines (IP only), Poland, Romania (IP only), Russia, South Africa, Thailand (IP only), Turkey, Ukraine (IP only), Venezuela (IP only).

Figure 1.2. GDP Growth Forecasts

(Annualized quarterly percent change)

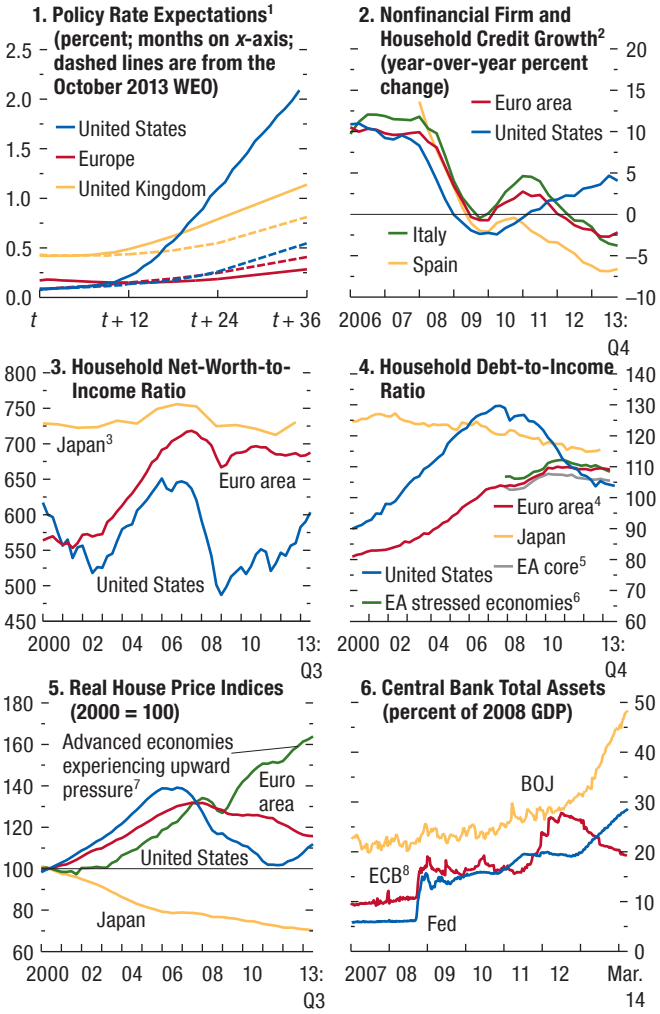
Growth in advanced economies is projected to strengthen moderately in 2014–15, building up momentum from the gains in 2013. Growth in the United States will remain above trend, and growth in Japan is expected to moderate, mostly as the result of a modest fiscal drag. Among emerging market economies, growth is projected to remain robust in emerging and developing Asia and to recover somewhat in Latin America and the Caribbean.



Source: IMF staff estimates.

Figure 1.3. Monetary Conditions in Advanced Economies

Monetary conditions have remained broadly supportive in advanced economies, but more so in the United States than in the euro area or Japan. Policy rates remain close to the zero lower bound, but they are expected to rise beginning in 2015, especially in the United States, where household net worth and house prices have recovered. Household debt has broadly stabilized in the euro area relative to disposable income, and it has declined markedly in the United States. Credit to the nonfinancial private sector in the euro area has continued to decline, reflecting tight lending standards and weak demand.



Sources: Bank of America/Merrill Lynch; Bank of Italy; Bank of Spain; Bloomberg, L.P.; Haver Analytics; Organization for Economic Cooperation and Development; and IMF staff calculations.
Note: BOJ = Bank of Japan; EA = euro area; ECB = European Central Bank; Fed = Federal Reserve.
[1]Expectations are based on the federal funds rate futures for the United States, the sterling overnight interbank average rate for the United Kingdom, and the euro interbank offered forward rate for Europe; updated March 26, 2014.
[2]Flow-of-funds data are used for the euro area, Spain, and the United States. Italian bank loans to Italian residents are corrected for securitizations.
[3]Interpolated from annual net worth as a percent of disposable income.
[4]Euro area includes subsector employers (including own-account workers).
[5]Austria, France, Germany, Netherlands, Slovenia. Loans are used for the Netherlands to calculate the ratio.
[6]Greece, Ireland, Italy, Portugal, Spain.
[7]Upward pressure countries: Australia, Austria, Belgium, Canada, Colombia, Hong Kong SAR, Israel, Norway, Singapore, Sweden, Switzerland.
[8]ECB calculations are based on the Eurosystem's weekly financial statement.

tightening from about 1 percent of GDP in 2013 to ¼ percent of GDP is expected to help lift growth (Figure 1.4, panel 1). Outside the core, contributions from net exports have helped the turnaround, as has the stabilization of domestic demand.

- However, growth in demand is expected to remain sluggish, given continued financial fragmentation, tight credit (see Figure 1.3, panel 2), and a high corporate debt burden. As discussed in Box 1.1, past credit supply shocks in some economies have not yet fully reversed and are still weighing on credit and growth. Credit demand is also weak, however, because of impaired corporate balance sheets. Overall, economic growth in the euro area is projected to reach only 1.2 percent in 2014 and 1½ percent in 2015.
- In *Japan*, some underlying growth drivers are expected to strengthen, notably private investment and exports, given increased partner country growth and the substantial yen depreciation over the past 12 months or so. Nevertheless, activity overall is projected to slow moderately in response to a tightening fiscal policy stance in 2014–15. The tightening is the result of a two-step increase in the consumption tax rate—to 8 percent from 5 percent in the second quarter of 2014 and then to 10 percent in the fourth quarter of 2015—and to the unwinding of reconstruction spending and the first stimulus package of the Abenomics program. However, at about 1 percent of GDP, the tightening of the fiscal policy stance in 2014 will be more moderate than was expected in the October 2013 WEO, as a result of new fiscal stimulus amounting to about 1 percent of GDP. This stimulus is projected to lower the negative growth impact of the tightening by 0.4 percentage point to 0.3 percent of GDP in 2014. In 2015, the negative growth effect of the fiscal stance is projected to increase to ½ percent of GDP. Overall, growth is projected to be 1.4 percent in 2014 and 1.0 percent in 2015.

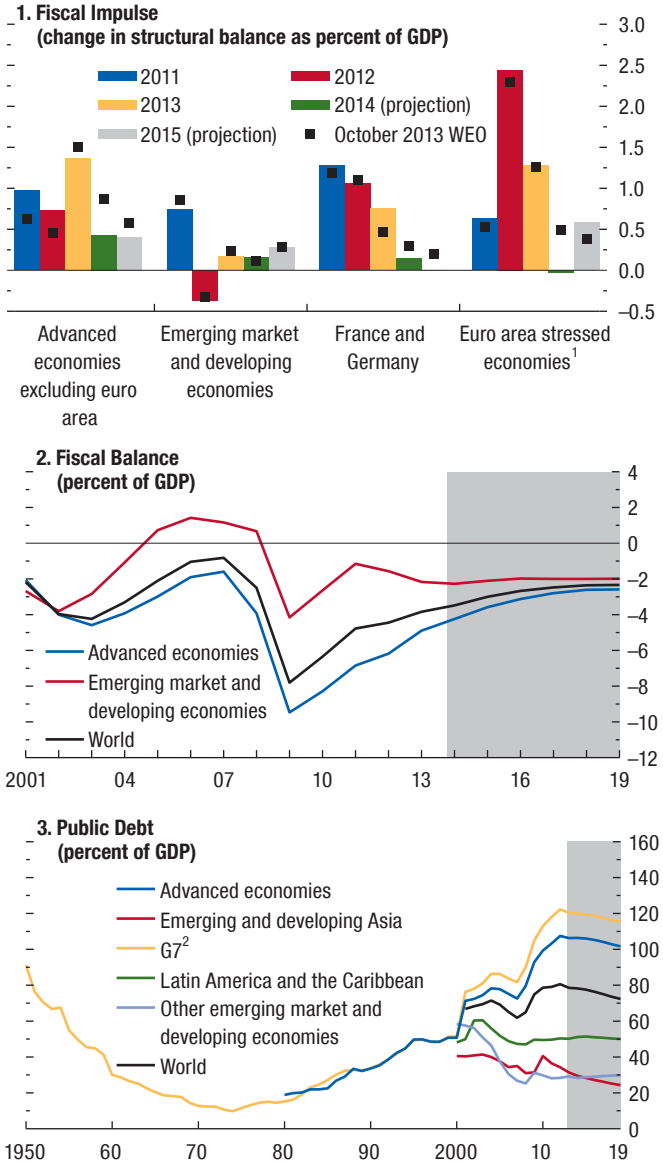
In emerging market and developing economies, growth picked up slightly in the second half of 2013. The weaker cyclical momentum in comparison with that in the advanced economies reflects the opposite effects of two forces on growth. On one hand, export growth increased, lifted by stronger activity in advanced economies and by currency depreciation. Fiscal policies are projected to be broadly neutral (see Figure 1.4, panel 1). On the other hand, investment weakness continued, and external funding and domestic financial conditions increasingly tightened. Supply-side and other structural constraints on

investment and potential output (for example, infrastructure bottlenecks) are issues in some economies. These offsetting forces are expected to remain in effect through much of 2014. Overall, however, emerging market and developing economies continue to contribute more than two-thirds of global growth, and their growth is projected to increase from 4.7 percent in 2013 to 4.9 percent in 2014 and 5.3 percent in 2015.

- The forecast for China is that growth will remain broadly unchanged at about 7½ percent in 2014–15, only a modest decline from 2012–13. This projection is predicated on the assumption that the authorities gradually rein in rapid credit growth and make progress in implementing their reform blueprint so as to put the economy on a more balanced and sustainable growth path. For India, real GDP growth is projected to strengthen to 5.4 percent in 2014 and 6.4 percent in 2015, assuming that government efforts to revive investment growth succeed and export growth strengthens after the recent rupee depreciation (Figure 1.2, panel 3; Table 1.1). Elsewhere in emerging and developing Asia, growth is expected to remain at 5.3 percent in 2014 because of tighter domestic and external financial conditions before rising to 5.7 percent in 2015, helped by stronger external demand and weaker currencies.
- Only a modest acceleration in activity is expected for regional growth in Latin America, with growth rising from 2½ percent in 2014 to 3 percent in 2015 (Figure 1.2, panel 4). Some economies have recently faced strong market pressure, and tighter financial conditions will weigh on growth. Important differences are evident across the major economies in the region. In Mexico, growth is expected to strengthen to 3 percent in 2014, resulting from a more expansionary macroeconomic policy stance, a reversal of the special factors behind low growth in 2013, and spillovers from higher U.S. growth. It is expected to increase to 3½ percent in 2015, as the effect of major structural reforms takes hold. Activity in Brazil remains subdued. Demand is supported by the recent depreciation of the *real* and still-buoyant wage and consumption growth, but private investment continues to be weak, partly reflecting low business confidence. Near-term prospects in Argentina and Venezuela have deteriorated further. Both economies continue to grapple with difficult external funding conditions and the negative impact on output from pervasive exchange and administrative controls.

Figure 1.4. Fiscal Policies

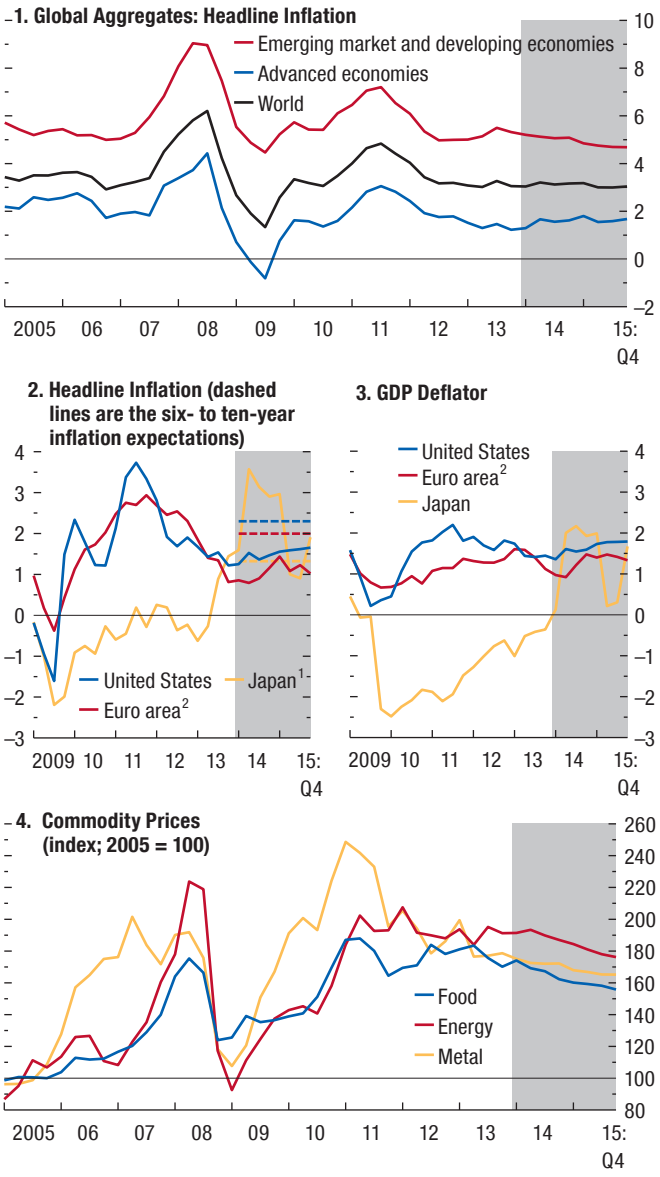
The fiscal drag in advanced economies is expected to decline in 2014, except in the case of Japan, and increase in 2015. This increase is largely due to the second step in the consumption tax increase and the unwinding of fiscal stimulus in Japan. In emerging market economies, the fiscal stance is projected to remain broadly neutral in 2014, but it is expected to tighten in 2015, when activity will have strengthened.



Source: IMF staff estimates.
[1]Greece, Ireland, Italy, Portugal, Spain.
[2]The G7 comprises Canada, France, Germany, Italy, Japan, United Kingdom, and United States.

Figure 1.5. Global Inflation
(Year-over-year percent change, unless indicated otherwise)

Inflation is generally projected to remain subdued in 2014–15 with continued sizable negative output gaps in advanced economies, weaker domestic demand in several emerging market economies, and falling commodity prices. In the euro area and the United States, headline inflation is expected to remain below longer-term inflation expectations, which could lead to adjustments in expectations and risks of higher debt burdens and real interest rates.



Sources: Consensus Economics; Haver Analytics; IMF, Primary Commodity Price System; and IMF staff estimates.
[1]In Japan, the increase in inflation in 2014 reflects, to a large extent, the increase in the consumption tax.
[2]Excludes Latvia.

- In sub-Saharan Africa, growth is expected to increase from 4.9 percent in 2013 to 5½ percent in 2014–15. Growth in South Africa is projected to improve only modestly as the result of stronger external demand. Commodity-related projects elsewhere in the region are expected to support higher growth. Currencies have depreciated substantially in some economies.
- In the Middle East and North Africa, regional growth is projected to rise moderately in 2014–15. Most of the recovery is due to the oil-exporting economies, where high public spending contributes to buoyant non-oil activity in some economies and oil supply difficulties are expected to be partly alleviated in others. Many oil-importing economies continue to struggle with difficult sociopolitical and security conditions, which weigh on confidence and economic activity.
- Near-term prospects in Russia and many other economies of the Commonwealth of Independent States have been downgraded, as growth is expected to be hampered by the fallout from recent developments in Russia and Ukraine and the related geopolitical risks. Investment had already been weak, reflecting in part policy uncertainty. In emerging and developing Europe, growth is expected to decelerate in 2014 before recovering moderately in 2015 despite the demand recovery in western Europe, largely reflecting changing external financial conditions and recent policy tightening in Turkey.
- Growth in low-income developing economies picked up to 6 percent in 2013, driven primarily by strong domestic demand. A further uptick to about 6½ percent is projected for 2014–15, because of the support from the stronger recovery in advanced economies and continued robust expansion of private domestic demand.

Inflation Is Low

Inflation pressure is expected to stay subdued (Figure 1.5, panel 1). Activity remains substantially below potential output in advanced economies, whereas it is often close to or somewhat below potential in emerging market and developing economies (Figure 1.6, panel 1).

Declines in the prices of commodities, especially fuels and food, have been a common force behind recent decreases in headline inflation across the globe (Figure 1.5, panel 4). Commodity prices in U.S. dollar

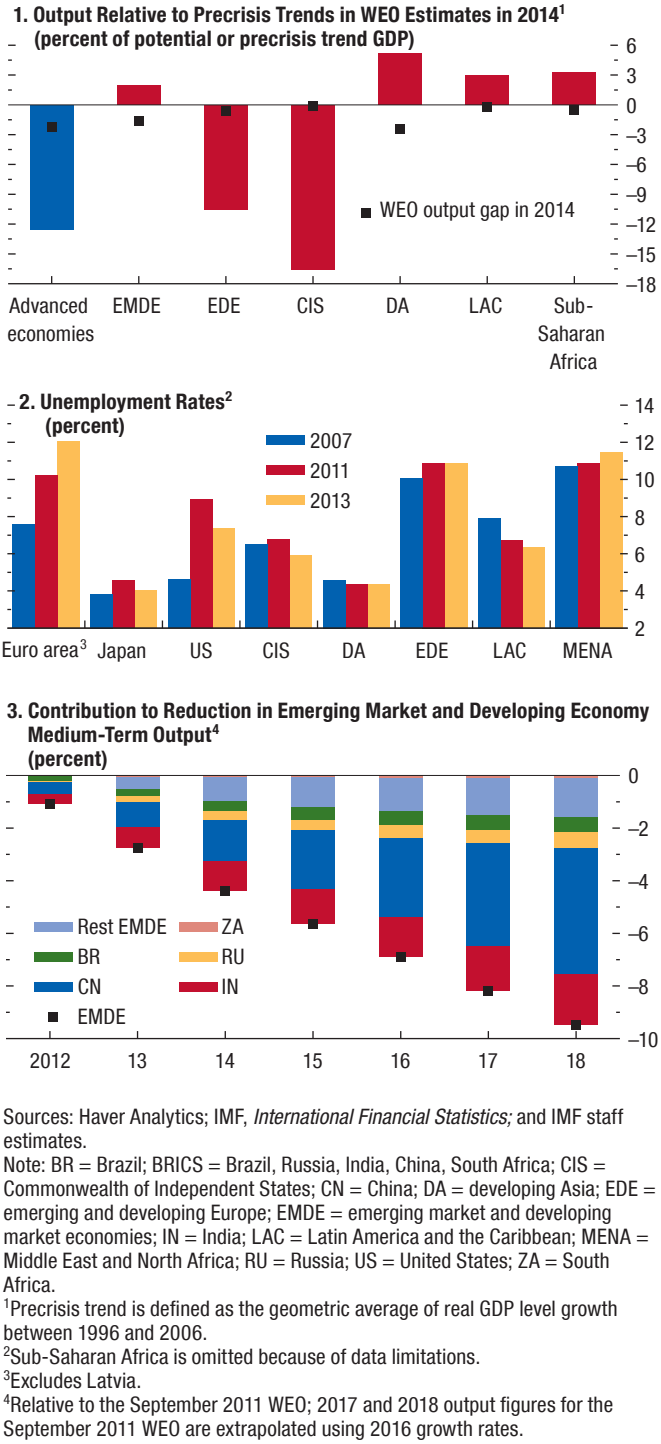
terms are projected to ease a bit further in 2014–15, partly reflecting the path implied by commodity futures prices. As discussed in the Commodity Special Feature, however, for the specific case of oil prices, forecasts differ depending on the underlying approach. That said, different forecasting models currently predict flat to falling oil prices, although the range of uncertainty around commodity price forecasts generally is large. Even so, the broader commodity market picture is one in which supply shifts for many commodities are expected to more than offset the price effects of the projected strengthening in global activity. The supply shifts are most prominent for some food commodities and crude oil. The lower growth anticipated in China is unlikely to result in declines in that country's commodity consumption, which should continue to increase with per capita income levels projected over the WEO forecast horizon. However, the growth and composition of commodity consumption in China should change as the country's economy rebalances from investment to more consumption-driven growth (see Box 1.2).

In advanced economies, inflation is currently running below target and below longer-term inflation expectations, at about 1½ percent on average (Figure 1.5, panel 1). The return to target is projected to be gradual, given that output is expected to return to potential only slowly (Figure 1.5, panels 2 and 3; Table A8 in the Statistical Appendix).

- In the United States, all relevant inflation measures decreased in the course of 2013, with core inflation running at rates of less than 1½ percent, notwithstanding continued declines in the unemployment rate. The lower unemployment rates partly reflect reductions in labor force participation due to demographic trends as well as discouraged workers dropping out of the labor force. A portion of the decline in labor force participation is expected to be reversed, because some of these workers are likely to seek employment as labor market conditions improve. In addition, the long-term unemployment rate remains high compared with historical standards. As a result, wage growth is expected to be sluggish even as unemployment declines toward the natural rate in 2014–15.
- In the euro area, inflation has steadily declined since late 2011. Both headline and underlying inflation have fallen below 1 percent since the fourth quarter in 2013. Several economies with particularly high unemployment have seen either inflation close to zero or outright deflation during the same period. For

Figure 1.6. Capacity, Unemployment, and Output Trend

Output in emerging and developing Asia, Latin America, and sub-Saharan Africa remains above precrisis trend, but WEO output gaps do not indicate output above capacity. Despite slowing economic growth, unemployment rates have continued to decline slightly in emerging Asia and Latin America. The IMF staff has revised down its estimates of medium-term output, responding to disappointments in the recent past. Sizable revisions to output in the so-called BRICs economies account for most of the downward revisions to emerging market and developing economies as a group.



Sources: Haver Analytics; IMF, *International Financial Statistics;* and IMF staff estimates.
Note: BR = Brazil; BRICS = Brazil, Russia, India, China, South Africa; CIS = Commonwealth of Independent States; CN = China; DA = developing Asia; EDE = emerging and developing Europe; EMDE = emerging market and developing market economies; IN = India; LAC = Latin America and the Caribbean; MENA = Middle East and North Africa; RU = Russia; US = United States; ZA = South Africa.
[1]Precrisis trend is defined as the geometric average of real GDP level growth between 1996 and 2006.
[2]Sub-Saharan Africa is omitted because of data limitations.
[3]Excludes Latvia.
[4]Relative to the September 2011 WEO; 2017 and 2018 output figures for the September 2011 WEO are extrapolated using 2016 growth rates.

2013 as a whole, inflation was 1.3 percent, which is closer to the lower end of the range forecast provided by the European Central Bank (ECB) staff at the end of 2012 and below the lowest value provided by *Consensus Forecast* survey participants at the time. Inflation is projected to increase slightly as the recovery strengthens and output gaps slowly decrease. Under the current baseline projections, inflation is expected to remain below the ECB's price stability objective until at least 2016.

- In Japan, inflation started to increase with stronger growth and the depreciation of the yen during the past year or so. In 2014–15, it is projected to accelerate temporarily in response to increases in the consumption tax. Indications are, however, that labor market conditions have started to tighten. Nominal wages have also begun to increase, and underlying inflation is projected to converge gradually toward the 2 percent target.

