CHAPTER 1

RECENT DEVELOPMENTS AND PROSPECTS

Global growth declined in the first half of 2015, reflecting a further slowdown in emerging markets and a weaker recovery in advanced economies. It is now projected at 3.1 percent for 2015 as a whole, slightly lower than in 2014, and 0.2 percentage point below the forecasts in the July 2015 World Economic Outlook (WEO) Update. *Prospects across the main countries and regions remain uneven. Relative to last year, growth in advanced economies is expected to pick up slightly, while it is projected to decline in emerging market and developing economies. With declining commodity prices, depreciating emerging market currencies, and increasing financial market volatility, downside risks to the outlook have risen, particularly for emerging market and developing economies.*

Global activity is projected to gather some pace in 2016. In advanced economies, the modest recovery that started in 2014 is projected to strengthen further. In emerging market and developing economies, the outlook is projected to improve: in particular, growth in countries in economic distress in 2015 (including Brazil, Russia, and some countries in Latin America and in the Middle East), while remaining weak or negative, is projected to be higher next year, more than offsetting the expected gradual slowdown in China.

Recent Developments and Prospects

The evolution of the global outlook in recent months reflects a combination of short-term factors and longer-term forces.

The World Economy in Recent Months

Growth in advanced economies in the first half of 2015 remained modest. For most emerging market economies, external conditions are becoming more difficult. Financial market volatility rose sharply during the summer, with declining commodity prices and downward pressure on many emerging market currencies. Capital inflows have slowed, and the liftoff of U.S. policy rates from the zero lower bound is likely to herald some further tightening of external financial conditions. And while the growth slowdown in China is so far broadly in line with forecasts, its cross-border repercussions appear larger than previously envisaged. This is reflected in weakening commodity prices (especially those for metals) and weak exports to China.

Slowing Global Activity, Tame Inflation

Preliminary data suggest that global growth in the first half of 2015 was 2.9 percent, about 0.3 percentage point weaker than predicted in April of this year (Figure 1.1). Growth was below forecast for both advanced economies and emerging markets. Specifically:

- Growth in the United States was weaker than expected, despite a strong second quarter. This reflected setbacks to activity in the first quarter, caused by one-off factors, notably harsh winter weather and port closures, as well as much lower capital spending in the oil sector. Despite weaker growth, the unemployment rate declined to 5.1 percent at the end of August, 0.4 percentage point below its February level (and 1 percentage point below the level a year ago). Lower capital expenditures in the oil sector were also a major contributor to the slowdown in Canada, where economic activity contracted modestly during the first two quarters of 2015.
- The recovery was broadly in line with the April forecast in the euro area, with stronger-than-expected growth in Italy and especially in Ireland and Spain (sustained by recovering domestic demand) offsetting weaker-than-expected growth in Germany.
- In the United Kingdom, GDP expanded at an annualized rate of 2¼ percent in the first half of 2015, with the unemployment rate now back near its precrisis average of about 5½ percent.
- In Japan, a strong rebound in the first quarter was followed by a drop in activity in the second quarter. Over the first half of the year, consumption fell short of expectations and so did net exports. Exports declined substantially in the second quarter.
- Growth in China was broadly in line with previous forecasts. Investment growth slowed compared with

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

(Percent change, unless noted otherwise)

		Projections		Difference from July 2015 *WEO Update*[1]		Difference from April 2015 *WEO*[1]	
	2014	2015	2016	2015	2016	2015	2016
World Output	**3.4**	**3.1**	**3.6**	**–0.2**	**–0.2**	**–0.4**	**–0.2**
Advanced Economies	**1.8**	**2.0**	**2.2**	**–0.1**	**–0.2**	**–0.4**	**–0.2**
United States	2.4	2.6	2.8	0.1	–0.2	–0.5	–0.3
Euro Area	0.9	1.5	1.6	0.0	–0.1	0.0	0.0
Germany	1.6	1.5	1.6	–0.1	–0.1	–0.1	–0.1
France	0.2	1.2	1.5	0.0	0.0	0.0	0.0
Italy	–0.4	0.8	1.3	0.1	0.1	0.3	0.2
Spain	1.4	3.1	2.5	0.0	0.0	0.6	0.5
Japan	–0.1	0.6	1.0	–0.2	–0.2	–0.4	–0.2
United Kingdom	3.0	2.5	2.2	0.1	0.0	–0.2	–0.1
Canada	2.4	1.0	1.7	–0.5	–0.4	–1.2	–0.3
Other Advanced Economies[2]	2.8	2.3	2.7	–0.4	–0.4	–0.5	–0.4
Emerging Market and Developing Economies	**4.6**	**4.0**	**4.5**	**–0.2**	**–0.2**	**–0.3**	**–0.2**
Commonwealth of Independent States	1.0	–2.7	0.5	–0.5	–0.7	–0.1	0.2
Russia	0.6	–3.8	–0.6	–0.4	–0.8	0.0	0.5
Excluding Russia	1.9	–0.1	2.8	–0.8	–0.5	–0.5	–0.4
Emerging and Developing Asia	6.8	6.5	6.4	–0.1	0.0	–0.1	0.0
China	7.3	6.8	6.3	0.0	0.0	0.0	0.0
India[3]	7.3	7.3	7.5	–0.2	0.0	–0.2	0.0
ASEAN-5[4]	4.6	4.6	4.9	–0.1	–0.2	–0.6	–0.4
Emerging and Developing Europe	2.8	3.0	3.0	0.1	0.1	0.1	–0.2
Latin America and the Caribbean	1.3	–0.3	0.8	–0.8	–0.9	–1.2	–1.2
Brazil	0.1	–3.0	–1.0	–1.5	–1.7	–2.0	–2.0
Mexico	2.1	2.3	2.8	–0.1	–0.2	–0.7	–0.5
Middle East, North Africa, Afghanistan, and Pakistan	2.7	2.5	3.9	–0.1	0.1	–0.4	0.1
Saudi Arabia	3.5	3.4	2.2	0.6	–0.2	0.4	–0.5
Sub-Saharan Africa	5.0	3.8	4.3	–0.6	–0.8	–0.7	–0.8
Nigeria	6.3	4.0	4.3	–0.5	–0.7	–0.8	–0.7
South Africa	1.5	1.4	1.3	–0.6	–0.8	–0.6	–0.8
Memorandum							
European Union	1.5	1.9	1.9	0.0	–0.1	0.1	0.0
Low-Income Developing Countries	6.0	4.8	5.8	–0.3	–0.4	–0.7	–0.2
Middle East and North Africa	2.6	2.3	3.8	–0.1	0.1	–0.4	0.1
World Growth Based on Market Exchange Rates	2.7	2.5	3.0	–0.1	–0.2	–0.4	–0.2
World Trade Volume (goods and services)	**3.3**	**3.2**	**4.1**	**–0.9**	**–0.3**	**–0.5**	**–0.6**
Imports							
Advanced Economies	3.4	4.0	4.2	–0.5	–0.3	0.7	–0.1
Emerging Market and Developing Economies	3.6	1.3	4.4	–2.3	–0.3	–2.2	–1.1
Exports							
Advanced Economies	3.4	3.1	3.4	–0.5	–0.6	–0.1	–0.7
Emerging Market and Developing Economies	2.9	3.9	4.8	–1.1	0.1	–1.4	–0.9
Commodity Prices (U.S. dollars)							
Oil[5]	–7.5	–46.4	–2.4	–7.6	–11.5	–6.8	–15.3
Nonfuel (average based on world commodity export weights)	–4.0	–16.9	–5.1	–1.3	–3.4	–2.8	–4.1
Consumer Prices							
Advanced Economies	1.4	0.3	1.2	0.3	0.0	–0.1	–0.2
Emerging Market and Developing Economies	5.1	5.6	5.1	0.1	0.3	0.2	0.3
London Interbank Offered Rate (percent)							
On U.S. Dollar Deposits (six month)	0.3	0.4	1.2	0.0	0.0	–0.3	–0.7
On Euro Deposits (three month)	0.2	0.0	0.0	0.0	0.0	0.0	0.0
On Japanese Yen Deposits (six month)	0.2	0.1	0.1	0.0	0.0	0.0	–0.1

Note: Real effective exchange rates are assumed to remain constant at the levels prevailing during July 27–August 24, 2015. Economies are listed on the basis of economic size. The aggregated quarterly data are seasonally adjusted. Data for Lithuania are included in the euro area aggregates but were excluded in the April 2015 *World Economic Outlook* (WEO).

[1]Difference based on rounded figures for both the current, July 2015 *WEO Update,* and April 2015 *World Economic Outlook* forecasts.

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

[3]For India, data and forecasts are presented on a fiscal year basis and GDP from 2011 onward is based on GDP at market prices with FY2011/12 as a base year.

	Year over Year				Q4 over Q4[6]			
			Projections				Projections	
	2013	2014	2015	2016	2013	2014	2015	2016
World Output	**3.3**	**3.4**	**3.1**	**3.6**	**3.6**	**3.3**	**3.0**	**3.6**
Advanced Economies	**1.1**	**1.8**	**2.0**	**2.2**	**2.0**	**1.8**	**2.0**	**2.3**
United States	1.5	2.4	2.6	2.8	2.5	2.5	2.5	2.8
Euro Area	–0.3	0.9	1.5	1.6	0.6	0.9	1.5	1.7
Germany	0.4	1.6	1.5	1.6	1.3	1.5	1.6	1.6
France	0.7	0.2	1.2	1.5	1.0	0.1	1.5	1.5
Italy	–1.7	–0.4	0.8	1.3	–0.9	–0.4	1.2	1.5
Spain	–1.2	1.4	3.1	2.5	0.0	2.0	3.2	2.2
Japan	1.6	–0.1	0.6	1.0	2.3	–0.8	1.3	1.3
United Kingdom	1.7	3.0	2.5	2.2	2.4	3.4	2.2	2.2
Canada	2.0	2.4	1.0	1.7	2.7	2.5	0.5	2.0
Other Advanced Economies[2]	2.2	2.8	2.3	2.7	2.7	2.6	2.5	2.6
Emerging Market and Developing Economies	**5.0**	**4.6**	**4.0**	**4.5**	**5.2**	**4.7**	**4.0**	**4.8**
Commonwealth of Independent States	2.2	1.0	–2.7	0.5	2.3	–0.6	–3.3	0.3
Russia	1.3	0.6	–3.8	–0.6	1.9	0.3	–4.6	0.0
Excluding Russia	4.2	1.9	–0.1	2.8	. . .	. . .	. . .	. . .
Emerging and Developing Asia	7.0	6.8	6.5	6.4	6.8	6.8	6.4	6.4
China	7.7	7.3	6.8	6.3	7.5	7.1	6.7	6.3
India[3]	6.9	7.3	7.3	7.5	6.9	7.6	7.3	7.5
ASEAN-5[4]	5.1	4.6	4.6	4.9	4.6	4.8	4.4	5.2
Emerging and Developing Europe	2.9	2.8	3.0	3.0	3.9	2.6	3.2	4.2
Latin America and the Caribbean	2.9	1.3	–0.3	0.8	1.7	1.1	–1.5	1.7
Brazil	2.7	0.1	–3.0	–1.0	2.1	–0.2	–4.4	1.3
Mexico	1.4	2.1	2.3	2.8	1.0	2.6	2.3	2.9
Middle East, North Africa, Afghanistan, and Pakistan	2.3	2.7	2.5	3.9	. . .	. . .	. . .	. . .
Saudi Arabia	2.7	3.5	3.4	2.2	4.9	1.6	3.9	1.6
Sub-Saharan Africa	5.2	5.0	3.8	4.3	. . .	. . .	. . .	. . .
Nigeria	5.4	6.3	4.0	4.3	. . .	. . .	. . .	. . .
South Africa	2.2	1.5	1.4	1.3	2.8	1.3	0.7	1.7
Memorandum								
European Union	0.2	1.5	1.9	1.9	1.1	1.5	1.8	2.1
Low-Income Developing Countries	6.1	6.0	4.8	5.8	. . .	. . .	. . .	. . .
Middle East and North Africa	2.1	2.6	2.3	3.8	. . .	. . .	. . .	. . .
World Growth Based on Market Exchange Rates	2.4	2.7	2.5	3.0	2.8	2.5	2.4	3.0
World Trade Volume (goods and services)	**3.3**	**3.3**	**3.2**	**4.1**	**. . .**	**. . .**	**. . .**	**. . .**
Imports								
Advanced Economies	2.0	3.4	4.0	4.2	. . .	. . .	. . .	. . .
Emerging Market and Developing Economies	5.2	3.6	1.3	4.4	. . .	. . .	. . .	. . .
Exports								
Advanced Economies	2.9	3.4	3.1	3.4	. . .	. . .	. . .	. . .
Emerging Market and Developing Economies	4.4	2.9	3.9	4.8	. . .	. . .	. . .	. . .
Commodity Prices (U.S. dollars)								
Oil[5]	–0.9	–7.5	–46.4	–2.4	2.6	–28.7	–38.0	13.6
Nonfuel (average based on world commodity export weights)	–1.2	–4.0	–16.9	–5.1	–2.9	–7.5	–16.1	–0.3
Consumer Prices								
Advanced Economies	1.4	1.4	0.3	1.2	1.2	1.0	0.5	1.4
Emerging Market and Developing Economies	5.8	5.1	5.6	5.1	5.6	5.1	6.7	5.7
London Interbank Offered Rate (percent)								
On U.S. Dollar Deposits (six month)	0.4	0.3	0.4	1.2	. . .	. . .	. . .	. . .
On Euro Deposits (three month)	0.2	0.2	0.0	0.0	. . .	. . .	. . .	. . .
On Japanese Yen Deposits (six month)	0.2	0.2	0.1	0.1	. . .	. . .	. . .	. . .

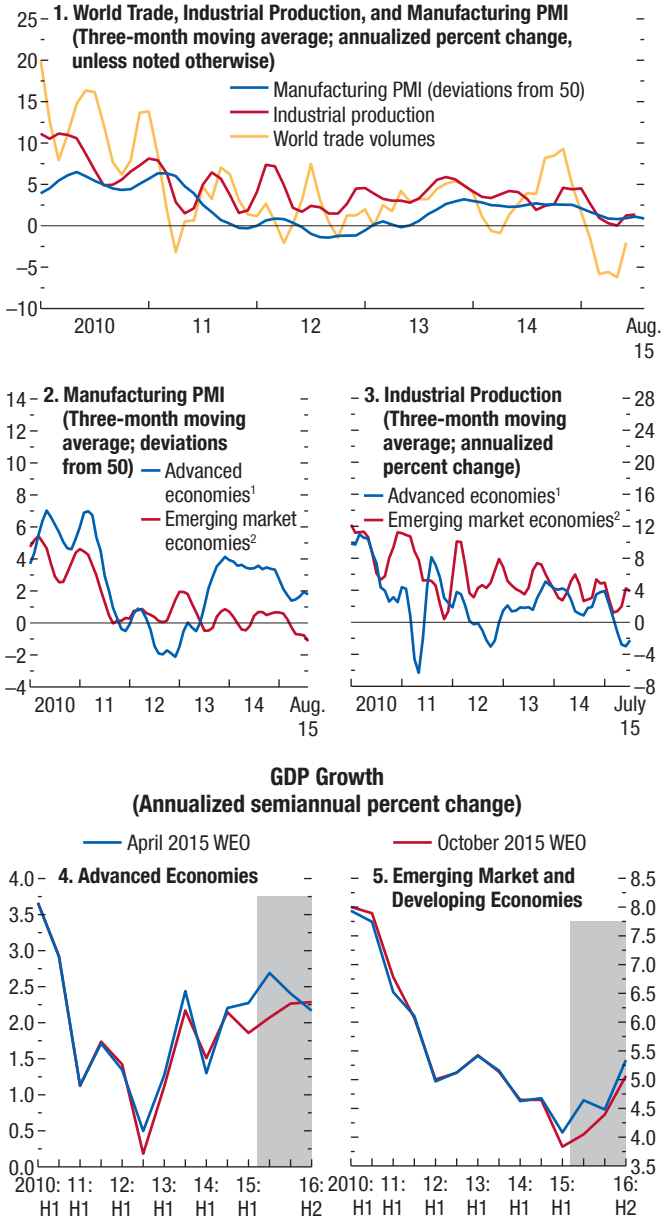
[4]Indonesia, Malaysia, Philippines, Thailand, Vietnam.

[5]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 $96.25 in 2014; the assumed price based on futures markets is $51.62 in 2015 and $50.36 in 2016.

[6]For World Output, the quarterly estimates and projections account for approximately 90 percent of annual world output at purchasing-power-parity weights. For Emerging Market and Developing Economies, the quarterly estimates and projections account for approximately 80 percent of annual emerging market and developing economies' output at purchasing-power-parity weights.

Figure 1.1. Global Activity Indicators

Global growth moderated in the first half of 2015, and global industrial production and world trade volumes slowed markedly. Global activity is projected to gather pace in 2016. In advanced economies, the projections suggest a broad-based further strengthening of growth in the second half of 2015 and in early 2016. In emerging market and developing economies, the pickup in 2016 mainly reflects a gradual improvement in countries in economic distress in 2015.



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 (IP only), 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).

last year and imports contracted, but consumption growth remained steady. While exports were also weaker than expected, they declined less than imports, and net exports contributed positively to growth. Equity prices have dropped sharply since July after a one-year bull run. While the authorities intervened to restore orderly market conditions, market volatility remained elevated through August.

- Economic activity in some advanced and emerging market economies in east Asia—such as Korea, Taiwan Province of China, and economies of Association of Southeast Asian Nations (ASEAN) members—was also a bit weaker than expected, reflecting lower exports but also a slowdown in domestic demand.
- In Latin America, the downturn in Brazil was deeper than expected, and with declining commodity prices, momentum continues to weaken in other countries in the region. Growth was also lower than expected in Mexico, reflecting slower U.S. growth and a drop in oil production.
- The decline in GDP in Russia over the first half of 2015 was somewhat larger than forecast, and the recession in Ukraine was deeper than previously forecast, reflecting the ongoing conflict in the region.
- Macroeconomic indicators suggest that economic activity in sub-Saharan Africa and the Middle East—for which quarterly GDP series are not broadly available—also fell short of expectations, affected by the drop in oil prices, declines in other commodity prices, and geopolitical and domestic strife in a few countries.

Global industrial production remained weak through 2014, consistent with the uneven strength in demand across major economies and groups of countries, and slowed markedly over the course of the first half of 2015, reflecting some building of inventories in late 2014 and early 2015 but also lower investment growth. World trade volumes also slowed in the first half of 2015. Weak investment worldwide, particularly in mining, as well as the trade spillovers of China's growth transition, has likely contributed to this slowing. Measuring the extent of the trade slowdown in the current context of large commodity price and exchange rate changes is challenging, however, and depends on the underlying measure. National-accounts-based estimates suggest a moderation in the growth of world trade volumes, while measures based on international merchandise trade statistics, depicted in the first panel of Figure 1.1, imply an outright contraction.

Headline inflation declined in advanced economies (Figure 1.2), mostly reflecting the decline in oil prices and softer prices for other commodities, while core inflation remained stable. With regard to emerging markets, lower prices for oil and other commodities (including food, which has a larger weight in the consumer price index of emerging market and developing economies) have generally contributed to reductions in inflation, except in countries suffering sizable currency depreciations, such as Russia.

Declining Commodity Prices

After remaining broadly stable during the second quarter of 2015, oil prices declined through much of the third quarter (Figure 1.3). Weaker-than-expected global activity played a role, but supply was also higher than expected, reflecting strong production in members of the Organization of the Petroleum Exporting Countries as well as in the United States and Russia. Furthermore, a future boost to supply is expected, coming from the Islamic Republic of Iran after the recent nuclear agreement with the P5+1 nations.[1]

Recent developments suggest that oil markets will take longer to adjust to current conditions of excess flow supply, and oil prices through 2020 are now forecast to remain below the levels projected a few months ago. Supply has remained more resilient than expected, and global activity has been weaker. While lower oil prices have supported demand in importers, other shocks have partly offset the effects and so far prevented a broad-based pickup in activity, which in turn would have supported oil market rebalancing. The income windfall gains from lower oil prices have supported a pickup in private consumption in advanced economies, broadly as expected, except in the United States, where harsh winter weather and other temporary factors weakened the consumption response somewhat, and Japan, where the consumption response has been dampened by delayed pass-through and wage moderation. But investment has not responded, partly reflecting a greater contraction in oil sector investment, but also lackluster investment more broadly. And in emerging markets, economic activity has been weaker than expected, particularly in oil exporters, as discussed earlier.

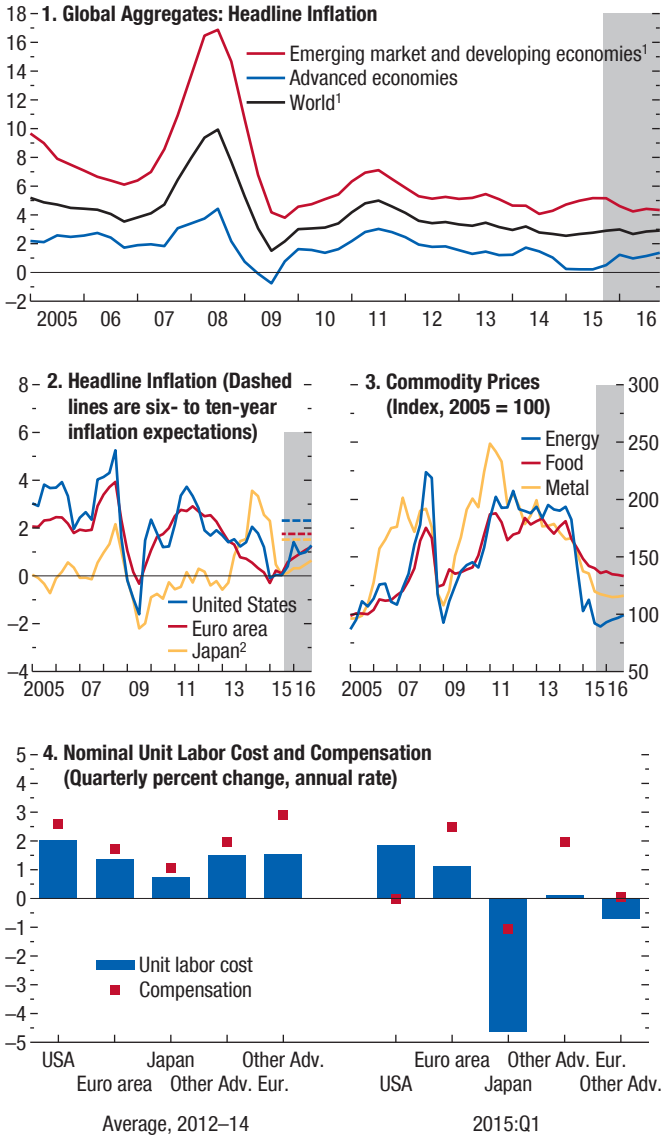
As examined in more detail in the Special Feature, the prices of nonfuel commodities—especially base metals—have fallen sharply in recent weeks. The

[1]The P5+1 are the five permanent members of the UN Security Council and Germany.

Figure 1.2. Global Inflation

(Year-over-year percent change, unless noted otherwise)

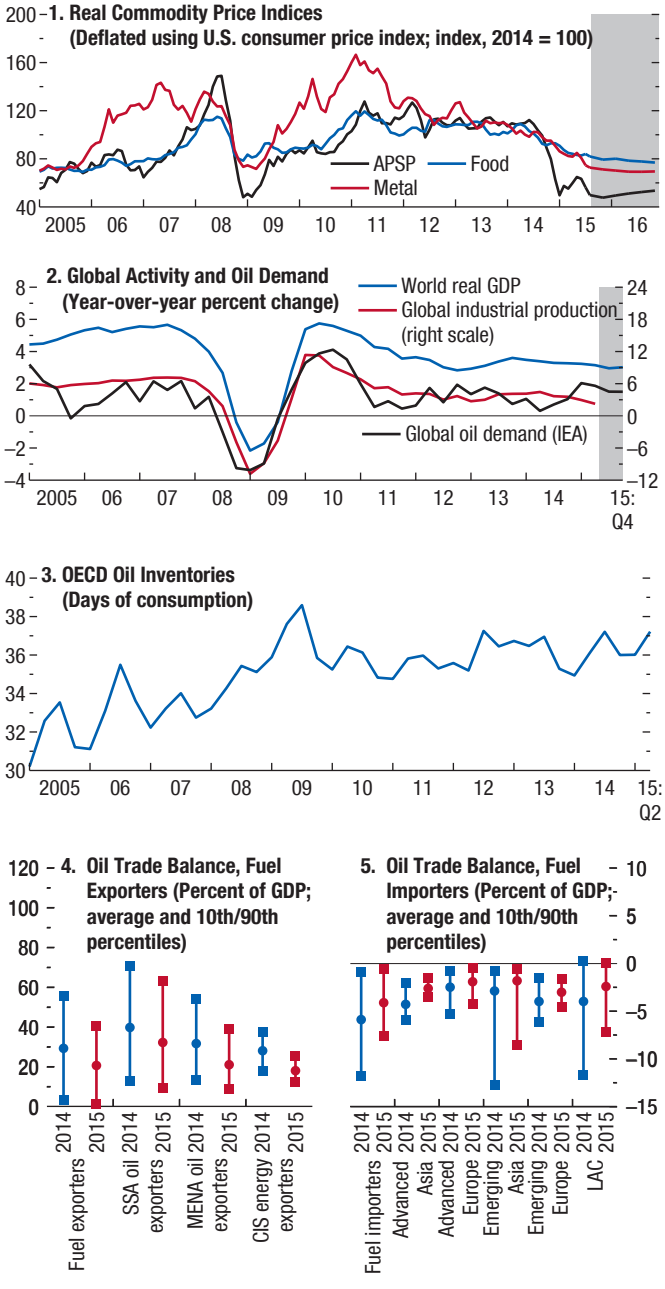
Headline inflation has declined in advanced economies, mostly reflecting the decline in the prices of oil and other commodities. Core inflation has remained more stable, but generally is below central banks' inflation objectives, as are nominal unit labor costs. In emerging market economies, lower commodity prices have also contributed to lowering headline inflation, but sizable currency depreciation has led to offsets on the upside in some economies.