In emerging market and developing economies, inflation is expected to decline from about 6 percent currently to about 5¼ percent by 2015 (Figure 1.5, panel 1). Softer world commodity prices in U.S. dollar terms should help reduce price pressures, although in some economies, this reduction will be more than offset by recent exchange rate depreciation. In addition, activity-related price pressures will ease with the recent growth declines in many emerging market economies. That said, this relief will be limited in some emerging market economies, given evidence of domestic demand pressures and capacity constraints in some sectors (red and yellow overheating indicators in Figure 1.7). This picture is consistent with output remaining above crisis trend and unemployment having declined further in a number of emerging market economies (Figure 1.6, panels 1 and 2).

In low-income developing economies, softer commodity prices and careful monetary policy tightening have helped lower inflation from about 9.8 percent in 2012 to 7.8 percent in 2013. Based on current policies, inflation is expected to decline further to about 6½ percent.

Monetary Policy, Financial Conditions, and Capital Flows Are Diverging

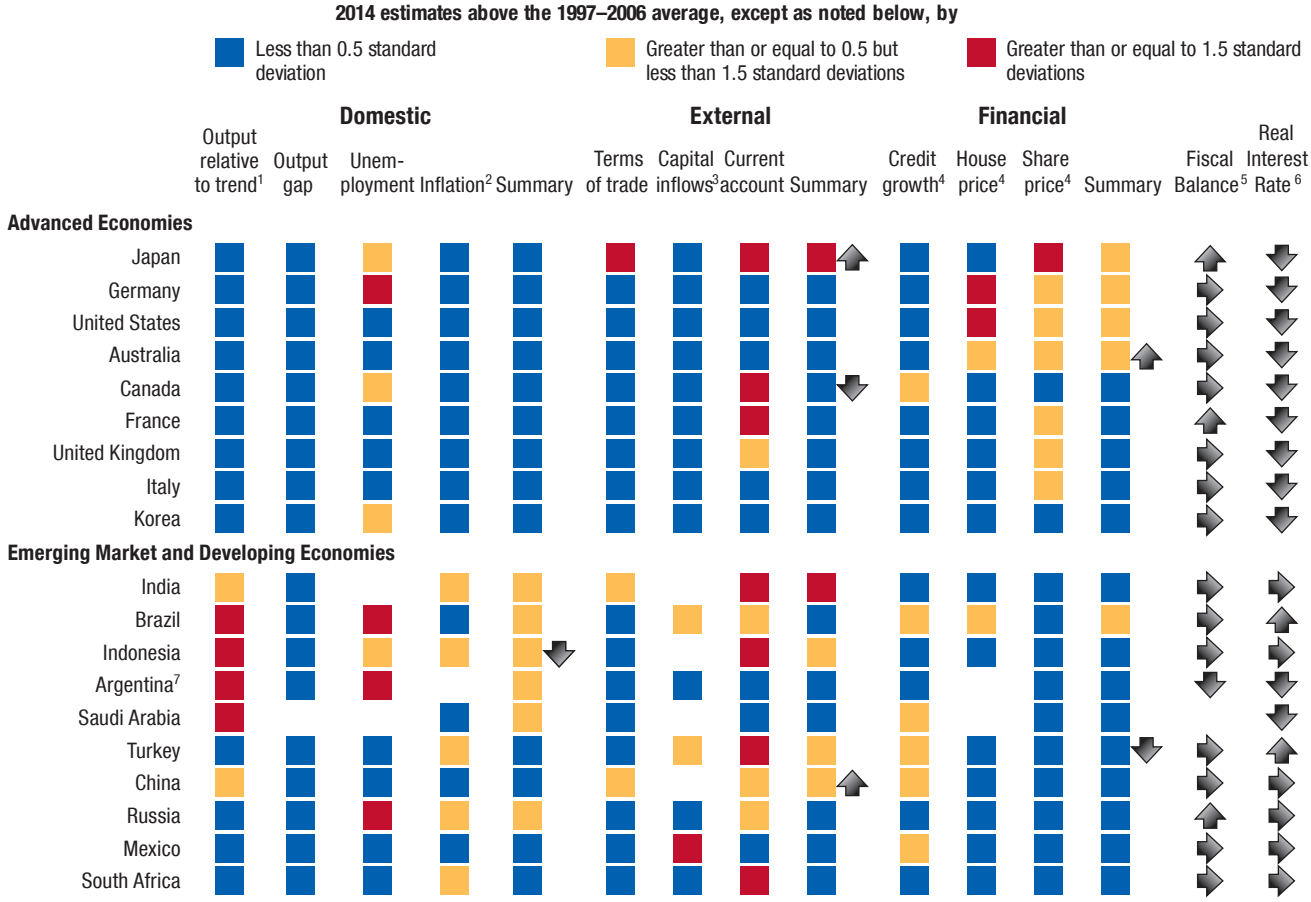
Monetary conditions have stayed mostly supportive in advanced economies despite lasting increases in longer-term interest rates since May 2013, when the Federal Reserve announced its intention to begin tapering its asset purchase program (Figure 1.8, panels 2 and 5). However, longer-term rates are still lower than rates that would prevail if the term premium had reversed to precrisis levels, and broad financial conditions have remained easy—equity markets have rallied and bond risk spreads remain low (Figure 1.8, panel 3).

Monetary policy stances across advanced economies are, however, expected to start diverging in 2014–15.

- Surveys of market participants (such as the Federal Reserve Bank of New York's January 2014 *Survey of Primary Dealers*) suggest that the policy rate is expected to increase in the United States in the second half of 2015. Information based on futures prices, however, implies that the timing has been advanced to the first half of 2015 (Figure 1.8, panel 1). The WEO projections are in line with the Federal Reserve's forward guidance for a continued growth-friendly policy stance and assume that the first U.S. policy rate hike will take place in the third quarter of 2015. The projections take into account that inflation is forecast to remain low, inflation expectations to stay well anchored, and the unemployment rate to continue its slow decline until then. The forecasts also assume that the Federal Reserve will continue tapering asset purchases at the current pace over the next few months and that the program will end by late 2014.
- Markets continue to expect a prolonged period of low interest rates and supportive monetary policy for the euro area and Japan (Figure 1.3, panel 1). Unlike in Europe, Japanese long-term bond yields have remained virtually unchanged since tapering talk began, reflecting both strong demand for bonds by nonresidents and residents and the Bank of Japan's asset purchases. In the euro area, low inflation remains the dominant concern, including deflation pressure in some countries, amid a weak recovery. The WEO projections assume further small declines in sovereign spreads in countries with high debt, consistent with views that sovereign risks have decreased. The projections also assume, however, that financial fragmentation will remain a problem for the transmission of monetary policy impulses in the euro area. Credit conditions will thus remain tight, and credit outstanding will continue to decline for some time, albeit at a slower pace (Figure 1.3, panel 2). The major contributing factors are remaining weaknesses in bank balance sheets and, more generally, the weak economic environment aggravated by high unemployment and large debt burdens.

Figure 1.7. Overheating Indicators for the Group of Twenty Economies

Most indicators point to continued excessive cyclical slack in advanced economies. In major emerging market economies, some indicators suggest that capacity constraints are still present, notwithstanding the recent slowdown in growth. For a number of emerging market economies, indicators point to continued external vulnerabilities. Financial indicators flag high equity prices in many advanced economies and rising house prices in Germany and the United States. In emerging market economies, the indicators reflect continued vulnerabilities from rapid credit growth; developments in other markets are broadly within historical bounds.



Sources: Australian Bureau of Statistics; Bank for International Settlements; CEIC China Database; *Global Property Guide;* Haver Analytics; IMF, Balance of Payments Statistics database; IMF, International Financial Statistics database; National Bureau of Statistics of China; Organization for Economic Cooperation and Development; and IMF staff estimates.

Note: For each indicator, except as noted below, economies are assigned colors based on projected 2014 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 blocks 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. When data are missing, no color is assigned. Arrows up (down) indicate hotter (colder) conditions compared with the October 2013 WEO.

[1]Output more than 2.5 percent above the precrisis trend is indicated by red. Output more than 2.5 percent below the trend is indicated by blue. Output within ±2.5 percent of the precrisis trend is indicated by yellow.

[2]The following scoring methodology is used for the following inflation-targeting economies: Australia, Brazil, Canada, Indonesia, Korea, Mexico, South Africa, Turkey, and United Kingdom. End-of-period inflation above the country's target inflation band from the midpoint is assigned yellow; end-of-period inflation more than two times the inflation band from the midpoint is assigned red. For all other economies in the chart, red is assigned if end-of-period inflation is approximately 10 percent or higher, yellow if it is approximately 5 to 9 percent, and blue if it is less than approximately 5 percent.

[3]Capital inflows refer to the latest available value relative to the 1997–2006 average of capital inflows as a percent of GDP.

[4]The indicators for credit growth, house price growth, and share price growth refer to the annual percent change relative to output growth.

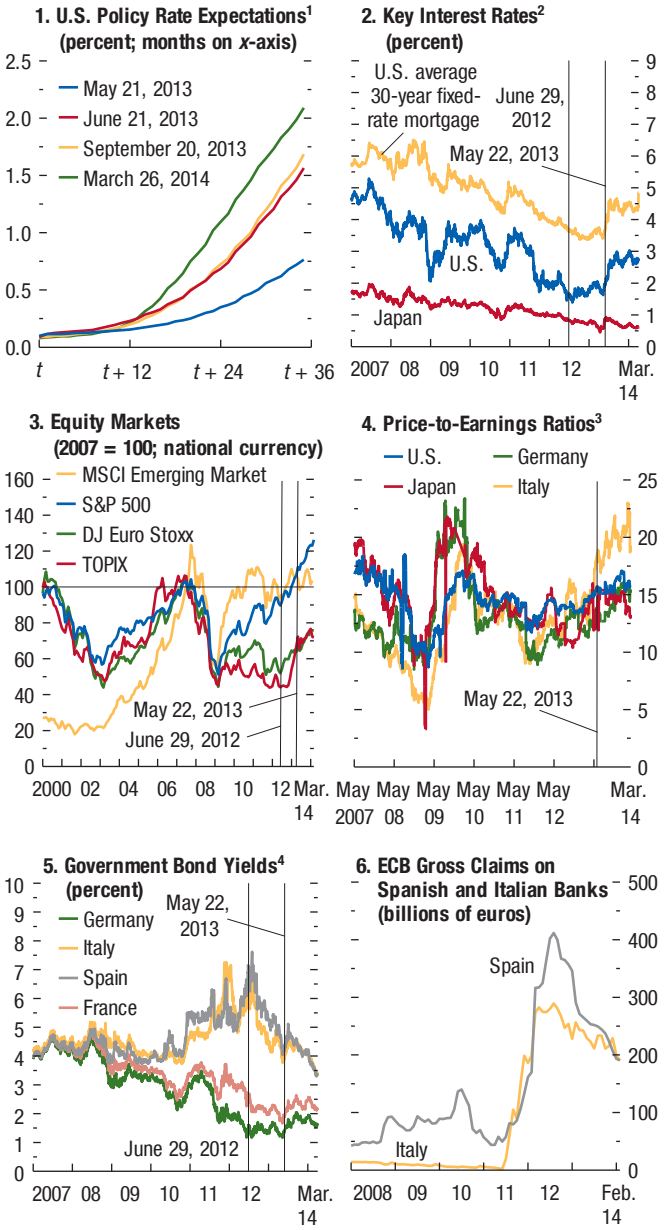
[5]Arrows in the fiscal balance column represent the forecast change in the structural balance as a percent of GDP over the period 2013–14. An improvement of more than 0.5 percent of GDP is indicated by an up arrow; a deterioration of more than 0.5 percent of GDP is indicated by a down arrow. A change in fiscal balance between –0.5 percent of GDP and 0.5 percent of GDP is indicated by a sideways arrow.

[6]Real policy interest rates below 0 percent are identified by a down arrow; real interest rates above 3 percent are identified by an up arrow; real interest rates between 0 and 3 percent are identified by a sideways arrow. Real policy interest rates are deflated by two-year-ahead inflation projections.

[7]Calculations are based on Argentina's official GDP and consumer price index data. See note 5 to Statistical Appendix Table A4 and note 6 to Table A7.

Figure 1.8. Financial Market Conditions in Advanced Economies

Longer-term U.S. interest rates rose immediately after the May 2013 tapering-related announcement by the Federal Reserve but have broadly stabilized since. Rates in the core euro area economies and Japan have increased by a fraction. Equity markets have been buoyant, with price-to-earnings ratios back to precrisis levels. Spreads on Italian and Spanish bonds have continued to decrease.



Sources: Bloomberg, L.P.; Capital Data; *Financial Times;* Haver Analytics; national central banks; Thomson Reuters Datastream; and IMF staff calculations.
Note: DJ = Dow Jones; ECB = European Central Bank; MSCI = Morgan Stanley Capital International; S&P = Standard & Poor's; TOPIX = Tokyo Stock Price Index.
[1]Expectations are based on the federal funds rate futures for the United States; updated March 26, 2014.
[2]Interest rates are 10-year government bond yields, unless noted otherwise.
[3]Some observations for Japan are interpolated because of missing data.
[4]Ten-year government bond yields.

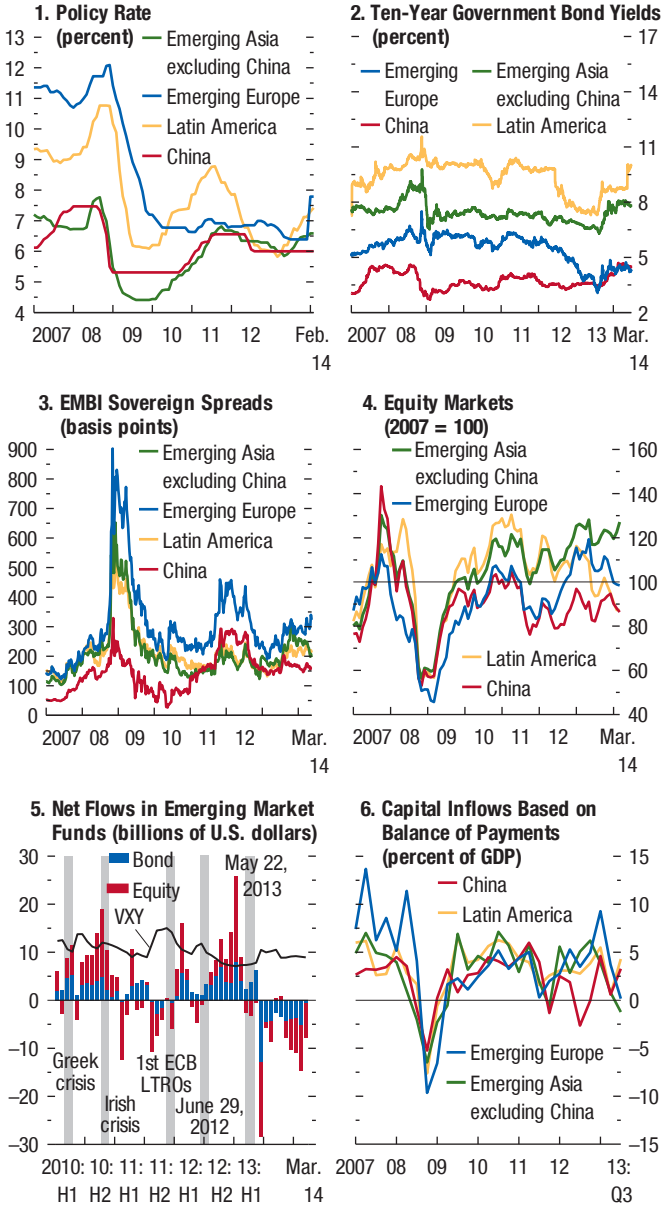
In emerging market economies, there has been a tightening of monetary and financial conditions since May 2013. This is the combined result of spillovers from rising bond rates and better prospects in advanced economies, markets' reassessment of medium-term growth prospects, and greater investor concerns about vulnerabilities. Rates on longer-term local currency bonds in emerging market economies have risen more than those in advanced economies, consistent with past patterns—namely, that emerging market risk is repriced when advanced economy rates increase (Figure 1.9, panel 2). Equity prices have moved sideways in local currency, whereas in U.S. dollar terms—the benchmark for international investors—they have declined substantially as a result of widespread currency depreciation. Still, the pass-through from higher local currency bond yields to lending rates has often been limited, credit growth has remained relatively high (Figure 1.10, panels 2 and 3), and the depreciation of nominal exchange rates against the U.S. dollar and other major currencies has provided some offset (Figure 1.11, panel 2). Specific market developments are discussed in more detail in the April 2014 *Global Financial Stability Report*.

Despite some retrenchment in capital inflows since the Federal Reserve's surprise tapering-related announcement in May 2013, developments to date do not portend a sustained reversal of capital flows. In fact, capital inflows recovered moderately in the latter part of 2013 from the lows reached in summer 2013 (Figure 1.9, panels 5 and 6). However, they are estimated to have remained below pretapering levels.

The WEO baseline projections assume that capital inflows to emerging market economies will remain lower in 2014 than they were in 2013, before recovering modestly in 2015. The projections also assume that the additional repricing of bonds and equities in some emerging market economies since October 2013 was largely a one-off increase in risk premiums on emerging market economies' assets. Much of the recent yield increases and asset price declines will thus be lasting. This constitutes a broad-based tightening in financial conditions, which is expected to dampen domestic demand growth and is one of the main factors contributing to the projected lower growth in emerging market economies in 2014–15 compared with the October 2013 WEO (see Table 1.1). The analysis in Chapter 4 highlights that if the tightening in external financial conditions for emerging market economies

Figure 1.9. Financial Conditions and Capital Flows in Emerging Market Economies

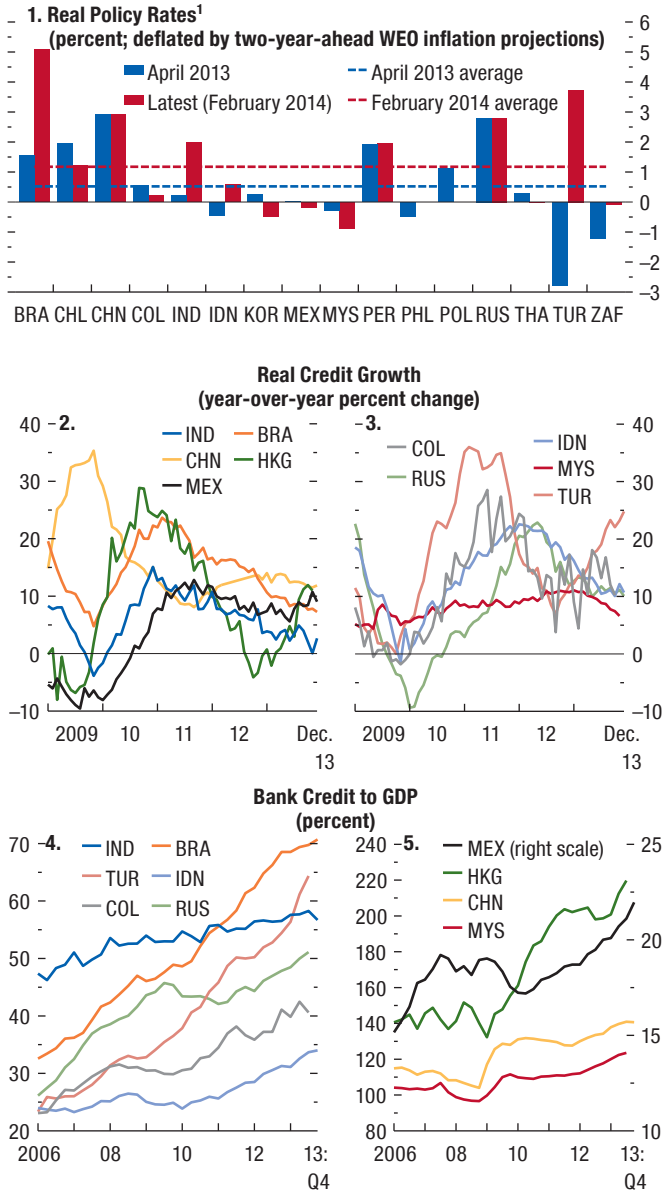
Financial conditions in emerging market economies have tightened recently in response to a more difficult external financial environment. Bond rates and spreads have increased, and equity markets have moved sideways. Gross capital inflows have declined, and exchange rates have depreciated. Overall, the cost of capital in emerging market economies has increased, which will dampen investment and growth, although increased exports to advanced economies are expected to provide some offset.



Sources: Bloomberg, L.P.; EPFR Global; Haver Analytics; IMF, *International Financial Statistics;* and IMF staff calculations.
Note: ECB = European Central Bank; EMBI = J.P. Morgan Emerging Markets Bond Index; LTROs = longer-term refinancing operations; VXY = J.P. Morgan Emerging Market Volatility Index; emerging Asia excluding China includes India, Indonesia, Malaysia, Philippines, Thailand; emerging Europe comprises Poland, Russia, Turkey; Latin America includes Brazil, Chile, Colombia, Mexico, Peru.

Figure 1.10. Monetary Policies and Credit in Emerging Market Economies

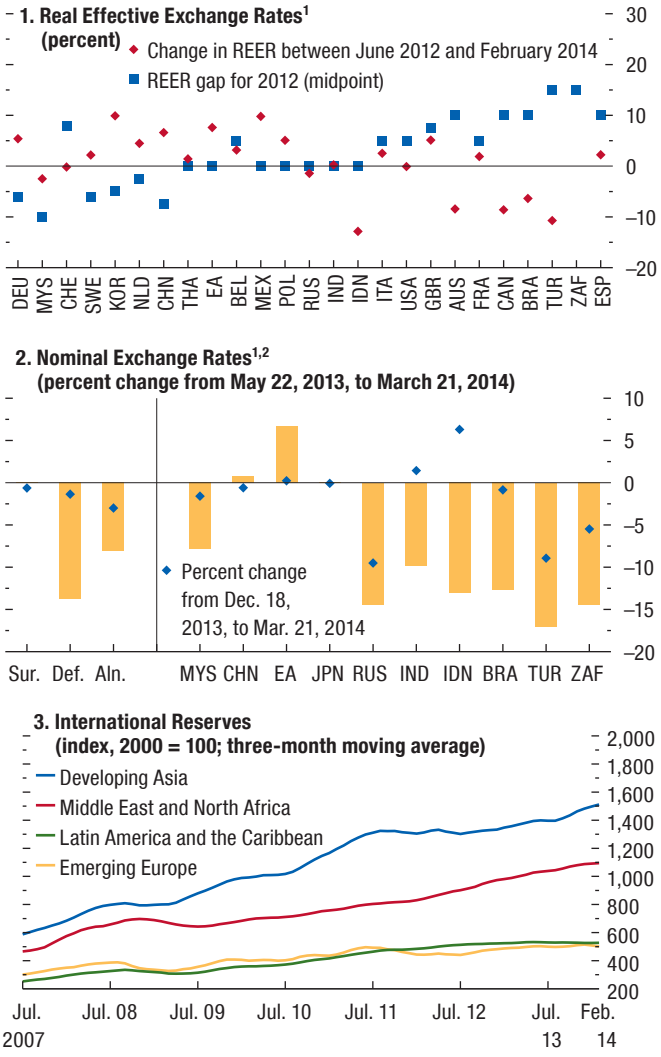
Monetary conditions have tightened in many emerging market economies, reflecting changes in external funding, but also policy rate increases in some economies (including Brazil, Indonesia, South Africa, and Turkey); however, real policy rates remain negative in some emerging markets, in some cases because of high inflation. Bank credit growth has started to slow in many economies, but remains at double-digit rates in some, exceeding GDP growth by substantial margins. Economy-wide leverage continues to rise rapidly, and ratios of bank credit to GDP have doubled in some economies during the past seven years.