Sources: Consensus Economics; IMF, Primary Commodity Price System; and IMF staff estimates.
Note: Other Adv. = other advanced economies; other Adv. Eur. = other advanced Europe; USA = United States.
[1]Excludes Venezuela.
[2]In Japan, the increase in inflation in 2014 reflects, to a large extent, the increase in the consumption tax.

Figure 1.3. Commodity and Oil Markets

In global oil markets, spot prices have declined again after rising from the lows reached in January 2015. More resilient supply, including in North America, and weaker global activity likely have been the main factors behind the renewed downward pressure on prices. The adjustment to excess flow supply conditions is now expected to take longer, and prices are projected to remain below the levels assumed a few months ago.



Sources: International Energy Agency (IEA); IMF, Primary Commodity Price System; Organisation for Economic Co-operation and Development; and IMF staff estimates.
Note: APSP = average petroleum spot price; CIS = Commonwealth of Independent States; LAC = Latin America and the Caribbean; MENA = Middle East and North Africa; OECD = Organisation for Economic Co-operation and Development; SSA = sub-Saharan Africa.

dynamics are similar to those of the recent adjustment in the oil market. High prices have generally led to a buildup in supply capacity that came onstream as demand began to slow. However, developments in China play a much more important role in base metal markets than they do in the oil market. China's share in the global consumption of these metals has increased from some 10 to 20 percent in the early 2000s to more than 50 percent currently. Some of this increase relates to the country's role as a manufacturing hub, but it also reflects the infrastructure investment and construction boom in 2009–13 after the global financial crisis. China's growth transition and slower metal-intensive investment growth have been instrumental in weakening base metal prices, and the trend is expected to continue during the transition. With demand growth expected to stay relatively weak under the baseline projections, prices are assumed to move broadly sideways in the near term.

The global macroeconomic implications of lower oil prices were discussed in detail in the April 2015 WEO. In commodity exporters, the near-term outlook has deteriorated with lower oil prices and commodity prices more broadly. Chapter 2 analyzes in more detail the implications of commodity terms-of-trade fluctuations for real GDP in commodity exporters. All else equal, current WEO assumptions for commodity prices imply average commodity exporter growth rates almost 1 percentage point lower in 2015–17 than in 2012–14—with a stronger drag for exporters of fuel and metals (about 2¼ percentage points). The impact will, of course, also depend on other factors, including macroeconomic policy responses—as discussed in the October 2015 *Fiscal Monitor*.

Exchange Rate Movements

Weakening commodity prices have been reflected in sizable exchange rate depreciation for many commodity exporters with flexible exchange rate regimes. But emerging market currencies more generally have seen sharp depreciations since the spring, and particularly since July. Exchange rate movements across major advanced economy currencies have instead been relatively modest in recent months, after the large changes during the August 2014–March 2015 period. In real effective terms, the euro appreciated by 3.7 percent and the U.S. dollar by 2.3 percent between March and August 2015, while the yen weakened slightly. Exchange rate volatility increased in August, particu-

larly after the depreciation of the renminbi associated with the announced increase in exchange rate flexibility. Despite its 4 percent adjustment with respect to the U.S. dollar, the renminbi remains some 10 percent stronger than its 2014 average in real effective terms. More generally, exchange rate movements across floating-rate currencies over the past year have reflected to an important extent large variations in underlying fundamentals, such as expected demand growth at home and in trading partners, declines in commodity prices, and country-specific shocks. For instance, countries with weakening growth prospects and worsening terms of trade are facing currency depreciation pressures as part of global adjustment. And as discussed in Chapter 3, countries experiencing sharp and persistent exchange rate movements will likely see notable changes in net external demand.

Long-Term Interest Rates and Financial Conditions

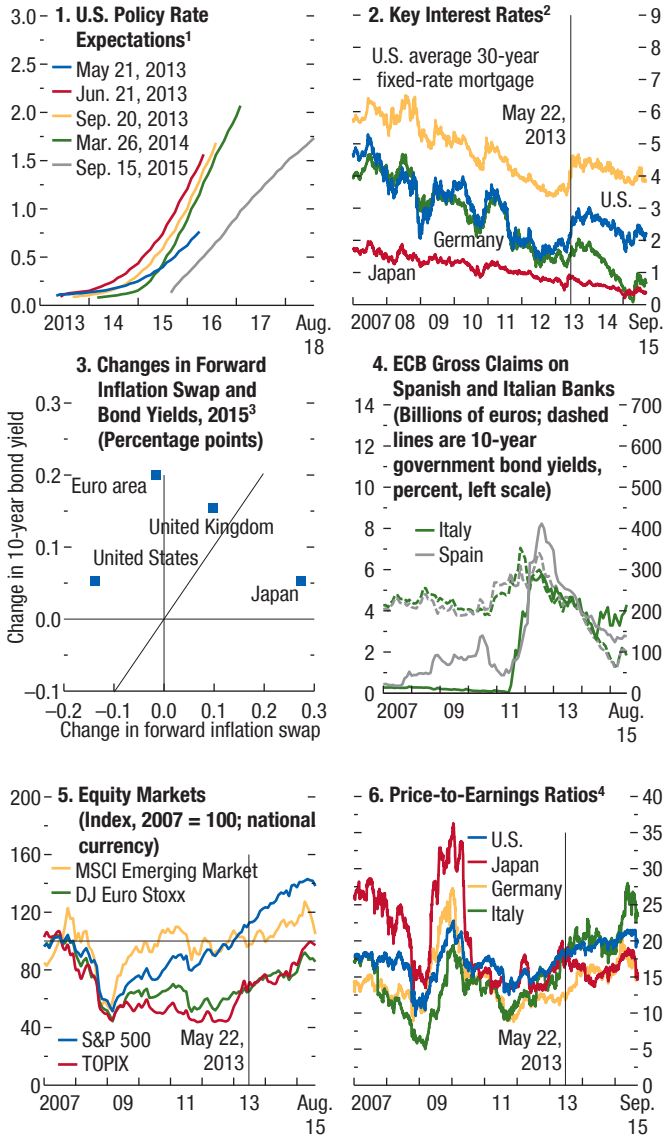
Financial market volatility spiked in August, with an increase in global risk aversion triggered by concerns about China's outlook, uncertainty about the implementation of its new exchange rate regime, and emerging market prospects more generally. This episode was associated with lower equity prices, higher interest rate spreads, declining yields on safe assets, and—as discussed earlier—sharp declines in commodity prices and currency depreciation for most emerging markets. Longer-term sovereign bond yields are currently some 30 basis points higher than the level prevailing in April in the United States and are up by 45–80 basis points in the euro area (excluding Greece) over the same period (Figure 1.4). Despite some increases in corporate bond spreads (modest for investment-grade firms and larger for high-yield bonds), financial conditions for corporate and household borrowers have remained broadly favorable, with solid growth in household credit in the United States and gradually improving lending conditions in the euro area (Figure 1.5).

Higher yields partly reflect improving economic activity and the bottoming out of headline inflation; in the euro area, they also reflect a correction after earlier declines to extremely compressed levels in response to increased bond purchases by the European Central Bank. On the policy rate front, the United States and the United Kingdom are approaching liftoff, but a number of other countries are easing monetary policy. Namely, policy rates have been reduced in commodity exporters (Australia, Canada, New Zealand) and

Figure 1.4. Financial Conditions in Advanced Economies

(Percent, unless noted otherwise)

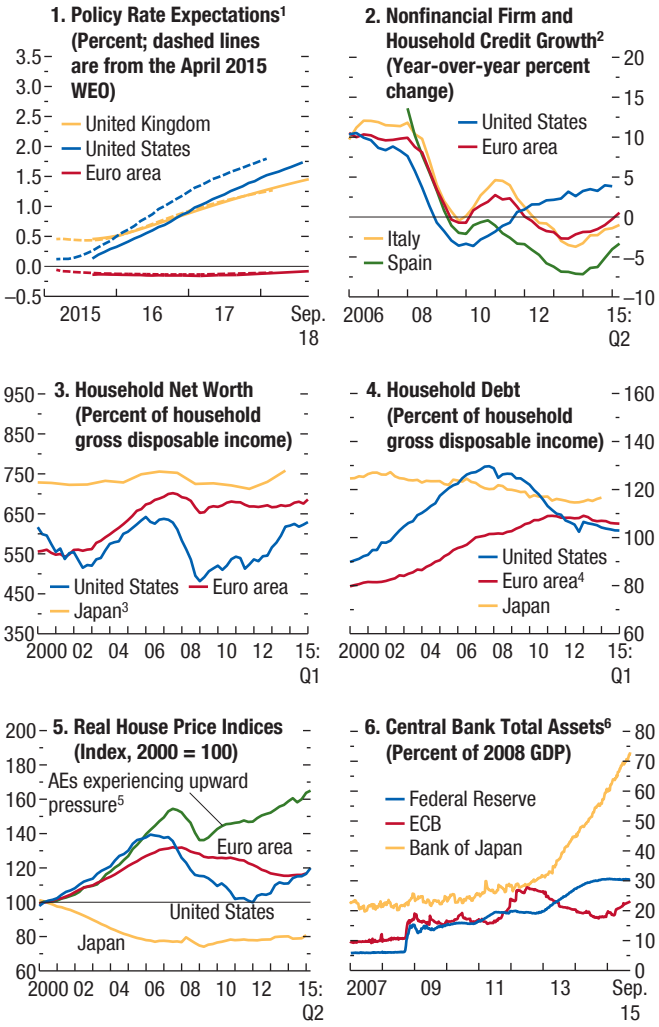
Financial market volatility spiked in August following an increase in global risk aversion triggered by concerns about China's growth outlook and emerging market prospects more broadly. But financial conditions have remained favorable in advanced economies. Slightly higher yields on longer-term bonds primarily reflect improving activity and the bottoming out of headline inflation.



Sources: Bank of Spain; Bloomberg, L.P.; Haver Analytics; 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.
[2]Interest rates are 10-year government bond yields, unless noted otherwise. Data are through September 11, 2015.
[3]Changes are calculated from the beginning of 2015 to September 15, 2015. Interest rates are measured by 10-year government bond yields. Expected medium-term inflation is measured by the implied rate from five-year five-year-forward inflation swaps.
[4]Data are through September 14, 2015.

Figure 1.5. Advanced Economies: Monetary Conditions

Markets still expect a policy rate liftoff in late 2015 in the United States, but subsequent rate increases are expected to be more gradual. With more accommodative monetary conditions in the euro area, the contraction in private credit has started to bottom out. In the United States, household net worth has stabilized at a higher level, and household debt continues to decrease.



Sources: Bank of England; Bank of Spain; Bloomberg, L.P.; European Central Bank (ECB); Haver Analytics; Organisation for Economic Co-operation and Development; and IMF staff calculations.
[1]Expectations are based on the federal funds rate futures for the United States, the sterling overnight index swap forward for the United Kingdom, and the euro interbank offered forward rate for the euro area; updated September 15, 2015.
[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 percentage of disposable income.
[4]Includes subsector employers (including self-employed workers).
[5]Upward-pressure countries are those with a residential real estate vulnerability index above the median for advanced economies (AEs): Australia, Austria, Belgium, Canada, France, Hong Kong SAR, Israel, Luxembourg, New Zealand, Norway, Portugal, Spain, Sweden, and the United Kingdom.
[6]Data are through September 11, 2015. ECB calculations are based on the Eurosystem's weekly financial statement.

in Korea, and Sweden has adopted and subsequently expanded quantitative-easing measures.

Low long-term interest rates, easy monetary policy conditions, and still-compressed spreads in advanced economies support the recovery and have favorable impacts on debt dynamics. But they also raise some concern, as discussed in the October 2015 *Global Financial Stability Report* (GFSR) and in the "Risks" section of this chapter. Inflation expectations, particularly in the euro area and Japan, remain low, and there is a risk they may drift downward if inflation remains persistently weak. Financial stability concerns associated with a protracted period of low interest rates remain salient—particularly in advanced economies with modest slack. Insurance companies and pension funds face difficult challenges in this respect. And compressed term premiums imply a potential risk of a sharp increase in long-term rates, with significant spillovers to emerging markets.

Financial conditions have in contrast tightened in most emerging market and developing economies, albeit very differently across countries and regions (Figure 1.6). Corporate and sovereign dollar bond spreads have risen by 40 to 50 basis points on average since the spring, and long-term local-currency bond yields by close to 60 basis points on average. Stock prices have weakened, and exchange rates have depreciated or come under pressure, particularly in commodity exporters. The evolution of policy rates in recent months has also differed across regions, reflecting differences in inflation pressure, other domestic macroeconomic conditions, and the external environment (Figure 1.7). Nominal policy rates have been reduced in China and other countries in emerging Asia (notably India) and in Russia, after the very sharp increase in December 2014. In contrast, because of increasing inflation, policy rates have risen further in Brazil, while in the rest of the region they have been stable or declining, reflecting the weakness in domestic demand.

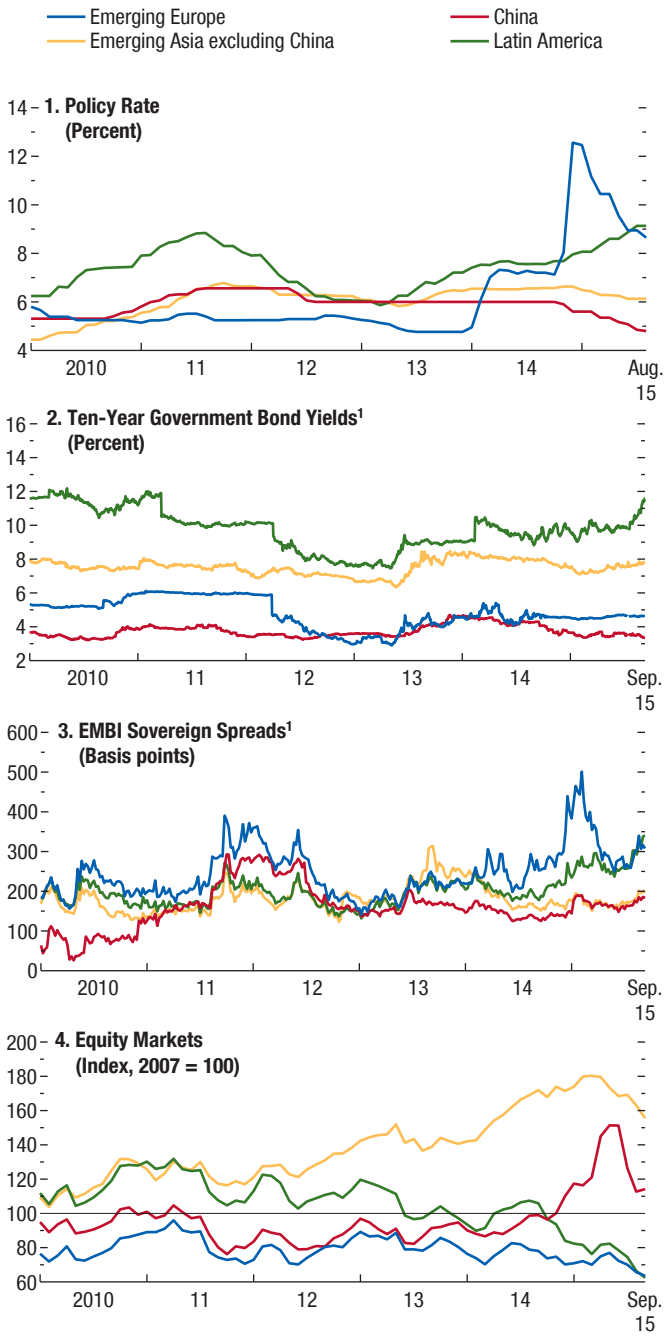
Longer-Term Factors

Productivity Growth in Advanced Economies

As highlighted in previous WEO reports, growth has fallen short of forecasts over the past four years. A comparison of output growth for advanced economies for 2011–14 with the forecast in the April 2011 WEO shows an aggregate overprediction over the horizon of

Figure 1.6. Financial Conditions in Emerging Market Economies

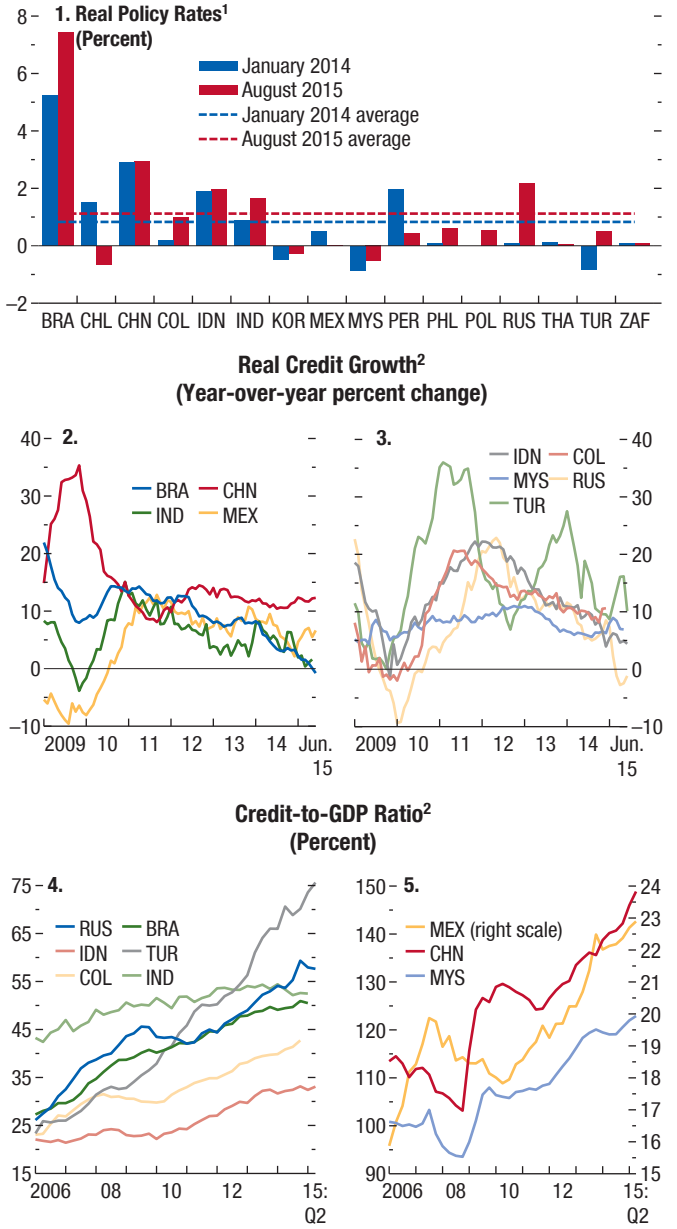
Financial conditions in emerging market economies have tightened since the April 2015 *World Economic Outlook* in a more challenging external environment.



Sources: Bloomberg, L.P.; EPFR Global; Haver Analytics; IMF, *International Financial Statistics;* and IMF staff calculations.
Note: Emerging Asia excluding China comprises India, Indonesia, Malaysia, the Philippines, and Thailand; emerging Europe comprises Poland, Romania (capital inflows only), Russia, and Turkey; Latin America comprises Brazil, Chile, Colombia, Mexico, and Peru. EMBI = J.P. Morgan Emerging Market Bond Index.
[1]Data are through September 11, 2015.

Figure 1.7. Monetary Policies and Credit in Emerging Market Economies

Monetary conditions generally remain accommodative in many emerging market economies. Real policy rates are low, while currencies have depreciated in real effective terms. However, in a number of emerging market economies with inflationary pressures or external vulnerabilities, central banks have raised policy rates. Real credit growth has slowed in many emerging market economies after credit booms and rapid increases in credit-to-GDP ratios.

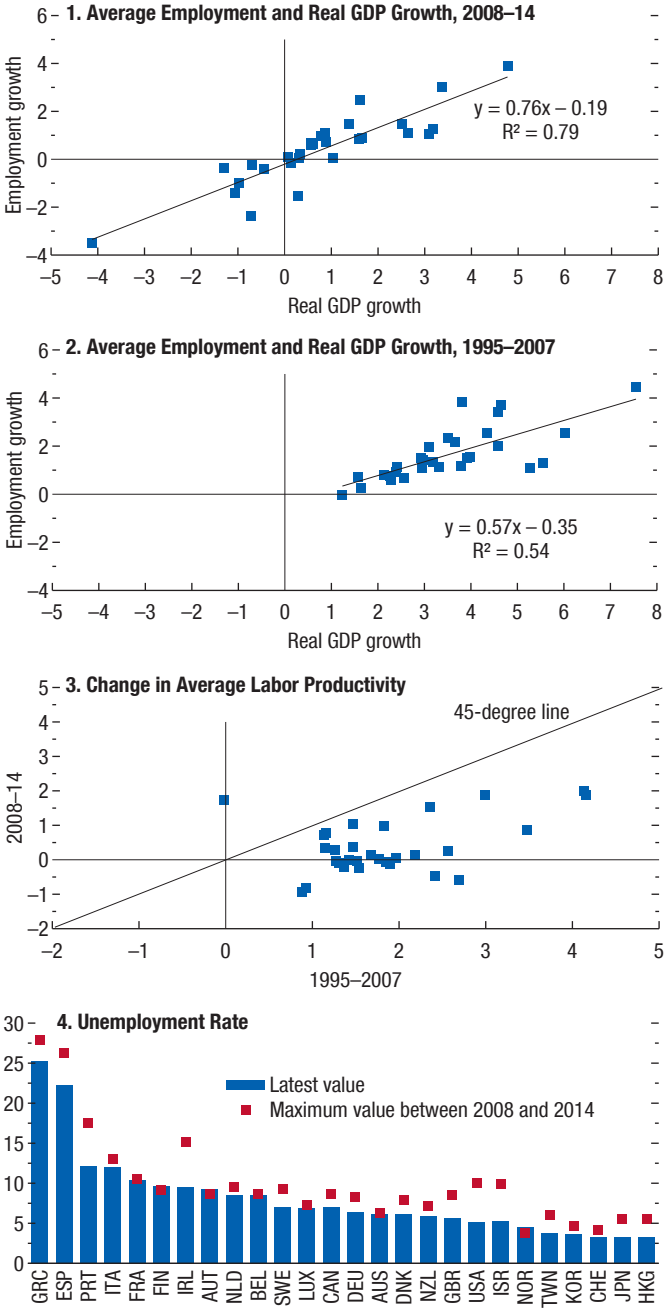


Sources: Haver Analytics; IMF, International Financial Statistics (IFS) database; and IMF staff calculations.
Note: Data labels in the figure use International Organization for Standardization (ISO) country codes.
[1]Deflated by two-year-ahead *World Economic Outlook* inflation projections.
[2]Credit is other depository corporations' claims on the private sector (from IFS), except in the case of Brazil, for which private sector credit is from the Monetary Policy and Financial System Credit Operations published by Banco Central do Brasil.

Figure 1.8. Growth, Employment, and Labor Productivity in Advanced Economies

(Percent)

Labor productivity growth in advanced economies has been much lower since the global financial crisis. The flip side is that, since the crisis, the same rate of output growth has, on average, been associated with higher employment growth (as reflected in a higher slope coefficient in the trend line). With relatively more employment-intensive growth, unemployment has decreased noticeably in economies that have experienced a sustained growth recovery.



Sources: IMF, Global Data Source database; and IMF staff calculations.
Note: Scatter plots exclude the Czech Republic, Estonia, Latvia, Lithuania, Malta, the Slovak Republic, and Slovenia. Data labels in the figure use International Organization for Standardization (ISO) country codes.

about 1 percentage point. However, the overprediction of employment growth (0.3 percentage point) is much lower. And for a range of economies—including Germany, Japan, Korea, and the United Kingdom—the overprediction of output growth has instead been associated with an underprediction of employment growth. In other words, labor productivity has fallen well short of predictions.

Figure 1.8 looks at this issue in more detail. The first two panels show the average relationship between output growth and employment growth across countries, before and after the crisis. A comparison of these panels highlights that both output growth and employment growth were much weaker in the period 2008–14 relative to the precrisis period 1995–2007. The panels also show that, on average, the same rate of output growth has been associated since the crisis with higher employment growth—but with much lower output growth rates, employment growth since the crisis has nevertheless been weaker than before the crisis. Adjusting employment growth for changes in hours worked yields the same results.

The figure's third panel compares labor productivity growth in advanced economies—proxied by the difference between output growth and employment growth—across the periods 1995–2007 and 2008–14. It shows that while labor productivity growth still varies substantially across countries, there has been a common slowdown across virtually all countries—the only exception being Spain (the only point above the 45-degree line in the panel), reflecting large changes especially in temporary, lower-productivity jobs over the cycle. Again, adjusting employment growth for changes in hours worked leads to a virtually identical picture.

The fourth panel of the figure compares the 2014 level of unemployment with the maximum level during the period 2008–14. Although the recently elevated "employment intensity" of growth has helped reduce unemployment in a number of countries, the low rate of output growth implies that unemployment is still high and that output gaps are sizable in a number of advanced economies.

What is behind the decline in labor productivity? Clearly weak investment after the crisis is playing a role, but as Chapter 3 of the April 2015 WEO shows, slowing total factor productivity growth across large advanced economies looks so far to be the most important part of the explanation in most cases. In turn, the reasons for slowing total factor productiv-

ity growth across advanced economies are still poorly understood (see for instance OECD 2015), but likely include slower human capital accumulation, a compositional shift of GDP toward services, and—at least for the United States—gradually declining positive effects on productivity from the information and communications technology revolution (Fernald 2014; Gordon 2014).[2]

A key question is whether the protracted slowdown in growth and weak productivity growth could also reflect the nature of the recent crisis, given the literature on weak recoveries in the aftermath of severe financial distress. Box 1.1 addresses this question by focusing on more than 100 recessions in 23 advanced economies since the 1960s. It finds that two-thirds of recessions are followed by lower output relative to the prerecession trend. Even more surprising, almost half of those are followed not only by lower output, but also by lower output growth relative to the prerecession trend. The results discussed in the box raise important policy questions—for instance, the extent to which these effects reflect supply shocks or the erosion of potential output coming from protracted downturns in domestic demand. In the IMF staff's view, both factors are at play in accounting for lower potential growth, and—despite lower potential growth—demand shortfalls are still sizable in a number of advanced economies (as shown, for instance, in the fourth panel of Figure 1.8).

A Protracted Slowdown in Emerging Markets

After a strong rebound to almost 7½ percent after the global financial crisis, real GDP growth in emerging market and developing economies decreased from about 6.3 percent in 2011 to 4.6 percent in 2014. In 2015, it is projected to decline further to 4 percent. With this decline, growth for the entire group in 2014 was about 1 percentage point below the average growth recorded during 1995–2007.

Larger deviations from the average in the major emerging market economies heavily influenced these outcomes for the group, which are calculated using GDP weights. And among emerging market and developing economies, the slowdown has not been universal—for almost 40 percent of them, growth in 2011–14 was above the 1995–2007 average.[3] Against the backdrop of such variation, it should not come as a surprise that slightly more than half of the variation in the 2011–14 change in growth in emerging market and developing economies appears to have resulted from country-specific factors. Such factors—including, for example, supply bottlenecks and changes in structural policies—have been discussed extensively in previous WEO reports. The flip side is that slightly less than half of the variation can be related to a set of initial conditions and external factors.

An interesting feature of the decline in growth is that in the first two years of the decline (2011–12), external factors, notably lower partner country growth, appear to have played a more important role than they did subsequently in 2013–14.[4] Changes in growth in all partner countries seem to have been a more relevant factor than changes in partner advanced economies only, perhaps a reflection of increased trade within the group of emerging market and developing economies. While the extent of direct trade exposure to China does not seem to have been a significant factor in explaining differences in growth declines across economies, being a net commodity exporter appears to have been a relevant factor: these economies experienced relatively larger growth declines, all else equal. Still, as discussed in Chapter 2, the impact of commodity terms-of-trade fluctuations on both actual and potential (medium-term) growth depends on a number of factors, such as initial levels of financial development, how much fiscal policy smooths or exacerbates the cycle, and exchange rate regimes. Typically, exporters with greater exchange rate flexibility experienced smaller reductions in growth in 2011–14, which was also true for other emerging market economies.

The growth slowdown also appears to reflect a correction after years of exceptionally rapid growth in the 2000s. Countries that recorded growth much above longer-term averages around the time of the global financial crisis slowed down more during 2011–14 ("mean reversion"). This suggests that the protracted slowdowns could in part also reflect adjustment to various possible boom legacies, including an investment overhang and higher corporate sector leverage after credit booms, as discussed in Chapter 3 of the October 2015 GFSR.

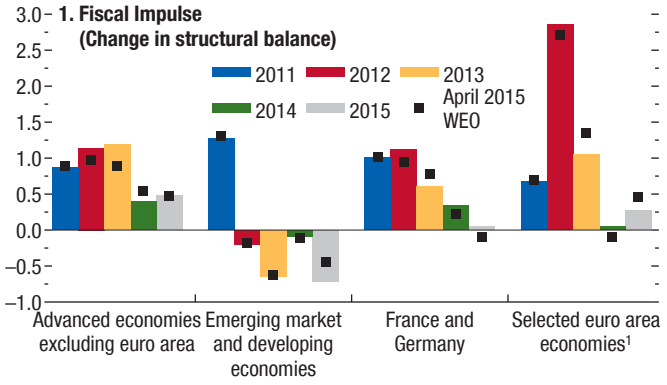
[2]Some have argued that owing to rapid technological change, especially in the information and communications technology sector, conventional national income statistics increasingly understate the true income level, but that view is not widely accepted.

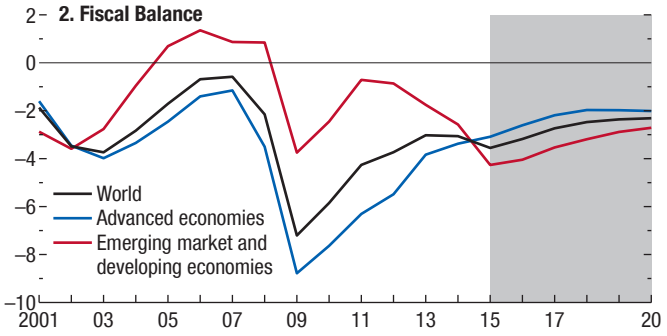
[3]The analysis of forecast errors shows a similar picture, as discussed in Box 1.3 of the October 2014 WEO.

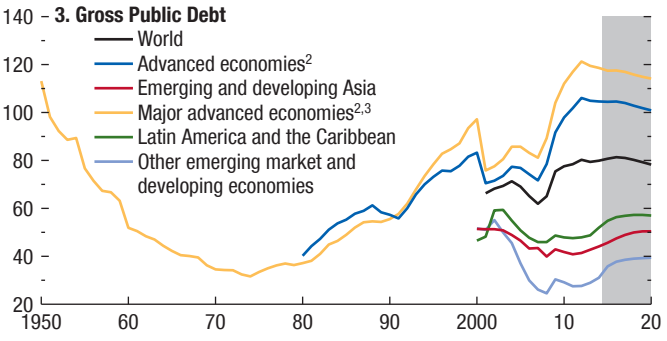
[4]Chapter 4 of the April 2014 WEO also finds an important role for external shocks in the initial stages of the slowdown.

Figure 1.9. Fiscal Policies
(Percent of GDP, unless noted otherwise)

Fiscal consolidation is expected to moderate in most advanced economies over the forecast horizon. However, in core euro area economies, the fiscal stance will be slightly tighter relative to projections in the April 2015 *World Economic Outlook* (WEO), while in some other euro area economies, it has eased relative to earlier projections. In emerging market and developing economies, the fiscal policy stance is projected to ease in 2015, but with considerable differences across countries.







Source: IMF staff estimates.
[1]Euro area countries (Greece, Ireland, Italy, Portugal, Spain) with high borrowing spreads during the 2010–11 sovereign debt crisis.
[2]Data through 2000 exclude the United States.
[3]Canada, France, Germany, Italy, Japan, United Kingdom, United States.

The Forecast

Policy Assumptions

Fiscal consolidation is projected to moderate in advanced economies over the forecast horizon (Figure 1.9). In emerging markets, the fiscal policy stance is projected to turn more expansionary to offset the slowdown—albeit with marked differences across countries and regions. On the monetary policy front, U.S. policy rates are expected to increase beginning in late 2015 (Figure 1.5). Monetary policy normalization in the United Kingdom is projected to begin in 2016 (consistent with market expectations). Very accommodative policy stances are expected to remain in place for longer in Japan and also in the euro area, where monthly purchases of government bonds started March 9. Policy rates are generally expected to be on hold in a number of emerging market economies until rate increases start in the United States.

Other Assumptions

Global financial conditions are assumed to remain accommodative, with some gradual tightening reflected in, among other things, rising 10-year yields on U.S. Treasury bonds as the expected date for liftoff from the zero bound in the United States approaches. The process of normalizing monetary policy in the United States and the United Kingdom is assumed to proceed smoothly, without large and protracted increases in financial market volatility or sharp movements in long-term interest rates. Nevertheless, financial conditions in emerging markets are assumed to be tighter than over the past few months, reflecting the recent rise in spreads and decline in equity prices, with some further increases in long-term rates reflecting rising 10-year yields in advanced economies. Oil prices are projected to increase gradually over the forecast horizon, from an average of $52 a barrel in 2015 to about $55 a barrel in 2017. In contrast, nonfuel commodity prices are expected to stabilize at lower levels after recent declines in both food and metal prices. Geopolitical tensions are assumed to stay elevated, with the situation around Ukraine remaining difficult and strife continuing in some countries in the Middle East. These tensions are generally assumed to ease, allowing for a gradual recovery in the most severely affected economies in 2016–17.

Global Outlook for 2015–16

Global growth is projected to decline from 3.4 percent in 2014 to 3.1 percent in 2015, before picking

up to 3.6 percent in 2016 (see Table 1.1). The decline in growth this year reflects a further slowdown in emerging markets, partially offset by a modest pickup in activity in advanced economies—particularly in the euro area. This pickup, supported by the decline in oil prices (Figure 1.3) and accommodative monetary policy, will modestly narrow output gaps.

The decline in growth in emerging markets—for the fifth year in a row—reflects a combination of factors: weaker growth in oil exporters; a slowdown in China, as the pattern of growth becomes less reliant on investment; and a weaker outlook for exporters of other commodities, including in Latin America, following price declines. In emerging market oil importers, a more limited pass-through to consumers of the windfall gains from lower oil prices, together with in some cases substantial exchange rate depreciation, has muted the attendant boost to growth, with lower prices accruing in part to governments (for example, in the form of savings from lower energy subsidies—as discussed in the April 2015 *Fiscal Monitor*).

The sizable pickup in projected 2016 growth reflects stronger performance in both emerging market and advanced economies. Among emerging market and developing economies, growth in countries in economic distress in 2015 (including Brazil, Russia, and some countries in Latin America and in the Middle East), while remaining weak or negative, is projected to be higher than in 2015, and domestic demand in India is projected to remain strong. These developments more than offset the projected continuation of the slowdown in China. Among advanced economies, higher growth reflects a strengthening recovery in Japan, the United States, and the euro area, as output gaps gradually close.

The outlook is weaker than the one in the July 2015 *WEO Update* for both advanced economies and emerging markets. Relative to the April 2015 WEO, global growth has been revised downward by 0.4 percentage point in 2015 and 0.2 percentage point in 2016.

Global Outlook for the Medium Term

Global growth is forecast to increase beyond 2016, entirely reflecting a further pickup in growth in emerging market and developing economies. This pickup reflects two factors. The first is the assumption of a gradual return to trend rates of growth in countries and regions under stress or growing well below potential in 2015–16 (for example, Brazil and the rest of Latin America, Russia, and parts of the Middle East).

The second factor is the gradual increase in the global weight of fast-growing countries such as China and India, which further increases their importance as drivers of global growth.

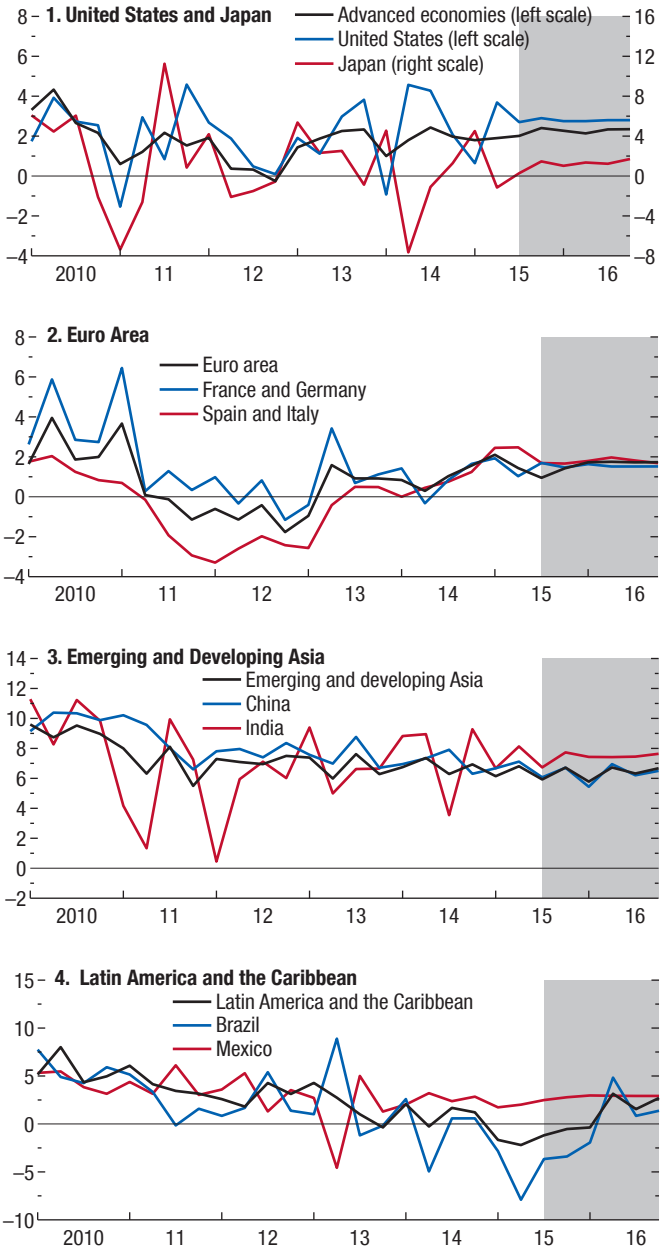
On the other hand, growth in advanced economies is projected to remain at about 2¼ percent as output gaps gradually close, and then to decline below 2 percent, reflecting the gradual effects of demographics on labor supply and hence on potential output, which were discussed in Chapter 3 of the April 2015 WEO.

Economic Outlook for Individual Countries and Regions

- The recovery is expected to continue in the *United States*, supported by lower energy prices, reduced fiscal drag, strengthened balance sheets, and an improving housing market (Figure 1.10, panel 1). These forces are expected to more than offset the drag on net exports coming from the strengthening of the dollar. As a result, growth is projected to reach 2.6 percent in 2015 and 2.8 percent in 2016. However, longer-term growth prospects are weaker, with potential growth estimated to be only about 2 percent, weighed down by an aging population and low total factor productivity growth (which recent revisions to national accounts suggest was lower than previously thought during 2012–14).
- The moderate *euro area* recovery is projected to continue in 2015–16, sustained by lower oil prices, monetary easing, and the euro depreciation (Figure 1.10, panel 2). At the same time, potential growth remains weak—a result of crisis legacies, but also of demographics and a slowdown in total factor productivity that predates the crisis (see Chapter 3). Hence the outlook is for moderate growth and subdued inflation. Growth is expected to increase from 0.9 percent in 2014 to 1.5 percent this year and 1.6 percent in 2016, in line with the forecast of last April. Growth is forecast to pick up for 2015 and 2016 in France (1.2 percent in 2015 and 1.5 percent in 2016), Italy (0.8 percent in 2015 and 1.3 percent in 2016), and especially Spain (3.1 percent in 2015 and 2.5 percent in 2016). In Germany, growth is expected to remain at about 1½ percent (1.5 percent in 2015 and 1.6 percent in 2016). The outlook for Greece is markedly more difficult following the protracted period of uncertainty earlier in the year.
- In *Japan* GDP growth is projected to rise from –0.1 percent in 2014 to 0.6 percent in 2015 and

Figure 1.10. GDP Growth Forecasts
(Annualized quarterly percent change)

In advanced economies, growth is expected to remain robust and above trend through 2016 and contribute to narrowing the output gap. The growth recovery in the euro area is projected to be broad based. Growth in India is expected to rise above the rates in other major emerging market economies. In Latin America and the Caribbean, activity is expected to rebound in 2016 after a recession in 2015.



Source: IMF staff estimates.

1.0 percent in 2016 (Figure 1.10, panel 1). The gradual pickup reflects support from higher real compensation and higher equity prices due to the Bank of Japan's additional quantitative and qualitative easing, as well as lower oil and commodity prices.

- In other advanced economies, growth is generally expected to be solid, but weaker than in 2014. In the *United Kingdom*, continued steady growth is expected (2.5 percent in 2015 and 2.2 percent in 2016), supported by lower oil prices and continued recovery in wage growth. The recovery in *Sweden* (2.8 percent growth projected in 2015) is supported by consumption and double-digit housing investment. In *Switzerland*, the sharp exchange rate appreciation earlier in the year is projected to depress growth in the near term (1.0 percent in 2015). In commodity exporters, lower commodity prices weigh on the outlook through reduced disposable income and a decline in resource-related investment. The latter mechanism has been particularly sharply felt in *Canada*, where growth is now projected to be about 1 percent in 2015, 1.2 percentage points lower than forecast in April. *Australia*'s projected growth of 2.4 percent in 2015, a bit weaker than predicted in April, also reflects the impact of lower commodity prices and resource-related investment—partly offset by supportive monetary policy and a weaker exchange rate. In *Norway* GDP is projected to grow by 0.9 percent this year as the fall in oil prices is reflected in stalling investment and weakening consumption. Among Asian advanced economies, growth is generally weaker than in 2014, reflecting domestic shocks and slower exports. The decline in growth relative to last year is particularly noticeable for *Taiwan Province of China* (from 3.8 percent to 2.2 percent), where exports have been slowing especially sharply.
- Growth in *China* is expected to decline to 6.8 percent this year and 6.3 percent in 2016—unchanged projections relative to April (Figure 1.10, panel 3). Previous excesses in real estate, credit, and investment continue to unwind, with a further moderation in the growth rates of investment, especially that in residential real estate. The forecast assumes that policy action will be consistent with reducing vulnerabilities from recent rapid credit and investment growth and hence not aim at fully offsetting the underlying moderation in activity. Ongoing

implementation of structural reforms and lower oil and other commodity prices are expected to expand consumer-oriented activities, partly buffering the slowdown. The decline in stock market valuations is assumed to have only a modest effect on consumption (reflecting modest household holdings), and the current episode of financial market volatility is assumed to unwind without sizable macroeconomic disruptions.

- Elsewhere in emerging and developing Asia, *India*'s growth is expected to strengthen from 7.3 percent this year and last year to 7.5 percent next year. Growth will benefit from recent policy reforms, a consequent pickup in investment, and lower commodity prices. Among the ASEAN-5 economies (*Indonesia*, *Malaysia*, *Philippines*, *Thailand*, *Vietnam*), Malaysia and to a lesser extent Indonesia are expected to slow this year, affected by weaker terms of trade. Growth is on the other hand projected to pick up in Thailand, as a result of reduced policy uncertainty, to remain broadly stable at around 6 percent in the Philippines, and to strengthen to 6.5 percent in Vietnam, which is benefiting from the oil price windfall.
- Economic activity in *Latin America and the Caribbean* continues to slow sharply, with a small contraction in activity in 2015 (Figure 1.10, panel 4). A modest recovery is projected for 2016, but with growth at 0.8 percent, still well below trend. Growth projections have been revised downward by more than 1 percentage point in both 2015 and 2016 relative to the April 2015 WEO. The bleaker outlook for commodity prices interacts in some countries with strained initial conditions. In *Brazil*, business and consumer confidence continue to retreat in large part because of deteriorating political conditions, investment is declining rapidly, and the needed tightening in the macroeconomic policy stance is putting downward pressure on domestic demand. Output is now projected to contract by 3 percent in 2015 and by 1 percent in 2016 (for both years, a forecast 2 percentage points lower than in April), with negative spillovers on other parts of the region, especially Brazil's trading partners in Mercosur. *Venezuela* is projected to experience a deep recession in 2015 and 2016 (–10 percent and –6 percent, respectively), because the oil price decline since mid-June 2014 has exacerbated domestic macroeconomic imbalances and balance of payments pressures. Venezuelan inflation is projected to be well above 100 percent in 2015. A modest decline in activity is now projected for *Ecuador*, where 2015 growth has been revised downward by more than 2 percentage points, reflecting the impact of lower oil prices coupled with sizable real appreciation driven by the stronger U.S. dollar. Additional weakness in metal prices is projected to dampen the growth recovery in *Chile* and *Peru*, while the projected deceleration in *Colombia* reflects the drop in oil prices.
- Projections for economies in the *Commonwealth of Independent States* remain very weak, reflecting the recession in *Russia* with its attendant regional spillovers, as well as a very sharp further contraction in *Ukraine.* Overall, activity is projected to contract by 2.7 percent, after growing by 1 percent in 2014. The outlook is projected to improve in 2016, with a return to positive growth (0.5 percent). In Russia the economy is expected to contract by 3.8 percent this year, reflecting the interaction of falling oil prices and international sanctions with preexisting structural weaknesses. Output is projected to decline further in 2016. The projected 0.1 percent contraction in the remainder of the region this year reflects to an important extent the deep recession in Ukraine (–9 percent), where positive growth is expected to return in 2016, supported by the beginning of reconstruction. Elsewhere in the region, especially in the Caucasus and Central Asia, activity will be held back by lower commodity prices and spillovers from Russia (through trade, foreign direct investment, and especially remittances), which will interact with existing structural vulnerabilities.
- Growth in *emerging and developing Europe* is projected to rise modestly to 3.0 percent in 2015–16. The region has benefited from lower oil prices and the gradual recovery in the euro area, but is also affected by the contraction in Russia and the impact of still-elevated corporate debt on investment. The latter, together with political uncertainty, is expected to weigh on domestic demand in *Turkey*, where the growth of activity is projected to remain at about 3 percent in 2015–16. Growth remains relatively robust in central and eastern Europe, with *Hungary* and *Poland* growing at rates of 3 percent or higher in 2015, but weaker in southeastern Europe (with the exception of *Romania*), with growth in *Bulgaria*, *Croatia*, and *Serbia* below 2 percent.