Sources: Haver Analytics; IMF, *International Financial Statistics;* and IMF staff calculations.
Note: BRA = Brazil; CHL = Chile; CHN = China; COL = Colombia; HKG = Hong Kong SAR; IDN = Indonesia; IND = India; KOR = Korea; MEX = Mexico; MYS = Malaysia; PER = Peru; PHL = Philippines; POL = Poland; RUS = Russia; THA = Thailand; TUR = Turkey; ZAF = South Africa.
[1]Bank of Indonesia rate for Indonesia; the Central Bank of the Republic of Turkey's effective marginal funding cost estimated by the IMF staff for Turkey.

Figure 1.11. Exchange Rates and Reserves

Currencies of many major emerging market economies have depreciated against the U.S. dollar, reflecting a weakening of those economies' medium-term growth outlooks vis-à-vis that of advanced economies and tighter external financial conditions. The broader picture based on the currency assessments in the *2013 Pilot External Sector Report* (IMF, 2013b) is that undervalued currencies generally appreciated in real effective terms in 2013, whereas overvalued currencies depreciated. The pace of reserve accumulation in emerging market and developing economies slowed in 2013, reflecting lower capital inflows and reserve losses from foreign exchange intervention.



Sources: Global Insight; IMF, *International Financial Statistics;* and IMF staff calculations.
Note: Aln. = aligned emerging market economies; AUS = Australia; BEL = Belgium; BRA = Brazil; CAN = Canada; CHE = Switzerland; CHN = China; Def. = deficit emerging market economies; DEU = Germany; EA = euro area; ESP = Spain; FRA = France; GBR = United Kingdom; IDN = Indonesia; IND = India; ITA = Italy; JPN = Japan; KOR = Korea; MEX = Mexico; MYS = Malaysia; NLD = Netherlands; POL = Poland; REER = real effective exchange rate; RUS = Russia; Sur. = surplus emerging market economies; SWE = Sweden; THA = Thailand; TUR = Turkey; USA = United States; ZAF = South Africa.
[1]REER gaps and classifications are based on IMF (2013b).
[2]U.S. dollars per national currency.

were limited to the higher advanced economy interest rates associated with faster growth in these economies, the growth spillovers would be positive. With concurrent tightening in other financial conditions, however, such as risk premiums on emerging market sovereign debt, the net spillover effects can turn negative.

The External Sector Perspective

Global trade volume growth slowed substantially in the adjustment after the global financial crisis of 2007–09 and the euro area crisis of 2011–12 (Figure 1.12, panels 1 and 2). This slowing has fueled questions about whether international trade will remain an engine of global growth, which are motivated by concerns about stalling or declining globalization (for example, because productivity gains from recent trade liberalization under the World Trade Organization umbrella are diminishing). However, data on world trade growth since 2008 seem to be in line with global output and investment growth. Moreover, recent forecast errors for world trade growth are strongly and positively correlated with those for global GDP growth, as in the past. These factors suggest that the recent trade weakness has simply mirrored stronger-than-expected declines in growth across the globe. Indeed, world trade growth picked up strongly with the strengthening in global activity in the second half of 2013.

Global current account imbalances narrowed further in 2013. The narrowing was partly driven by external adjustment in stressed economies in the euro area—which increasingly reflects not only import compression, but also some adjustment in relative prices and rising exports—although balances in euro area surplus economies did not decline materially. The narrowing also reflects larger energy imports in Japan since the 2011 earthquake and tsunami, a decline in net energy imports in the United States, and a combination of falling oil export revenues and increased expenditures in fuel exporters. A modest further narrowing of imbalances is projected for the medium term, resulting mostly from lower surpluses of oil exporters (Figure 1.12, panel 5).

Exchange rate adjustments during the past year or so have been broadly consistent with a further correction of external imbalances. Based on the currency assessments in the *2013 Pilot External Sector Report* (IMF, 2013b), undervalued currencies, defined by a negative real effective exchange rate gap in mid-2012, generally appreciated in real effective terms in 2013, and overval-

ued currencies depreciated (Figure 1.11, panel 1). The main exceptions to this pattern were some advanced economies affected by safe haven flows (for example, the United Kingdom) or by capital inflows due to decreases in perceived sovereign risks (euro area), which saw further appreciation of their currencies.

Although exchange rate adjustments have generally been consistent with corrections of external imbalances, there are conflicting signals for current account balances. In a number of emerging market economies in particular, current account deficits increased further from the underlying norm in 2013 rather than narrowing, despite real exchange rate adjustment in the correct direction. This deficit widening may be simply due to delays in the trade and current account response (the so-called J-curve effects) and lower commodity prices; it may also indicate that further policy measures are needed to correct imbalances.

Downside Risks

The balance of risks to WEO projections for global growth has improved, largely reflecting improving prospects in the advanced economies. Important downside risks remain, however, especially for emerging market economies, for which risks have increased.

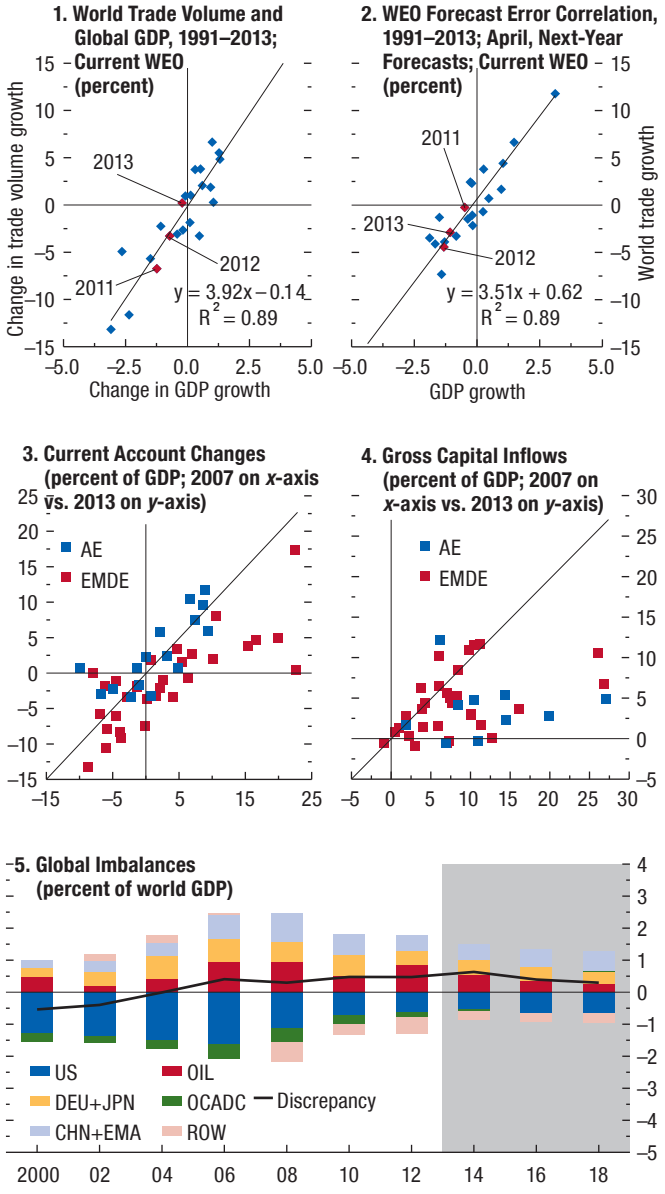
A Quantitative Risk Assessment: Uncertainty Has Narrowed

The fan chart for the global real GDP forecast through 2015 suggests a slightly narrower uncertainty band around the WEO projections than in the October 2013 WEO (Figure 1.13, panel 1). For 2014, this narrowing reflects primarily the shorter time horizon to the end of 2014 ("lower baseline uncertainty," because there is less uncertainty given that more data affecting 2014 outcomes are known already). The probability of global growth falling below the 2 percent recession threshold in 2014 is now estimated to be 0.1 percent, down from 6 percent in October 2013. For 2015, the same probability is 2.9 percent, which is appreciably lower for the next-year forecasts compared with values in April 2012 and 2013.

The risk of a recession has fallen noticeably in the major advanced economies while it has remained broadly unchanged in other economies (Figure 1.14, panel 1). Specifically, compared with simulations performed for the October 2013 WEO, the IMF staff's Global Projection Model shows a decline in the prob-

Figure 1.12. External Sector

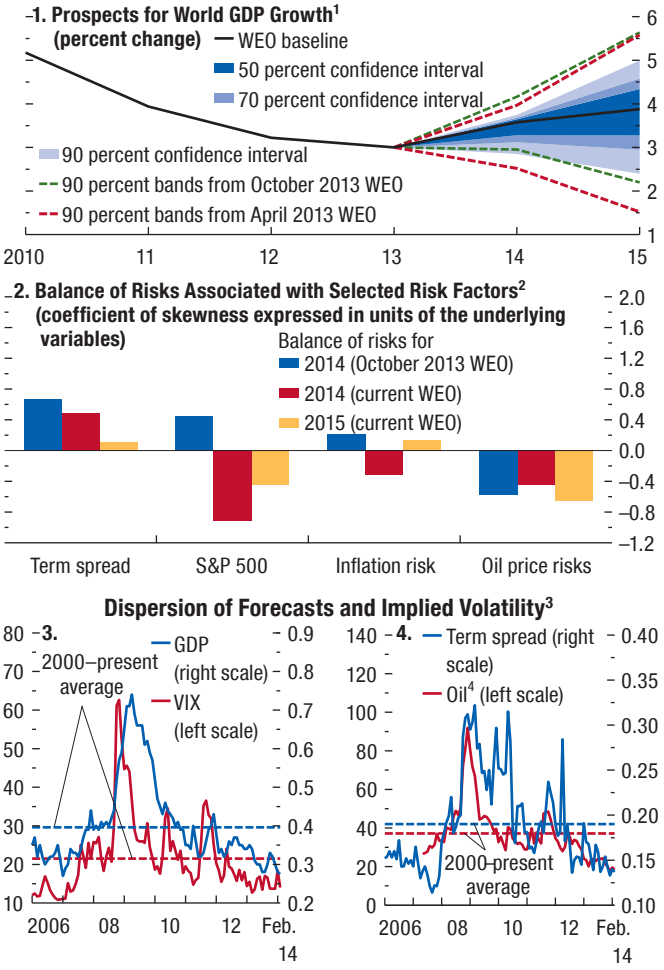
Global trade volumes rebounded with the strengthening in global activity in the second half of 2013. The earlier weakening in global trade was broadly consistent with the slowdown in activity, highlighting the high short-term income elasticities of exports and imports. Current account balances of most emerging market economies have declined since the global financial crisis and a few among them now have excessive deficits.



Sources: Haver Analytics; IMF, *International Financial Statistics;* and IMF staff estimates.
Note: AE = advanced economies; CHN+EMA = China, Hong Kong SAR, Indonesia, Korea, Malaysia, Philippines, Singapore, Taiwan Province of China, Thailand; DEU +JPN = Germany and Japan; EMDE = emerging market and developing economies; OCADC = Bulgaria, Croatia, Czech Republic, Estonia, Greece, Hungary, Ireland, Latvia, Lithuania, Poland, Portugal, Romania, Slovak Republic, Slovenia, Spain, Turkey, United Kingdom; OIL = oil exporters; ROW = rest of the world; US = United States.

Figure 1.13. Risks to the Global Outlook

The fan chart, which indicates the degree of uncertainty about the global growth outlook, has narrowed vis-à-vis that in the October 2013 WEO. This suggests a slightly more benign balance of risks for the global outlook; however, downside risks remain a concern. Measures of forecast dispersion and implied volatility for equity and oil prices also suggest a decline in perceived uncertainty about key variables for the global outlook.



Sources: Bloomberg, L.P.; Chicago Board Options Exchange (CBOE); 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 of the April 2009 WEO for details. The 90 percent bands for the current-year and one-year-ahead forecasts from the April 2013 and October 2013 WEO reports are shown relative to the current baseline.

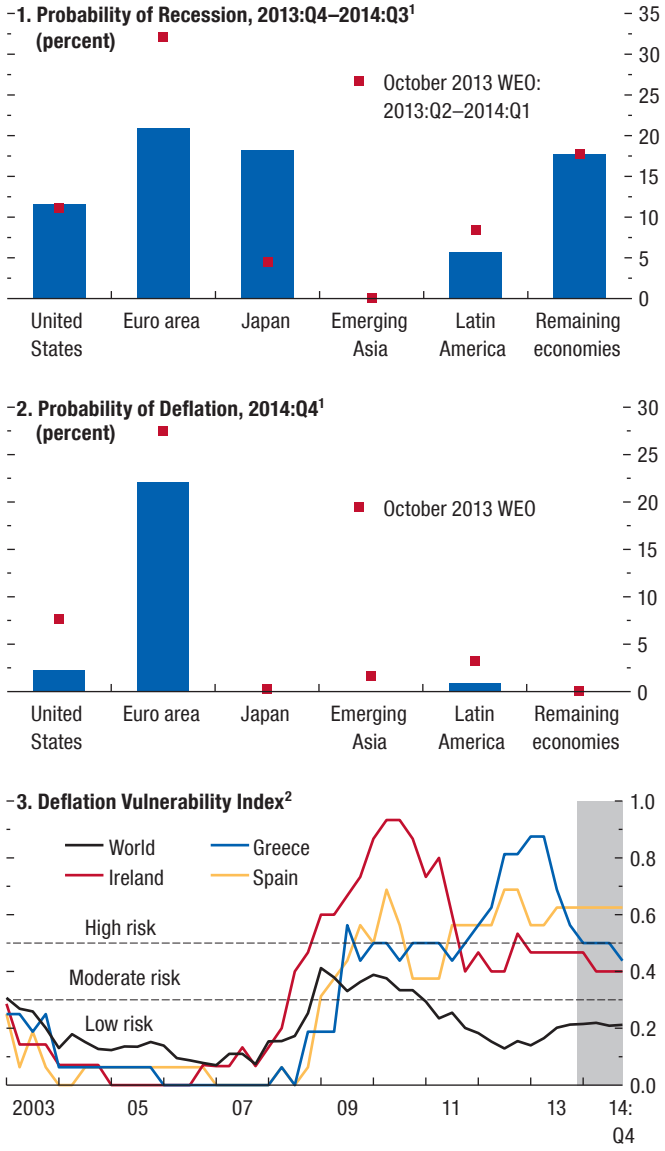
[2]Bars depict the coefficient of skewness expressed in units of the underlying variables. The values for inflation risks and oil price risks enter with the opposite sign since they represent downside risks to growth. Note that the risks associated with the Standard & Poor's (S&P) 500 for 2014 and 2015 are based on options contracts for December 2014 and December 2015, respectively.

[3]GDP measures the purchasing-power-parity-weighted average 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 S&P 500 Implied Volatility Index. Term spread measures the average dispersion of term spreads implicit in interest rate forecasts for Germany, Japan, United Kingdom, and United States. Forecasts are from Consensus Economics surveys.

[4]CBOE crude oil volatility index.

Figure 1.14. Recession and Deflation Risks

The IMF staff's Global Projection Model suggests that recession risks have decreased slightly for the major economies and have remained broadly unchanged for other economies. The probability of a recession for the euro area remains high, highlighting the fragility of the weak recovery. The risk of deflation also remains relatively high in the euro area, where it is still about 20 percent, whereas it is virtually negligible for other economies.



Source: IMF staff estimates.

[1]Emerging Asia = China, Hong Kong SAR, India, Indonesia, Korea, Malaysia, Philippines, Singapore, Taiwan Province of China, Thailand; Latin America = Brazil, Chile, Colombia, Mexico, Peru; Remaining economies = Argentina, Australia, Bulgaria, Canada, Czech Republic, Denmark, Estonia, Israel, New Zealand, Norway, Russia, South Africa, Sweden, Switzerland, Turkey, United Kingdom, 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.

ability of a recession (two successive quarters of negative growth) in the four quarters ahead. Nevertheless, recession risks of about 20 percent in the euro area and Japan—which partly reflect the relatively low growth projected for these economies—and in the Rest of the World group highlight that a number of fragilities remain present in the global recovery.

In most economies, the risk of deflation by the end of 2014 is virtually negligible, according to the Global Projection Model simulations. In the euro area, however, the risk of deflation—estimated at about 20 percent—remains a concern despite some recent declines (Figure 1.14, panel 2).[1] Similarly, broad indicators of deflation vulnerability, which measure the risk of more persistent price level declines, remain above or close to the high-risk threshold for some euro area economies, notwithstanding recent improvements (Figure 1.14, panel 3). In Japan, the absence of near-term deflation risks reflects primarily the price-level effects of the increase in the consumption tax rate to 8 percent in the second quarter of 2014 from the previous 5 percent.

A Qualitative Risk Assessment: Some Risks Remain and New Ones Have Emerged

Some downside risks identified in the October 2013 WEO have become less relevant, notably shorter-term U.S. fiscal risks because of the two-year budget agreement of December 2013 and the suspension of the debt ceiling until March 2015. The other risks, however, remain a concern; new ones have emerged; and the risks related to emerging market economies have increased. More recently, developments in Ukraine have increased geopolitical risks. At the same time, however, upside risks to growth in some advanced economies have developed, improving the balance of risks compared with the October 2013 WEO.

[1]The probability of deflation increases with a longer forecast horizon, everything else equal. A longer horizon in this WEO report compared with the October 2013 WEO (three quarters ahead vs. one quarter ahead) is an important reason for a higher probability of deflation in the euro area in panel 2 of Figure 1.14. The comparable one-quarter-ahead probability for the second quarter of 2014 in this WEO report would be 9 percent, compared to 15 percent in October. While deflation risks have decreased, the estimated probability of euro area inflation being above the ECB's price stability target is only 28 percent in the fourth quarter of 2015 and 42 percent in the fourth quarter of 2016 (probabilities calculated as inflation exceeding 1.9 percent).

Advanced economy risks

- Risks to activity from low inflation: With current inflation lower than expected in many advanced economies, there is a risk, albeit a declining one, of treading into deflation in the event of adverse shocks to activity. In addition, if inflation stays below target for an extended period, as it would under the baseline forecasts, longer-term inflation expectations are likely to drift down. The main reason to be concerned about an adverse impact on activity and debt burdens is that monetary policy will likely be constrained in lowering nominal interest rates for some time, given that policy-relevant rates are already close to the zero lower bound. This risk is primarily a concern in the euro area and, to a lesser extent, in Japan. In the euro area, risks are that inflation could undershoot the ECB's price stability target by more or for longer than under the baseline forecasts, given the very high unemployment and slack in many economies. In Japan, the issues are entrenched expectations after a long period of deflation and the ongoing shifts in employment from regular, full-time positions to non-regular, part-time positions, which hinder nominal wage adjustment in response to the Bank of Japan's new 2 percent inflation target. More generally, if there were to be a persistent decline in commodity prices, possibly because of a larger-than-expected supply response to recent high prices, risks from low inflation could be broader.
- Reduced appetite for completing national and euro-area-wide reforms as the result of improved growth prospects and reduced market pressures: Downside risks to euro area growth have decreased relative to the October 2013 WEO with important progress in macroeconomic adjustment and improvements in market confidence, but they remain significant. More policy action is needed to reduce unemployment and debt from the current unacceptably high levels and to preserve market confidence. An important short-term concern is that progress in banking sector repair and reform could fall short of what is needed to address financial fragmentation, restore financial market confidence, and enable banks to pass on improved funding conditions and lower policy rates to borrowers. Insufficient bank balance sheet repair could also hold back the restructuring of debt of nonfinancial corporations with balance sheet stresses.
- Risks related to the normalization of monetary policy in the United States: Tapering risks are expected to

diminish as asset purchases are projected to end in late 2014. The adoption of qualitative forward guidance in March 2014 can provide the Federal Reserve with the needed greater flexibility in achieving its inflation and employment goals on the way to normalization, given the increasing difficulties in measuring slack in the labor market. However, achieving such a major shift in the monetary policy stance in a smooth fashion will be challenging and may entail renewed bouts of financial market volatility. As discussed in scenario analysis in the April 2013 WEO, the key concern is that there will be sudden, sharp increases in interest rates that are driven not by unexpectedly stronger U.S. activity, but by other factors. These could include expectations of an earlier monetary policy tightening because of higher inflation pressures or financial stability concerns, a portfolio shift leading to a sizable increase in the term premium, or a shift in markets' perception of the Federal Reserve's intended policy stance. Should such exit risks materialize, the impact on U.S. activity and the spillovers on activity elsewhere would be negative, with the possibility that contagion will turn problems in specific countries into a more widespread financial distress.

- Upside risks to global growth from advanced economies: Stronger-than-expected growth outcomes in the second half of 2013 in advanced economies raise this possibility. It seems most relevant for the United States, where the fiscal drag will decline in 2014 and pent-up demand for durables and investment could be stronger than expected. In Europe, corporate debt overhang and banking sector weakness continue to weigh on confidence and demand in some economies. There are, however, upside risks to growth in Germany, where crisis legacy effects are largely absent, and in the United Kingdom, where easier credit conditions have spurred a rebound in household spending.

Emerging market economy risks

- Risks of further growth disappointments in emerging market economies: Downside risks to growth in emerging market economies have increased even though earlier risks have partly materialized and have already resulted in downward revisions to the baseline forecasts. Many of these economies are still adjusting to weaker-than-expected medium-term growth prospects. Foreign investors are also now more sensitive to risks in these economies, and financial conditions have tightened as a result. The higher cost of capital could lead to a larger-than-projected slowdown in investment and durables consumption, with recent monetary policy tightening in some economies adding to the risk. Risks could also come from unexpectedly rapid normalization of U.S. monetary policy or from other bouts of risk aversion among investors. Either case could lead to financial turmoil, capital outflows, and difficult adjustments in some emerging market economies, with a risk of contagion and broad-based financial and balance of payments stress. These would lower growth.
- Lower growth in China: Credit growth and off-budget borrowing by local governments have both been high, serving as the main avenues for the sizable policy stimulus that has boosted growth since the global financial crisis. Although a faster-than-expected unwinding of this stimulus is warranted to reduce vulnerabilities, such an unwinding would also lower growth more than currently projected.
- Geopolitical risks related to Ukraine: The baseline projections incorporate lower growth in both Russia and Ukraine and adverse spillovers to the Commonwealth of Independent States region more broadly as a result of recent turmoil. Greater spillovers to activity beyond neighboring trading partners could emerge if further turmoil leads to a renewed bout of increased risk aversion in global financial markets, or from disruptions to trade and finance due to intensification of sanctions and countersanctions. In particular, greater spillovers could emerge from major disruptions in production or the transportation of natural gas or crude oil, or, to a lesser extent, corn and wheat.

Medium-term risks

Low interest rates and risks of stagnation

Despite their strengthening recoveries, advanced economies still face risks of stagnation. As highlighted in previous WEO reports, the major advanced economies, especially the euro area and Japan, could face an extended period of low growth for a number of reasons, most notably for a failure to address fully the legacy problems of the recent crisis.