- Growth across the *Middle East, North Africa, Afghanistan, and Pakistan* is forecast to remain modest in 2015 at 2.5 percent, slightly below last year. Spillovers from regional conflicts and intensified security and social tensions are weighing on confidence and holding back higher growth. Low oil prices are also taking a toll on the outlook for oil exporters. In oil importers, the recovery is strengthening. Headwinds from weak confidence are being offset by gains from lower oil prices, economic reforms, and improved euro area growth. Regional growth is projected to pick up substantially in 2016, supported by accelerated activity in the *Islamic Republic of Iran*, where the lifting of sanctions—once the Joint Comprehensive Plan of Action becomes binding and is implemented—should allow for a recovery in oil production and exports, as well as by a gradual improvement in the outlook for countries severely affected by conflicts, such as Iraq, Libya, and Yemen. Compared with the April 2015 projections, the outlook for 2015 is weaker, reflecting the collapse in activity in Yemen and a further decline in GDP in Libya, but looks stronger for 2016, primarily on account of the improved prospects for the Islamic Republic of Iran.
- Growth in *sub-Saharan Africa* is expected to slow this year to 3.8 percent (from 5.0 percent in 2014, a 0.7 percentage point downward revision relative to April). The slowdown in 2015 is primarily driven by the repercussions of declining commodity prices, particularly those for oil, as well as lower demand from China—the largest single trade partner of sub-Saharan Africa—and the tightening of global financial conditions for the region's frontier market economies. Among the region's oil exporters, *Nigeria*'s growth is now projected at 4 percent in 2015, some 2¼ percentage points lower than last year, and growth in *Angola* is also expected to decline to 3.5 percent from close to 5 percent in 2014. Among the region's oil importers—projected to grow at 4 percent on average—a majority will continue to experience solid growth, especially low-income countries, where investment in infrastructure continues and private consumption remains strong. Countries such as *Côte d'Ivoire, the Democratic Republic of the Congo, Ethiopia, Mozambique,* and *Tanzania* are still expected to register growth of about 7 percent or above this year and next. But others, such as *Sierra Leone* and *Zambia*, are feeling the pinch from lower prices for their main export commodity, even as lower oil prices relieve their energy import bill. *South Africa*'s growth is projected to be below 1½ percent both this year and next, reflecting electricity-load shedding and other supply bottlenecks. In *Ghana*, power shortages and fiscal consolidation are also weighing on activity, which is projected to slow further in 2015 to 3.5 percent. Growth for the region is projected to pick up in 2016 to 4.3 percent, with the global recovery supporting a moderate pickup in external demand, the modest recovery in oil prices benefiting oil exporters, and an improvement in the outlook for Ebola-affected countries.
- Growth in low-income developing countries is projected to slow to 4.8 percent in 2015, more than 1 percentage point weaker than in 2014, before picking up to 5.8 percent in 2016. These projections are shaped by the outlook for sub-Saharan economies, in particular Nigeria; the resilient growth in low-income developing countries in Asia, particularly *Bangladesh* and *Vietnam*; and for 2015, the domestic-conflict-driven collapse in activity in *Yemen*.

Global Inflation

Inflation is projected to decline in 2015 in advanced economies, reflecting primarily the impact of lower oil prices. The pass-through of lower oil prices into core inflation is expected to remain moderate, in line with recent episodes of large changes in commodity prices. In emerging market and developing economies, the inflation rate is projected to increase in 2015, but this reflects the sharp increase in the inflation forecast for Venezuela (more than 100 percent in 2015) and Ukraine (about 50 percent). Excluding these countries, inflation in emerging market and developing economies in 2015 is projected to decline from 4.5 percent in 2014 to 4.2 percent in 2015.

In advanced economies, inflation is projected to rise in 2016 and thereafter, but to remain generally below central bank targets. In emerging market and developing economies, inflation is projected to decline in 2016, with markedly lower inflation in countries that experienced sizable depreciation in recent months, such as Russia and to a lesser extent Brazil.

- In the euro area, headline inflation is projected to be 0.2 percent in 2015, slightly lower than in 2014. After dipping below zero in December 2014 and remaining negative through the first quarter of 2015, inflation picked up in the second quarter

of 2015, reflecting a modest recovery in economic activity, the partial reversal in oil prices, and the impact of the euro depreciation. Inflation expectations, while higher than in the first quarter, remain low, although core measures point to tentative signs of an upturn in underlying inflation. Headline inflation is projected to increase to 1 percent in 2016, but is expected to remain subdued through the medium term.

- In Japan, several factors will put upward pressure on the price level, including the lagged impact of the recent yen weakening and the closing of the output gap. Continued tightening of the labor market could accelerate favorable wage-price dynamics. As a result, under current policies, inflation is expected to rise gradually to 1½ percent over the medium term.
- In the United States, annual inflation in 2015 is projected to decline to 0.1 percent. After a sharp decline in late 2014 and early 2015 that reflected lower energy prices, it has started to increase gradually, even though the effects of dollar appreciation, muted wage dynamics, and the renewed bout of declines in oil prices act as a headwind. Inflation is then projected to rise gradually toward the Federal Reserve's longer-term objective of 2 percent.
- Inflation is projected to remain well below target in a number of other smaller advanced economies—especially in Europe and east Asia. In particular, consumer prices are projected to decline in both 2015 and 2016 in Switzerland, following the sharp appreciation of the currency in January. Inflation remains subdued in the Czech Republic, New Zealand, and Sweden, but is projected to gradually rise toward the target over 2016–17.

In emerging market economies, the decline in oil prices and a slowdown in activity are contributing to lower inflation in 2015, even though not all of the decline in the price of oil will be passed on to end-user prices. At the same time, however, large nominal exchange rate depreciations are putting upward pressure on prices in several countries, particularly commodity exporters. In subsequent years the effect of lower oil prices is expected to phase out, but this effect is projected to be offset by a phasing out of the effect of large depreciations as well as by a gradual decline in underlying inflation toward medium-term inflation targets.

- In China, consumer price index inflation is forecast to be 1.5 percent in 2015—reflecting the decline in commodity prices, the sharp real appreciation of the renminbi, and some weakening in domestic demand—but to increase gradually thereafter.
- In India, inflation is expected to decline further in 2015, reflecting the fall in global oil and agricultural commodity prices. In Brazil, average inflation is expected to rise to 8.9 percent this year, above the ceiling of the tolerance band, reflecting an adjustment of regulated prices and exchange rate depreciation, and to converge toward the 4.5 percent target over the following two years. In contrast, inflation is projected to rise to about 16 percent in 2015 in Russia, reflecting the large depreciation of the ruble, and to decline below 9 percent next year. In Turkey, inflation for 2015 is projected at about 7½ percent, some 2½ percentage points above target.
- A few emerging markets are projected to experience headline inflation well below target in 2015, with modest increases in 2016. These include in particular a number of small European countries whose currencies are tightly linked to the euro.

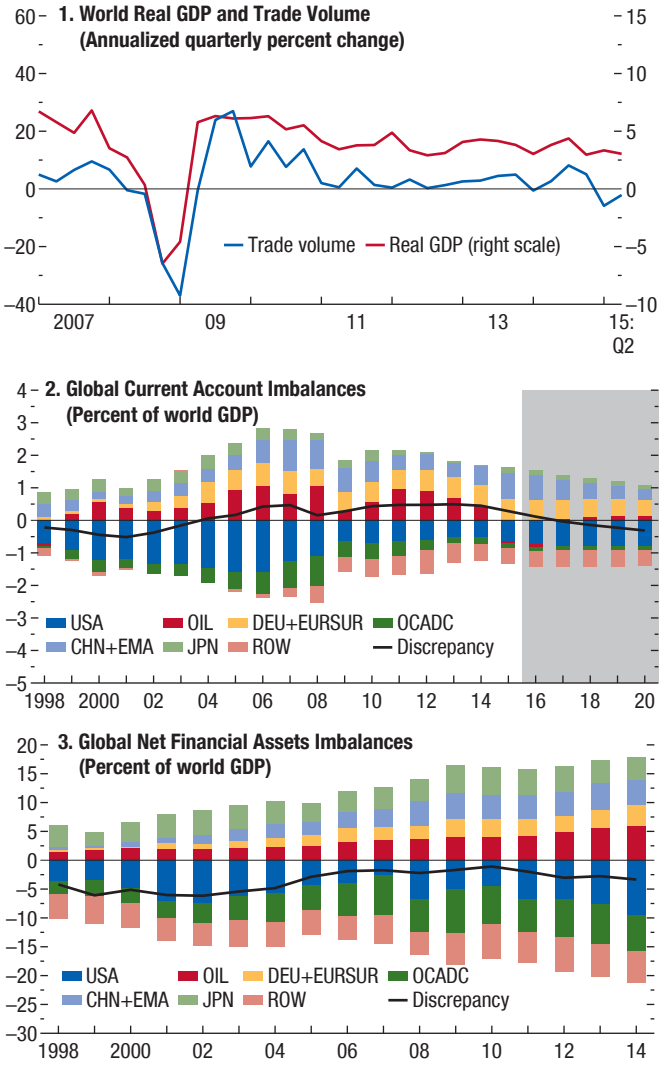
External Sector Developments

World trade growth is projected to remain modest, as in the past two years (Figure 1.11, panel 1). A pickup in trade is forecast for advanced economies. For emerging markets import growth is projected to decline further, reflecting weakening domestic demand and depreciating exchange rates, but export growth is projected to increase, sustained by higher oil exports from the Middle East and the pickup of domestic demand in advanced economies.

Capital flows to and from advanced economies remained modest relative to their precrisis trends during 2014, but showed signs of a pickup in early 2015. After a sustained period of strength, capital flows to emerging markets have been declining since the end of 2013 (Figure 1.12, panels 1 and 2). This has reflected to an important extent reductions in capital inflows to China and Russia, but also declining flows to other countries and regions, including Latin America. With no large change in the aggregate current account balance for emerging market and developing economies, the decline in inflows has been offset by a corresponding decline in these economies' net purchases of foreign assets (Figure 1.12, panel 4). Large emerging market economies as a group sold about $100 billion in foreign exchange reserves during both the last quarter of 2014 and the first quarter of 2015,

Figure 1.11. External Sector

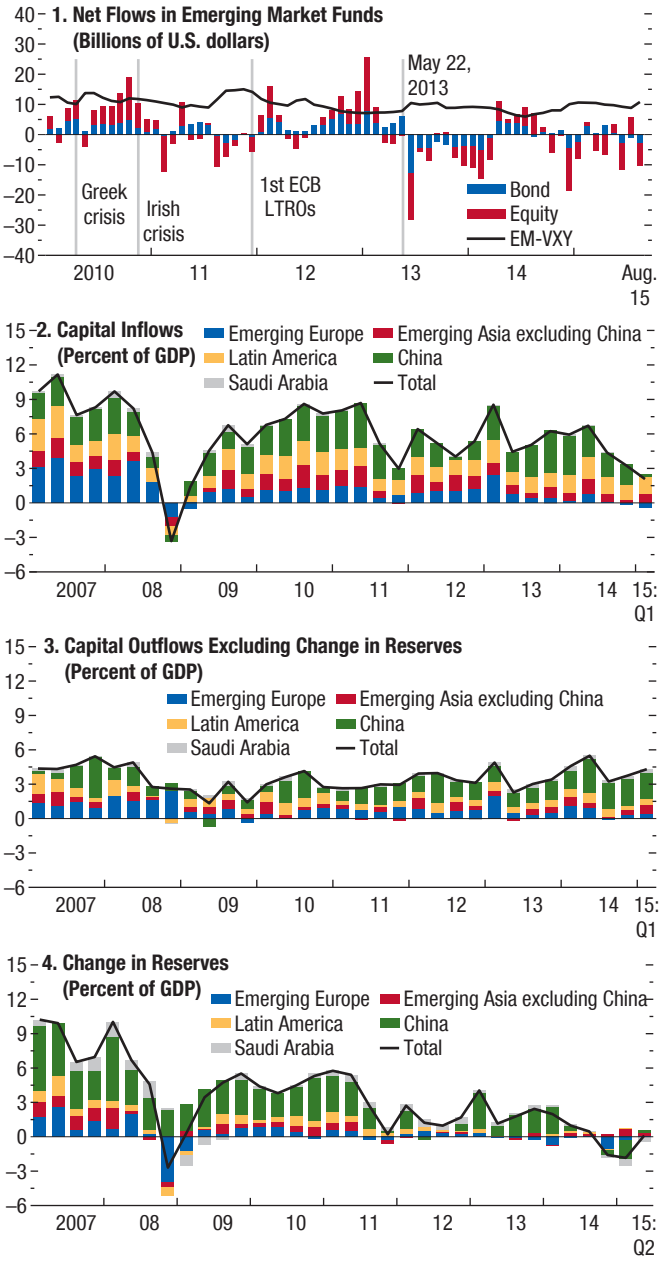
Global trade volumes weakened more than GDP in the first half of 2015, highlighting that economic growth in the services and other nontradables sectors has been relatively stronger than in the tradables sectors. Global current account imbalances are expected to narrow further over the forecast horizon, with most of the contribution coming from smaller surpluses in oil exporters. In contrast, global creditor and debtor positions have increased further as a share of world GDP.



Sources: CPB Netherlands Bureau for Economic Policy Analysis; and IMF staff estimates.
Note: Data labels in the figure use International Organization for Standardization (ISO) country codes. CHN+EMA = China and emerging Asia (Hong Kong SAR, Indonesia, Korea, Malaysia, Philippines, Singapore, Taiwan Province of China, Thailand); DEU+EURSUR = Germany and other European advanced surplus economies (Austria, Denmark, Luxembourg, Netherlands, Sweden, Switzerland); OCADC = other European countries with precrisis current account deficits (Greece, Ireland, Italy, Portugal, Spain, United Kingdom, WEO group of emerging and developing Europe); OIL = Norway and WEO group of emerging market and developing economy fuel exporters; ROW = rest of the world.

Figure 1.12. Capital Flows in Emerging Market Economies

Gross capital inflows to emerging market economies began slowing markedly in 2014 and, as a percent of GDP, reached their lowest level since the recovery from the global financial crisis in the first quarter of 2015. As gross capital outflows have held up, and with little change in the aggregate current account balance, these economies as a group started selling foreign exchange reserves in 2014.



Sources: Bloomberg, L.P.; EPFR Global; Haver Analytics; IMF, *International Financial Statistics;* and IMF staff calculations.
Note: Capital inflows are net purchases of domestic assets by nonresidents. Capital outflows are net purchases of foreign assets by domestic residents. Emerging Asia excluding China comprises India, Indonesia, Malaysia, the Philippines, and Thailand; emerging Europe comprises Poland, Romania, Russia, and Turkey; Latin America comprises Brazil, Chile, Colombia,Mexico, and Peru. ECB = European Central Bank; EM-VXY = J.P. Morgan Emerging Market Volatility Index; LTROs = longer-term refinancing operations.

with net sales of foreign reserves by China, Russia, and Saudi Arabia representing the lion's share.[5]

Current account deficits and surpluses across the main creditor and debtor regions declined further in 2014, albeit relatively modestly (Figure 1.12, panel 2). Nevertheless, global creditor and debtor positions, as measured by net international investment positions, continued to grow in 2014 as a share of world GDP (Figure 1.12, panel 3). Valuation effects play an important role in explaining such widening. Specifically, the appreciation of the U.S. dollar and the increase in the value of U.S. assets related to interest rate and equity price movements have increased the net external liabilities of the United States and symmetrically boosted asset values in holders of U.S. financial instruments.

Projections for 2015 suggest changes in the composition of global current account deficits and surpluses, reflecting the impact of declining prices of oil and other commodities, as well as the large exchange rate movements that have taken place since last year. As discussed in Chapter 3, the evidence suggests that exchange rate movements continue to have an economically significant impact on external balances. However, the aggregate size of global current account deficits and surpluses will remain broadly stable. Specifically, the contraction in the surpluses of oil-exporting countries will continue to be broadly offset by increasing surpluses in oil importers such as European surplus countries as well as in China, while the reduction in deficits for some oil importers is and will remain offset by a deteriorating current account balance in the United States.

From a normative perspective, there is of course no presumption that current account deficits and surpluses should necessarily decline. But as discussed in the *2015 External Sector Report* (IMF 2015a), a number of countries' 2014 current account imbalances appear too large relative to a country-specific norm consistent with external stability. These countries have made limited progress in reducing the excess imbalances remaining after the large narrowing of imbalances in the aftermath of the global financial crisis. As discussed earlier, external balances in 2015 are affected by substantial shocks, including changes in commodity prices and large fluctuations in exchange rates. Panel 3 of Figure 1.13 depicts projected changes in current account balances relative to GDP in 2015 in relation to the current account gaps for 2014 discussed in the *2015 External Sector Report*.[6] The figure shows a modest general tendency for current account balances to move in the direction of narrowing 2014 current account gaps, but with large economies such as China, Germany, and the United States being notable exceptions, such gaps would not narrow on a global scale. Panel 2 of Figure 1.13 undertakes the same exercise for real effective exchange rates, and it shows that exchange rate changes in 2015 relative to their 2014 average are not systematically consistent with a reduction in the exchange rate gaps identified for 2014 by the *2015 External Sector Report*. Of course a normative assessment of external balances and exchange rates must also take into account changes in the underlying current account and real exchange rate "norms" as well, and such an assessment will be undertaken in next year's *External Sector Report*.

More generally, a desirable pattern of global rebalancing would depend not just on exchange rate changes and their attendant current account implications, but on policies underpinning desirable shifts to relative demand and consistent with sustaining world growth.

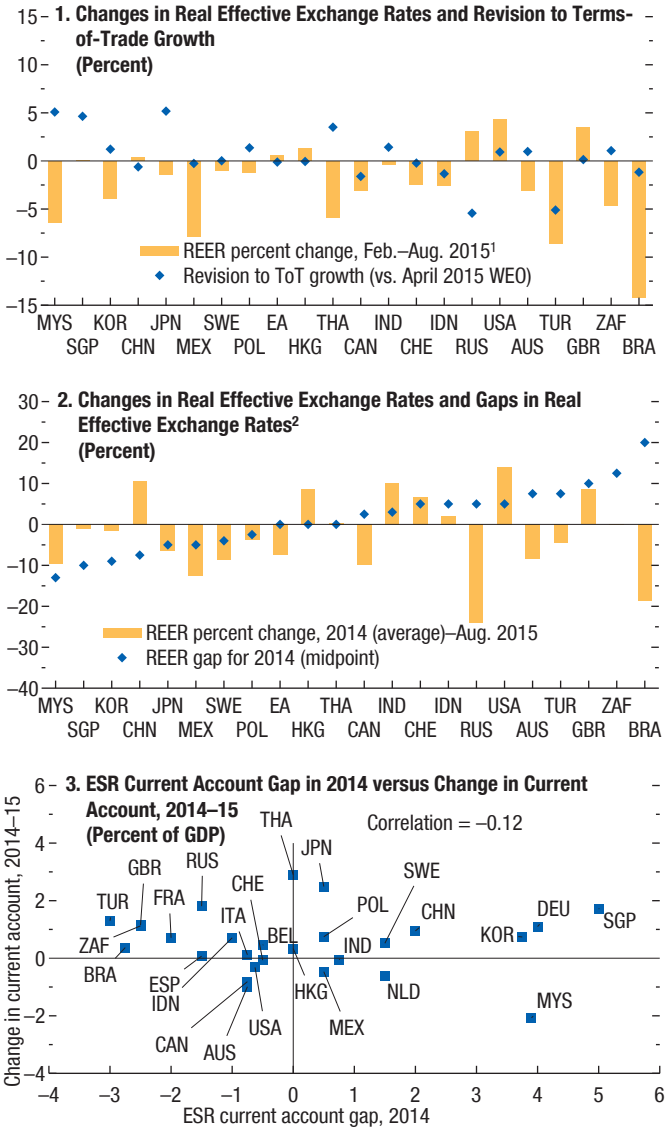
Although the compression of global current account imbalances following the global financial crisis has been discussed extensively (see, for instance, Chapter 4 of the October 2014 WEO), large current account surpluses and deficits in smaller countries have received less attention. Their number—especially the number of deficits—remains elevated. During 2012–14, more than 80 countries ran current account deficits that exceeded 5 percent of GDP but altogether accounted for only 3½ percent of world GDP. For comparison, during 2005–08 the number of countries with current account deficits above 5 percent of GDP was only slightly larger (90), but they accounted for a share of world GDP that was larger by a factor of 10. And the number of countries running large surpluses is much smaller than in the previous period. Box 1.2 discusses the characteristics of countries that have run large current account deficits in recent years in more detail, highlighting a variety of different drivers (ranging from domestic shocks to commodity price booms to increased access to external finance after debt forgive-

[5]The decline in the stock of reserves for emerging market and developing economies overstates the amount of actual sales because of valuation effects. Namely, the appreciation of the U.S. dollar with respect to most other reserve currencies in recent quarters implies a decline in the stock of reserves measured in U.S. dollars.

[6]These gaps measure deviations of current account balances from a level consistent with underlying fundamentals and desirable policies. Real exchange rate gaps are defined analogously.

Figure 1.13. Real Exchange Rates and Current Account Gaps

Currencies of many major emerging market economies have depreciated further in real effective terms since the projections for the April 2015 *World Economic Outlook* (WEO) were prepared, reflecting to an important extent weaker fundamentals, notably weakening growth prospects and worsening terms of trade. As for external imbalances, the assessment in the *2015 External Sector Report* is that these remained too large in 2014 relative to underlying norms. WEO projections suggest some general tendency for the expected current account balances in 2015 to move in the direction of narrowing the implied 2014 current account gaps. However, in some large economies, including China, Germany, and the United States, no narrowing is expected.



Sources: Global Insight; IMF, *2015 Pilot External Sector Report* (ESR); IMF, *International Financial Statistics;* and IMF staff calculations.
Note: Data labels in the figure use International Organization for Standardization (ISO) country codes. EA = euro area; REER = real effective exchange rate; ToT = terms of trade.
[1]The data for the euro area are calculated by taking the average of the data for France, Germany, Italy, and Spain.
[2]REER gaps and classifications are based on the IMF's *2015 Pilot External Sector Report*.

ness) within the general tendency for poor countries, as well as for small countries (in terms of population), to run current account deficits. Box 1.3 addresses a related question—namely, the impact of capital flows to low-income developing countries on those countries' credit growth. Its findings suggest an important influence of external financial conditions on domestic credit expansion in those countries. Clearly, reliance on external finance among countries with pressing development needs and high rates of return on investment is to be expected. However, given declining commodity prices and worsening external conditions, these two boxes suggest that some countries that relied heavily on private external financing may face significant external adjustment pressures in the future.

Risks

The distribution of risks to global growth remains tilted to the downside. Compared to the risk assessment in the April 2015 WEO, downside risks to growth for emerging market and developing economies have increased, given the combination of risks from China's growth transition, more protracted commodity market rebalancing, increased foreign-currency exposure of corporate balance sheets, and capital flow reversals associated with disruptive asset price shifts. In advanced economies, contagion risks from Greece-related events to other euro area economies, while lower than earlier in the year, remain a concern, as do risks from protracted weak demand and low inflation. Oil price declines since June (and lagged effects from previous declines) could imply some upside risk to domestic demand and growth in oil importers.

The Fan Chart: Risks around the Global GDP Forecast

The fan chart for the global GDP forecast suggests that the confidence interval around the projected path for global growth in 2016 has narrowed, especially on the upside (Figure 1.14, panel 1). Hence, high growth outcomes much above the baseline forecast are now less likely compared to what they were in the April 2015 WEO.[7]

The smaller probability of growth outcomes much above the baseline is consistent with the view that an

[7]The indicators used in the construction of the fan chart are based either on prices of derivatives or on the distribution of forecasts for the underlying variables.

even stronger growth rebound above trend than is already incorporated in current forecasts is unlikely in advanced economies. Productivity growth has turned out weaker than expected, and potential output growth is projected to remain substantially below precrisis rates (see the discussion earlier and in Box 1.1). In addition, downside risks to growth in many major emerging market economies have increased.

While upside risks from large positive growth surprises have decreased, the probability of global growth falling below 2 percent remains small and broadly unchanged relative to that in the April 2015 WEO. Simulations using the IMF's Global Projection Model, which draw on past shocks over a longer horizon, suggest a small increase in the probability of a recession in the major advanced economies and in the Latin America 5 economies over a four-quarter horizon relative to April 2015 (Figure 1.15, panel 1). This increase primarily reflects the lower starting values for growth for some of the economies and the somewhat lower growth forecast under the baseline. With the latter, the probability of negative shocks leading to a technical recession is higher compared to a situation in which the baseline forecast is stronger.

Risks to the Global Outlook

Downside risks differ between advanced and emerging market economies to some extent. However, there would be spillovers if any of the risks discussed in this subsection materialized, and these spillovers, as illustrated in Scenario Box 1 and in the October 2015 GFSR, could be substantial. In regard to upside risks, lower oil and commodity prices could have a stronger impact on demand than currently expected (including through lagged effects of earlier price declines).