If such a scenario were to materialize, the low growth would reflect a state of persistently weak demand that could turn into stagnation—a situation in which affected economies would not be able to generate the demand needed to restore full employment through regular self-correcting forces. The equilibrium real interest rate

consistent with full employment may be too low to be achieved with the zero lower bound on nominal interest rates. Over time, the growth potential of stagnating economies would also be adversely affected, because of lower investment, including in research and development, and because of lower labor supply as a result of hysteresis in unemployment—the rise in structural unemployment from prolonged cyclical unemployment.

The fact that nominal and real interest rates remain low even though a more definitive recovery is expected in advanced economies highlights that stagnation risks cannot be taken lightly. As discussed in Chapter 3, real interest rates are likely to rise under the WEO baseline, but they should remain below the average value of about 2 percent recorded in the mid-2000s before the crisis. The current low rates are resulting from the expectations that global investment will remain on a lower path than before the crisis, partly because of persistent postcrisis effects and partly because of demand rebalancing in China. Although savings ratios could decrease with lower growth in emerging market economies and demand rebalancing in China, demand for safe assets is expected to remain high. As a result, the precrisis trend of declining safe real interest rates is not expected to be reversed even as postcrisis brakes ease and scars heal. Real interest rates thus remain low enough for the zero-lower-bound issue to reemerge under current inflation forecasts should low-growth risks materialize.

A hard landing in China

The likelihood of a hard landing in China after overinvestment and a credit boom continues to be small because the authorities should be in a position to limit the damage from large-scale asset quality problems with policy intervention. However, credit continues to rise rapidly, and fixed capital formation supported by this rise remains a key source of growth. Risks associated with asset-quality-related balance sheet problems in the financial sector are thus building further. The authorities might find it more difficult to respond the more these risks continue to build. In that case, spillovers to the rest of the world, including through commodity prices, could be significant.

Risk scenarios: Tensions from upside and downside risks

A more protracted growth slowdown in emerging market economies remains a key concern. The impact of such a slowdown on the world economy would be larger now than it would have been one or two decades ago. That is because these economies currently account for a larger share of global production and are more integrated into both the trade and the financial spheres (see the Spillover Feature in Chapter 2). At the same time, there are upside risks from the possibility of faster growth in advanced economies. The following scenario analysis considers the possible interaction between upside and downside risks.

The upside risk is based on the premise that growth in the United States will be some ½ percentage point higher than assumed under the baseline. This is the standard deviation in the distribution of forecasts for 2014–15 from contributors to the Consensus Economics survey. The faster U.S. recovery leads the Federal Reserve, in this scenario, to withdraw monetary stimulus earlier than in the baseline. All interest rate changes in the scenario reflect central bank responses to changes in macroeconomic conditions.

The downside risks are based on the premise that the downward adjustment in investment in the Group of Twenty (G20) emerging market economies will go further than expected under the baseline. This reflects the interaction of three factors: higher-than-expected costs of capital due to the change in the external environment, recent downward revisions to expectations of growth in partner countries, and a correction of some past overinvestment. The "shock" is sequential—the weakness in each period during the five-year WEO horizon is a surprise. Investment growth in each economy is roughly 3 percentage points below baseline every year, resulting in lower investment levels of about 14 percent after five years. Compared with the downside scenario for emerging market economies in the April 2013 WEO, the slowdown is milder but more persistent, reflecting primarily the fact that some of the risks have been realized in the meantime and are now incorporated in the baseline.

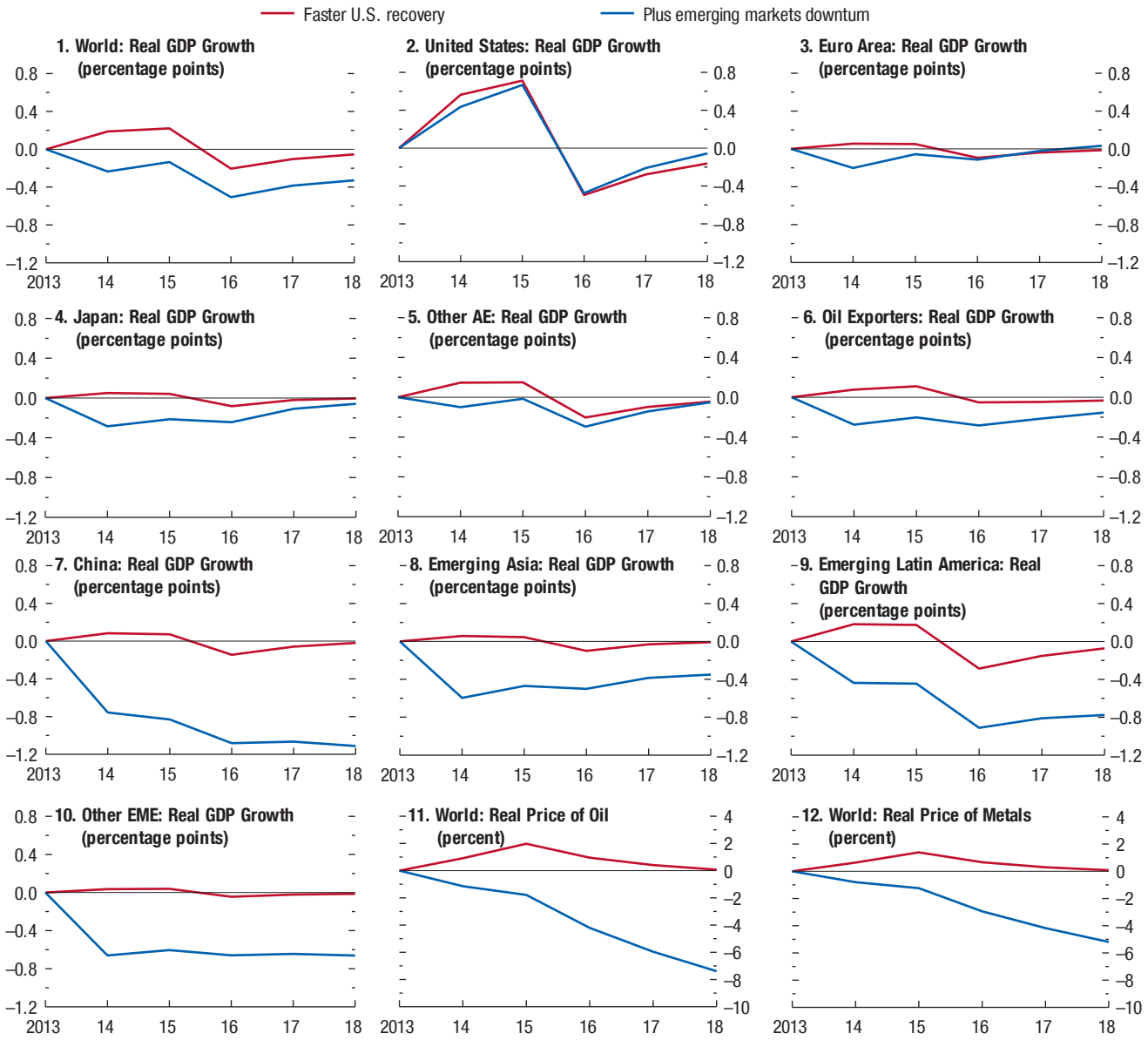
The main scenario results are as follows (Figure 1.15):

- In the first scenario, in which a faster domestic demand recovery in the United States materializes, the implied faster U.S. growth and the positive spillovers to trading partners lead to an increase in global growth of about 0.2 percentage point in the first two years (red lines in the figure). The positive impact is strongest in other advanced economies and Latin America, reflecting closer trade linkages. With stronger growth, commodity prices are higher than under the baseline in this scenario. After the initial boost to growth in the United States and elsewhere,

Figure 1.15. Slower Growth in Emerging Market Economies and a Faster Recovery in the United States

(Percent or percentage point deviations from the WEO baseline)

Two scenarios generated with G20MOD, the IMF's model of the Group of Twenty (G20), are used here to explore the potential implications of a faster U.S. recovery, coupled with notably slower growth in emerging market economies. In the first scenario (red lines), a faster-than-baseline U.S. recovery leads the Federal Reserve to withdraw monetary stimulus faster than in the baseline. In the second scenario (blue lines), weaker-than-baseline investment growth (roughly 3 percentage points a year below baseline) in G20 emerging market economies is the key driver of the weaker growth outcomes. This weaker investment could arise because of revised expectations of growth in these economies' export markets, a correction from a past period of overinvestment, or an expectation of a higher future cost of capital. In the first scenario, the faster U.S. growth and the positive spillovers to U.S. trading partners lead to an increase in global output growth in 2014 and 2015 of about 0.2 percentage point. Although the change in interest rates is the same across emerging markets, because of spillovers, effects on real GDP are strongest for Latin America, followed by emerging Asia and then other emerging markets. The front-loading of the U.S. recovery leads to growth falling slightly in subsequent years.
In the second scenario, as a result of lower investment growth and its knock-on effects through labor income and private consumption demand, real GDP growth declines relative to baseline on average by close to 1 percentage point a year in China and 0.6 percentage point in most other emerging markets. Among the Group of Three (G3), Japan is hit the hardest by the spillovers, owing to both integration with emerging Asia and the fact that it has little monetary policy space with which to respond. The euro area comes next, as limited monetary policy also contains the extent to which the impact can be offset. The United States, being the least integrated with emerging markets, has the smallest spillover among the G3.



Source: G20MOD simulations.
Note: AE = advanced economies; EME = emerging market economies.

there is a slight temporary decline relative to the baseline, reflecting U.S. monetary policy tightening in response to the higher-than-expected inflation and growth.

- In the second scenario, in which upside risks to U.S. growth materialize along with the downside risks for emerging market economies, global growth declines relative to the baseline. This decline reflects the larger magnitude of the shocks to demand on the downside and between economic sizes (the G20 emerging market economies are larger than the U.S. economy in purchasing-power-parity terms). The impact of the negative surprise to investment in emerging market economies on growth in these economies depends on investment shares and the share of trade with other emerging market economies in total trade (blue lines in the figure). The higher the shares, the higher the impact. Reflecting differences in these shares, growth declines relative to baseline are largest in China (at about 1 percentage point a year) and lower in emerging Asia and Latin America. Among the major advanced economies, Japan is hit the hardest by the spillovers, owing to both its close integration with emerging market economies in Asia and its limited monetary policy space to respond with interest rates already very close to zero. The euro area and the United States face monetary policy constraints because of the zero lower bound, but they have smaller trade links with these emerging market economies. As commodity prices decline, commodity exporters perform worse, even though they tend to have more monetary policy space. Oil exporters are particularly affected, given their high shares of oil in production.

The second scenario highlights how smaller upside risks to growth in some major advanced economies may not be enough to offset the impact of broader downside risks in major emerging market economies. As highlighted in the earlier risk discussion and in scenario analysis in the April 2014 *Global Financial Stability Report*, there is a possibility that higher U.S. longer-term interest rates and a rise in policy rate expectations in the United States reflect less benign reasons than faster-than-expected U.S. growth. In this case, spillovers to output to the rest of the world would be negative.

The second scenario also illustrates how downside risks to emerging market economies can have important spillovers to advanced economies. Lower-than-expected growth in the G20 emerging market economies on its own (without faster U.S. domestic demand growth) would lead to global growth that is, on average, roughly 0.3 percentage point less than baseline each year. In advanced economies, growth is on average 0.1 percentage point below the baseline. In emerging market economies, the decline in growth is 0.7 percentage point on average. Thus, output spillovers that operate primarily through trade channels mean that a 1 percentage point decline in emerging market output growth reduces advanced economy output by some 0.2 percentage point. As discussed in the Spillover Feature in Chapter 2, depending on the nature of the shock and the local impact, there is also scope for financial channels to play a role in transmitting emerging market economies' shocks to advanced economies, given increased financial integration.

Policies

The strengthening of the global recovery from the Great Recession is evident. However, growth is not yet robust across the globe, and downside risks to the outlook remain. In advanced economies, continued—and in some cases, greater—support for aggregate demand and more financial sector and structural reforms are needed to fully restore confidence, foster robust growth, and lower downside risks. Many emerging market economies face a less forgiving external financial market environment; their growth has slowed; and they continue to face capital flow risks that they must manage. Spillovers, especially if downside risks were to materialize, could pose further challenges. Boosting medium-term growth is a common challenge throughout the world, and difficult structural reforms are a priority.

Preventing Low Inflation in Advanced Economies

Monetary policy should remain accommodative in advanced economies. Output gaps are still large and are projected to close only gradually. Moreover, fiscal consolidation will continue. That said, the strength of the expansions differs across advanced economies. Maintaining clear and forward-looking communication about the path of policy normalization will be a priority for some central banks. In some other advanced economies, monetary policymakers must consider the cost of persistently low inflation below target and risks of deflation. Once inflation expectations start drifting down, reanchor-

ing them to the target could be a long, costly process. As discussed in Box 1.3, this concern is rooted in the current constraints on the ability of monetary policy to lower nominal rates, either because rates are already close to the zero lower bound or because of financial fragmentation. As noted earlier, risks from low inflation appear to be most significant in the euro area and, to a lesser extent, in Japan.

In acknowledgment of such risks, the question is whether to ease monetary policy now or to use forward guidance to spell out contingencies for further action if either inflation or inflation expectations remain below target.

- In the euro area, the monetary policy rate is close to, but not at, zero, and a number of considerations suggest that more monetary easing, including use of unconventional measures, is needed now. The current baseline projections imply that inflation will undershoot the ECB's price stability target by substantial margins for much longer than the usual horizon of one to two years. In this context, there are important risks that inflation will turn out even lower than forecast. Inflation expectations may drift lower, as discussed in Box 1.3. This in turn would lead to higher real interest rates, aggravate the debt burden, and lower growth. In countries that need to improve competitiveness, and where prices and wages have to decline further relative to other euro area countries, this would likely mean greater deflation, and even stronger adverse growth effects.
- The Bank of Japan should continue with its aggressive quantitative easing policy and further strengthen its communication strategy, especially in view of the challenge of assessing underlying inflation following the consumption tax increase. It will, however, be important for the bank to specify policy contingencies if inflation or inflation expectations remain below target for longer than expected.

Risks from low inflation and the need for continued accommodative monetary policy mean that it will also be important for many advanced economy central banks to clarify how they will promote financial stability, which remains a concern. Long periods of low interest rates across the entire term structure could encourage too much risk taking, excessive leverage, and imprudent maturity mismatches. Banking supervisors and regulatory authorities will need to continue to closely monitor risks to financial stability from monetary policy and ensure that banks' activities remain within prudential regulatory standards. In the euro area, however, credit has been contracting, and the most pressing issue is to repair bank balance sheets to increase credit.

Raising Growth and Lowering the Risks of Stagnation

Risks of low growth and stagnation remain a concern, particularly in the euro area and Japan, where a comprehensive policy response is required to mitigate these risks. More broadly, however, fiscal policy needs to play a critical role if growth remains at subpar levels. In that case, more ambitious measures aimed at raising the growth potential—including, when relevant, higher public investment—should be contemplated, with due consideration for long-term fiscal sustainability.

The euro area has made some progress in addressing the legacies of the crisis—high public and private debt, weak balance sheets, and high unemployment—as well as longer-term impediments to competitiveness and productivity. Market confidence has been improving, and growth has started to pick up. However, downside risks remain—there is still substantial slack, inflation has been below the ECB's price stability objective for some time, and financial fragmentation persists. Although crisis risks have declined with recent policy action, risks of persistent low growth remain a concern.

- Repairing bank balance sheets: Progress has been made in repairing bank balance sheets. However, banks have continued to deleverage, and credit to the private sector is contracting. The ECB's 2014 asset quality review and stress tests will be a critical opportunity to move toward completing the restructuring of bank balance sheets. This exercise, if executed credibly, will make bank balance sheets transparent and comparable and identify further capital needs. With prompt recapitalization if needed, this exercise will reduce uncertainty about banking system health and foster bank balance sheet repair, which should eventually result in a credit recovery. Although many banks should be able to resort to market-based recapitalization, the timely completion of this step might also require recourse to national and common backstops.
- Completing the banking union: A more complete banking union in the euro area is critical to reduce financial fragmentation and weaken sovereign-bank links. A key element is to have in place, by the time the ECB assumes supervisory responsibilities, a strong, centralized Single Resolution Mechanism to ensure rapid, least-cost bank resolution. The March 20 agreement between the European Parliament,

Council, and Commission on such a mechanism is a step toward a fuller banking union. However, the decision-making process appears complex and may not provide for timely resolution, especially when support from the Single Resolution Fund is foreseen. An even quicker transition period for the mutualization of national compartments of the fund, and a clearer decision on a strong common backstop and its timing, are required to break sovereign-bank links effectively, especially in countries where fiscal space is limited.

- More demand support: Given weak and fragile growth and very low inflation, more monetary easing is needed to raise the prospects of achieving the ECB's price stability objective of inflation below, but close to, 2 percent and support demand. Among possible further actions would be further rate cuts, including mildly negative deposit rates, and unconventional measures, including longer-term refinancing operations (possibly targeted to small and medium-sized enterprises), to support demand and reduce fragmentation. Monetary policy effectiveness would be strengthened by stronger national insolvency regimes, which would help reduce private debt overhang, facilitate balance sheet repair, and lower financial fragmentation. The neutral fiscal stance planned for the euro area in 2014 is broadly appropriate. If low growth persists and monetary policy options are depleted, fiscal policy may need to use the flexibility available under the current fiscal framework to support activity.
- Advancing structural reforms at the national and area-wide levels: This is key to boosting productivity and investment, ensuring higher longer-term growth, and reducing intra-euro-area imbalances. In surplus countries, reforms to boost domestic demand, particularly investment, would help rebalancing. In deficit countries, further adjustment in relative prices is needed to achieve resource reallocation from nontradables sectors to tradables sectors. Together with continued labor market reforms at the national level, opening up product and service markets to competition could unleash new investment and new jobs. Growth and investment would be further supported by lower regulatory hurdles for the entry and exit of firms, simpler tax systems, a targeted implementation of the European Union (EU) Services Directive, and deeper trade integration.

In Japan, the bold monetary easing and new fiscal stimulus measures under Abenomics lifted growth in 2013 and boosted growth prospects for 2014–15 relative to the pre-Abenomics baseline forecasts. Longer-term stagnation risks are present primarily because of the sizable fiscal consolidation that will be needed during the next decade or so to ensure the transition to a sustainable long-term fiscal position in a rapidly aging society. IMF staff estimates suggest that, in addition to the consumption tax increase to 8 percent from 5 percent in the second quarter of 2014 and the planned further increase to 10 percent in the fourth quarter of 2015, additional measures yielding 5.5 percent of GDP need to be identified, for public debt to decline in the medium term. Against this backdrop, it will be critical to manage this consolidation at a pace that will not undermine the other goals of Abenomics—sustained growth and a definitive regime change from deflation to inflation.

In the near term, the additional temporary fiscal stimulus for 2014 should offset the adverse effects of the welcome consumption tax increase in the second quarter of this year. However, the stimulus also adds to already-elevated fiscal risks and puts a premium on developing, as quickly as possible, concrete plans for further consolidation beyond 2015. This should be supported by ambitious measures to lift potential growth—the third arrow of Abenomics—during the Diet session in the first half of 2014.

Managing Capital Flow Risks in Emerging Market and Developing Economies

The changing external environment increases the urgency for emerging market economies to address macroeconomic imbalances and policy weaknesses. As advanced economies' assets have become relatively more attractive, emerging market economies have experienced lower capital inflows and currency depreciation, and these trends could intensify, including because of upside risks to growth in advanced economies, as noted in the risk scenario discussion.

The change in the external environment poses new challenges for emerging market economies. As recent developments show, economies with domestic weaknesses and vulnerabilities are often more exposed to market pressure. A number of these weaknesses have been present for some time, but with better return prospects in advanced economies, investor sentiment is now less favorable toward emerging market risks. In view of possible capital flow reversals, risks related to sizable external funding needs and disorderly deprecia-

tion are of particular concern given that they affect returns in investors' home currencies.

Against this backdrop, emerging market economies must weather increased risks from sudden capital flow reversals, recalibrate policies to align them with the cyclical position if necessary, and raise potential growth with structural reforms.

Making depreciation manageable

Letting the exchange rate depreciate generally remains a desirable response to capital flow reversals, as it facilitates adjustment and lowers the negative effects on output. In practice, policymakers might be reluctant to allow for depreciation for a number of reasons. There is the concern that investors may overreact and that depreciation may be excessive. Then there are concerns about the adverse impact on inflation or financial stability even if depreciation is not excessive.

If capital flow reversal risks materialize and outflows are rapid, policymakers can use foreign exchange intervention to smooth excessive volatility or prevent financial disruption, adequate levels of foreign exchange reserves permitting. Such intervention should not forestall underlying external adjustment in economies in which current account deficits exceed levels consistent with fundamentals and desirable macroeconomic policies. Capital flow management measures to lower or prevent capital outflows might also help in smoothing excessive exchange rate volatility. In general, however, relative to capital flow management measures on inflows, they are less desirable. Expectations of such measures being put in place could even trigger outflows in the first place.

Policymakers should also address underlying problems if there are concerns about large adverse effects of depreciation. Such measures would help their economies to be better prepared for weathering increased risks of capital flow reversals.

- If the primary concern is inflation, monetary policy tightening may be required if inflation is running high. Policymakers may need to consider, however, that monetary tightening alone might not be enough. Exchange rate pass-through is also a function of monetary policy credibility. If exchange rate depreciation strongly feeds into inflation expectations, credibility is likely to be low, and policymakers might need to adopt a more transparent monetary policy framework or improve the consistency and transparency of monetary policy implementation. For example, as discussed in Box 1.4, many emerging market economies have moved away from free floats to de facto "managed" floating, in some cases even with narrow limits on the extent of exchange rate fluctuations. Although managed floating may lower risks of abrupt exchange rate movements, it may also undermine the credibility of inflation targets and delay much-needed external adjustment.[2]
- If the primary concern is financial stability, strong regulatory and supervisory policy efforts are needed to ensure that banks address credit quality and profitability problems related to exchange rate and capital flow risks. Financial stability problems arise from the negative effects of large, sudden exchange rate depreciation on balance sheets and cash flows. The main concerns relate to firms in the domestically oriented sectors that have foreign currency financing but that do not enjoy a natural currency hedge in the form of export sales and to domestically oriented banks that have foreign currency funding. In both cases, the debt service burden in domestic currency increases with depreciation, which in turn can lead to important asset quality problems. In addition, regulators must closely monitor possible asset quality problems arising from recent rapid credit growth and less favorable medium-term growth prospects.

Recalibrating macroeconomic policies

A key consideration for policy setting is whether macroeconomic policies have contributed to the recent widening of current account deficits and whether these deficits are excessive. As noted earlier, some emerging market economies now run current account deficits, and in some economies, recent changes have been away from the underlying equilibrium position (or norm) identified in the assessments in the *2013 Pilot External Sector Report* (IMF, 2013b). The concern about policies arises because after the global financial crisis, expansionary macroeconomic policies in emerging market economies boosted domestic demand and provided for a rapid bounce-back in activity. In some economies, however, the policy stance was not fully reversed or was reversed too slowly when the economies were booming in 2010–12 and output was above potential. The concurrent deterioration in current account balances was thus partly the result of overheating, a process that is now correcting itself.

[2]See Ostry, Ghosh, and Chamon (2012) for a discussion of monetary and exchange rate policies in emerging market economies.

The main task, therefore, is to recalibrate the macroeconomic policy mix and stance in such a way that they are credible and consistent with the extent of economic slack. Specific requirements vary across economies, but the following general considerations are relevant.

- Monetary policy: In a number of economies, including Brazil, India, and Indonesia, inflation pressure continues and could be reinforced by currency depreciation since mid-2013. Although policy rates were raised in many countries over the past year, further policy tightening may be needed to rein in inflation. In other economies, policymakers can consider slowing the increase in policy rates or can ease rates if output is below potential. They will, however, need to be mindful of prospective inflation pressure, policy credibility, and the possible market impact in the current environment.
- Fiscal policy: Policymakers should generally align the fiscal stance with updated estimates of medium-term growth potential and recent changes in longer-term interest rates, as emphasized in previous WEO reports. Interest rates are appreciably higher in some economies and are unlikely to change direction soon. In many emerging market economies, fiscal deficits remain well above precrisis levels (see Figure 1.4, panel 2), even though output generally is still above precrisis trends (Figure 1.6, panel 1). Moreover, debt dynamics are projected to turn less favorable, given that real government bond yields are higher than expected a year ago. Against this backdrop, policymakers need to lower budget deficits, as discussed in the April 2014 *Fiscal Monitor*. The urgency for action varies across economies, depending on debt levels, vulnerabilities, and cyclical positions. In some economies, increased contingent risks to budgets and public debt from substantial increases in quasi-fiscal activity and deficits reinforce the need to adjust the quasi-fiscal policy stance (Brazil, China, Venezuela).

Policies in low-income countries

Many low-income countries have succeeded in maintaining strong growth, reflecting more favorable business and investment regimes and better macroeconomic policies. Among other things, the combination of high growth and moderate budget deficits has helped keep public debt levels stable at about 35 percent of GDP. That said, foreign direct investment has started to moderate with declining commodity prices and is expected to ease further, and commodity-related budget revenues and foreign exchange earnings are at risk. Given these changes in the external environment, timely adjustments to fiscal policies will be important; otherwise, external debt and public debt could build up. Within this broader picture of relative resilience, some countries face greater challenges. Some low-income countries with low growth and high public debt will need stronger fiscal policies to keep debt levels sustainable. A number of low-income countries with larger external financial needs that have accessed international capital markets ("frontier economies") are vulnerable to capital flow risks, broadly similar to those faced by emerging market economies. Addressing these vulnerabilities might require tighter monetary and fiscal policies.

Continuing High Growth in Major Emerging Market Economies

The major emerging market economies face a common policy issue: how to achieve robust and sustainable growth. However, the underlying problems, including the extent and nature of macroeconomic imbalances, differ from economy to economy.

Growth in *China* has decelerated since 2012, and medium-term growth is now projected to be substantially below the 10 percent average rate recorded during the past 30 years. Still, economic activity continues to be overly dependent on credit-fueled investment, and vulnerabilities are rising.

The economic policy priority is to achieve a soft landing on the transition to more inclusive and sustainable, private-consumption-led growth. This shift would require liberalizing interest rates to allow effective pricing of risk; a more transparent, interest-rate-based monetary policy framework; a more flexible exchange rate regime; reforms for better governance and quality of growth; and strengthened financial sector regulation and supervision. The Third Plenum of the 18th Central Committee has laid out a reform blueprint that includes these policy steps. Timely implementation must be a priority. Encouraging steps have already been taken in the area of financial sector policy (announcing a timeline for key reforms such as introduction of a deposit insurance scheme and further liberalization of interest rates) and exchange rate policy (the exchange rate fluctuation zone has been widened). Reining in rapid credit growth and curtailing local government off-budget borrowing are near-term priorities, critical for containing rising risks. Policymakers must also address potential challenges from

rapid credit growth in recent years. In particular, bad loans and other impaired assets, should they emerge, must be recognized, and the resolution framework for failed financial institutions should be strengthened. For downside contingencies, fiscal space can be used to recapitalize financial institutions where appropriate.

In *Brazil*, there is a need for continued policy tightening. Despite substantial policy rate increases in the past year, inflation has remained at the upper bound of the band. Foreign exchange intervention should be more selective, used primarily to limit volatility and prevent disorderly market conditions. Fiscal consolidation would help reduce domestic demand pressure and lower external imbalances while also contributing to lowering a relatively high public debt ratio. Supply bottlenecks must be addressed.

In *India*, further tightening of the monetary stance might be needed for a durable reduction in inflation and inflation expectations. Continued fiscal consolidation will be essential to lower macroeconomic imbalances. Policymakers must also concentrate on structural reforms to support investment, which has slowed markedly. Priorities include market-based pricing of natural resources to boost investment, addressing delays in the implementation of infrastructure projects, improving policy frameworks in the power and mining sectors, reforming the extensive network of subsidies, and securing passage of the new goods and services tax to underpin medium-term fiscal consolidation.

In *Russia,* the monetary policy regime is in transition to inflation targeting; thus, anchoring inflation expectations will have to be a priority in the process. Increased exchange rate flexibility will help as a shock absorber. With substantial depreciation, however, some monetary policy tightening may be required to prevent persistent increases in inflation. Structural reforms are critical to increase investment, diversify the economy, and raise potential growth. Priorities are strengthening the rule of law and scaling back state involvement in the economy.

In *South Africa,* the external current account deficit has been over 5 percent for some time, notwithstanding substantial rand depreciation. Hence, fiscal and monetary policies may need to be tightened to lower the country's vulnerabilities and contain the second-round impact of the depreciation on inflation. Structural reforms to reduce the unacceptably high unemployment rate, which is at 24 percent, are essential.

Global Demand Rebalancing

Hopeful signs of a more sustainable global recovery are emerging, but robust recovery also requires further progress on global demand rebalancing. As output gaps close, external imbalances may increase again. The materialization of downside risk to emerging markets could have similar effects if current account balances were to improve sharply in these economies because of capital flow reversals.

The challenge is then to implement policy measures that achieve both strong and balanced growth—put another way, policies that ensure that growth will continue without a deterioration of current account balances. The measures discussed earlier were aimed at sustaining growth. Some will also further reduce external balances. The quantitative implications of some of these policies, not only for individual countries, but also for the world economy, are explored in the *2013 Spillover Report* (IMF, 2013c).

For example, in economies that have had current account surpluses, reforms can boost domestic demand and modify its composition. In China, rebalancing demand toward consumption by removing financial distortions, allowing for more market-determined exchange rates and strengthening social safety nets, will lead to more balanced growth and smaller external imbalances. In Germany, an increase in investment, including public investment, through tax and financial system reform and services sector liberalization, not only is desirable on its own, but also will reduce the large current account surplus. In *deficit* economies, structural reforms aimed at improving competitiveness (France, South Africa, Spain, United Kingdom) and removing supply bottlenecks to strengthen exports (India, South Africa) again not only are good for growth, but also will help improve external positions and allow for more sustained growth.

Special Feature: Commodity Prices and Forecasts

Commodity price projections in this and previous World Economic Outlook *(WEO) reports are derived from commodity futures prices, which currently point to declining prices and downside risks. Although such a market-based approach is appealing, its performance is sometimes questioned. This special feature explores a model-based oil price forecast with better performance. Given strengthening global demand, the model forecast suggests higher oil prices and upside risks. In view of rising North American oil supply and slowing growth in emerging markets, there is merit in a forecast that combines the two approaches as a hedge during a time when the oil market configuration may be changing. This combination suggests slightly declining to flat oil prices this year.*

Developments in Commodity Markets[1]

Since the October 2013 WEO, energy prices have been fairly flat overall (Figure 1.SF.1, panel 1), with falling prices for crude oil offset by rising prices for natural gas (extremely cold weather in the United States) and coal (supply tightness in a number of exporting countries). Crude oil prices have edged lower, mainly as a result of the continued supply surge in North America. Non–Organization of the Petroleum Exporting Countries (OPEC) supplies increased 1.3 million barrels a day (mbd) in 2013—slightly faster than the 1.2 mbd growth in global demand—with all of the net growth due to the United States (1.2 mbd, mainly shale oil) and Canada (0.2 mbd, mainly oil sands oil) (Figure 1.SF.1, panel 2). Projections for growth in non-OPEC supply have been raised to 1.8 mbd in 2014, well above the 1.4 mbd pace of demand. Prices have been held up by mounting OPEC supply pressures—notably from disruptions in Libya, Nigeria, Syria, and Yemen—and from sanctions against the Islamic Republic of Iran. Oil demand was relatively weak in the fourth quarter of 2013, with the United States the exception (Figure 1.SF.1, panel 3). Despite these pressures, oil prices—based on futures markets—are projected to decline during the outlook period, consistent with expanding oil supply and still-tepid demand.

Metal prices have remained broadly flat since the October 2013 WEO, at about 30 percent below the highs of early 2011, with most markets in surplus (large and rising stocks and steady gains in production). Global metal demand growth—and metal demand growth in China—slowed in 2013 (Box 1.2), while supply grew strongly. Futures prices suggest declining metal prices through the outlook period, reflecting continuing albeit diminishing surpluses in a number of markets.

In food markets, the production outlook is favorable for most major crops. Global output for major grains and oilseeds is projected to surpass demand growth (Figure 1.SF.1, panel 4). China expects increased production of wheat and corn as a result of favorable weather, and global rice supplies continue to be plentiful. Moreover, stocks continue to gradually recover, especially stocks of corn (Figure 1.SF.1, panel 5). In early 2014, concerns about the effects of adverse weather on South American harvests have exerted some upward price pressure.

Commodity Price Forecasting

With broadly flat or softening commodity prices in the second half of 2013, some analysts have predicted the end of the commodity price supercycle, given the slowdown in emerging market economies, particularly China (Box 1.2), and the increase in supplies (namely, increased U.S. crude oil production, a supply overhang in most base metals, and increasing grain supplies). However, during the first quarter of 2014, some prices firmed with signs of strengthening global activity, albeit with much price volatility; hence, analysts have become more circumspect. The motivation for forecasting commodity prices is thus as relevant as ever, and the issue becomes how best to do this. Which tools should policymakers rely on to forecast commodity prices? How have these forecasting tools performed with regard to forecast errors and risk assessments after the fact? Are there other forecasting models that could complement the policymakers' toolkit? And which tools are best for these uncertain economic times? This feature addresses these four questions as applied to oil prices.[2]

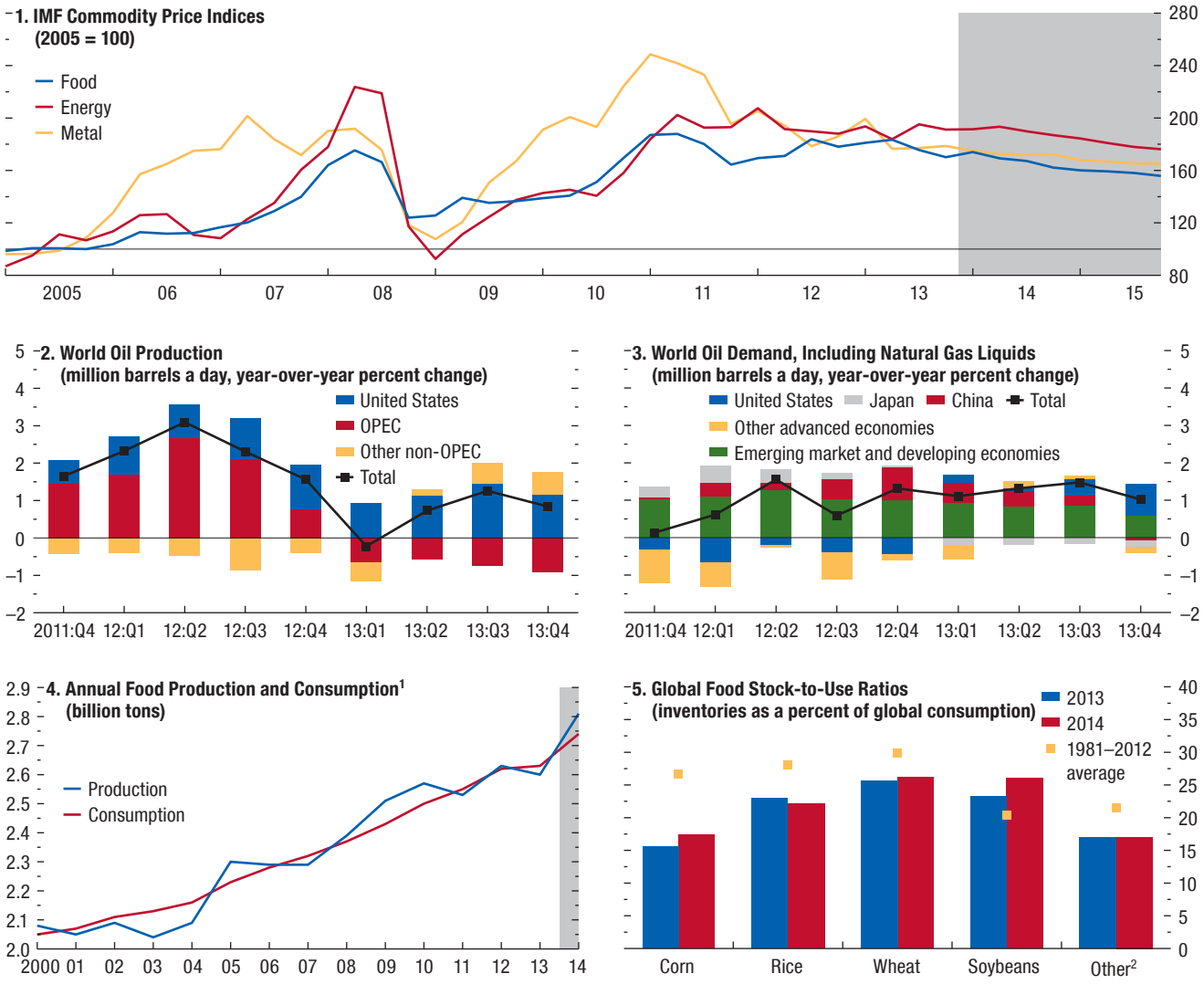
The author of this feature is Samya Beidas-Strom, with assistance from Benjamin Beckers and Daniel Rivera Greenwood. Recent commodity market developments were provided by Marina Rousset and Shane Streifel. Technical details are given in Beckers and Beidas-Strom (forthcoming).

[1]See the "Commodity Market Monthly" and "Commodity Outlook and Risks" at www.imf.org/commodities.

[2]The analysis in this feature is focused on oil prices but can be extended to other commodity prices with futures markets if monthly

Figure 1.SF.1. Commodity Market Developments

Commodity prices have been fairly flat since the October 2013 *World Economic Outlook,* as increases in supplies outpaced tepid demand in most markets.



Sources: IMF, Primary Commodity Price System; International Energy Agency; U.S. Department of Agriculture; and IMF staff estimates.
Note: OPEC = Organization of the Petroleum Exporting Countries.
[1]Sum of data for major grains and oilseeds: barley, corn, millet, rice, rye, sorghum, wheat, palm kernel, rapeseed, soybeans, and sunflower seed.
[2]Includes barley, millet, palm kernel, rapeseed, rye, sorghum, and sunflower seed.

What Forecasting Tools Do Policymakers Use?

Since the 1970s epoch of scarcity, when Hotelling-type (1931) rules were the norm for predicting the price of an exhaustible commodity, policymakers have gravitated toward a few simple forecasting tools: the long-term constant real cost of extracting an exhaustible commodity, random-walk price models, and futures prices. Two recent developments have clouded the usefulness of these approaches—namely, a sustained price spike during the commodity boom in the middle of the first decade of the 2000s and the escalation in extraction costs, which is particularly relevant for oil. Efforts have been undertaken to assess the predictive content and statistical performance of these simple

data are available for their global demand, supply, and inventories, and if a leading international price for the commodity prevails (as is the case for aluminum, copper, lead, nickel, tin, and zinc).

forecasting tools (Reeve and Vigfusson, 2011; Reichsfeld and Roache, 2011; Alquist, Kilian, and Vigfusson, 2013; Chinn and Coibion, 2013) and to resuscitate the Deaton and Laroque (1996) class of price formation models with speculative storage. Before examining forecasting models with speculative storage, however, this feature explores how the simple forecasting tools have fared during the last decade, first by focusing on futures and then by looking at a broader set of models.

How Have Oil Futures Fared as a Forecasting Tool?[3]

Simple forecast errors

Oil futures have long been used to forecast spot prices on the premise that the price of a futures contract equals the discounted value of the expected future spot price and that, by definition, oil futures include forward-looking information. As with many commodity markets, oil futures markets are frequently in backwardation.[4] This can lead to some downward bias in the forecasts of future spot prices.

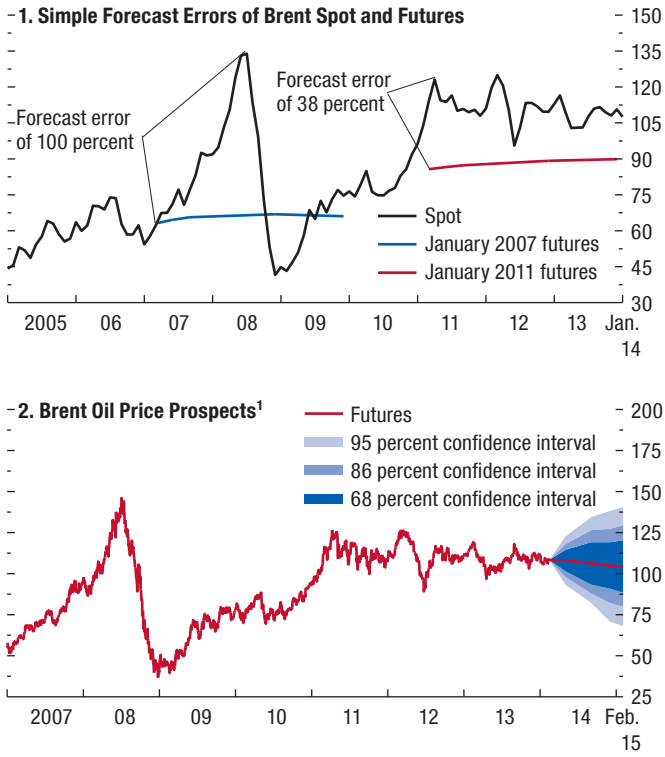
Moreover, the predictive content of commodity futures (and oil futures in particular) has declined since the mid-2000s (Chinn and Coibion, 2013), even when futures were not in backwardation. The forecast error was more than 100 percent (for futures of the January 2007 vintage relative to the actual outturn of July 2008) before the global financial crisis (Figure 1.SF.2, panel 1). This pattern is not unique; the quality of all macroeconomic forecasts tends to deteriorate around recessions or crises. However, even during the slowdown of 2011, the forecast error was 38 percent (for futures prices of the January 2011 vintage relative to the actual outturn of April 2011). This performance suggests that futures prices may not fare well as predictors during turbulent times or periods of structural change.

[3]For brevity, the analysis focuses on U.K. Brent, the leading international crude oil benchmark. Results are also available for West Texas Intermediate (WTI) and Dubai Fateh. A simple average of the three constitutes the WEO average spot price, forecast to be $104.17 a barrel and $97.92 a barrel in 2014 and 2015, respectively.

[4]Backwardation describes the market condition wherein the price of a futures contract is trading below the expected spot price at contract maturity. The resulting futures curve would typically be downward sloping (inverted), because contracts for dates further in the future would typically trade at even lower prices. Keynes (1930) argued that in commodity markets, backwardation is "normal," because producers of commodities are more prone to hedge their price risk than are consumers. The opposite situation, wherein a futures contract trades at a premium compared with spot prices, is described as "contango," as experienced by WTI futures in early and mid-2013.

Figure 1.SF.2. Brent Forecast Errors and Futures
(U.S. dollars a barrel)

The predictive content of oil futures has declined, with large forecast errors evident during the past decade. The *World Economic Outlook* (futures-based forecast) projects gradually declining oil prices, with risks tilted to the downside.



Sources: Bloomberg, L.P.; IMF, Primary Commodity Price System; and IMF staff estimates.
[1]Derived from prices of futures options on February 12, 2014.

Latest forecast

The WEO's futures-based forecast for the nominal Brent price is $108 a barrel in 2014, declining to $103 in 2015 (Figure 1.SF.2, panel 2), with risks tilted to the downside. This forecast implies a small upward revision compared with the October 2013 WEO, likely reflecting mostly larger-than-expected increases in non-OPEC supplies offset by rising geopolitical risks.

Model Forecasts[5]

Recent evidence

The economic models for determining oil prices pioneered by Kilian (2009), and refinements introduced

[5]The author thanks Christiane Baumeister of the Bank of Canada for kindly sharing her Matlab code, which was refined and

thereafter, seem to generate more accurate forecasts. These models predict future oil prices by combining global activity measures with changes in oil supply and in global crude oil inventories (to capture speculative storage or consumption smoothing). They suggest that vector autoregression (VAR) forecasting models using monthly data for these aggregates generate more accurate forecasts than most other approaches (Alquist, Kilian, and Vigfusson, 2013) and are robust to changes in model specification and estimation methods (Baumeister and Kilian, 2013b). That said, recent evidence suggests that the use of refined petroleum product spreads based on commodity futures prices could offer even better predictive power (Baumeister, Kilian, and Zhou, 2013).

Model ingredients

Variables that seem relevant for predicting oil prices are combined to estimate a reduced-form version of the structural VAR of Beidas-Strom and Pescatori (forthcoming). The core variables are global crude oil production, the WEO global industrial production index, the real Brent oil price, and petroleum inventories of the members of the Organization for Economic Cooperation and Development (OECD). Three additional variables are also included: an exchange rate index of the U.S. dollar weighted against bilateral currencies of major oil consumers (in the spirit of Chen, Rogoff, and Rossi, 2010); the U.S. consumer price index; and a measure of OPEC spare capacity. To these are added seasonal dummies for the purpose of forecasting the monthly variation in prices. In addition, the real oil price is detrended to avoid any potential upward bias in the forecast given the observed trend since 2000.[6]

VAR forecast

Out-of-sample forecasts are generated based on the VAR model estimated recursively on monthly data from January 1985 through October 2013. The VAR predicts rising nominal Brent prices over the forecast horizon (Figure 1.SF.3, panel 1), consistent with the expected strengthening of global demand reported in this WEO report (Figure 1.SF.3, panel 2) and the carryover from recent supply and precautionary demand shocks (Figure 1.SF.3, panel 3). Initially, the Brent price is forecast to decline, before rising in the period after February 2014 to average $114 a barrel during 2014 ($6 higher than futures) and thereafter rising to an average of $122 a barrel in 2015 ($19 higher than futures).

Recent shocks

The dynamic effects of shocks are important for oil price forecasts, given long lags. They depend on the identification scheme used—here the identification restricts the influence of noise trading on the real oil price.[7] During the last two quarters of 2013, the real Brent oil price was held up mostly by OPEC supply shortages and some impetus from flow demand, despite the large drawdown of OECD country oil inventories (Figure 1.SF.3, panel 3). The dynamic influence of these shocks dissipates gradually (between 12 and 24 months), with the forecast gradually driven toward the end of the horizon by the model's parameters (from the variables estimated across the entire sample).