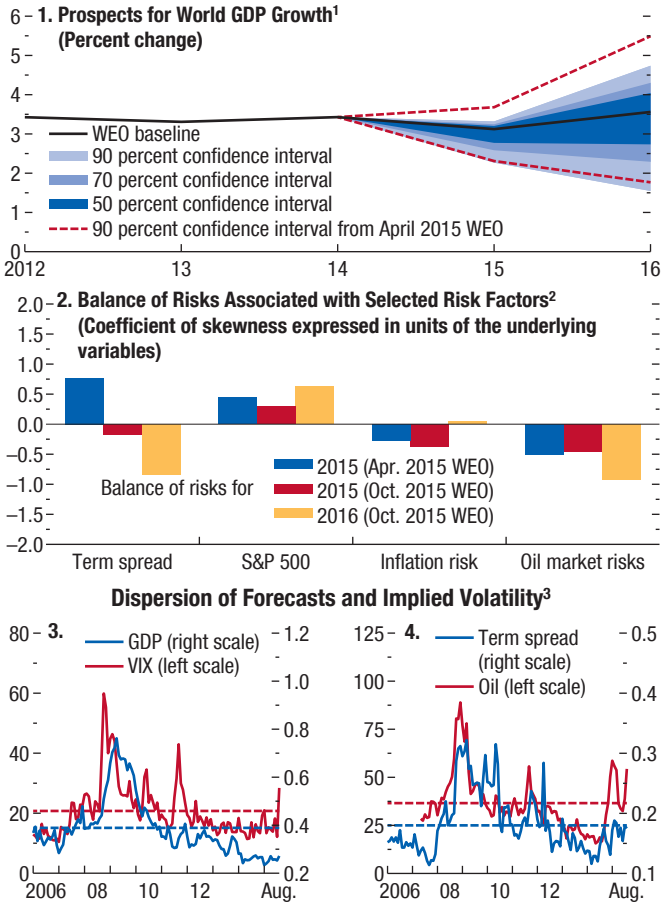
Disruptive Asset Price Shifts and Financial Market Turmoil

As elaborated in the October 2015 GFSR, disruptive asset price shifts and financial turmoil could take a toll on global activity. Emerging market economies are particularly exposed, as these risks, if they materialized, could involve capital flow reversals. Four factors underpin these risks.

- Term premiums and risk premiums in bond markets are still very low by historical standards. Estimates of the term premium on longer-term U.S. Treasury bonds suggest that it turned negative in late 2014, and estimates of term premiums for other advanced

Figure 1.14. Risks to the Global Outlook

The fan chart, which indicates the degree of uncertainty about the global growth outlook, suggests that upside risks to the forecast have narrowed compared to the April 2015 *World Economic Outlook* (WEO), while the distribution of downside risks is broadly unchanged. The distribution of the risks to the forecast for global growth is thus tilted more to the downside. Measures of forecast dispersion and implied volatility for equity and oil prices as well as the term spread in major advanced economies suggest an increase in perceived uncertainty about key variables for the global outlook.



Sources: Bloomberg, L.P.; Chicago Board Options Exchange (CBOE); Consensus Economics; Haver Analytics; and IMF staff estimates.

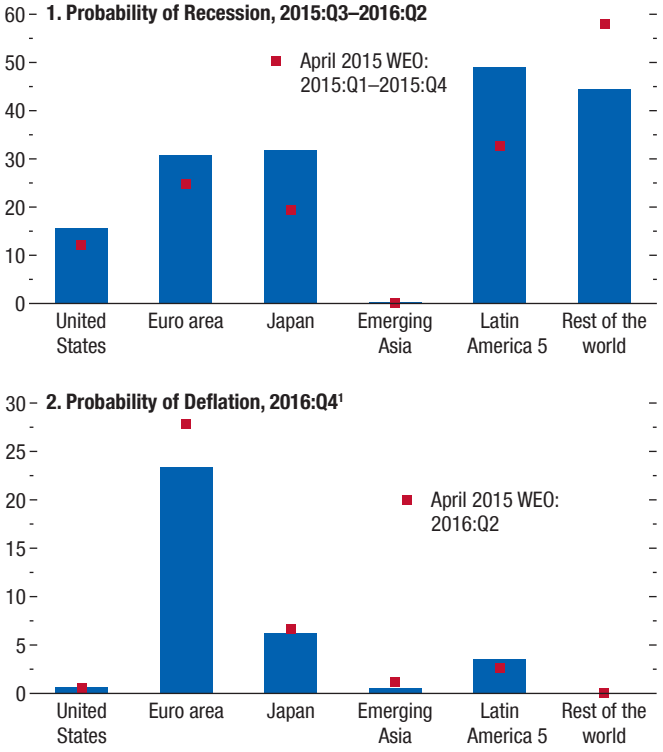
[1]The fan chart shows the uncertainty around the WEO central forecast with 50, 70, and 90 percent confidence intervals. As shown, the 70 percent confidence interval includes the 50 percent interval, and the 90 percent confidence interval includes the 50 and 70 percent intervals. See Appendix 1.2 of the April 2009 WEO for details. The 90 percent intervals for the current-year and one-year-ahead forecasts from the April 2015 WEO are shown relative to the current baseline.

[2]The 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.

[3]GDP measures the purchasing-power-parity-weighted average dispersion of GDP growth forecasts for the G7 economies (Canada, France, Germany, Italy, Japan, United Kingdom, United States), Brazil, China, India, and Mexico. VIX is the CBOE Standard & Poor's 500 (S&P 500) Implied Volatility Index. Term spread measures the average dispersion of term spreads implicit in interest rate forecasts for Germany, Japan, the United Kingdom, and the United States. Oil is the CBOE crude oil volatility index. Forecasts are from Consensus Economics surveys. Dashed lines represent the average values from 2000 to the present.

Figure 1.15. Recession and Deflation Risks
(Percent)

The IMF staff's Global Projection Model suggests that recession risks have increased for most advanced economies and the Latin America 5 group, mostly reflecting relatively weaker baseline projections. The risk of deflation, while decreasing, remains elevated in the euro area.



Source: IMF staff estimates.
Note: Emerging Asia comprises China, Hong Kong SAR, India, Indonesia, Korea, Malaysia, Philippines, Singapore, Taiwan Province of China, and Thailand; Latin America 5 comprises Brazil, Chile, Colombia, Mexico, and Peru; Rest of the world comprises Argentina, Australia, Bulgaria, Canada, Czech Republic, Denmark, Estonia, Israel, New Zealand, Norway, Russia, South Africa, Sweden, Switzerland, Turkey, United Kingdom, and Venezuela.
[1]Deflation is defined as a fall in the price level on a year-over-year basis in the quarter indicated in the figure.

economies are also low if not negative. A correction to higher term premiums in the United States could lead to sharply higher yields abroad, given the strong linkages among longer-term bond yields.[8]

- The context underlying this asset price configuration—in particular, very accommodative monetary policies in the major advanced economies, as well as crisis legacies and deflation risks—is expected to start changing with improved recovery prospects in those economies. Deflation risks, for example, which appear to have partly underpinned very low bond term premiums, should decrease as output gaps close. Under the baseline, the change in term premiums is assumed to be gradual, but news that changes expectations about these fault lines and unexpected portfolio shifts could trigger disruptive asset price adjustments. These adjustments might be related to the start and especially the pace of monetary policy normalization in the United States, also in light of the remaining divergence between market expectations and estimates by members of the Federal Open Market Committee about the path of U.S. policy rates over the next few years.
- Vulnerabilities and financial stability risks in emerging market economies have likely increased amid lower growth, recent commodity price declines, and increased leverage after years of rapid credit growth. Hence, unfavorable news in these areas could trigger higher risk premiums and disruptive declines in emerging market asset prices and currency values.
- Financial market reaction to the protracted uncertainties surrounding the negotiations for a new financing program with Greece was limited, reflecting the strength of euro area firewalls and European Central Bank policies, as well as declining systemic linkages with Greece. Risks have diminished since the agreement on a new European Stability Mechanism program for Greece, but should policy and political uncertainty reemerge in Greece, sovereign and financial sector stress in the euro area could also reemerge, with potentially broader spillovers.

Lower Potential Output

Potential output is projected to grow at a rate lower than it did before the crisis, in both advanced and emerging market economies.[9] Risks are that the growth rate of potential output could be even lower than expected. Indeed, recent revisions in U.S. national accounts data suggest that productivity growth in recent years was weaker than estimated previously. That said, the growth rate of potential output will likely continue to differ between advanced and emerging market economies even if this risk materializes. In the latter, potential output growth will remain substantially

[8]See, example, Chapter 3 of the April 2014 WEO.

[9]Chapter 3 of the April 2015 WEO discusses prospects for potential output in major advanced and emerging market economies in more detail.

higher than in the former, given demographic trends and the forces of convergence in per capita income.

Some of the forces underlying the risks of lower potential output growth are the same in the two groups of economies, while others differ.

- In terms of common forces, lower capital stock growth is a concern in both groups. In advanced economies, the protracted crisis legacies—notably financial sector weakness, still-high public debt ratios, and private debt overhang—are the main concern. In emerging market economies, the concerns are structural constraints, less favorable external conditions for investment, notably tighter financial conditions and lower commodity prices, and a possible greater credit overhang after the recent credit booms. As a result, capital stock growth could be lower for longer, which, in turn, might also lower productivity growth at least temporarily because of capital-embodied technological progress.
- In terms of differences, risks of negative productivity effects from longer-lasting high unemployment (skill losses, lower labor force participation) apply primarily to advanced economies. Conversely, lower total factor productivity growth than expected under current convergence assumptions is primarily a concern for emerging market economies.

Risks to Growth in China

Growth has slowed in China in recent years, and a further moderate slowdown has been factored into the baseline projections. There are risks of a stronger growth slowdown if the macroeconomic management of the end of the investment and credit boom of 2009–12 proves more challenging than expected. Risks span a broad spectrum, with real and financial spillovers, including through commodity market channels:

- *A moderate growth shortfall:* Given risks of a further growth slowdown in the future and expectations of policy reforms that may increase input and capital costs, firms may lower investment more than expected. But unlike in 2013–14, the Chinese authorities could put greater weight on reducing vulnerabilities from recent rapid credit and investment growth, rather than on supporting growth.
- *Hard landing in China:* In this case, the authorities would use their policy space to prevent growth from slowing by shoring up investment through credit and public resources. Vulnerability from booming credit and investment would thus continue to increase, and policy space would shrink. This could mean a sharper growth slowdown in the medium term when the vulnerabilities would be more difficult to manage.

Lower Commodity Prices

Prices of commodities have fallen sharply in recent months. They could fall further if market rebalancing in response to recent excess supply conditions were to take longer than expected.[10] Growth in commodity exporters would be negatively affected, and their vulnerabilities would increase further in light of lower revenue and foreign exchange earnings. In commodity importers, however, the windfall gains from lower commodity prices from more persistent supply improvements would lower costs and increase real incomes, which should boost spending and activity, as discussed in the April 2015 WEO for the case of oil. In that case, the spending increases by importers should more than offset lower spending in exporters, as the latter tend to smooth spending more in the aggregate, and global demand would increase (see Husain and others 2015). The case is less clear-cut for other commodities: exporters of metals may not smooth spending to the same extent as oil exporters, given that exhaustibility considerations generally play a smaller role for the former.

However, possible nonlinear effects of lower commodity prices are a concern. Specifically, if lower prices also led to significant financial stress, defaults, and broad contagion among commodity exporters, the negative impact on activity in these economies would be larger, as exporters might not be able to smooth spending to the extent they would otherwise. This would also lead to larger adverse spillovers to commodity importers.

A Further Sizable Strengthening of the U.S. Dollar

The constellation underpinning dollar appreciation over the past year or so is expected to remain in place for some time in the baseline forecast. It includes domestic demand strength relative to most other advanced economies, monetary policy divergence among major advanced economies, and an improved external position with lower oil prices. U.S. dollar appreciation

[10]Specifically, the demand increases in response to lower prices or capacity adjustment through lower investment might be very gradual. In the meantime, spot prices might have to fall more relative to expected future prices, so as to create incentives for further inventory buildup to absorb excess flow supply in the meantime.

against most currencies could thus continue, causing a lasting upswing in the dollar, as has happened previously. If this risk were to materialize, balance sheet and funding strains for dollar debtors could potentially more than offset trade benefits from real depreciation in some economies. In addition, if dollar appreciation were driven by increases in longer-term bond yields, the latter would likely be transmitted rapidly to other economies, which might negatively affect the interest-sensitive components of domestic demand. Balance sheet and funding constraints are a particular concern for emerging market economies with considerable international financial integration, in which—as discussed in the *2015 Spillover Report* (IMF 2015b) and the October 2015 GFSR—foreign-currency corporate debt has increased substantially over the past few years. Much of the increase has been in the energy sector, in which a high share of revenue in U.S. dollars provides a natural hedge, although increased leverage in the sector remains a concern, especially if energy prices were to fall while the dollar appreciated. In addition, foreign-currency debt is also higher in firms operating in sectors without natural revenue hedges, especially the nontradables sector.

Geopolitical Risks

Ongoing events around Ukraine, the Middle East, and parts of Africa could lead to escalation in tensions and increased disruptions in global trade and financial transactions. Disruptions in energy and other commodity markets remain a particular concern, given the possibility of sharp price spikes, which, depending on their duration, could substantially lower real incomes and demand in importers. More generally, an escalation of such tensions could take a toll on confidence.

Secular Stagnation and Hysteresis

The risk of a protracted shortfall of domestic demand associated with excess saving (discussed in more detail in a scenario analysis in the October 2014 WEO) will remain a concern. In some advanced economies, especially in the euro area, demand continues to be relatively weak, and output gaps are still large. Inflation is expected to stay below target beyond the usual monetary policy horizons, and deflation risks—while lower than in April—remain elevated amid crisis legacies and constraints on monetary policy at the zero lower bound (Figure 1.15, panel 2). Furthermore, after six years of demand weakness, the likelihood of damage to potential output is increasingly a concern, and the considerations previously presented under risks from lower potential output apply.

A Combined Risk Scenario

The possible global repercussions of a generalized slowdown in emerging market and developing economies are presented in Scenario Box 1. The scenario includes the materialization of a number of risks highlighted earlier—a slowdown in investment and growth across emerging market economies, more severe in faster-growing economies such as China and India; lower commodity prices, arising from this slowdown; and higher risk premiums and exchange rate depreciation across emerging market economies. The implications for growth in emerging market economies and developing countries would be sizable, with growth rates 1.5 to 2 percentage points lower after five years—even though the model assumes no "sudden stop" in capital flows or crisis outcomes with contagion effects. Spillovers onto advanced economies would also be material, with growth about 0.2 to 0.3 percentage point lower after five years, depending on whether risk aversion toward emerging market assets increases, and a sizable deterioration in current account balances, despite the partial offset from lower commodity prices.

Policies

Raising actual and potential output continues to be a general policy priority. Specific policy requirements vary from country group to country group and among individual countries, although there is a broad need for structural reforms in many economies, advanced and emerging market alike. In this regard, more countries should capitalize on the opportunities that lower energy prices offer to reform energy subsidies and taxes. Addressing external vulnerabilities is also of the essence in a number of emerging market and developing economies facing a more difficult external environment.

Policies for Full Employment and Stable Inflation in Advanced Economies

With nominal policy rates still at or close to the zero lower bound in many countries, reducing risks to activity from low inflation and prolonged demand deficiency remains a priority for macroeconomic policy. In particular, to prevent real interest rates from rising prematurely, monetary policy must stay accommodative, including through unconventional measures (such

Scenario Box 1. A Structural Slowing in Emerging Market Economies

Two simulations employing the IMF's G20 Model are used to examine the global impact of a stronger-than-expected slowing in potential output growth in emerging market economies. In both simulations, investors expect lower growth in the future, because of slower catching up and lower productivity growth, as well as because of lower capital inflows and tighter financial conditions. Hence, they reduce investment expenditure relative to the *World Economic Outlook* (WEO) baseline projections, resulting in weaker domestic demand in emerging market economies. In particular, the sizable decline in investment and growth in China—together with the generalized slowdown across emerging market economies—implies a sizable weakening of commodity prices, particularly those for metals, resulting in a weakening of the terms of trade for commodity exporters.

Investment growth in emerging market economies is assumed to decline annually by about 4 percentage points on average relative to the baseline in both simulations. The decline varies within regions: countries with weaker baseline medium-term growth projections see a smaller decline. This reflects the assumption of a broader slowing in economic convergence in the current global environment.

The lower investment growth and the resulting weaker domestic demand conditions reduce potential output in emerging market economies. The negative impact operates not only through the relatively lower growth in the capital stock, but also through a reduction in total factor productivity growth. The latter reflects the assumption of new technology being embodied in new capital. Lower investment growth therefore results in a lower rate of technological progress, with the decline assumed to be proportional to the slowing in investment growth. In addition, weaker domestic demand leads to higher unemployment, which, in turn, results in a reduction in labor supply. Skill depreciation among the unemployed leads to a higher natural rate of unemployment, and discouraged workers withdraw from the labor force.

The first simulation focuses on the real side of the shock, while in the second simulation, the stronger slowing in potential output also leads to increased risk aversion toward emerging market assets. The reason is that investors worry about return prospects on assets and default risks on loans made before expected growth fell. As a result, risk premiums on assets issued by entities in these economies increase at the outset by 100 basis points, and their currencies depreciate by 10 percent relative to the dollar. The increase in risk aversion and premiums is akin to the decompression of risk premiums in the global asset market disruption scenario in the October 2015 *Global Financial Stability Report,* except that in the risk scenario examined in this box, it is confined to emerging market economies where the shock originates.

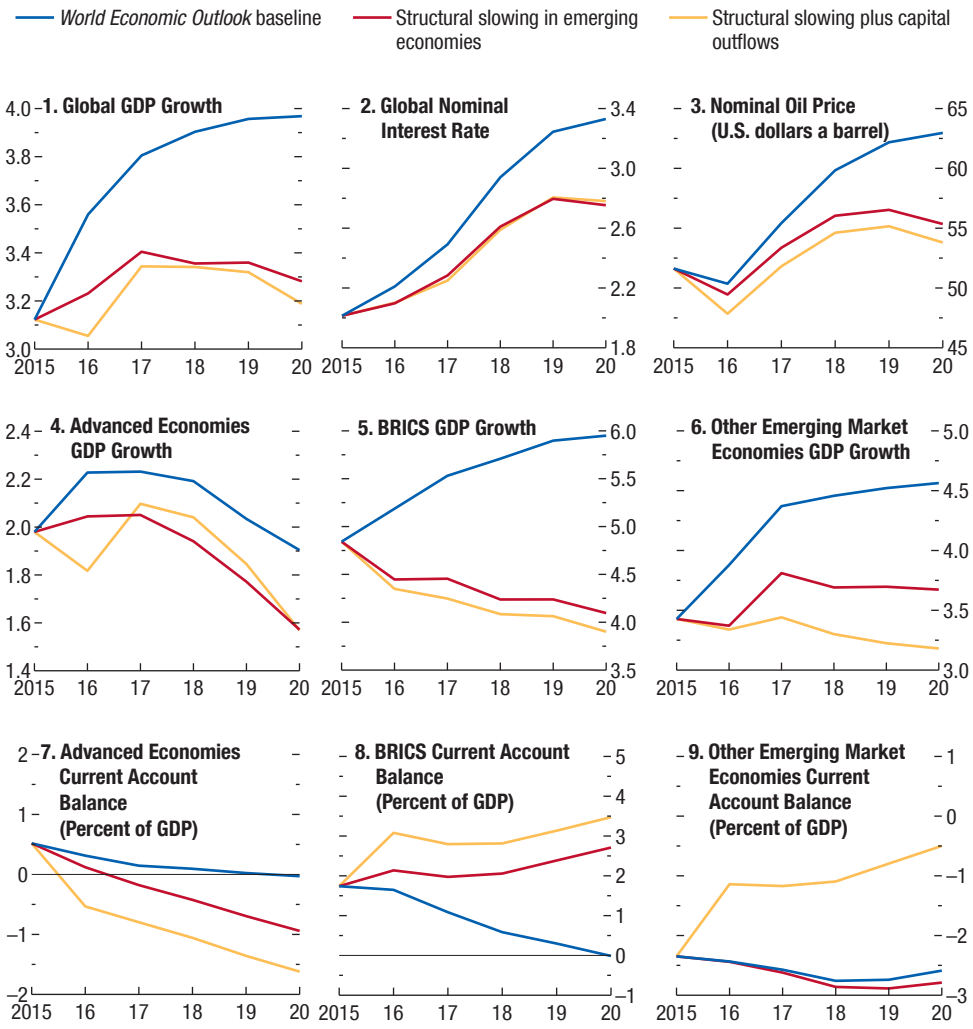
In the first simulation (red lines in Scenario Figure 1), growth in 2016 would be about 0.4 percentage point below the WEO baseline (blue lines in the figure). Economic growth in the major emerging market economies (Brazil, Russia, India, China, South Africa) would gradually decline by 1 percentage point relative to 2015. Compared with the baseline, this would amount to a sizable growth differential of 2 percentage points after five years. In other emerging market economies, growth would remain broadly unchanged relative to 2015, rather than increasing by about 1 percentage point under the baseline.

The growth rebound in advanced economies in 2016 would be smaller. Lower global interest rates and a more modest recovery in oil prices would boost domestic demand in these economies relative to the baseline. Lower interest rates would reflect both weaker global activity and the monetary policy response across the globe. But the positive domestic demand impact from lower interest rates and oil prices in advanced economies would be more than offset by the effects of weaker external demand. In fact, the scenario suggests substantial demand rebalancing. Currencies of emerging market economies would depreciate in real effective terms, and these economies' current accounts would improve with the positive impact on net exports. Conversely, advanced economies would see real appreciation and a deterioration in current accounts. Overall, the spillovers to advanced economies from the structural slowdown in emerging market economies would be negative.

In a second simulation, in which lower growth prospects in emerging market economies also heighten risk aversion, growth in emerging market economies would decline by more (yellow lines in the figure). While the depreciations and initial tightening in financial conditions would gradually dissipate, there would be some persistent tightening in financial conditions broadly proportional to emerging market economies' growth slowdowns, highlighting the amplifying role of financial channels in the transmission of the shock. There would be no pickup in global growth in 2016, and average growth would be lower across all country groups over

Scenario Box 1 *(continued)*

Scenario Figure 1. *World Economic Outlook* Stagnation Scenario
(Percent, unless noted otherwise)



Sources: IMF, G20MOD simulations; and IMF staff estimates.
Note: BRICS = Brazil, Russia, India, China, South Africa. Other emerging market economies = Albania, Antigua and Barbuda, Argentina, Armenia, The Bahamas, Bangladesh, Belarus, Belize, Benin, Bhutan, Bolivia, Bosnia and Herzegovina, Bulgaria, Burkina Faso, Burundi, Cabo Verde, Cambodia, Cameroon, Chile, Colombia, Comoros, Democratic Republic of the Congo, Costa Rica, Côte d'Ivoire, Djibouti, Dominica, Dominican Republic, El Salvador, Eritrea, Ethiopia, The Gambia, Georgia, Ghana, Grenada, Guatemala, Guinea, Guyana, Haiti, Honduras, Hungary, Indonesia, Jamaica, Kenya, Kiribati, Kosovo, Kyrgyz Republic, Lao P.D.R., Latvia, Lesotho, Liberia, Lithuania, FYR Macedonia, Madagascar, Malawi, Maldives, Mali, Mauritania, Mauritius, Mexico, Moldova, Montenegro, Morocco, Mozambique, Myanmar, Namibia, Nepal, Niger, Panama, Papua New Guinea, Paraguay, Peru, Philippines, Romania, Rwanda, Samoa, São Tomé and Príncipe, Senegal, Serbia, Sierra Leone, Solomon Islands, South Sudan, Sri Lanka, St. Kitts and Nevis, St. Lucia, Sudan, Suriname, Swaziland, Tajikistan, Tanzania, Thailand, Tonga, Tunisia, Turkey, Tuvalu, Uganda, Ukraine, Vanuatu, Vietnam, Zambia, Zimbabwe.

the next five years. The decline in growth in emerging market economies would be partly cushioned by stronger net exports, and their current account balances would improve substantially, reflecting the weakness in domestic demand as well as the real depreciation. On the other hand, advanced economies would see a sizable deterioration in current account balances, given weaker external demand and stronger currencies.

as large-scale asset purchases, but also negative policy rates where effective). It is important, however, that the overall policy mix be supportive. Monetary policy efforts should be accompanied by efforts to strengthen balance sheets and the credit supply channel, and by the active use of macroprudential policies to address financial stability risks. Complementary fiscal policy action in countries with fiscal space is also important, supporting global rebalancing, and demand-supporting structural reforms are necessary, in particular to improve productivity and stimulate investment. Managing high public debt in a low-growth and low-inflation environment also remains a key challenge in many advanced economies. Nominal income growth contributes little to reducing debt ratios in this environment, and fiscal consolidation would be the main means for achieving more sustainable public debt levels. But if the pace of consolidation is not attuned to the strength of the economic conditions, it risks lowering growth and putting downward pressure on prices, thereby offsetting the direct positive effect of consolidation on debt ratios.

Within these broad contours, challenges differ considerably across countries.