Risks

Prediction intervals are obtained by bootstrapping the errors of the VAR over the full sample (Figure 1.SF.3, panel 1, shaded intervals, and panel 4). The shape of the VAR distribution changes with the horizon, unlike that for futures prices (which is based on information derived from oil futures options), and indicates much larger upside price risks. In practice, this means that the VAR forecast indicates a 15 percent risk of Brent exceeding $150 a barrel in January 2015, relative to a less than 5 percent risk suggested by futures. The key message is that even models that appear relatively successful in predicting oil prices still imply considerable oil price forecast uncertainty in both directions (Figure 1.SF.3, panel 5).[8] Upside risks can be attributed to strengthening global demand and the carryover from some recent unexpected OPEC supply declines, among other things.

Which Forecasting Method Has the Lowest Error—and When?

The standard approach for formally assessing forecasting performance is the symmetric root-mean-squared

augmented for the purposes of this section and Beckers and Beidas-Strom (forthcoming).

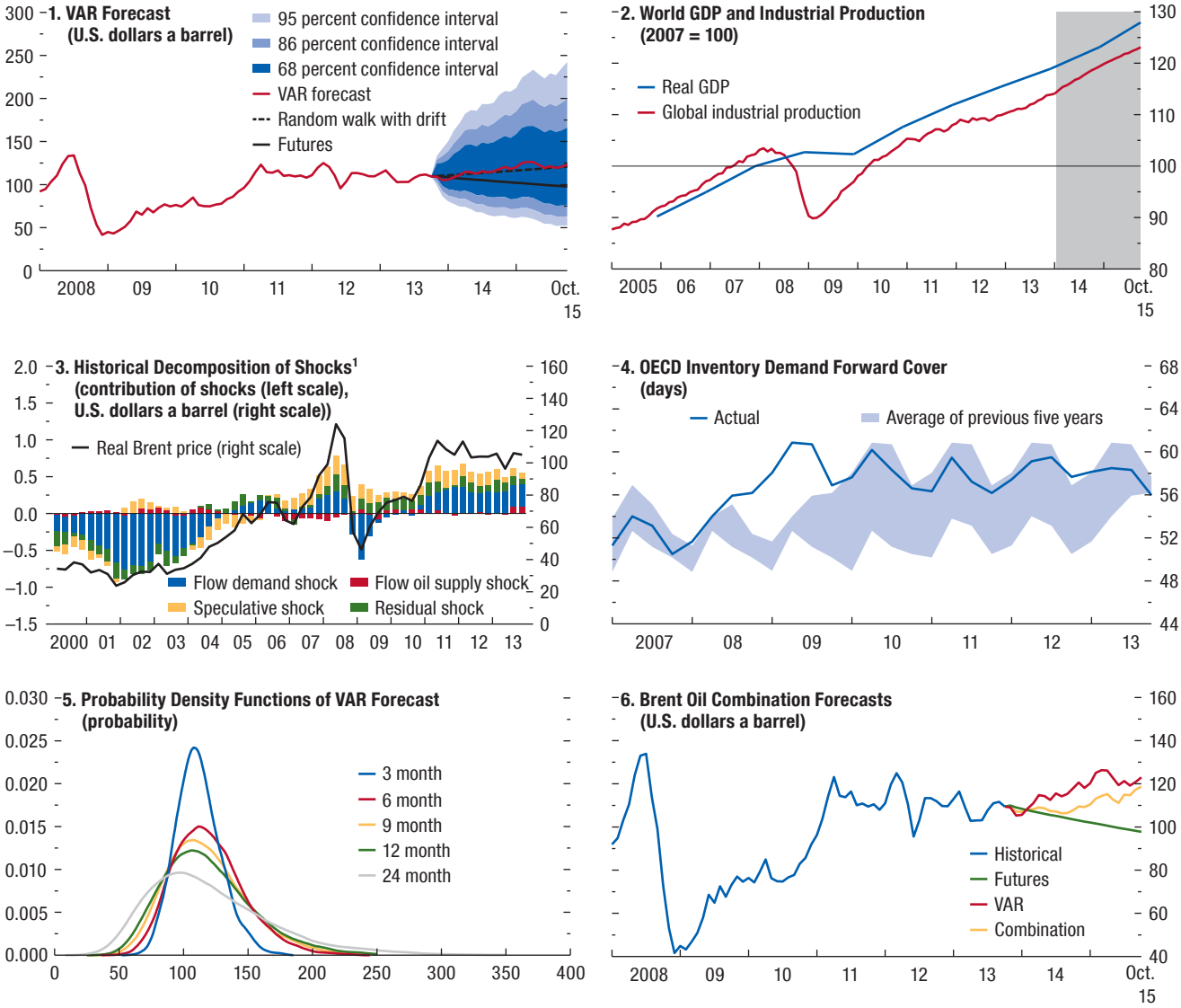
[6]The drift without detrending of the real Brent oil price is 3.97 percent.

[7]See Beidas-Strom and Pescatori (forthcoming) for details.

[8]A Bayesian VAR narrows the uncertainty range by about 35 percent, without influencing the risk assessment; that is, it remains upward tilting.

Figure 1.SF.3. Vector Autoregression and Combination Forecasts

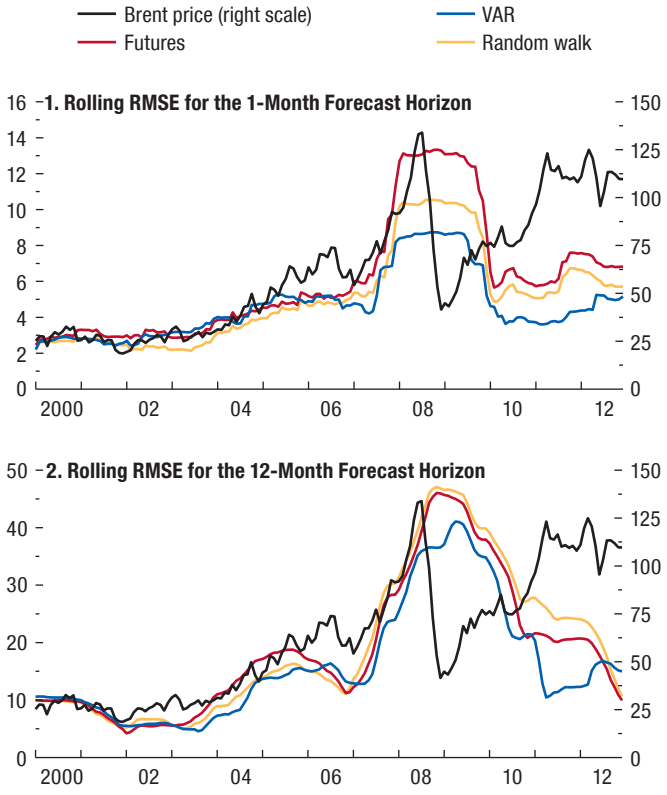
A model-based forecast, based on strengthening global demand, continued small OPEC supply shocks, and a drawdown of oil inventories, suggests higher oil prices and upside risks over the forecast horizon. However, there is merit in a combination of forecasts from this model and futures, which points to flat prices this year, rising gradually thereafter.



Sources: Bloomberg, L.P.; IMF, Primary Commodity Price System; Organization for Economic Cooperation and Development (OECD); and IMF staff estimates.
Note: OPEC = Organization of the Petroleum Exporting Countries; VAR = vector autoregression.
[1]See Beidas-Strom and Pescatori (forthcoming) for more details on the chosen identification.

Figure 1.SF.4. Rolling Root-Mean-Squared Errors: Recursive Estimation

When comparing the root-mean-squared errors of forecasts with a rolling two-year window, or as in Table 1.SF.1 over the full forecast horizon, the VAR forecast performs better than that of other models and futures since 2000, although not in each year when the rolling window is used.



Source: IMF staff estimates.
Note: The line closest to the horizontal axis represents the model with the smallest forecast errors and thus the one with the best forecasting performance. RMSE = root-mean-squared errors of the forecast; VAR = vector autoregression.

error (RMSE) of the forecast. The models that were assessed were the random walk (RW) with and without drift, futures, simple autoregressive (AR(p)) and moving average (MA(q)) processes, a combination of these in the form of ARMA (1,1), and various specifications of the VAR. The VAR outperforms the RW by about 20 percent for horizons of 5 to 8 months and 18 months. In the very short term (1 to 2 months) and at 24 months, the VAR model outperforms the RW by about 10 to 12 percent. For all other horizons, the accuracy gains are about 15 percent. Compared with the futures forecast, the gains from the VAR forecast are as large as 26 percent for the 1-month horizon, between 10 and 20 percent for horizons up to 18 months, and 5 percent for the 24-month horizon (Table 1.SF.1).

In addition to RMSEs of the full sample, two-year rolling averages are obtained to address potential time variation of the parameters. These averages indicate that the VAR delivers the lowest RMSE among comparators, particularly during the global financial crisis and the subsequent period, including the 2011 slowdown. It is interesting to note, however, that its performance is no better than futures or the RW model during the 2001 recession (Figure 1.SF.4).

Which Model Should Be Used?

In view of the considerable forecast uncertainty for oil prices irrespective of the underlying models, it could be useful to employ several forecasting methods to hedge. For oil prices specifically, an abundance of non-OPEC supplies could presage a change in the oil market configuration compared with that prevailing over the past two decades. Indeed, the merits of combination forecasts have long been established (Bates and Granger, 1969; Diebold and Pauly, 1987; Stock and Watson, 2004). More recently, it has been argued that the forecasting model with the lowest RMSE may potentially be improved by incorporating information from other models or macroeconomic factors (Baumeister and Kilian, 2013a).

A combination forecast is presented (Figure 1.SF.3, panel 6), based on an inverse weighting of recent RMSE performance of futures and the VAR model. Although it is evenly weighted for very short horizons, forecasting performance at the outer end of the 24-month forecast horizon was better for the VAR model, and hence the combination tends to follow the VAR forecast more closely at that end. The forecast combination yields a Brent price of $108 a barrel during 2014 ($6 lower than the VAR, but $3 higher than futures), rising to an average of $114 a barrel in 2015 ($8 lower than the VAR, but $14 higher than futures).

Table 1.SF.1. Root-Mean-Squared Errors across Forecast Horizons *h* (Relative to the Random Walk Model)

	Simple Forecast Models						VAR Models									
Model	RW	RW w/Drift	AR(6)	MA(3)	ARMA(1,1)	Futures	A	B	C	D	E	F	G	H	I	J
1	5.193	1.001	0.958	0.961	0.963	1.208***	0.919	**0.894**	0.946	1.008	0.927	0.949	0.978	1.145	0.989	0.913
2	8.677	1.004	0.976	0.987	0.987	1.011	0.895	**0.882**	0.974	1.082	0.926	0.906	0.922	1.113	0.989	0.888
3	11.513	1.007	0.973	0.997	0.994	1.016	0.843	**0.829**	0.949	1.054	0.895	0.855	0.852	1.054	0.969	0.835
4	13.799	1.010	0.975	1.008	1.003	1.015	0.835	0.826	0.977	1.078	0.903	0.852	0.829	1.023	0.963	**0.811**
5	15.648	1.013	0.974	1.013	1.007	1.013	0.818	0.805	0.980	1.121	0.901	0.834	0.800	0.981	0.952	**0.784**
6	17.172	1.016	0.979	1.021	1.013	1.006	0.819	0.798	0.981	1.189	0.909	0.822	0.791	0.916	0.960	**0.787**
7	18.337	1.018	0.982	1.028	1.016	0.998	0.822	0.803	0.988	1.233	0.919	0.815	**0.787**	0.859	0.969	0.807
8	19.243	1.019	0.984	1.032	1.019	0.989	0.835	0.820	1.009	1.269	0.938	0.823	**0.805**	0.829	0.979	0.838
9	19.879	1.020	0.987	1.036	1.022	0.980	0.855	0.847	1.038	1.289	0.961	0.843	0.845	**0.822**	0.998	0.871
10	20.283	1.021	0.988	1.034	1.022	0.973	0.877	0.874	1.070	1.296	0.988	0.872	0.882	**0.837**	1.025	0.898
11	20.706	1.021	0.987	1.032	1.022	0.964	0.883	0.881	1.086	1.262	1.000	0.888	0.899	**0.846**	1.049	0.907
12	21.240	1.021	0.985	1.032	1.022	0.952	0.873	0.873	1.085	1.211	0.996	0.884	0.896	**0.848**	1.059	0.900
15	22.561	1.021	0.980	1.036	1.023	0.925	0.852	**0.840**	1.103	1.270	1.014	0.870	0.874	0.859	1.057	0.862
18	23.276	1.018	0.981	1.032	1.021	0.918	0.820*	**0.796***	1.108	1.387	1.035	0.827	0.818	0.818*	1.055	0.809**
21	23.929	1.008	0.982	1.018	1.010	0.926	0.853*	0.842*	1.149	1.129	1.096	0.860	**0.854***	**0.836****	1.117	0.864**
24	25.342	1.005	0.976	1.011	1.006	0.932	0.891	0.882	1.184	1.095	1.132	0.897	0.891	**0.878**	1.151	0.924

Source: IMF staff calculations.

Note: Values less than one indicate superiority of the forecast model compared with the random walk. Boldface values indicate the best forecast model. Values with *, **, and *** indicate rejection of the null hypothesis of equal predictive ability of the candidate model and the random walk model by the Diebold-Mariano test at the 10, 5, and 1 percent levels, respectively. All vector autoregression (VAR) models A through J are in log differences, except model E, which is in log levels. All have 6 lags, except model D, which has 12. Model B includes the exchange rate index. Model F differentiates between emerging market industrial production and advanced economy industrial production. Models G and H disaggregate oil production between regions. Model J is the one presented in this Special Feature, with the detrended real oil price. See Beckers and Beidas-Strom (forthcoming) for more details. Rows represent horizon in months. AR = autoregression; ARMA = autoregression and moving average; MA = moving average; RW = random walk.

Box 1.1. Credit Supply and Economic Growth

The financial nature of the recent global crisis has led to renewed interest in understanding the importance of credit supply conditions for economic growth. This issue remains relevant today inasmuch as several countries are still dealing with residual weaknesses in the banking sector. In particular, the ongoing contraction of bank lending to nonfinancial firms in the euro area is raising concerns that tight lending conditions may still be acting as a drag on economic growth. This box presents an empirical assessment of the importance of credit supply shocks in constraining economic growth since the beginning of 2008 in the United States; the four largest economies of the euro area (France, Germany, Italy, Spain); and Ireland, which experienced a severe banking crisis. The findings reveal that Germany and the United States have almost entirely reversed the credit supply tightening experienced during the crisis. In contrast, further policy action to revive credit supply in France, Ireland, Italy, and Spain could increase GDP by 2 percent or more.

Identifying credit supply shocks is not a simple task because variables that are commonly used to monitor credit conditions, such as credit growth and lending rates, reflect both demand and supply factors. This box isolates credit supply conditions by relying on measures of bank lending standards that reflect lending terms and the criteria used by banks for the approval of loans.[1]

Even these measures, however, cannot be treated as pure measures of credit supply shocks—banks can adjust lending standards not only in response to changes in their own risk attitudes, regulatory requirements, or exogenous shocks to their balance sheets, but also because of variations in credit demand and borrowers' creditworthiness. For example, banks are likely to tighten lending standards when an ongoing or incipient recession reduces credit demand and undermines borrowers' repayment capacity.

To address this identification problem, a parsimonious vector autoregression (VAR) is estimated at quarterly frequency from the first quarter of 2003 to the third quarter of 2013. The VAR includes real GDP growth, expected GDP growth for the next quarter, and changes in bank lending standards on loans to firms. Credit supply shocks are isolated by imposing in the VAR that they result in an immediate change in lending standards without a contemporaneous impact on current or expected GDP growth. Shocks that move lending standards as well as actual or expected GDP growth within the same quarter are not interpreted as credit supply shocks. They are instead a hodgepodge of domestic and nondomestic shocks that, by affecting current and expected output, may also induce changes in lending standards. For example, news about an incipient recession that results in a downward revision of expected GDP growth and a tightening of lending standards is not considered a credit shock.

There are three main concerns with regard to possible limitations of the identification strategy. On the one hand, the identification restriction may be very conservative. A credit supply shock, especially if realized at the beginning of the quarter, is likely to have already had some effects on GDP within the same quarter, or at least on the expectations of next-quarter GDP. Ignoring this likelihood introduces a downward bias in the estimates; thus the estimation framework provides a conservative assessment of the effects of credit supply shocks on GDP growth. On the other hand, current and expected GDP growth may not fully capture banks' perceptions of borrowers' creditworthiness. In this case, the estimation framework risks overestimating the role of credit supply shocks. Finally, the estimation results could be affected by omitted variable bias because the limited time series of lending standards (available only from 2003 onward) does not allow for a larger-scale VAR or by structural breaks in the credit-activity nexus after the global financial crisis.

Figure 1.1.1 shows the cumulative effect on real GDP of a credit supply shock that causes a 10 percentage point tightening of lending standards. This is similar to the cross-country average of the shocks experienced at the time of the Lehman Brothers bankruptcy shown in Figure 1.1.2. The estimated impact on GDP is negative and statistically significant across all countries. In France, Italy, and the United States, the shock leads to a total cumulative contraction in GDP of about 1 percent. Credit supply shocks seem to have a stronger effect on GDP in Germany (1.8 percent) and especially in Spain and Ireland (2.2 percent and 4.0 percent, respectively), where nonfinancial

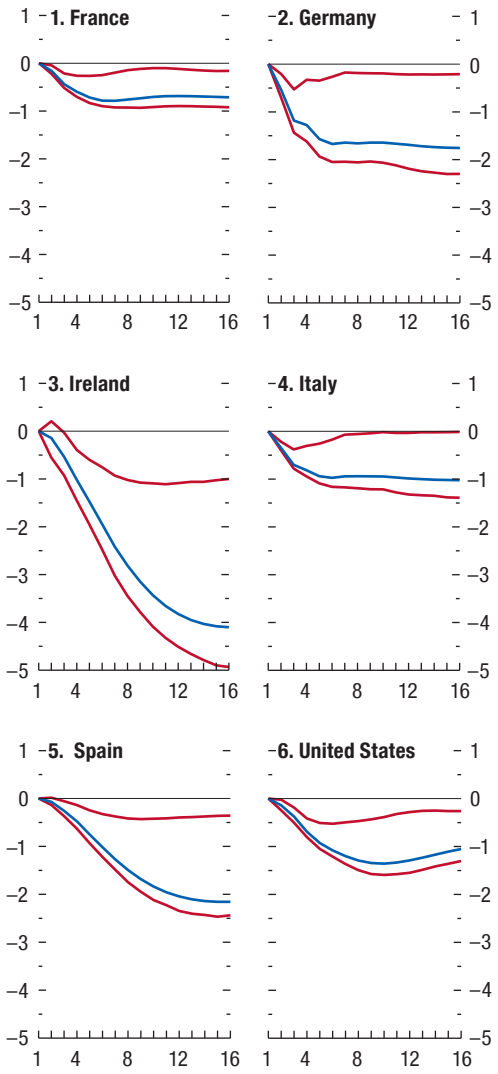
The authors of this box are Andrea Pescatori and Damiano Sandri.

[1]Lending standards have been used in similar analyses of both the United States (Lown and Morgan, 2006; Bassett and others, forthcoming) and the euro area (de Bondt and others, 2010).

Box 1.1 *(continued)*

Figure 1.1.1. Cumulative Responses of GDP to a 10 Percentage Point Tightening of Lending Standards

(Percent of GDP; point estimates and 2 standard deviation bootstrapped confidence bands; quarters on x-axis)



Source: IMF staff calculations.

firms have been much more dependent on bank credit. However, the confidence bars show that these cross-country differences are generally not statistically significant.

Figure 1.1.1 also shows that credit supply shocks have a more immediate effect in France, Germany, and Italy, where the maximum contraction in GDP is reached within 6 quarters. The effect is more delayed in the United States and especially in Ireland and Spain, where credit supply shocks continue to reduce GDP for up to 16 quarters. It is interesting to note that in all countries credit supply shocks have a permanent effect on GDP, suggesting that unresolved problems in the banking sector may have an enduring detrimental effect on output.

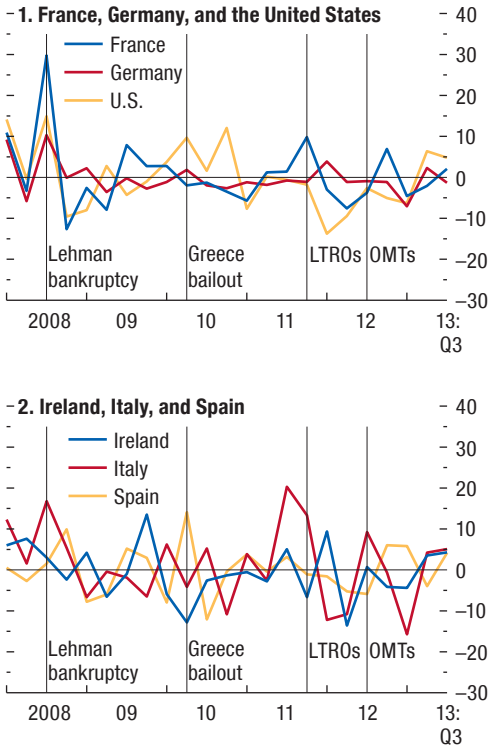
In assessing the importance of credit supply shocks in reducing growth since 2008, it is important to consider not only how a given shock affects GDP, but also the size and frequency of shocks. Figure 1.1.2 plots the credit supply shocks identified by the VAR; positive values indicate a tightening of credit conditions. The figure shows significant differences across countries that are broadly in line with anecdotal evidence about the nature of the crisis. In France, Germany, and the United States, the greatest tightening of credit supply took place in the second half of 2008 at the time of the Lehman Brothers bankruptcy. From then on, credit conditions remained relatively stable, especially in Germany (Figure 1.1.2, panel 1). In contrast, Ireland, Italy, and Spain endured the largest shocks later in the crisis. In Ireland credit supply contracted sharply at the end of 2009, and experienced a large negative shock at the time of Greece's bailout. Italy suffered a major credit supply contraction at the end of 2011, when sovereign yields reached their peak.

Combining the size and frequency of credit supply shocks (from Figure 1.1.2) with the impact that these shocks have on GDP (from Figure 1.1.1) yields the contribution of credit supply shocks to GDP for a given period. Figure 1.1.3 shows the cumulative contribution of these shocks relative to GDP in the first quarter of 2008.[2] The confidence bands confirm that the tightening of credit supply had a statistically significant negative effect on GDP, but they also highlight that there is considerable uncertainty about the precise effects. When the point estimates are examined, the results reveal

[2]In the absence of any shocks (including nonfinancial shocks), GDP would have grown at its estimated trend, which varies from country to country.

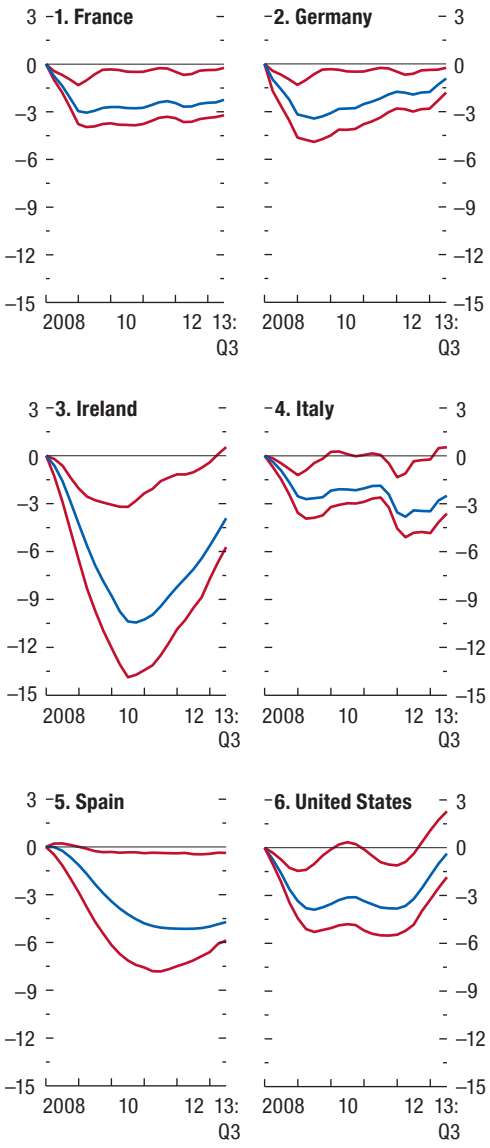
Box 1.1 *(continued)*

Figure 1.1.2. Credit Supply Shocks
(Percentage point changes in lending standards)



Source: IMF staff calculations.
Note: LTROs = longer-term refinancing operations; OMTs = Outright Monetary Transactions.

Figure 1.1.3. Contribution of Credit Supply Shocks to GDP
(Cumulative contribution with respect to 2008:Q1 GDP; point estimates and 2 standard deviation bootstrapped confidence bands)



Source: IMF staff calculations.

that in France, Germany, and the United States, credit supply shocks led to very similar GDP contractions of about 3 percent by the beginning of 2009 (Figure 1.1.3, panels 1, 2, and 6). The negative contribution of credit supply shocks has subsequently moderated, especially in Germany and the United States. The improvement has been considerably weaker in France. As of the third quarter of 2013, the total cumulative impact of credit supply shocks in France, Germany, and the United States had generated a reduction in GDP relative to the beginning of 2008 of 2.2 percent, 0.9 percent, and 0.4 percent, respectively.

The impact of credit supply shocks on GDP is estimated to have been considerably stronger in Ireland and Spain, and to a certain extent in Italy, with differences

Box 1.1 *(continued)*

that are consistent with the prevalent narratives of country-specific crises (Figure 1.1.3, panels 3, 4, and 5). Confronted with a severe banking crisis, Ireland suffered the most from the contraction in credit supply. According to the point estimates, the impact has been dramatic, leading to a total reduction of about 10 percent of GDP by the middle of 2010, with GDP losses starting to reverse at the end of 2010.[3] An important caveat to these findings is the width of the confidence bands. This suggests that the VAR may fail to capture other important factors that may have affected the relationship between credit and GDP growth in Ireland. For example, Laeven (2012) uses micro data and finds a more important role for credit demand factors after taking into account the structural shift from nontradables to tradables production that occurred during the crisis.

In Italy in 2008, credit supply contracted less than in France and Germany, consistent with the much lower exposure to U.S. assets, and recovered temporarily until the middle of 2011. However, credit conditions severely deteriorated at the end of 2011, when Italian sovereign yields increased sharply, leading to a contraction in GDP of about 2 percent. Credit conditions subsequently stabilized with a stronger recovery in the middle of 2013. In Spain, credit supply conditions exercised a delayed but continuous negative effect on GDP from the beginning of 2008 through the first quarter of 2012. Some stabilization is observed afterward, possibly thanks to the three-year longer-term refinancing operation, Outright Monetary Transactions, and the program supported by the European Stability Mechanism to recapitalize the banking sector. Overall, supply shocks have led to contractions in GDP in Ireland, Italy, and Spain of 3.9 percent, 2.5 percent, and 4.7 percent, respectively, with significant confidence bands around these estimates as noted earlier.

The historical contribution of credit supply shocks shown in Figure 1.1.3 can also shed light on the possible impact of policies to strengthen the banking sector, such as measures to boost bank capital or further progress toward banking union in the euro area. Indeed, the cumulative impact of credit supply shocks can also be interpreted as the potential gains to be realized from implementing financial sector policies that can undo the negative credit supply shocks experienced since the beginning of 2008. Germany and the United States have essentially already reversed the negative effects of credit supply shocks, but considerable payoffs remain for France, Ireland, Italy, and Spain. In these countries, restoring the credit supply to precrisis levels could lead to an increase in GDP, relative to the first quarter of 2008, of 2.2 percent, 2.5 percent, 3.9 percent, and 4.7 percent, respectively. As a caveat, policies to return credit supply to 2008 levels might not be desirable from a financial stability perspective given the possibility that precrisis credit conditions reflected excessive banking sector leverage and imprudent risk taking.

[3]This impact is close to the reduction in GDP actually experienced by Ireland between 2008 and 2010. However, this should not be interpreted as suggesting that the severe recession in Ireland was due entirely to a tightening of credit supply for two reasons. First, explaining the crisis requires accounting not only for the fall in GDP, but also for the lack of trend growth. Second, there may have been other important contractionary forces, possibly compensated for by other positive shocks, which the VAR is unable to disentangle.

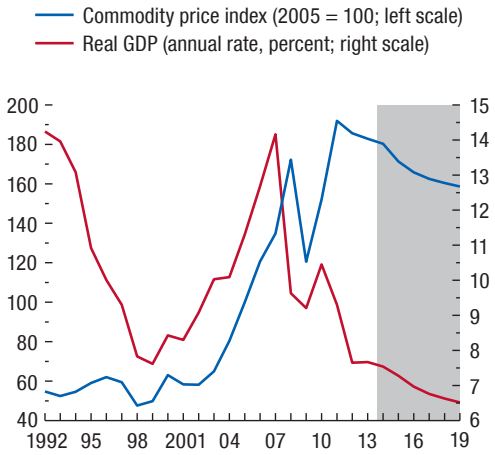
Box 1.2. Is China's Spending Pattern Shifting (away from Commodities)?

Following three decades of rapid growth in China of about 10 percent a year on average, the recent slowdown has raised many concerns. Among them are the implications for global commodity markets: China's demand rebalancing may lead to lower commodity consumption and prices and thus create adverse spillovers to commodity exporters (Figure 1.2.1). This box delves into China's commodity consumption and its relationship to demand rebalancing. The analysis finds that China's commodity consumption is unlikely to have peaked at current levels of income per capita. Moreover, the pattern of its commodity consumption closely follows the earlier paths of other rapidly growing Asian economies.[1] However, recent shifts in the composition of China's commodity consumption are consistent with nascent signs of demand rebalancing—private durable consumption has started to pick up, while infrastructure investment has slowed. Global (and Chinese) commodity consumption has been rising and is predicted to continue to do so, but at a slower pace for low-grade commodities and an accelerating one for higher-grade commodities—implying positive spillovers for exporters of commodities, particularly of higher-value commodities.

Growth in global commodity demand has moderated somewhat, but China's commodity consumption is still rising. Since the global financial crisis, the growth rate of global commodity consumption appears to be slowing, relative to the boom in the middle of the 2000s, except in the case of food (Figure 1.2.2). This slowdown has been accompanied by a compositional shift in global commodity consumption. Specifically, within primary energy, the growth rate of natural gas consumption has risen faster than that of other fuels, very basic food staples such as rice are giving way to proteins (the sum of data for edible oils, meat, and soybeans; excludes seafood and dairy, for which data are incomplete), and base metal consumption has generally shifted away from low-grade metals (copper and iron ore) toward higher-grade ones (aluminum and zinc). In China, the growth rate of commodity consumption has also moderated, but is still robust. Within commodity categories, patterns in energy, metal, and food consumption per capita appear to be broadly in line with those recorded in other fast-growing Asian economies (namely, Japan, Korea, and Taiwan Province of China) a few decades earlier. Some idiosyncrasies are evident; most notable are China's considerably higher per capita consumption of coal and high-protein foods. However, recent shifts in composition commodity categories at the global level are also evident in China. In particular, rice has given way to higher-quality foods (edible oils and soybeans, and to a lesser extent, meat); copper and iron ore have recently been giving way to aluminum, tin, and zinc; and coal has started to give way to cleaner primary energy fuels. Chinese (and other emerging market) demand for thermal coal softened in 2013 and early 2014, consistent with the baseline forecast of the International Energy Agency (2013).

The relationship between commodity consumption and income can help gauge prospects for future commodity consumption in China. The predicted relationship between commodity consumption per capita and income per capita and other determinants is based on cross-country panel regressions estimated over the period 1980–2013 with country fixed effects for 41 economies (26 advanced: Australia, Austria, Belgium, Canada, Czech Republic, Denmark, Estonia, Finland, France, Ger-

Figure 1.2.1. China: Real GDP Growth and Commodity Prices



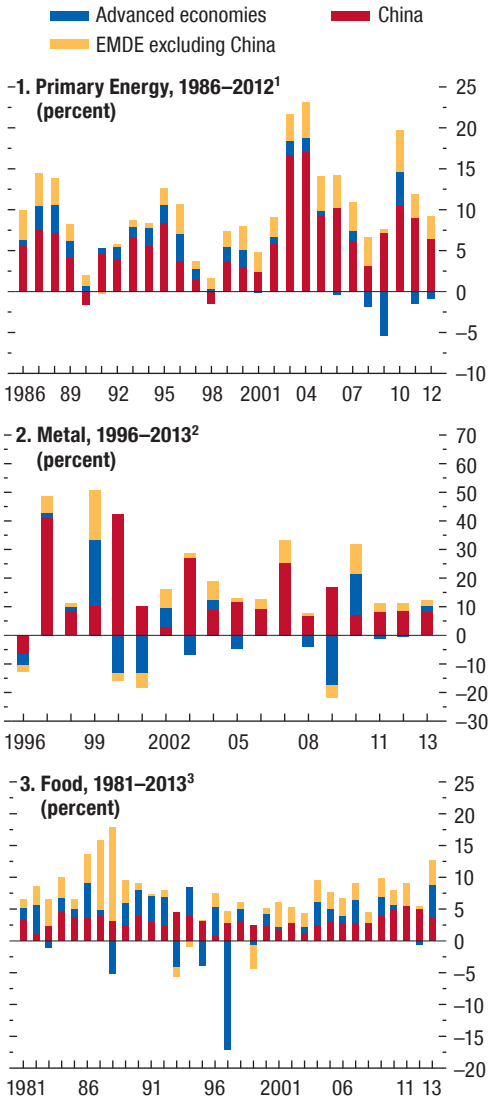
Sources: IMF, Primary Commodity Price System; and IMF staff estimates.

The author of this box is Samya Beidas-Strom, with assistance from Angela Espiritu, Marina Rousset, and Li Tang. For details on the methodology and results summarized in this box, see Beidas-Strom (forthcoming).

[1]As in Guo and N'Diaye (2010) and Dollar (2013), these benchmarks are Japan, Korea, and Taiwan Province of China.

Box 1.2 *(continued)*

Figure 1.2.2. Growth Rate of Global Commodity Consumption



Sources: British Petroleum Statistical Review; International Energy Agency; U.S. Department of Agriculture; U.S. Energy Information Administration; World Bureau of Metal Statistics; World Steel Association; and IMF staff calculations.
Note: EMDE = emerging market and developing economies.
[1]Coal, gas, and oil.
[2]Aluminum, cadmium, iron ore, copper, lead, nickel, tin, and zinc.
[3]Barley, beef, corn, milk, palm oil, peanut oil, pork, poultry, rapeseed oil, rice, soybean oil, soybeans, sunflower oil, and wheat.

many, Iceland, Ireland, Israel, Italy, Japan, Korea, Luxembourg, Netherlands, New Zealand, Norway, Slovak Republic, Slovenia, Spain, Sweden, United Kingdom, United States; and 15 emerging or developing: Chile, China, Croatia, Hungary, India, Iraq, Mexico, Malaysia, Pakistan, Poland, Russia, South Africa, Taiwan Province of China, United Arab Emirates, Vietnam). For primary energy, the nonlinear relationship with per capita income predicted earlier (April 2011 *World Economic Outlook*) still holds. The estimated regression is

$$e_{it} = \alpha_i + P(y_{it}) + u_{it}, \qquad (1.2.1)$$

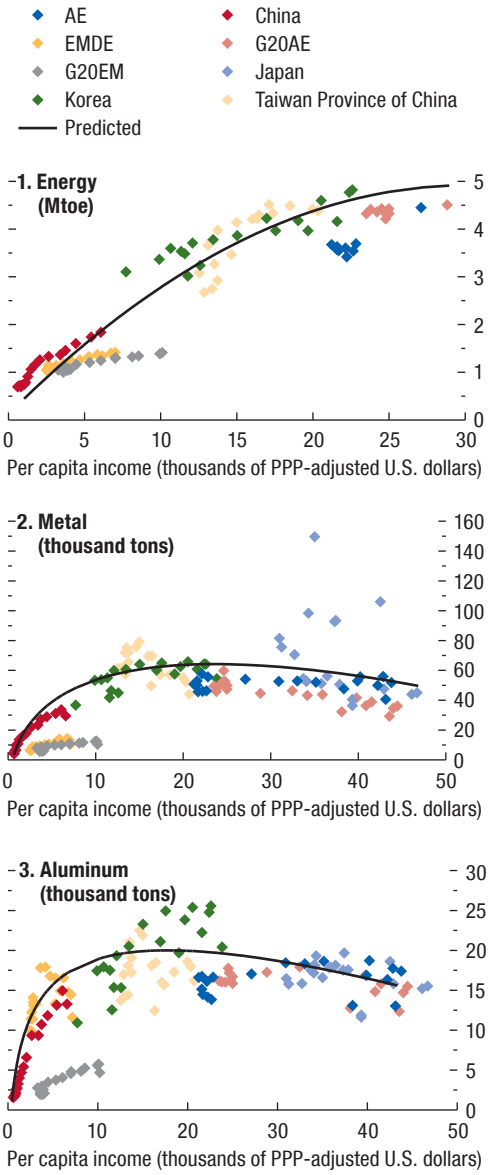
in which i denotes the country, t denotes years, e is primary energy per capita, y is real per capita GDP, $P(y)$ is a third-order polynomial, and fixed effects are captured by α_i. Specifically, income elasticity of energy consumption is close to one at current levels of income per capita in China (as it was earlier in other fast-growing Asian economies). In contrast, advanced economies can sustain GDP growth with little if any increase in energy consumption (Figure 1.2.3, panel 1). This relationship is flat for higher incomes—except in the United States, where consumption has been increasing with income per capita. What is new is the analysis for base metals. The estimated regressions for average metals and their components are the same as that for energy but with added arguments: the share of investment in GDP, the share of durables in private consumption,[2] and the growth rates for both. In particular, the nonlinear relationship with per capita income is a good predictor of metal consumption at the early stages of income convergence,[3] with an income elasticity greater than one in China (and its Asian comparators). The predicted metal consumption curve reaches an inflection point at a much earlier income threshold relative to energy, first slowing at the threshold of $8,000 per capita, then reaching a plateau at about $18,000 per capita, and thereafter falling gradually (Figure 1.2.3, panel 2). Moreover, pre-

[2]Private consumption (durables, nondurables, and services) for emerging markets is obtained by splicing the full data set with data from CEIC Data, the Bureau of Economic Analysis, the Economist Intelligence Unit, Euromonitor, Global Insight, and the World Bank's *World Development Indicators* household surveys. Measurement error could be present for the "level," but here the interest is in "growth" effects. Hence, for the shares of durables, nondurables, and services, private consumption is reconstructed.

[3]Thereafter, the predicted curve falls rapidly to zero when income per capita is the only determinant.

Box 1.2 *(continued)*

Figure 1.2.3. Actual and Predicted Per Capita Commodity Consumption



Source: IMF staff calculations.
Note: AE = advanced economies; EMDE = emerging market and developing economies; G20AE = G20 advanced economies; G20EM = G20 emerging market economies; Mtoe = million tons of oil equivalent; PPP = purchasing power parity.

dicted consumption is rising in the *growth rate* of the investment-to-GDP ratio (unlike for primary energy).

Since the growth rate of investment appears to be slowing and consumption is beginning to rise in China, a further disaggregation of base metal consumption could be warranted to assess which metals are more sensitive to these recent developments in investment and consumption. For a few high-grade metals, such as aluminum and zinc, the relationship is found also to be rising significantly in both the share of durable consumption in private consumption *and its growth rate*, with the consumption elasticity significantly larger than one (and larger than that for the average metal). Hence, the predicted consumption per capita of high-grade metals grows briskly at levels of income per capita below about $20,000 (relative to the growth rate and the plateau predicted for average metals). However, it falls more rapidly thereafter (relative to average metals) (Figure 1.2.3, panel 3). This result implies that investment, durables, and GDP growth more broadly will come with higher consumption (with an increasing growth rate) of these metals in the future—this is likely also to hold true for some precious metals used in high-end durable manufacturing, such as palladium—at least until China's income per capita is double the current level. This is not the case for low-grade metals, for which investment and GDP growth will soon be sustained with lower consumption growth rates for these metals, implying a slowing in future demand growth. Estimation results confirm that copper and iron ore consumption will continue to rise, but at a slowing rate as income rises, similar to the experiences of China's Asian benchmarks earlier. At incomes of $15,000 per capita and higher, consumption of copper and iron ore is predicted to fall more rapidly than consumption of aluminum. Among base metals, only copper futures are in backwardation. What are the broader implications of this analysis, however, for global commodity demand, and what are the links to China's demand rebalancing?

The predicted paths for metal consumption per capita are consistent with slowing investment in infrastructure and accelerating consumption of durables in China. Relative to that in other emerging market economies, China's commodity consumption per capita is indeed high and rising, as established. However, this is not unusual for its early stage of income convergence given its growth model, which broadly follows that of Korea and Taiwan Province of China in the 1970s and 1980s and of Japan some decades earlier. These benchmark economies relied on a growth model led by exports, factor accumulation, low private consumption, and high investment (Figure

Box 1.2 *(continued)*

1.2.4, panels 1 and 2). Differences between China and these benchmark economies—studied in IMF (2011, 2013a); Hubbard, Hurley, and Sharma (2012); and Dollar (2013)—are largely related to somewhat higher investment-to-GDP and lower household-consumption-to-GDP ratios, linked to China-specific social and institutional factors. Private consumption in benchmark economies also initially declined and later grew as income began to converge, and their infrastructure investment slowed concomitantly. China's high investment (Ahuja and Nabar, 2012; Roache, 2012) appears to be leveling off. This is particularly notable in the growth rate of infrastructure, as some provinces near a threshold of industrialization and infrastructure building (McKinsey Global Institute, 2013).[4] Thus, the observed slowing in metals used heavily in infrastructure seems natural. Meanwhile, private durables consumption is catching up following a long delay (Figure 1.2.4, panel 3), perhaps linked to the acceleration observed in the growth rate of consumption of aluminum and other high-grade metals (Deutsche Bank, 2013; Goldman Sachs, 2013a).[5]

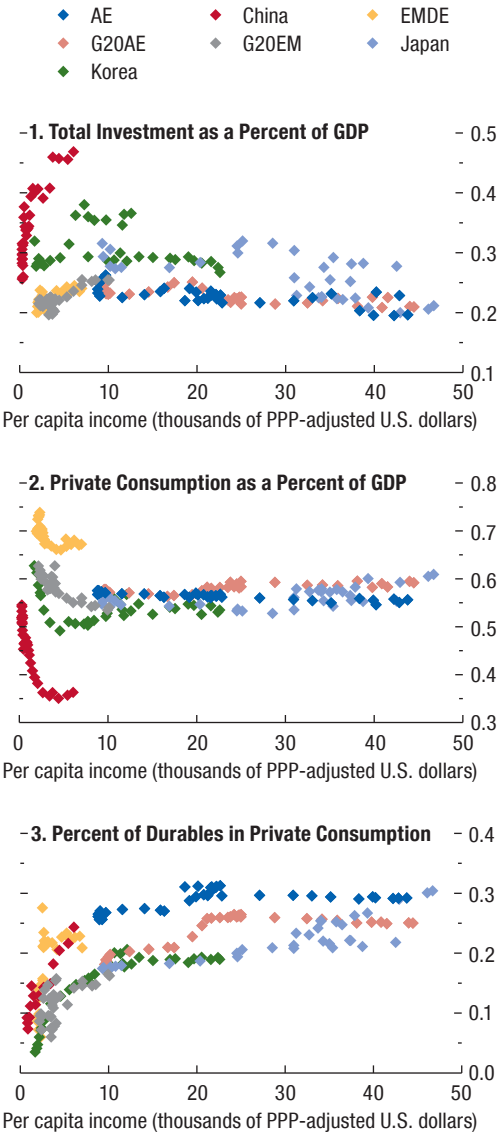
Demand rebalancing should follow. Regression results suggest that the *growth rate* of GDP and the investment-to-GDP ratio drive private consumption at the early stages of income convergence (before the $10,000 per capita threshold), when low-grade commodities are intensively consumed.[6] Thereafter, invoking Eichengreen, Park, and Shin (2013), (higher) *levels* of income and other domestic social and institutional factors largely drive the share of durable consumption (and services) when demand shifts toward high-grade

[4]The slowdown is observed for total real fixed-asset investment during the second half of 2013, with a notable deceleration in the growth rate during the fourth quarter of the year for investment directed toward the nontradable real estate, construction, and infrastructure sectors.

[5]Industry analysis (Goldman Sachs, 2013b) corroborates this finding: demand has been rising for high-grade metal-intensive durables (for example, cars and dishwashers) and higher-end nondurables (protein foods) and services (tourism and insurance).

[6]Same period and panel of economies; based on two separate generalized least-squares panel regressions with fixed effects and robust standard errors: one for the determinants of the ratio of private consumption to GDP, the other for the share of durables in consumption. The following domestic factors are found to be statistically significant: financial repression or liberalization, credit to state-owned enterprises, out-of-pocket health and education private spending (Barnett and Brooks, 2010), and demographics. Interestingly, foreign financing conditions and household wealth (for example, house prices) are not found to be statistically significant.

Figure 1.2.4. Spending Patterns



Source: IMF staff calculations.
Note: AE = advanced economies; EMDE = emerging market and developing economies; G20AE = G20 advanced economies; G20EM = G20 emerging market economies; PPP = purchasing power parity.

Box 1.2 *(continued)*

commodities. Such predictions of the determinants of domestic demand components appear to be consistent with the shifting commodity composition and spending pattern observed in China: toward high-grade commodities and durables since 2012 and softening demand for low-grade commodities and slower infrastructure investment during 2013, thus suggestive of nascent demand rebalancing. Implementation of the envisaged reforms outlined in the Third Plenum of the 18th Central Committee, particularly the removal of factor subsidies and administered credit, should lift private labor income and foster further rebalancing.