In the *euro area*, the pickup in activity is welcome, but the recovery remains modest and uneven. Output gaps are still sizable, and projections suggest that euro-area-wide inflation will remain below target into the medium term. Hence, ensuring a stronger euro-area-wide recovery must remain a priority, helping global rebalancing and with positive spillovers through trade and financial channels.

- On the monetary policy front, the European Central Bank's expanded asset purchase program has boosted confidence and eased financial conditions. These monetary policy efforts must continue and should be supported by measures to strengthen bank balance sheets, which would help improve monetary policy transmission and credit market conditions. Stricter supervision of nonperforming loans and measures to improve insolvency and foreclosure procedures are a priority in this regard.
- On the fiscal policy front, countries should adhere to their commitments under the Stability and Growth Pact. Nevertheless, countries with fiscal space, notably Germany and the Netherlands, could do more to encourage growth, especially by undertaking much-needed infrastructure investment and supporting structural reforms. Countries without fiscal space should continue to reduce debt and meet their fiscal targets. In general, all countries should pursue growth-friendly fiscal rebalancing that lowers marginal taxes on labor and capital, financed by cuts to unproductive spending or measures to broaden the tax base. Swift implementation of investments related to the European Fund for Strategic Investments could help support the recovery, particularly in countries with limited fiscal space.

In *Japan*, near-term prospects for economic activity have weakened, while medium-term inflation expectations are stuck substantially below the 2 percent inflation target. At the same time, potential output growth remains low.

- On the monetary policy front, the Bank of Japan should stand ready for further easing, preferably by extending purchases under its quantitative and qualitative monetary easing program to longer-maturity assets. It should also consider providing stronger guidance to markets by moving to more forecast-oriented monetary policy communication. This would increase the transparency of its assessment of inflation prospects and signal its commitment to the country's inflation target, mainly through the discussion of envisaged policy changes if inflation is not on track.
- On the fiscal front, the announced medium-term fiscal consolidation plan provides a useful anchor to guide fiscal policy. Japan should aim to put debt on a downward path, based on realistic economic assumptions, and specific structural revenue and expenditure measures should be identified up front.

In the *United States*, conditions for further job creation and improvement in labor market conditions remain in place, notwithstanding lower productivity growth and the less favorable prospects for exports in light of the sharp dollar appreciation.

- On the monetary policy front, the main near-term policy issue is the appropriate timing and pace of monetary policy normalization. The Federal Open Market Committee's decisions should remain data dependent, with the first increase in the federal funds rate waiting until there are firmer signs of inflation rising steadily toward the Federal Reserve's 2 percent medium-term inflation objective, with continued strength in the labor market. At present a broad range of indicators suggest a notable improvement in the labor market, but there is little evidence of accelerating wage and price pressures. Regardless of the timing of the initial policy move, the data would suggest that the pace of subsequent rate

increases should be gradual. An effective monetary policy communication strategy will remain essential, particularly in an environment of higher financial market volatility in which spillovers through financial channels could be material.
- On the fiscal policy front, the priority remains to agree on a medium-term fiscal consolidation plan to prepare for rising aging-related fiscal costs, while avoiding disruptive changes to the fiscal stance in the short term because of political gridlock. A credible medium-term fiscal plan will need to include higher tax revenue.

Structural Reforms

Potential output growth in advanced economies is expected to remain weak compared with precrisis standards. The main reasons for the subdued forecast are population aging, which underlies the projected low growth and possible decline in trend employment under current policies affecting labor force participation, and weak productivity growth. A first priority for structural policies therefore is to strengthen both labor force participation and trend employment.

- In Japan, removing tax disincentives and raising the availability of child care facilities through deregulation would help to boost female labor force participation further. Increasing reliance on foreign labor and providing incentives for older workers to remain in the workforce should also help in avoiding declines in trend employment.
- In the euro area, where structural, long-term, and youth unemployment are high in many economies, an important concern is skill erosion and its effect on trend employment. In addition to macroeconomic policies to boost demand, priorities include lower disincentives to employment—among them lowering the labor tax wedge—as well as better-targeted training programs and active labor market policies.
- In the United States, expanding the earned income tax credit, better family benefits (including child care assistance), and immigration reform would help boost labor supply.

Increasing productivity growth through structural policies is challenging. But a number of high-priority structural measures would likely boost productivity through their direct or indirect effects on investment (as new technology is embodied in new capital) and through the effects of labor market reforms on incentives for learning and human capital development.

- In a number of advanced economies (including several countries in the euro area as well as the United States), there is a strong case for greater infrastructure investment. In addition to boosting medium-term potential output, partly by making private investment more efficient, such investment would also provide much-needed short-term support to domestic demand in some of these economies.
- In euro area economies, lowering barriers to entry in product markets and reforming labor market regulations that hamper adjustment are critical. In debtor economies, these changes would strengthen external competitiveness and help sustain gains in external adjustment while economies recover, whereas in creditor economies, they would primarily strengthen investment and employment. Further progress should also be made in implementing the European Union Services Directive, advancing free-trade agreements, and integrating capital and energy markets, which could raise productivity. And as mentioned earlier, reforms tackling legacy debt overhang (for instance, through resolving nonperforming loans, facilitating out-of-court settlement, and improving insolvency frameworks) would help credit demand and supply recover.
- In Japan, more forceful structural reforms (the third arrow of Abenomics) should be the priority. Measures to increase labor force participation are essential, as previously discussed, but there is also scope for raising productivity in the services sector through deregulation, invigorating labor productivity by reducing labor market duality, and supporting investment through corporate governance reform as well as improvements to the provision of risk capital by the financial system.

Policies to Foster Growth and Manage Vulnerabilities in Emerging Market and Developing Economies

Policymakers in emerging market economies face the challenge of dealing with slowing growth, more difficult external conditions, and increased vulnerabilities after a decade or so of buoyant growth. While the resilience to external shocks has increased in many emerging market economies because of increased exchange rate flexibility, higher foreign exchange reserves, more robust external financing patterns, and generally stronger policy frameworks, there are a number of important policy challenges and trade-offs to consider.

- *The extent of economic slack might be small despite the growth slowdown*. An important consideration for the calibration of macroeconomic policies is the degree of economic slack. The latter might be smaller than the sizable growth slowdown since 2011 in many emerging market economies might suggest. The reason is that the growth slowdown partly reflects a cyclical return to potential output after overheating in broad credit and investment booms, driven by factors such as increasing commodity prices and easing financial conditions for emerging market economies.[11] In addition, as discussed in Chapter 2, in countries where the growth slowdown has been partly driven by lower commodity prices, potential output growth is likely to have declined as well and might decrease further, given the weaker commodity price outlook. The evidence of slowing productivity growth in major emerging market economies in recent years adds to these concerns.[12]
- *Monetary conditions have eased with exchange rate depreciation, but vulnerabilities might limit the scope for monetary easing.* Amid greater exchange rate flexibility, substantial currency depreciation in real effective terms in many emerging market economies has contributed to easier monetary conditions. Whether economic conditions also call for monetary policy easing raises difficult trade-offs. Real policy rates are already below natural rates in many economies, and lowering rates could trigger sizable further depreciation. This could increase financial stability risks, given higher corporate leverage and balance sheet exposure to foreign-currency risks in many emerging market economies (as analyzed in Chapter 3 of the October 2015 GFSR). Moreover, if monetary policy frameworks lack credibility or policy credibility is strained, the concern is that depreciation could also lead to persistently higher prices and pressure for further exchange rate depreciation, a particular worry when inflation is already above target.
- *The likelihood of further currency depreciation in emerging market economies may require stronger regulatory and macroprudential frameworks.* Emerging market and developing economies not relying on exchange rate pegs have to be ready to allow the exchange rate to respond to adverse external shocks. In some countries, this may require strengthening the credibility of monetary and fiscal policy frameworks, while balance sheet exposures to foreign exchange risks need to remain manageable. The latter calls for enforcing or (if needed) strengthening prudential regulation and supervision as well as adequate macroprudential frameworks.
- *Increased vulnerabilities might also introduce fiscal policy trade-offs.* Public debt ratios are relatively low in a number of emerging market economies, although budget deficits generally remain above precrisis ratios despite the strong recovery after the global financial crisis. Fiscal easing could support demand when output gaps are large and monetary policy is constrained, but it would also increase vulnerabilities in the current context, mostly because of risks of higher country risk premiums in the broader context of capital flow reversal risks. In economies with preexisting fiscal vulnerabilities, the fiscal space is thus likely to be limited. In addition, in economies with downward revisions to medium-term growth prospects, fiscal policy might have to adjust to lower fiscal revenue at full employment, a first-order issue notably in commodity exporters, given commodity price declines.

Beyond the common context, policy considerations for net commodity exporters generally differ from those for net commodity importers.

- In many net commodity importers, lower commodity prices have alleviated inflation pressure and reduced external vulnerabilities with the terms-of-trade windfall gains. The trade-off between supporting demand if there is economic slack and reducing macroeconomic vulnerabilities has become less pronounced as a result. In some importers with commodity-related subsidies, the windfall gains from lower oil prices have been used to increase public sector savings and strengthen fiscal positions. Whether the improved fiscal policy space should be used depends on the extent of economic slack, the strength of the economy's fiscal position, and the need for structural reforms or growth-enhancing spending (on, for example, infrastructure).
- In commodity exporters, fiscal positions have deteriorated and external and fiscal vulnerabilities have increased. The urgency to adjust policies varies considerably, depending on fiscal buffers. Exporters with buffers can afford to adjust government spending gradually to avoid exacerbating the slowdown. Nev-

[11]See Box 1.2 of the October 2013 WEO.
[12]See Chapter 3 of the April 2015 WEO.

ertheless, with some of the commodity price decline expected to be permanent, it will be important to assess the revenue implications and plan for fiscal adjustment. In exporters with limited policy space, allowing substantial exchange rate depreciation will be the main avenue available to cushion the impact of the commodity price shock on their economies. As discussed in the October 2015 *Fiscal Monitor*, the weaker commodity price outlook also highlights that in some commodity exporters, fiscal policy frameworks might need to be upgraded to factor in commodity-market-related uncertainty and to provide a longer-term anchor to guide policy decisions.

Turning to policy requirements in large emerging market economies, policymakers in *China* face the challenge of simultaneously achieving three objectives: avoiding a sharp growth slowdown in the transition to more sustainable patterns of growth, reducing vulnerabilities from excess leverage after a credit and investment boom, and strengthening the role of market forces in the economy. Modest further policy support to ensure that growth does not fall sharply is likely to be needed, but further progress in implementing the authorities' structural reforms will be critical for private consumption to pick up some of the slack from slowing investment growth. The core of the reforms is to give market mechanisms a more decisive role in the economy, eliminate distortions, and strengthen institutions. Examples include financial sector reforms to strengthen regulation and supervision, liberalize deposit rates, increase the reliance on interest rates as an instrument of monetary policy, and eliminate widespread implicit guarantees; fiscal and social security reforms; and reforms of state-owned enterprises, including leveling the playing field between the public and private sectors. The recent change in China's exchange rate system provides the basis for a more market-determined exchange rate, but much depends on implementation. A floating exchange rate will enhance monetary policy autonomy and help the economy adjust to external shocks, as China continues to become more integrated into both the global economy and global financial markets.

In *India*, near-term growth prospects remain favorable, and the decrease in the current account deficit has lowered external vulnerabilities. The faster-than-expected decline in inflation has created space for considering modest cuts in the nominal policy rate, but the real policy rate needs to remain tight for inflation to decline to the inflation target in the medium term, given upside risks to inflation. Continued fiscal consolidation is also essential, but it should be more growth friendly (tax reform, reduction in subsidies). With balance sheet strains in the corporate and banking sectors, financial sector regulation should be enhanced, provisioning increased, and debt recovery strengthened. Structural reforms should focus on relaxing long-standing supply constraints in the energy, mining, and power sectors. Priorities include market-based pricing of natural resources to boost investment, addressing delays in the implementation of infrastructure projects, and improving policy frameworks in the power and mining sectors.

Several years of downgraded medium-term growth prospects suggest that it is also time for major emerging market economies to turn to important structural reforms to raise productivity and growth in a lasting way. Although the slowing in estimated total factor productivity growth in major emerging market economies is partly a natural implication of recent progress in convergence, as discussed in Chapter 3 of the April 2015 WEO, the concern is that potential output growth has become too dependent on factor accumulation in some economies. The structural reform agenda naturally differs across countries, but it includes removing infrastructure bottlenecks in the power sector (India, Indonesia, South Africa); easing limits on trade and investment and improving business conditions (Brazil, Indonesia, Russia); and implementing reforms to education, labor, and product markets to raise competitiveness and productivity (Brazil, China, India, South Africa) and government services delivery (South Africa).

Policies in Low-Income Countries

Growth in low-income countries as a group has stayed high while growth in emerging market economies has weakened. But with weak activity in advanced economies, a slowdown in emerging market economies, and lower commodity prices, low-income countries' growth prospects for 2015 and beyond have been revised downward. In addition, greater access to foreign-market financing has increased some low-income countries' exposure to a possible tightening in global financial conditions.

Policies must respond to the increased challenges and vulnerabilities. In some countries, fiscal positions must be improved against the backdrop of lower

commodity and other export-related revenue and the possibility of some future growth moderation. Specific requirements vary from country to country, but general priorities include broadening the revenue base and adjusting nonessential expenditure while maintaining essential capital expenditure to address infrastructure gaps and social spending.

In many low-income countries, allowing for exchange rate flexibility will help the adjustment to less favorable external demand and financial conditions. But such flexibility may require steps to tighten the macroeconomic policy stance and to strengthen the monetary policy framework to limit damaging second-round effects on domestic prices. And for commodity exporters, especially those with limited buffers, fiscal consolidation will be needed to adjust to lower commodity revenue. Commodity exporters also need a longer-term anchor for fiscal policy, given commodity-price-related uncertainty. The anchor should provide for sufficient longer-term fiscal buffers to deal with large and persistent shocks, and, where relevant, resource depletion. It will also be critical for commodity exporters to manage foreign-currency exposures in balance sheets carefully.

Low-income countries also need to make progress in meeting the Sustainable Development Goals, which replaced the Millennium Development Goals in September. Progress in attaining the Millennium Development Goals was uneven, and the global financial crisis set back the hard-won gains in many cases. The poorest states, fragile states, and conflict-affected states continue to face severe challenges in meeting their development priorities.

Measures to address the growth challenges and vulnerabilities discussed earlier will be important for progress on these development goals. Policies to foster sustainable resource mobilization to boost growth and promote economic diversification will also be important. Priorities vary across countries, but broadly include measures to strengthen fiscal revenue, promote financial deepening, and attract foreign capital flows. The international community, including advanced and systemically important emerging market economies, will also need to play an important supportive role in maintaining an enabling external environment. Priorities include further trade liberalization, providing development aid and technical assistance, completing the global regulatory reform agenda, and cooperating on international taxation and climate change issues.

Annex 1.1. Regional Projections

The tables in this annex formerly appeared in Chapter 2, "Country and Regional Perspectives," which has now been integrated into Chapter 1. Beginning with this *World Economic Outlook* report, these tables will appear instead in this annex to Chapter 1. For reader convenience, the following shows the old and new numbering of the tables:

Annex Table (New) Number	Title	Old Number
1.1.1	European Economies: Real GDP, Consumer Prices, Current Account Balance, and Unemployment	2.2
1.1.2	Asian and Pacific Economies: Real GDP, Consumer Prices, Current Account Balance, and Unemployment	2.3
1.1.3	Western Hemisphere Economies: Real GDP, Consumer Prices, Current Account Balance, and Unemployment	2.4
1.1.4	Commonwealth of Independent States Economies: Real GDP, Consumer Prices, Current Account Balance, and Unemployment	2.5
1.1.5	Middle East and North African Economies, Afghanistan, and Pakistan: Real GDP, Consumer Prices, Current Account Balance, and Unemployment	2.6
1.1.6	Sub-Saharan African Economies: Real GDP, Consumer Prices, Current Account Balance, and Unemployment	2.7

Annex Table 1.1.1. European Economies: Real GDP, Consumer Prices, Current Account Balance, and Unemployment

(Annual percent change, unless noted otherwise)

	Real GDP			Consumer Prices[1]			Current Account Balance[2]			Unemployment[3]		
		Projections			Projections			Projections			Projections	
	2014	2015	2016	2014	2015	2016	2014	2015	2016	2014	2015	2016
Europe	**1.6**	**1.9**	**2.0**	**1.2**	**0.7**	**1.5**	**1.7**	**2.2**	**2.0**	. . .	. . .	. . .
Advanced Europe	**1.3**	**1.7**	**1.8**	**0.6**	**0.2**	**1.1**	**2.2**	**2.6**	**2.5**	**10.2**	**9.6**	**9.2**
Euro Area[4,5]	0.9	1.5	1.6	0.4	0.2	1.0	2.0	3.2	3.0	11.6	11.0	10.5
Germany	1.6	1.5	1.6	0.8	0.2	1.2	7.4	8.5	8.0	5.0	4.7	4.7
France	0.2	1.2	1.5	0.6	0.1	1.0	–0.9	–0.2	–0.4	10.3	10.2	9.9
Italy	–0.4	0.8	1.3	0.2	0.2	0.7	1.9	2.0	2.3	12.7	12.2	11.9
Spain	1.4	3.1	2.5	–0.2	–0.3	0.9	0.8	0.9	1.1	24.5	21.8	19.9
Netherlands	1.0	1.8	1.9	0.3	1.0	1.3	10.2	9.6	9.2	7.4	7.2	7.0
Belgium	1.1	1.3	1.5	0.5	0.7	1.1	1.6	2.1	2.1	8.5	8.5	8.3
Austria	0.4	0.8	1.6	1.5	1.0	1.7	0.7	1.6	1.7	5.6	5.8	5.6
Greece	0.8	–2.3	–1.3	–1.5	–0.4	0.0	0.9	0.7	1.5	26.5	26.8	27.1
Portugal	0.9	1.6	1.5	–0.2	0.6	1.3	0.6	0.7	1.6	13.9	12.3	11.3
Ireland	5.2	4.8	3.8	0.3	0.2	1.5	3.6	3.2	3.0	11.3	9.6	8.5
Finland	–0.4	0.4	0.9	1.2	0.0	1.3	–1.9	–1.1	–0.7	8.7	9.5	9.5
Slovak Republic	2.4	3.2	3.6	–0.1	–0.1	1.4	0.1	0.1	0.1	13.2	11.9	11.1
Lithuania	2.9	1.8	2.6	0.2	–0.4	1.6	0.1	–2.2	–2.4	10.7	10.6	10.0
Slovenia	3.0	2.3	1.8	0.2	–0.4	0.7	7.0	6.7	6.2	9.7	8.7	8.1
Luxembourg	5.6	4.4	3.4	0.7	0.3	1.6	5.1	5.6	5.6	7.2	6.9	6.8
Latvia	2.4	2.2	3.3	0.7	0.4	1.8	–3.1	–1.7	–2.7	10.8	10.4	10.2
Estonia	2.9	2.0	2.9	0.5	0.2	1.6	0.1	0.6	0.3	7.4	6.8	6.5
Cyprus	–2.3	0.5	1.4	–0.3	–1.0	0.9	–4.5	–4.2	–3.8	16.1	16.0	15.0
Malta	3.5	3.4	3.5	0.8	1.0	1.4	3.3	1.5	1.3	5.9	5.7	5.5
United Kingdom[5]	3.0	2.5	2.2	1.5	0.1	1.5	–5.9	–4.7	–4.3	6.2	5.6	5.5
Switzerland	1.9	1.0	1.3	0.0	–1.1	–0.2	7.3	7.2	7.0	3.2	3.4	3.6
Sweden	2.3	2.8	3.0	0.2	0.5	1.1	6.2	6.7	6.7	7.9	7.7	7.6
Norway	2.2	0.9	1.3	2.0	2.3	2.2	9.4	7.0	5.4	3.5	4.2	4.3
Czech Republic	2.0	3.9	2.6	0.4	0.4	1.5	0.6	1.7	1.2	6.1	5.2	4.9
Denmark	1.1	1.6	2.0	0.6	0.5	1.8	6.3	7.0	7.2	6.5	6.2	6.0
Iceland	1.8	4.8	3.7	2.0	2.1	4.5	3.4	4.6	3.4	5.0	4.3	4.1
San Marino	–1.0	1.0	1.1	1.1	0.4	0.9	. . .	. . .	. . .	8.7	8.4	7.9
Emerging and Developing Europe[6]	**2.8**	**3.0**	**3.0**	**3.8**	**2.9**	**3.5**	**–2.9**	**–2.1**	**–2.4**	. . .	. . .	. . .
Turkey	2.9	3.0	2.9	8.9	7.4	7.0	–5.8	–4.5	–4.7	9.9	10.8	11.2
Poland	3.4	3.5	3.5	0.0	–0.8	1.0	–1.3	–0.5	–1.0	9.0	7.5	7.2
Romania	2.8	3.4	3.9	1.1	–0.4	–0.2	–0.4	–0.7	–1.5	6.8	6.9	6.8
Hungary	3.6	3.0	2.5	–0.2	0.3	2.3	4.0	5.0	4.3	7.8	7.3	7.0
Bulgaria[5]	1.7	1.7	1.9	–1.6	–0.8	0.6	0.0	1.0	0.2	11.5	10.3	9.7
Serbia	–1.8	0.5	1.5	2.1	1.6	3.4	–6.0	–4.0	–3.8	19.7	20.6	21.8
Croatia	–0.4	0.8	1.0	–0.2	–0.4	1.1	0.7	1.7	1.5	17.1	16.6	16.1

Note: Data for some countries are based on fiscal years. Please refer to Table F in the Statistical Appendix for a list of economies with exceptional reporting periods.

[1]Movements in consumer prices are shown as annual averages. Year-end to year-end changes can be found in Tables A6 and A7 in the Statistical Appendix.

[2]Percent of GDP.

[3]Percent. National definitions of unemployment may differ.

[4]Data for Lithuania are included in the euro area aggregates but were excluded in the April 2015 *World Economic Outlook*. Current account position corrected for reporting discrepancies in intra-area transactions.

[5]Based on Eurostat's harmonized index of consumer prices.

[6]Includes Albania, Bosnia and Herzegovina, Kosovo, FYR Macedonia, and Montenegro.

Annex Table 1.1.2. Asian and Pacific Economies: Real GDP, Consumer Prices, Current Account Balance, and Unemployment

(Annual percent change, unless noted otherwise)

	Real GDP			Consumer Prices[1]			Current Account Balance[2]			Unemployment[3]		
		Projections			Projections			Projections			Projections	
	2014	2015	2016	2014	2015	2016	2014	2015	2016	2014	2015	2016
Asia	**5.6**	**5.4**	**5.4**	**3.2**	**2.5**	**2.8**	**1.7**	**2.6**	**2.4**	. . .	. . .	. . .
Advanced Asia	**1.6**	**1.5**	**2.0**	**2.2**	**0.8**	**1.2**	**2.2**	**3.7**	**3.5**	**3.8**	**3.9**	**3.8**
Japan	–0.1	0.6	1.0	2.7	0.7	0.4	0.5	3.0	3.0	3.6	3.5	3.5
Korea	3.3	2.7	3.2	1.3	0.7	1.8	6.3	7.1	6.7	3.5	3.7	3.5
Australia	2.7	2.4	2.9	2.5	1.8	2.6	–3.0	–4.0	–4.1	6.1	6.3	6.2
Taiwan Province of China	3.8	2.2	2.6	1.2	–0.1	1.0	12.4	12.4	11.8	4.0	4.0	4.0
Singapore	2.9	2.2	2.9	1.0	0.0	1.8	19.1	20.8	18.0	2.0	2.0	2.0
Hong Kong SAR	2.5	2.5	2.7	4.4	2.9	3.0	1.9	2.2	2.5	3.2	3.2	3.1
New Zealand	3.3	2.2	2.4	1.2	0.2	1.5	–3.3	–4.7	–5.6	5.7	5.8	5.8
Emerging and Developing Asia	**6.8**	**6.5**	**6.4**	**3.5**	**3.0**	**3.2**	**1.4**	**2.0**	**1.8**	. . .	. . .	. . .
China	7.3	6.8	6.3	2.0	1.5	1.8	2.1	3.1	2.8	4.1	4.1	4.1
India	7.3	7.3	7.5	5.9	5.4	5.5	–1.3	–1.4	–1.6	. . .	. . .	. . .
ASEAN-5	**4.6**	**4.6**	**4.9**	**4.6**	**3.7**	**4.0**	**1.1**	**1.3**	**1.1**	. . .	. . .	. . .
Indonesia	5.0	4.7	5.1	6.4	6.8	5.4	–3.0	–2.2	–2.1	6.1	5.8	5.6
Thailand	0.9	2.5	3.2	1.9	–0.9	1.5	3.3	6.2	5.4	0.8	0.8	0.8
Malaysia	6.0	4.7	4.5	3.1	2.4	3.8	4.3	2.2	2.1	2.9	3.0	3.0
Philippines	6.1	6.0	6.3	4.2	1.9	3.4	4.4	5.0	4.5	6.8	6.3	6.0
Vietnam	6.0	6.5	6.4	4.1	2.2	3.0	4.9	0.7	–0.9	2.5	2.5	2.5
Other Emerging and Developing Asia[4]	**6.6**	**6.6**	**6.7**	**5.9**	**6.3**	**6.6**	**–1.7**	**–3.2**	**–3.7**	. . .	. . .	. . .
Memorandum												
Emerging Asia[5]	6.8	6.5	6.3	3.4	2.8	3.1	1.5	2.2	2.0	. . .	. . .	. . .

Note: Data for some countries are based on fiscal years. Please refer to Table F in the Statistical Appendix for a list of economies with exceptional reporting periods.

[1]Movements in consumer prices are shown as annual averages. Year-end to year-end changes can be found in Tables A6 and A7 in the Statistical Appendix.

[2]Percent of GDP.

[3]Percent. National definitions of unemployment may differ.

[4]Other Emerging and Developing Asia comprises Bangladesh, Bhutan, Brunei Darussalam, Cambodia, Fiji, Kiribati, Lao P.D.R., Maldives, Marshall Islands, Micronesia, Mongolia, Myanmar, Nepal, Palau, Papua New Guinea, Samoa, Solomon Islands, Sri Lanka, Timor-Leste, Tonga, Tuvalu, and Vanuatu.

[5]Emerging Asia comprises the ASEAN-5 (Indonesia, Malaysia, Philippines, Thailand, Vietnam) economies, China, and India.

Annex Table 1.1.3. Western Hemisphere Economies: Real GDP, Consumer Prices, Current Account Balance, and Unemployment

(Annual percent change, unless noted otherwise)

	Real GDP			Consumer Prices[1]			Current Account Balance[2]			Unemployment[3]		
		Projections			Projections			Projections			Projections	
	2014	2015	2016	2014	2015	2016	2014	2015	2016	2014	2015	2016
North America	**2.4**	**2.4**	**2.7**	**1.9**	**0.4**	**1.4**	**–2.2**	**–2.6**	**–2.8**	. . .	. . .	. . .
United States	2.4	2.6	2.8	1.6	0.1	1.1	–2.2	–2.6	–2.9	6.2	5.3	4.9
Canada	2.4	1.0	1.7	1.9	1.0	1.6	–2.1	–2.9	–2.3	6.9	6.8	6.8
Mexico	2.1	2.3	2.8	4.0	2.8	3.0	–1.9	–2.4	–2.0	4.8	4.3	4.0
South America[4]	**0.7**	**–1.5**	**–0.3**	**9.9**	**15.8**	**15.0**	**–3.2**	**–3.5**	**–3.3**	. . .	. . .	. . .
Brazil	0.1	–3.0	–1.0	6.3	8.9	6.3	–4.4	–4.0	–3.8	4.8	6.6	8.6
Argentina[5,6]	0.5	0.4	–0.7	. . .	16.8	25.6	–1.0	–1.8	–1.6	7.3	6.9	8.4
Colombia	4.6	2.5	2.8	2.9	4.4	3.5	–5.2	–6.2	–5.3	9.1	9.0	8.9
Venezuela	–4.0	–10.0	–6.0	62.2	159.1	204.1	5.3	–3.0	–1.9	8.0	14.0	18.1
Chile	1.9	2.3	2.5	4.4	4.4	3.7	–1.2	–0.7	–1.6	6.4	6.6	7.0
Peru	2.4	2.4	3.3	3.2	3.2	2.8	–4.0	–3.7	–3.8	6.0	6.0	6.0
Ecuador	3.8	–0.6	0.1	3.6	4.1	2.9	–0.6	–2.6	–2.8	3.8	4.7	5.0
Bolivia	5.5	4.1	3.5	5.8	4.3	4.9	0.0	–4.5	–5.0	4.0	4.0	4.0
Uruguay	3.5	2.5	2.2	8.9	8.4	8.1	–4.4	–3.7	–3.7	6.6	6.6	7.0
Paraguay	4.4	3.0	3.8	5.0	3.3	4.2	0.1	–2.0	–1.9	5.5	5.5	5.5
Central America[7]	**4.1**	**3.9**	**4.2**	**3.6**	**2.1**	**3.0**	**–6.0**	**–4.8**	**–4.9**	. . .	. . .	. . .
Caribbean[8]	**4.7**	**3.8**	**3.4**	**4.0**	**3.1**	**4.5**	**–3.7**	**–3.3**	**–3.3**	. . .	. . .	. . .
Memorandum												
Latin America and the Caribbean[9]	1.3	–0.3	0.8	7.9	11.2	10.7	–3.0	–3.3	–3.0	. . .	. . .	. . .
Excluding Argentina	1.4	–0.3	0.9	7.9	11.2	10.7	–3.2	–3.5	–3.2	. . .	. . .	. . .
Eastern Caribbean Currency Union[10]	2.7	2.5	2.2	1.1	–0.1	1.5	–14.3	–12.9	–12.9	. . .	. . .	. . .

Note: Data for some countries are based on fiscal years. Please refer to Table F in the Statistical Appendix for a list of economies with exceptional reporting periods.

[1]Movements in consumer prices are shown as annual averages. Data for Argentina's consumer prices are excluded from Latin America and the Caribbean and South America aggregates. Year-end to year-end changes can be found in Tables A6 and A7 in the Statistical Appendix.

[2]Percent of GDP.

[3]Percent. National definitions of unemployment may differ.

[4]Includes Guyana and Suriname. See note 6 regarding consumer prices.

[5]The data for Argentina are officially reported data as revised in May 2014. On February 1, 2013, the IMF issued a declaration of censure, and in December 2013 called on Argentina to implement specified actions to address the quality of its official GDP data according to a specified timetable. On June 3, 2015, the Executive Board recognized the ongoing discussions with the Argentine authorities and their material progress in remedying the inaccurate provision of data since 2013, but found that some specified actions called for by the end of February 2015 had not yet been completely implemented. The Executive Board will review this issue again by July 15, 2016, and in line with the procedures set forth in the IMF legal framework.

[6]Consumer price data from December 2013 onward reflect the new national CPI (IPCNu), which differs substantively from the preceding CPI (the CPI for the Greater Buenos Aires Area, CPI-GBA). Because of the differences in geographical coverage, weights, sampling, and methodology, the IPCNu data cannot be directly compared to the earlier CPI-GBA data. Because of this structural break in the data, the average CPI inflation for 2014 is not reported in the October 2015 *World Economic Outlook*. Following a declaration of censure by the IMF on February 1, 2013, the public release of a new national CPI by the end of March 2014 was one of the specified actions in the IMF Executive Board's December 2013 decision calling on Argentina to address the quality of its official CPI data. On June 3, 2015, the Executive Board recognized the ongoing discussions with the Argentine authorities and their material progress in remedying the inaccurate provision of data since 2013, but found that some specified actions called for by the end of February 2015 had not yet been completely implemented. The Executive Board will review this issue again by July 15, 2016, and in line with the procedures set forth in the IMF legal framework.

[7]Central America comprises Belize, Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, and Panama.

[8]The Caribbean comprises Antigua and Barbuda, The Bahamas, Barbados, Dominica, the Dominican Republic, Grenada, Haiti, Jamaica, St. Kitts and Nevis, St. Lucia, St. Vincent and the Grenadines, and Trinidad and Tobago.

[9]Latin America and the Caribbean comprises Mexico and economies from the Caribbean, Central America, and South America. See note 6 regarding consumer prices.

[10]Eastern Caribbean Currency Union comprises Antigua and Barbuda, Dominica, Grenada, St. Kitts and Nevis, St. Lucia, and St. Vincent and the Grenadines as well as Anguilla and Montserrat, which are not IMF members.

Annex Table 1.1.4. Commonwealth of Independent States Economies: Real GDP, Consumer Prices, Current Account Balance, and Unemployment

(Annual percent change, unless noted otherwise)

	Real GDP			Consumer Prices[1]			Current Account Balance[2]			Unemployment[3]		
		Projections			Projections			Projections			Projections	
	2014	2015	2016	2014	2015	2016	2014	2015	2016	2014	2015	2016
Commonwealth of Independent States[4]	**1.0**	**–2.7**	**0.5**	**8.1**	**15.9**	**8.9**	**2.2**	**2.4**	**2.5**	. . .	. . .	. . .
Net Energy Exporters	**1.5**	**–2.3**	**0.4**	**7.5**	**13.9**	**8.4**	**3.2**	**3.2**	**3.4**	. . .	. . .	. . .
Russia	0.6	–3.8	–0.6	7.8	15.8	8.6	3.2	5.0	5.4	5.2	6.0	6.5
Kazakhstan	4.3	1.5	2.4	6.7	6.3	8.6	2.1	–3.0	–4.1	5.0	5.0	5.0
Uzbekistan	8.1	6.8	7.0	8.4	9.7	9.2	1.7	0.2	0.3	. . .	. . .	. . .
Azerbaijan	2.8	4.0	2.5	1.4	5.0	4.2	14.1	3.0	2.7	6.0	6.0	6.0
Turkmenistan	10.3	8.5	8.9	6.0	7.0	6.0	–5.8	–13.6	–12.1	. . .	. . .	. . .
Net Energy Importers	**–2.6**	**–5.5**	**1.1**	**12.2**	**30.9**	**12.6**	**–6.2**	**–4.5**	**–4.1**	. . .	. . .	. . .
Ukraine[5]	–6.8	–9.0	2.0	12.1	50.0	14.2	–4.7	–1.7	–1.6	9.3	11.5	11.0
Belarus	1.6	–3.6	–2.2	18.1	15.1	14.2	–6.7	–4.9	–4.3	0.5	0.5	0.5
Georgia	4.8	2.0	3.0	3.1	3.7	5.0	–9.7	–10.7	–9.6	. . .	. . .	. . .
Armenia	3.4	2.5	2.2	3.0	4.3	3.4	–7.3	–5.9	–6.4	18.0	17.9	17.7
Tajikistan	6.7	3.0	3.4	6.1	10.8	8.2	–9.2	–7.5	–6.1	. . .	. . .	. . .
Kyrgyz Republic	3.6	2.0	3.6	7.5	8.3	9.0	–16.8	–17.7	–15.7	7.6	7.5	7.4
Moldova	4.6	–1.0	1.5	5.1	8.4	7.4	–3.7	–6.2	–6.4	3.9	7.0	6.0
Memorandum												
Caucasus and Central Asia[6]	5.3	3.7	4.0	5.8	6.8	7.4	2.0	–3.4	–3.8	. . .	. . .	. . .
Low-Income CIS Countries[7]	6.7	4.8	5.4	6.9	8.5	8.1	–3.3	–3.8	–3.4	. . .	. . .	. . .
Net Energy Exporters Excluding Russia	5.4	3.8	4.1	5.9	6.8	7.6	3.3	–2.7	–3.2	. . .	. . .	. . .

Note: Data for some countries are based on fiscal years. Please refer to Table F in the Statistical Appendix for a list of economies with exceptional reporting periods.

[1]Movements in consumer prices are shown as annual averages. Year-end to year-end changes can be found in Table A7 in the Statistical Appendix.

[2]Percent of GDP.

[3]Percent. National definitions of unemployment may differ.

[4]Georgia, Turkmenistan, and Ukraine, which are not members of the Commonwealth of Independent States (CIS), are included in this group for reasons of geography and similarity in economic structure.

[5]Starting in 2014 data exclude Crimea and Sevastopol.

[6]Caucasus and Central Asia comprises Armenia, Azerbaijan, Georgia, Kazakhstan, the Kyrgyz Republic, Tajikistan, Turkmenistan, and Uzbekistan.

[7]Low-Income CIS Countries comprise Armenia, Georgia, the Kyrgyz Republic, Moldova, Tajikistan, and Uzbekistan.

Annex Table 1.1.5. Middle East and North African Economies, Afghanistan, and Pakistan: Real GDP, Consumer Prices, Current Account Balance, and Unemployment

(Annual percent change, unless noted otherwise)

	Real GDP			Consumer Prices[1]			Current Account Balance[2]			Unemployment[3]		
		Projections			Projections			Projections			Projections	
	2014	2015	2016	2014	2015	2016	2014	2015	2016	2014	2015	2016
Middle East, North Africa, Afghanistan, and Pakistan	**2.7**	**2.5**	**3.9**	**6.7**	**6.2**	**5.4**	**5.6**	**–3.6**	**–4.3**	. . .	. . .	. . .
Oil Exporters[4]	**2.6**	**1.8**	**3.8**	**5.6**	**5.8**	**5.1**	**8.9**	**–3.4**	**–4.3**	. . .	. . .	. . .
Saudi Arabia	3.5	3.4	2.2	2.7	2.1	2.3	10.3	–3.5	–4.7	5.5	. . .	. . .
Iran[5]	4.3	0.8	4.4	15.5	15.1	11.5	3.8	0.4	1.3	10.6	11.7	12.3
United Arab Emirates	4.6	3.0	3.1	2.3	3.7	3.0	13.7	2.9	3.1	. . .	. . .	. . .
Algeria	3.8	3.0	3.9	2.9	4.2	4.1	–4.5	–17.7	–16.2	10.6	11.6	11.7
Iraq	–2.1	0.0	7.1	2.2	1.9	3.0	–2.8	–12.7	–11.0	. . .	. . .	. . .
Qatar	4.0	4.7	4.9	3.0	1.6	2.3	26.1	5.0	–4.5	. . .	. . .	. . .
Kuwait	0.1	1.2	2.5	2.9	3.3	3.3	31.0	9.3	7.0	2.1	2.1	2.1
Oil Importers[6]	**2.9**	**3.9**	**4.1**	**9.1**	**7.0**	**6.1**	**–4.2**	**–4.2**	**–4.2**	. . .	. . .	. . .
Egypt	2.2	4.2	4.3	10.1	11.0	8.8	–0.8	–3.7	–4.5	13.4	12.9	12.4
Pakistan	4.0	4.2	4.5	8.6	4.5	4.7	–1.3	–0.8	–0.5	6.7	6.5	6.0
Morocco	2.4	4.9	3.7	0.4	1.5	2.0	–5.5	–2.3	–1.6	9.9	9.8	9.7
Sudan	3.6	3.5	4.0	36.9	19.8	12.7	–7.7	–5.8	–5.6	13.6	13.3	13.0
Tunisia	2.3	1.0	3.0	4.9	5.0	4.0	–8.8	–8.5	–7.0	15.3	15.0	14.0
Lebanon	2.0	2.0	2.5	1.9	0.1	1.5	–24.9	–21.0	–19.3	. . .	. . .	. . .
Jordan	3.1	2.9	3.7	2.9	0.2	3.1	–6.8	–7.4	–6.5		. . .	. . .
Memorandum												
Middle East and North Africa	2.6	2.3	3.8	6.5	6.5	5.5	6.1	–4.0	–4.7	. . .	. . .	. . .
Israel[7]	2.6	2.5	3.3	0.5	–0.1	2.0	4.3	4.6	4.7	5.9	5.3	5.2
Maghreb[8]	0.7	2.5	3.6	2.5	3.9	4.0	–8.1	–15.8	–13.8	. . .	. . .	. . .
Mashreq[9]	2.2	3.9	4.1	8.9	9.4	7.8	–4.6	–6.3	–6.6	. . .	. . .	. . .

Note: Data for some countries are based on fiscal years. Please refer to Table F in the Statistical Appendix for a list of economies with exceptional reporting periods.

[1]Movements in consumer prices are shown as annual averages. Year-end to year-end changes can be found in Tables A6 and A7 in the Statistical Appendix.

[2]Percent of GDP.

[3]Percent. National definitions of unemployment may differ.

[4]Includes Bahrain, Libya, Oman, and Yemen.

[5]For Iran, data and forecasts are based on GDP at market prices. Corresponding data used by the IMF staff for GDP growth at factor prices are 3.0 percent, –1.9 percent, and –6.8 percent for 2014/15, 2013/14, and 2012/13, respectively.

[6]Includes Afghanistan, Djibouti, and Mauritania. Excludes Syria because of the ongoing conflict and related lack of data.

[7]Israel, which is not a member of the economic region, is included for reasons of geography. Note that Israel is not included in the regional aggregates.

[8]The Maghreb comprises Algeria, Libya, Mauritania, Morocco, and Tunisia.

[9]The Mashreq comprises Egypt, Jordan, and Lebanon. Syria is excluded because of the ongoing conflict and related lack of data.

Annex Table 1.1.6. Sub-Saharan African Economies: Real GDP, Consumer Prices, Current Account Balance, and Unemployment

(Annual percent change, unless noted otherwise)

	Real GDP			Consumer Prices[1]			Current Account Balance[2]			Unemployment[3]		
		Projections			Projections			Projections			Projections	
	2014	2015	2016	2014	2015	2016	2014	2015	2016	2014	2015	2016
Sub-Saharan Africa	**5.0**	**3.8**	**4.3**	**6.4**	**6.9**	**7.3**	**–4.1**	**–5.7**	**–5.5**	**. . .**	**. . .**	**. . .**
Oil Exporters[4]	**5.9**	**3.5**	**4.1**	**7.4**	**9.1**	**9.7**	**–0.4**	**–3.3**	**–2.4**	**. . .**	**. . .**	**. . .**
Nigeria	6.3	4.0	4.3	8.1	9.1	9.7	0.2	–1.8	–1.2	7.8	8.2	. . .
Angola	4.8	3.5	3.5	7.3	10.3	14.2	–1.5	–7.6	–5.6	. . .	. . .	. . .
Gabon	4.3	3.5	4.9	4.5	0.6	2.5	8.3	–7.0	–4.2	. . .	. . .	. . .
Chad	6.9	6.9	4.2	1.7	4.3	3.1	–8.9	–10.4	–9.3	. . .	. . .	. . .
Republic of Congo	6.8	1.0	6.5	0.9	0.9	1.7	–9.4	–15.2	–14.6	. . .	. . .	. . .
Middle-Income Countries[5]	**2.9**	**2.7**	**2.9**	**6.0**	**5.3**	**5.6**	**–4.8**	**–4.4**	**–4.8**	**. . .**	**. . .**	**. . .**
South Africa	1.5	1.4	1.3	6.1	4.8	5.9	–5.4	–4.3	–4.5	25.1	25.8	25.7
Ghana	4.0	3.5	5.7	15.5	15.3	10.1	–9.6	–8.3	–7.2	. . .	. . .	. . .
Côte d'Ivoire	7.9	8.2	7.6	0.4	1.6	1.5	–0.7	–1.0	–1.9	. . .	. . .	. . .
Cameroon	5.7	5.3	5.4	1.9	2.0	2.1	–4.6	–5.0	–5.2	. . .	. . .	. . .
Zambia	5.6	4.3	4.0	7.8	7.3	7.5	–1.4	–1.4	–2.6	. . .	. . .	. . .
Senegal	4.7	5.1	5.9	–1.1	0.6	2.1	–8.8	–6.1	–5.2	. . .	. . .	. . .
Low-Income Countries[6]	**6.5**	**5.8**	**6.4**	**5.2**	**5.8**	**5.9**	**–11.0**	**–11.7**	**–11.8**	**. . .**	**. . .**	**. . .**
Ethiopia	10.3	8.7	8.1	7.4	10.0	9.0	–8.0	–12.5	–9.3	. . .	. . .	. . .
Kenya	5.3	6.5	6.8	6.9	6.3	5.9	–10.4	–9.6	–9.2	. . .	. . .	. . .
Tanzania	7.0	6.9	7.0	6.1	5.6	5.9	–9.3	–8.2	–7.1	. . .	. . .	. . .
Uganda	4.8	5.2	5.5	4.6	5.7	6.5	–9.7	–10.5	–11.3	. . .	. . .	. . .
Madagascar	3.3	3.4	4.6	6.1	7.6	7.4	–0.2	–1.3	–2.2	. . .	. . .	. . .
Democratic Republic of the Congo	9.2	8.4	7.3	1.0	1.0	1.7	–9.2	–7.6	–8.0	. . .	. . .	. . .
Memorandum												
Sub-Saharan Africa Excluding South Sudan	5.0	3.9	4.3	6.4	6.8	7.3	–4.1	–5.7	–5.5	. . .	. . .	. . .

Note: Data for some countries are based on fiscal years. Please refer to Table F in the Statistical Appendix for a list of economies with exceptional reporting periods.

[1]Movements in consumer prices are shown as annual averages. Year-end to year-end changes can be found in Table A7 in the Statistical Appendix.

[2]Percent of GDP.

[3]Percent. National definitions of unemployment may differ.

[4]Includes Equatorial Guinea and South Sudan.

[5]Includes Botswana, Cabo Verde, Lesotho, Mauritius, Namibia, Seychelles, and Swaziland.

[6]Includes Benin, Burkina Faso, Burundi, the Central African Republic, Comoros, Eritrea, The Gambia, Guinea, Guinea-Bissau, Liberia, Malawi, Mali, Mozambique, Niger, Rwanda, São Tomé and Príncipe, Sierra Leone, Togo, and Zimbabwe.

Special Feature: Commodity Market Developments and Forecasts, with a Focus on Metals in the World Economy

After experiencing large swings, commodity prices have declined significantly since the release of the April 2015 World Economic Outlook *(WEO). Following an initial recovery, oil prices have since declined on account of strong supply and concerns about future demand. Metal prices have fallen owing to slowing demand growth from China and substantial increases in the supply of most metals. Food prices have also declined owing to abundant harvests this year. With concerns over China's growth, risks to oil and metal prices are on the downside. Weather-related risks to food supplies have heightened. This special feature includes an in-depth analysis of metal markets in the world economy. It puts recent developments into perspective by documenting the dramatic demand and supply shifts over past decades and argues that the balance between demand and supply forces points to a "low-for-long" scenario in metal prices.*

Commodity prices have declined 14 percent since February 2015, the reference period for the April WEO (Figure 1.SF.1, panel 1). Oil prices had initially recovered in response to a sharp drop in investment in the sector, but have since declined again on account of strong supply from members of the Organization of the Petroleum Exporting Countries (OPEC) and the Islamic Republic of Iran nuclear deal. Natural gas and coal prices, which are mainly indexed to oil prices, albeit with a lag, have also declined. Nonfuel commodity prices have also weakened, with metal prices and those of agricultural commodities declining by 13 and 8 percent, respectively.

Global excess flow supply in oil (the difference between global production and global consumption) has continued to increase in 2015 on account of strong supply, in spite of the dramatic fall in investment in the oil sector. In the United States, the number of oil rigs—apparatuses for on-land oil drilling—is half what it was at its peak in October 2014 (Figure 1.SF.1, panel 2). In OPEC countries, production has been increasing despite low oil prices, exceeding OPEC's target of 30 million barrels a day (mbd) by more than 1.5 mbd in August. Russia has also been producing at record levels. In addition, the United Nations Security Council has adopted a resolution establishing a monitoring mechanism for the Iranian nuclear program, paving the way for eventual removal of all nuclear-related sanctions against the country. Iranian crude oil exports are thus expected to increase, and the country is believed to have 30 million barrels of oil inventory. Without sanctions, the Islamic Republic of Iran is also expected to increase its capacity to 500,000 to 800,000 barrels a day within two years. Most of the future increase in Iranian oil supply has been priced in spot markets, contributing to a flattening of futures curves.