Positive spillovers to both low- and high-grade commodity exporters should occur as commodity consumption follows predicted relationships. Rebalancing does not indicate that the level of China's consumption of commodities will peak—at least not until the country's per capita income doubles from current levels. Rather, commodity consumption (globally and for China) is predicted to increase and to continue to shift gradually toward high-grade foods and metals as well as cleaner primary energy fuels. However, exporters of basic and low-grade commodities (such as rice, copper, iron ore, and later, coal) should expect Chinese demand to grow more slowly as it shifts toward other commodities, with increasing, positive spillovers to the exporters of these commodities.

Box 1.3. Anchoring Inflation Expectations When Inflation Is Undershooting

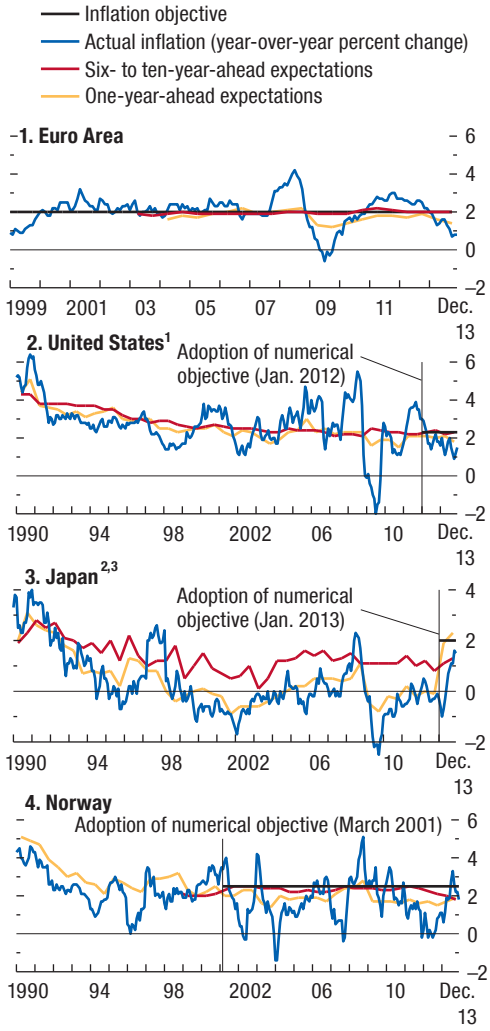
Could financial conditions unexpectedly tighten in the world's largest advanced economies? The question arises because underlying inflation has been running below objective in the euro area, Japan, and the United States. In Japan, where the undershooting has persisted the longest, deflation has become entrenched. Meanwhile, in the euro area and the United States, the undershooting has already pulled down shorter-term inflation expectations. If longer-term inflation expectations start drifting down as a result, there could be serious implications. Central banks might find it difficult to ease monetary conditions, because nominal interest rates are effectively at the zero floor. In this case, real interest rates (based on long-term expected inflation) would rise, tightening financial conditions and threatening the still-fragile recoveries.

This box considers the ways in which central banks can prevent longer-term expectations from becoming unanchored. It does this by reviewing the experiences of three seasoned inflation-targeting countries (Canada, Czech Republic, Norway), as well as the three largest advanced economies that have adopted numerical inflation objectives (euro area, Japan, United States), to see what lessons can be drawn.[1] Before proceeding, it is worth recalling that keeping long-term inflation expectations anchored at positive levels is not sufficient to rule out the risk of undesirably low inflation: in Japan's case, inflation expectations remained positive for many years, even as the economy slid into deflation (Figure 1.3.1).

Inflation performance and short-term expectations

Low inflation is already putting downward pressure on shorter-term inflation expectations. The Consensus Economics survey of professional forecasters shows the problem: inflation projections for 2014–15 are effectively below objective in the six economies mentioned

Figure 1.3.1. Inflation Expectations in Euro Area, United States, Japan, and Norway



Sources: Consensus Economics; and IMF staff calculations.
[1]The implicit consumer price index (CPI) inflation objective is estimated at about 0.3 percentage point above the Federal Reserve's official personal consumption expenditures (PCE) inflation objective of 2.0 percent. This is based on the difference in long-term CPI and PCE inflation forecasts from the Federal Reserve Bank of Philadelphia's *Survey of Professional Forecasters*.
[2]The announcement of the numerical inflation objective was made in December 2012; implementation occurred in January 2013.
[3]In October 2013, the Japanese government announced that the value-added tax rate would be increased by 3 percentage points, effective April 2014. This led to a sharp rise in short-term inflation expectations.

The authors of this box are Ali Alichi, Joshua Felman, Emilio Fernandez Corugedo, Douglas Laxton, and Jean-Marc Natal.

[1]Canada and Norway are useful to illustrate the difficulties of balancing competing objectives; the Czech Republic highlights the importance of having alternative instruments available to lift inflation expectations when the policy interest rate is at the zero floor.

Box 1.3 *(continued)*

Table 1.3.1. Consensus Consumer Price Index Inflation Expectations[1]

(Percent)

	2014	2015	2016	Inflation Objective	Publish Policy-Consistent Interest Rate Path?
Euro Area	1.1 (–0.3)	1.4 (–0.2)	1.8	2.0[2]	No
Spain	0.7 (–0.6)	1.3 (–0.3)	1.7	. . .	. . .
Italy	1.1 (–0.5)	1.3 (–0.4)	1.6	. . .	. . .
France	1.2 (–0.3)	1.4 (–0.2)	1.7	. . .	. . .
Germany	1.6 (–0.3)	2.0 (–0.1)	2.1	. . .	. . .
Japan	2.3 (0.0)	1.6 (+0.3)	1.4	2.0	No
United States	1.6 (–0.2)	1.9 (–0.2)	2.3	2.3[3]	Yes[4]
Canada	1.5 (–0.3)	1.9 (–0.1)	2.0	2.0	No, only use words
Sweden	0.9 (–0.4)	2.0 (–0.1)	2.2	2.0	Yes
Norway	2.0 (+0.1)	2.1 (0.0)	2.0	2.5	Yes
Czech Republic	1.3 (–0.3)	2.2 (+0.4)	2.0	2.0	Yes
New Zealand	2.0 (0.0)	2.3 (–0.1)	2.4	1.0–3.0	Yes
United Kingdom	2.3 (–0.2)	2.3 (–0.3)	2.8	2.0	No

Sources: Bank of England (2012); Consensus Economics; central bank websites; and IMF staff compilation.

[1]Data for 2014–15 are from a January 2014 Consensus Economics survey (deviations from the October 2013 benchmark survey in parentheses). Data for 2016 are from an October 2013 benchmark Consensus Economics survey.

[2]Official European Central Bank objective is "below, but close to 2.0 percent."

[3]The implicit consumer price index (CPI) inflation objective is estimated by the IMF staff at about 0.3 percentage point above the Federal Reserve's official personal consumption expenditures (PCE) inflation objective of 2.0 percent. This is based on the difference in long-term CPI and PCE inflation forecasts from the Philadelphia Federal Reserve's *Survey of Professional Forecasters*.

[4]In the United States, interest rate paths are from individual participants in the Federal Open Market Committee meeting.

above (Table 1.3.1).[2] They rise over time, but even by 2016 they are still projected to be below objective in the euro area, Japan, and Norway.

Policy frameworks and long-term expectations

What are the risks that these decreases in shorter-term expectations will feed into longer-term expectations? Evidence suggests the answer depends on the policy framework. Figure 1.3.1 provides estimates of longer-term inflation expectations (6 to 10 years ahead) for the euro area, Japan, Norway, and the United States. In the period before Japan and the United States adopted numerical inflation objectives, long-term expectations tended to move with short-term expectations and actual inflation (in the United States, mainly because it was still disinflating to levels consistent with its long-term inflation objective). In contrast, Canada established its constant 2 percent inflation objective much earlier, and long-term inflation expectations became firmly anchored to the target, notwithstanding short-term fluctuations (see Table 1.3.1).[3]

This is not an accident. Once central banks adopt numerical objectives, they devote considerable resources to ensuring that long-term inflation expectations are well anchored. They use their inflation forecasts to guide monetary policy actions, estimating the endogenous policy interest rate path that should return inflation to the target. Most also publish information about their forecasts to provide forward guidance to the public.[4] Thus, they can ensure their monetary policy actions are consistent—and are seen to be consistent—with bringing inflation back to its objective over time.

Policy since the global financial crisis

In the immediate aftermath of the global financial crisis, the largest advanced economies faced a dilemma. They needed to provide massive stimulus to support

[2]Consensus Economics conducts a monthly survey of expected consumer price inflation for the current year (2014) and the next year (2015), and a semiannual survey (April and October) of longer-term expected inflation. The inflation expectations for Japan in 2014 embody a large transitory effect from a value-added tax increase expected in April. Measures of underlying inflation excluding value-added tax effects would be significantly lower than the 2 percent objective.

[3]Similarly, Capistrán and Ramos-Francia (2010) find that the dispersion in short- and medium-term inflation expectations is lower in inflation-targeting countries.

[4]The Czech National Bank and the Norges Bank publish the path of the policy rate consistent with returning inflation to target, whereas the Bank of Canada simply uses words to describe the policy assumptions in its baseline forecast. The Czech National Bank and Norges Bank make it clear that the forecast is an important input into policymaking, but not the only input.

Box 1.3 *(continued)*

the real economy in the near term, while keeping long-term inflation expectations anchored. They also realized that these objectives could be achieved with a more transparent monetary policy framework that focused on longer-term expectations, notwithstanding short-term inflation fluctuations.[5] Accordingly, the Federal Reserve and Bank of Japan adopted numerical inflation goals in 2012.

The postcrisis task of keeping long-term expectations anchored has proved difficult, however. Canada, the Czech Republic, and Norway were early adopters of inflation targeting and have relatively long histories of communicating monetary policy under inflation targeting.[6] Yet in Norway long-term inflation expectations have actually been drifting downward.

Why is this happening? In part, it is because Norges Bank has needed to strike a balance between its inflation and financial stability objectives. For some time, the bank has been concerned that credit (especially to households) is growing too rapidly, building up financial imbalances. Accordingly, it has maintained—and is expected to maintain—policy rates above the levels needed to bring inflation back to its objective. Consequently, long-term inflation expectations have fallen below target.

The Bank of Canada also has concerns about growing household debt, which may be why inflation is expected to return to target only by 2016. Yet longer-term expectations remain well anchored. Why the difference? One explanation may be the Bank of Canada's long track record in controlling inflation. It was one of the first inflation targeters, implementing an inflation-targeting framework a decade before Norges Bank. So it has built considerable credibility.

The experience of the Czech Republic, meanwhile, illustrates the advantages of having additional policy instruments available when the policy rate has hit the zero bound. Because the Czech Republic is a small and open economy, the exchange rate is a powerful tool for affecting prices, and given that the koruna's exchange rate was overvalued, foreign exchange intervention was considered appropriate.[7] So the central bank intervened, accompanied by strong communications, thereby lifting short-term inflation expectations while keeping longer-term inflation expectations on target.

Conclusions

What can we conclude from these experiences? One important lesson is that monetary policy frameworks supported by numerical inflation objectives (such as inflation targeting) can help prevent declines in short-term inflation expectations from translating into declines in longer-term expectations.

Frameworks can only help so much, however. A second lesson is that implementation is also critical—and difficult when central banks face conflicting objectives. One strategy may be to assign macroprudential tools to achieve financial stability goals. When these tools need to be reinforced with a monetary stance that is tighter than it would otherwise be, central banks will need to explain how this will stabilize the economy over the longer term, thereby ultimately helping to achieve the inflation objective.

A third critical lesson is that central banks need adequate tools. With policy rates near zero in many countries, this is also problematic. There are few cases in which foreign exchange intervention, as in the Czech Republic, would be appropriate; a widespread use of this tool could generate large spillovers, harming the international system. That leaves other unconventional monetary policies. Although these measures can have longer-term costs, they have also helped avert another Great Depression since the global financial crisis.

Finally, to utilize these tools, central banks will need operational independence, a key pillar of inflation control over the past two decades. Recent developments in this area are not reassuring. The scope for extraordinary interventions—including purchases of a broad range of private or public sector assets—must not be circumscribed by political considerations.

In the end, to keep expectations anchored, central banks not only must talk the talk. They must also be able to walk the walk.

[5]Based on data from before the global financial crisis, Levin, Natalucci, and Piger (2004) and Box 4.2 of the September 2005 *World Economic Outlook* show that long-term inflation expectations were much better anchored in inflation-targeting countries than in non-inflation-targeting countries.

[6]Canada was the first Group of Seven country to adopt inflation targeting, in 1991, and now has more than 20 years of experience with an inflation-targeting regime. The Czech Republic and Norway adopted inflation targeting in 1997 and 2001, respectively.

[7]For an analysis of the Czech Republic's exchange rate level, see Box 3.1 of the April 2013 *World Economic Outlook*.

Box 1.4. Exchange Rate Regimes and Crisis Susceptibility in Emerging Markets

The choice of exchange rate regime is a perennial issue faced by emerging markets. Conventional wisdom, especially after the emerging market crises of the late 1990s, was a bipolar prescription: countries should choose between floats (the soft end of the prescription) and hard pegs (monetary union, dollarization, currency board). The thinking was that intermediate regimes (conventional pegs, horizontal bands, crawling arrangements, managed floats) left countries more susceptible to crises. The experience of some European emerging market economies as well as some euro area economies during the global financial crisis, however, suggests that hard pegs may make countries more prone to growth declines and painful current account reversals, in which case the safety of the hard end of the prescription may be largely illusory.

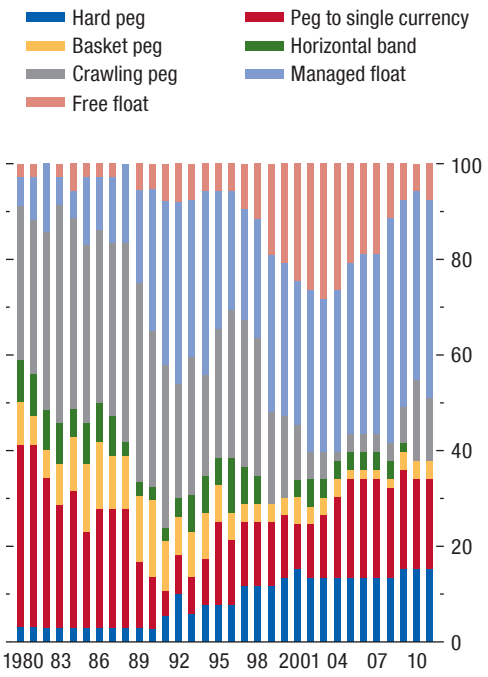
The soft end of the prescription is also a bit murky. An often-overlooked question is what constitutes a "safe" float—that is, where to draw the line between floats and riskier intermediate exchange rate regimes. Although occasional intervention during periods of market turbulence or extreme events does not turn a float into an intermediate regime, there remains the question of how much management of the exchange rate is too much.

Evolving regimes

These issues are clearly relevant to policy, given that an increasing number of emerging market central banks have switched from free floats to de facto managed floating, conventionally defined as regimes in which the central bank influences exchange rate movement through its policies without (at least explicitly) targeting a particular parity.[1] In fact, based on the IMF's de facto exchange rate regime classification, the trend of "hollowing out of the middle"—countries abandoning intermediate regimes mostly in favor of free floats—that started in the immediate aftermath of the Asian crisis of the late 1990s reversed around 2004 (Figure 1.4.1). Since then, the proportion of intermediate regimes in emerging market economies has increased (of which managed floats is the most important category).

What explains this shift toward greater management of the exchange rate? In the run-up to the global financial crisis, the trend was likely motivated by the surge in capital inflows to emerging market economies, which raised concern about export competitiveness and prompted efforts to limit currency appreciation. During the crisis, however, as these economies faced sharp declines in capital inflows (and in some cases even large capital outflows), the purpose of intervention was to support their currencies. Thereafter, the ebbs and flows of capital to emerging market econo-

Figure 1.4.1. Distribution of Exchange Rate Regimes in Emerging Markets, 1980–2011
(Percent)



Source: IMF staff calculations.
Note: Based on the IMF's de facto exchange rate regime classification obtained from the IMF's *Annual Report on Exchange Arrangements and Exchange Restrictions*. Hard pegs include dollarization, currency unions, and currency boards.

The author of this box is Mahvash Qureshi, based on Ghosh, Ostry, and Qureshi (2014).

[1]This is in contrast to free (or independent) floating, in which the exchange rate is largely market determined. Different de facto exchange rate regime classifications generally use different identification criteria. For example, the IMF's de facto classification combines information about actual exchange rate volatility and a central bank's intervention policy with qualitative judgment based on IMF country team analysis; Reinhart and Rogoff's (2004) classification takes into account exchange rate volatility and the existence of parallel market exchange rates; Levy-Yeyati and Sturzenegger (2005) consider the volatility of the nominal exchange rate and that of international reserves.

Box 1.4 *(continued)*

mies have led to alternating concern about currency appreciation and depreciation—but in either case, concern about exchange rate volatility, hence the desire to manage exchange rates.

Regimes, vulnerabilities, and crisis susceptibility

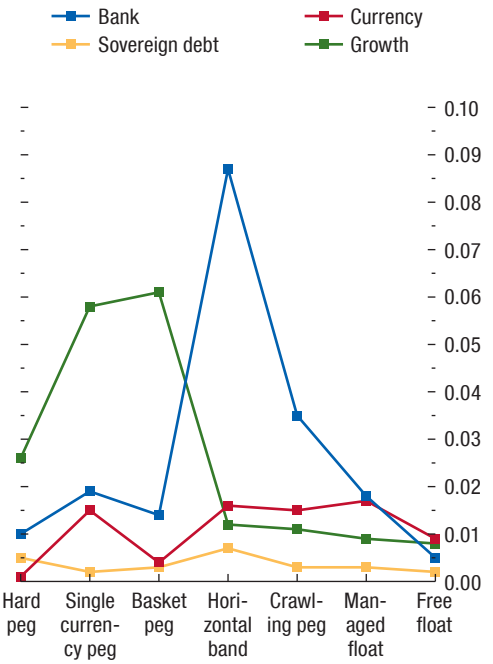
Empirical analysis of the vulnerabilities and risks of crises under different exchange rate regimes in a sample of 50 emerging market economies for 1980–2011 suggests that macroeconomic and financial vulnerabilities (such as currency overvaluation, delayed external adjustment, rapid credit expansion, excessive foreign borrowing, and foreign-exchange-denominated domestic currency lending) are generally significantly greater under less flexible exchange rate regimes—including hard pegs—compared with those under both managed and free floats. Although not especially susceptible to banking or currency crises, hard pegs are significantly more prone to growth collapses than are floats.

Overall, intermediate regimes as a class are the most susceptible to crisis, but managed floats behave much more like pure floats, with significantly lower risks and fewer crises (Figure 1.4.2). Among other factors, excessive credit expansion, real exchange rate overvaluation, bank foreign liabilities, and large current account deficits are associated with a significantly higher likelihood of banking and currency crises, whereas more foreign exchange reserves lower the likelihood. Higher external debt also significantly raises the probability of banking and sovereign debt crises, though the association weakens when bank foreign liabilities and the fiscal balance are included in the model.

Where to draw the line?

Less flexible exchange rate regimes are more prone to various types of crisis, but what differentiates "safe" managed floats from "risky" intermediate regimes?[2] To delve deeper into what constitutes more risky management of the exchange rate, a methodology is adopted that characterizes the crisis susceptibility of intermediate exchange rate regimes according to various factors (such as exchange rate flexibility, degree of foreign exchange intervention, overvaluation of the real exchange rate, and financial stability risks) while allowing for arbitrary thresholds and interactive effects among these factors.[3] The results suggest that there is no simple dividing line (for example, based on exchange rate flexibility) between safe and risky intermediate exchange rate regimes. Rather, what determines whether an intermediate regime is safe or risky is a complex confluence of factors, including financial vulnerabilities, exchange rate flexibility, degree of intervention, and most important, whether the currency

Figure 1.4.2. Predicted Crisis Probability in Emerging Markets, 1980–2011



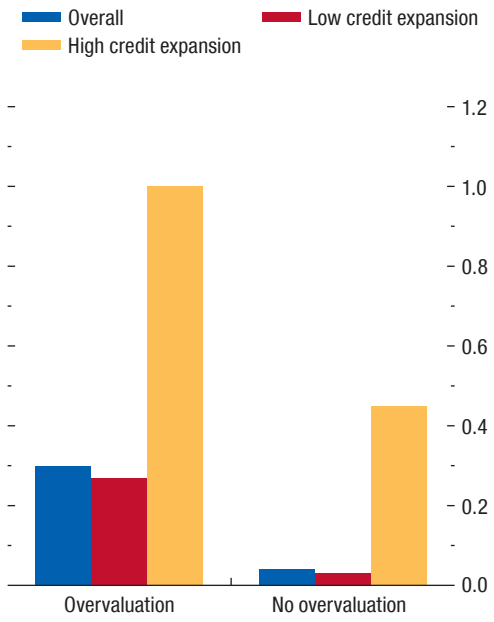
Source: IMF staff calculations.
Note: Predicted probabilities are obtained from a probit model of crisis likelihood evaluated at mean values of control variables. See Ghosh, Ostry, and Qureshi (2014) for details of the control variables included in each crisis likelihood estimation and for definitions of crisis variables.

[2]This is a pertinent question, because existing exchange rate regime classifications often give different information about the exchange rate regime in a country, and the differences are the most pronounced within the intermediate regime category.

[3]This is done through binary recursive tree analysis. A binary recursive tree is a sequence of rules for predicting a binary variable (for example, crisis versus noncrisis) on the basis of several explanatory variables such that at each level, the sample is split into two groups according to some threshold value of one of the explanatory variables. The threshold value, in turn, is that which best discriminates between crisis and noncrisis observations based on a specific criterion (for example, minimizing the sum of type I and type II errors).

Box 1.4 *(continued)*

Figure 1.4.3. Probability of Banking or Currency Crisis



Source: IMF staff calculations.
Note: Results are obtained from binary recursive tree analysis. Overvaluation is defined as deviation of the real effective exchange rate from trend in excess of 5 percent. High (low) credit expansion is a cumulative change in the domestic private-credit-to-GDP ratio of more (less) than 30 percentage points over three years.

is overvalued. Thus, for example, among intermediate regimes, although the probability of a banking or currency crisis is about seven times as high when the real exchange rate is overvalued than when it is not, the likelihood of a crisis in both cases is much greater if domestic private sector credit has grown rapidly (Figure 1.4.3). Furthermore, if the real exchange rate is overvalued, intervention to prevent greater overvaluation can reduce the risk of crisis, whereas intervention to defend an overvalued exchange rate makes the regime more vulnerable.

The upshot of the analysis is threefold. First, although countries with hard pegs have fewer banking and currency crises than those using most other regimes, they are more prone to growth collapses because hard pegs impede external adjustment and make it more difficult to regain competitiveness following a negative shock. Second, although countries with pure floats are the least susceptible to crisis, most emerging market central banks prefer at least some management of their exchange rates, presumably because of concerns about competitiveness or the balance sheet effects of sharp depreciations. Third, once a central bank has chosen to manage the currency, simply counseling that the exchange rate should be as flexible as possible and that the central bank should minimize its interventions may not be sufficient to prevent crisis; rather, what differentiates safe from risky managed floats is a complex set of factors, including whether the central bank is defending an overvalued currency or intervening to prevent further overvaluation, and whether it has other instruments (such as macroprudential measures or capital controls) that can be deployed to mitigate financial stability risks.

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