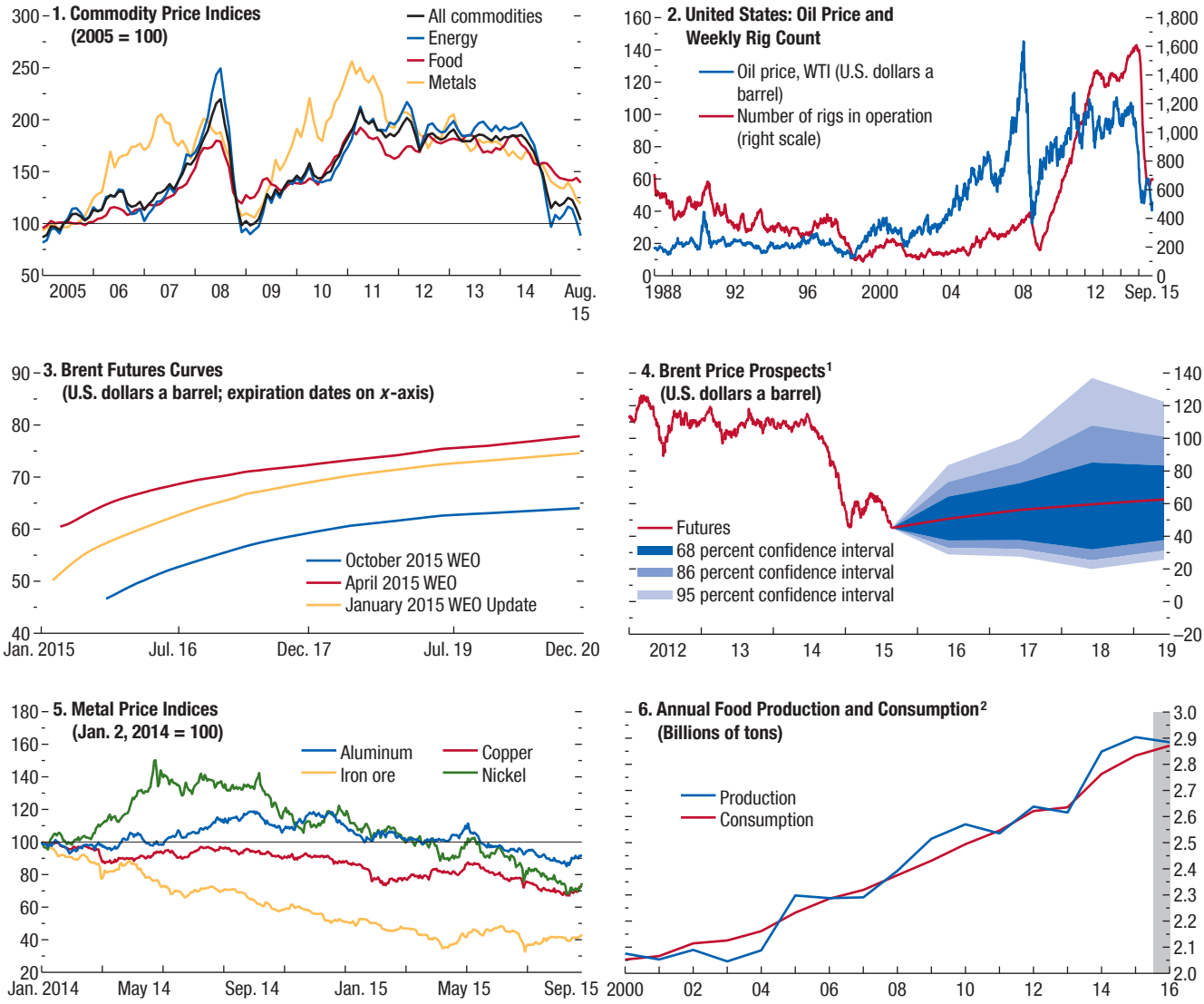
While actual global oil demand is strong, there are concerns about what the future will bring. Global oil demand in 2015 is expected to grow at 1.7 mbd above trend growth, the fastest rate in five years, according to the International Energy Agency. It has been revised upward by 0.9 mbd relative to the March projection. However, the recent volatility in stock markets worldwide has triggered concerns about future global economic growth that may eventually affect demand for oil. The loss in confidence in global financial markets added downward pressure on oil prices in August.

Oil futures contracts point to rising prices (Figure 1.SF.1, panel 3). The baseline assumptions for the IMF's average petroleum spot price, which is based on futures prices, suggest average annual prices of $51.62 a barrel in 2015, $50.36 in 2016, and $55.42 in 2017 (Figure 1.SF.1, panel 4). There is still substantial uncertainty around the baseline assumptions for oil prices, but it is slightly less than at the time of the April 2015 WEO.

Metal prices have declined 13 percent since February 2015 (Figure 1.SF.1, panel 5). Prices had initially rebounded as a result of supply concerns but have faced downward pressure since mid-May. China's currency decline and stock market correction have raised concern over the strength of metal demand. China represents roughly half of global demand for major base metals and has been the main engine of global growth since 2002 (see "Metals in the World Economy"). Metal prices are projected to decline by 22 percent in 2015 and 9 percent in 2016. Futures prices point to continued low prices but with rising uncertainty on account of both demand (especially from China) and stronger supply.

The authors of this feature are Rabah Arezki (team leader), Akito Matsumoto, and Hongyan Zhao, with contributions from Frederik Toscani and research assistance from Rachel Yuting Fan and Vanessa Diaz Montelongo.

Figure 1.SF.1. Commodity Market Developments



Sources: Baker Hughes Inc.; Bloomberg, L.P.; IMF, Primary Commodity Price System; Thomson Reuters Datastream; U. S. Department of Agriculture; and IMF staff calculations.
Note: WTI = West Texas Intermediate.
[1]Derived from prices of futures options on August 20, 2015.
[2]Sum of data for major grains and oilseeds: barley, corn, millet, rice, rye, sorghum, wheat, palm kernel, rapeseed, soybean, and sunflower seed.

Prices of agricultural commodities have declined by 8 percent overall relative to February 2015. Food prices have decreased 6 percent, with declines in all main indices except that for meat, which has increased slightly. Prices of cereals have fallen despite unfavorable weather in North America and Europe. Prices of agricultural raw materials are also down relative to February 2015 and their highs in 2011. Cotton prices, which have climbed on weaker supply, are a notable exception. Prices of beverages have shown divergent trends: coffee prices have declined in response to a modest recovery in Brazil's arabica production, while tea prices have risen after recent drought in Kenya. Cocoa prices rose in the second quarter of 2015 as a result of weather-related supply shortfalls in Ghana, but demand remains strong.

Annual food prices are projected to decline by 17 percent in 2015 as supply growth, together with high levels of stocks, outpaces slower demand increases. Large declines are expected in prices for cereals and vegetable oil, particularly those for wheat and soybeans. For 2016 the expected drop is relatively smaller (5 percent), following marginal declines in projected production for major crops (Figure 1.SF.1, panel 6). Food price risks are associated with the usual weather variability, particularly concerns over El Niño conditions, which are expected to strengthen through the Northern Hemisphere and persist into the first quarter of 2016.

Metals in the World Economy

Although the recent fall has captured the public's attention, metal prices have been declining since 2011. Some analysts have argued that we are at a critical juncture, pointing to the end of the so-called commodities supercycle. While that is hard to assert with confidence, the prolonged fall in metal prices is consistent with a typical commodity boom-and-bust cycle. Indeed, after a period of high metal prices during the 2000s, investment and in turn capacity in the sector have increased substantially. At the same time, high prices have led to downward adjustments on the demand side. Those adjustments have contributed to a gradual decline in metal prices since 2011, which has led to less investment in the sector, especially in high-cost mines, considering the lower expected profits. The lower investment will eventually reduce capacity, and lower production should eventually lead to a rebound in metal prices. The more prolonged the slump in metal prices, the sharper the likely eventual reversal.

Understanding the evolution of metal markets is important for at least two reasons. First, at the global level, metals are at the heart of the world economy because they are key intermediate inputs in industrial production and construction. Metal markets are thus shaped by shifts in the volume and composition of global demand and supply. As such, transformations in metal markets also signal important changes in the world economy. Second, for some countries, metal exports are a large portion of their total exports, and fluctuations in metal prices can have important macroeconomic consequences.[1] The remaining subsections of this Special Feature address the following questions:

- What are metals?
- Where are the main centers of metal production and consumption?
- How have metal markets evolved?
- What lies ahead?

What Are Metals?

Metals are mineral bodies that come in a variety of forms, from base metals to precious metals. Base metals are those that oxidize or corrode relatively easily. Within base metals, a distinction is made between ferrous and nonferrous metals. Ferrous metals, typically iron, tend to be heavy and relatively abundant. Nonferrous metals do not contain iron in significant amounts. Generally more expensive than ferrous metals, nonferrous metals have desirable properties such as low weight (for example, aluminum), higher conductivity (for example, copper), nonmagnetic properties, or resistance to corrosion (for example, zinc and nickel). The term "base metals" is commonly used in contrast with "noble metals," which unlike most base metals are resistant to corrosion or oxidation. Noble metals tend to be precious metals, often because of their perceived scarcity. Examples include gold, platinum, silver, rhodium, iridium, and palladium. Chemically, precious metals are less reactive than most elements and have high luster and high electrical conductivity.

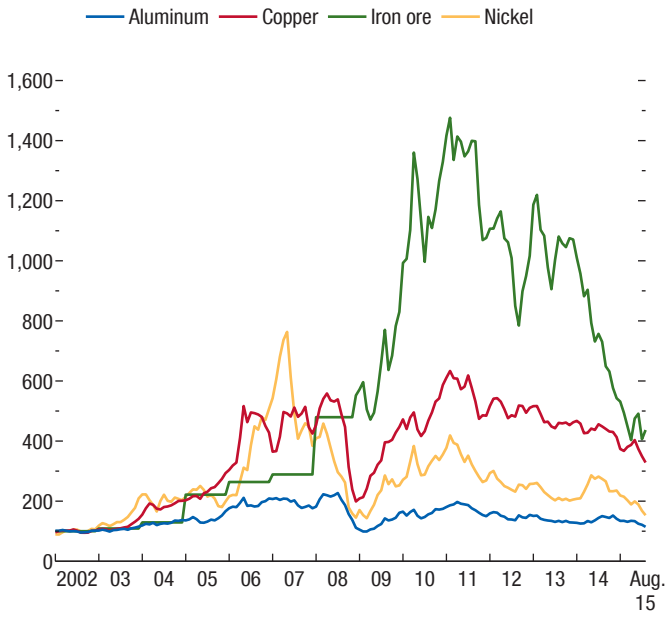
Unless otherwise indicated, this Special Feature focuses on four main base metals: iron ore, copper, aluminum, and nickel. All have experienced price declines, although to a varying extent (Figure 1.SF.2). The end use of these metals covers a wide spectrum, but construction and machinery are two key sectors for their use, given their ductile and malleable properties.

Where Are the Main Centers of Metal Production and Consumption?

Production and consumption centers for metals are concentrated in a few countries, but the location of production centers varies considerably with the metal under consideration. The main production and consumption centers, however, often overlap: iron ore, for example, given its bulk, must be close to markets. China is front and center for both metal consumption and metal production, also reflecting its importance in world industrial production. Selected multinational or state-owned corporations have large market shares in the production and refining of some of the main

[1]Chapter 2 discusses the macroeconomic consequences resulting from commodity price fluctuations in depth.

Figure 1.SF.2. Metal Price Indices
(2002 = 100)



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

Table 1.SF.1. World Crude Steel Production, 2014
(Millions of metric tons)

World	1,643.51	Share (Percent)
China	822.70	50
Japan	110.67	7
United States	88.17	5
India	86.53	5
Russia	71.46	4
Korea	71.04	4
Germany	42.94	3
Turkey	34.04	2
Brazil	33.90	2
Ukraine	27.17	2
Italy	23.71	1
Taiwan Province of China	23.12	1

Source: World Steel Association.

metals. Those high degrees of concentration have at times led to concerns over market manipulation and collusion either through output restrictions, export bans, stock accumulations, or some combination of these (see Rausser and Stuermer 2014 for an analysis of collusion in the copper market).

From an economic point of view, iron ore is by far the most important base metal, with a $225 billion annual industry in terms of global sales.[2] Steel, which is produced from iron ore, is mostly used for construction, transportation equipment, and machinery. In the past, iron ore prices were mostly determined by negotiations between Japanese steel makers and producers. More recently, the market has become more transparent, with the price on delivery at Chinese ports used as the benchmark price. The top iron-ore-producing country is China, whose share is about half of the world's production, followed by Australia and Brazil.[3] Considering that mining iron ore is capital intensive, iron ore production is concentrated among top producers (Table 1.SF.1, Figure 1.SF.3). The production of iron ore depends crucially on the level of investment activity in the sector, which has been on the decline in the past few years. The demand for iron ore comes primarily from large steel-producing countries such as China, which consumes more than half of the world production of iron ore.

Copper is the second-most-important base metal by value—accounting for roughly a $130 billion industry annually.[4] Copper is used for construction and electrical wire. Chile is the largest producer, followed by China and Peru. A few companies are involved in copper production—Chile's Codelco is the largest. Copper prices have been more transparent than those for iron ore because copper futures markets and London Metal Exchange settlements are used as benchmarks. China consumes about half of the world's refined copper.

The third-most-important base metal is aluminum (with an annual $90 billion industry).[5] Aluminum is used in the aerospace industry as well as other industries requiring light metal. Large producers of aluminum are located where electricity is cheap and abundant. The largest producer is China, followed by Russia, Canada, and the United Arab Emirates. Aluminum prices are the most stable among those for metals because of the reliance on electricity in its production—electricity prices are heavily regulated in most countries.

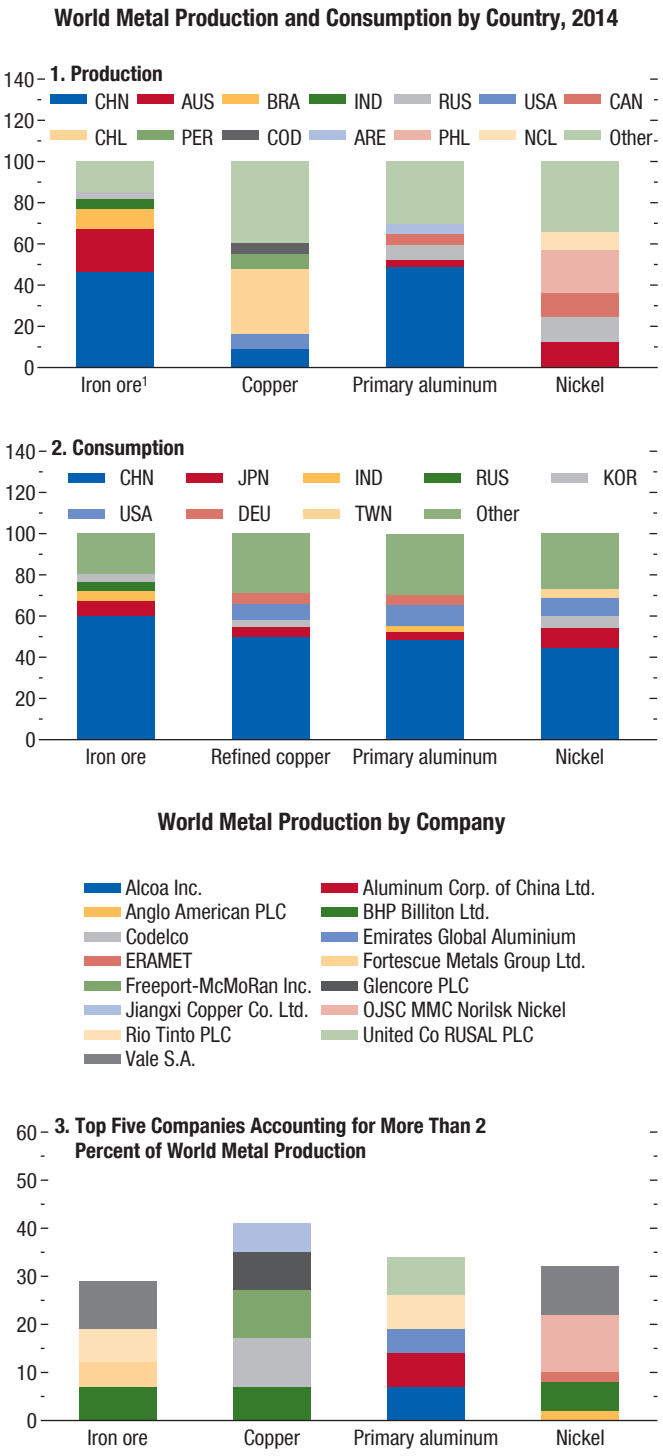
[2]World production of iron ore is currently 3 billion metric tons; its metal content weighs about 1.4 billion tons, according to the U.S. Geological Survey. The price of iron ore with 62 percent iron content has been roughly $100 a metric ton in the past year.

[3]China's share, however, is much smaller when the ore's metal content is taken into consideration. Iron ore is also important for individual countries, such as Ukraine, which relies on coal and iron ore to produce steel.

[4]World mine production was 18.7 million metric tons in 2014. It is evaluated at $7,000 a metric ton, close to the average price in 2014.

[5]World primary aluminum production last year was 49.3 million metric tons, and the associated price was $1,900 a metric ton.

Figure 1.SF.3. Production and Consumption of Metals
(Percent of world production or consumption)



Sources: Bloomberg, L.P.; World Bureau of Metal Statistics; and IMF staff calculations.
Note: Data labels in the figure use International Organization for Standardization (ISO) country codes.
[1]Mine production for China is based on crude ore, rather than usable ore, which is reported for the other countries.

Recycling has become an important part of aluminum production because the recycling process is much less energy intensive than the production of primary aluminum. China consumes about half of the world's production of primary aluminum. In contrast, advanced economies rely more on recycling and in turn have less influence over primary aluminum prices.

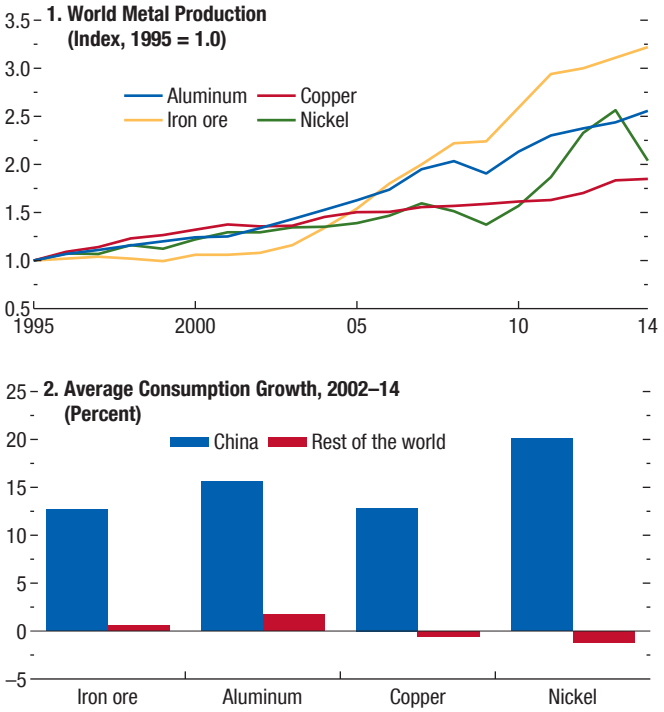
The fourth-most-important base metal is nickel (accounting for a $40 billion market),[6] which is used for alloys such as stainless steel. Nickel ore is mined in several countries, including the Philippines. The Brazilian Vale groups and Russia-based Norilsk are the two top producers, and their combined share is 23 percent of global production. Nickel is typically extracted from its ores by conventional roasting and reduction processes that yield a metal of greater than 75 percent purity. China consumes about half of the world's smelted and refined nickel, followed by Japan. Indonesia, whose production share was 27 percent in 2012, imposed an export ban on nickel ore in January 2014 to increase incentives for domestic processing. The Philippines and New Caledonia have used the opportunity created by the ban to increase their market shares, but may not be in a position to meet the portion of Chinese demand that relied on Indonesian production. On the other hand, global inventory of refined nickel has been increasing, suggesting a supply glut.

How Have Metal Markets Evolved?

Over the past decades, metal markets have undergone dramatic shifts in the volume and structure of both demand and supply. Global production has increased across the board for most metals owing to the rapid investment in capacity in the 2000s (Figure 1.SF.4, panel 1). On the demand side, demand has shifted from West to East; that is, from consumption concentrated in advanced economies toward that concentrated in emerging markets—especially China on account of its rapid growth (Figure 1.SF.4, panel 2). On the supply side, the so-called frontier of extraction of nonferrous metals, including precious metals such as gold, has shifted from North to South—that is, from advanced to developing economies—because of the rapid improvement in the investment climate, first in Latin America and then in sub-Saharan Africa (see Box 1.SF.1). While high-income member coun-

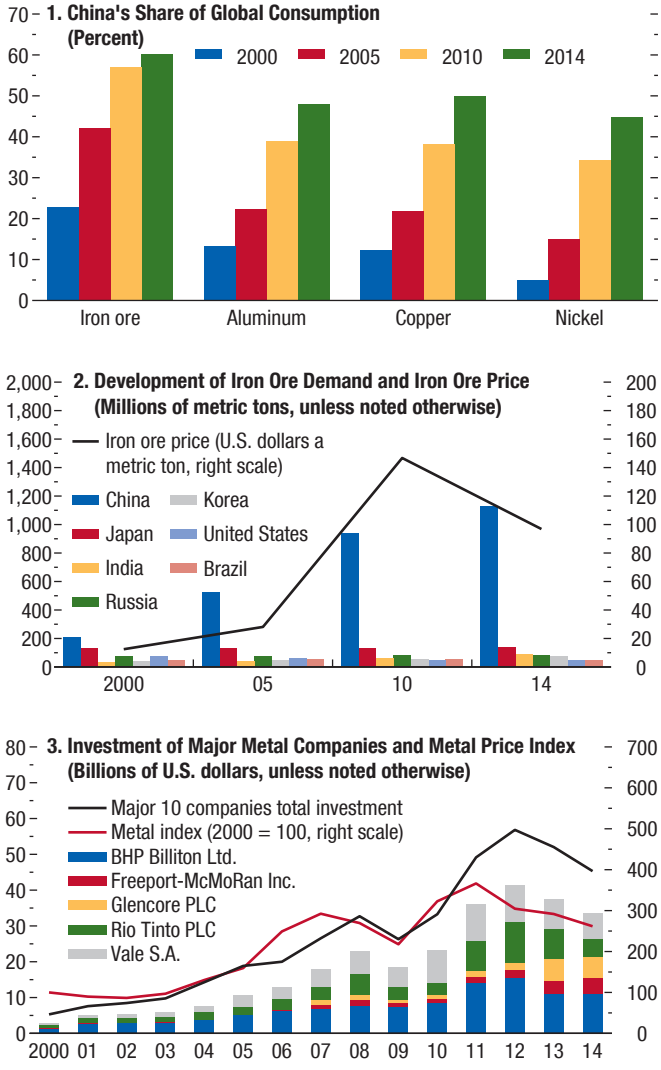
[6]Nickel mine production was 2.4 million tons in 2014, and the price of refined nickel was roughly $17,000 a metric ton.

Figure 1.SF.4. Evolution of Metal Market



Sources: Bloomberg, L.P.; World Bureau of Metal Statistics; and IMF staff calculations.
Note: The figures reported for iron ore production in China are in crude terms, contrary to what other countries report. Iron ore production data should thus be interpreted with caution. The production figures for iron ore are thus not consistent with those for consumption, because the latter are based on effectively usable iron ore.

Figure 1.SF.5. Development of Metal Market



Sources: Bloomberg, L.P.; IMF, Primary Commodity Price System; World Bureau of Metal Statistics; and IMF staff estimates.
Note: Investments are deflated by the price index for mining and oil field machinery. Total investment is the sum of capital expenditures for Anglo American PLC, BHP Billiton Ltd, Codeleo, Freeport McMoRan Inc., Glencore PLC, Grupo Mexico S.A.B. de C.V., Mitsubishi Corp., Mitsui & Co. Ltd., Rio Tinto PLC, and Vale S.A.

tries of the Organisation for Economic Co-operation and Development accounted for close to half of global discoveries of major mines between 1950 and 1990, sub-Saharan Africa and Latin America and the Caribbean have doubled their shares in total discoveries since 1990, which are about half what they were in the preceding period. The pattern of global trade in metals has radically changed as a result of those shifts in the loci of major discoveries. It should be noted that for steel and aluminum, production tends to be located in countries with combined deposits of iron ore or bauxite—which are abundant worldwide—and port facilities, easy access to energy, and proximity to markets.

On the demand side, the most dramatic development explaining the shift from West to East is the formidable growth performance of China. China's growth in consumption of metals has been the main driving force behind global metal consumption since the early 2000s (Figure 1.SF.5, panels 1 and 2). As a result China is now the main consumption locus for most metals. Far behind, India, Russia, and Korea have also increased their metal consumption, while consumption in Japan has stagnated somewhat. The rapid rise in demand from emerging markets has been a key driver of metal and other commodity prices (see Gauvin and Rebillard 2015 and Aastveit, Bjørnland, and Thorsrud, forthcoming, for systematic evidence on the importance of China and emerging markets in driving metal and oil prices).

On the supply side, investment in the sector has been on the decline. Indeed, available data on investment by

Table 1.SF.2. Metal Trade Evolution
(Millions of U.S. dollars)

1. Bilateral Metal Trade, 2002

Country	China	Germany	Japan	Korea	United States
Australia	1,043	63	2,309	1,067	181
Brazil	605	360	700	179	754
Canada	90	270	353	212	4,232
Chile	784	197	768	541	687
Russia	196	161	716	93	1,061

2. Bilateral Metal Trade, 2014

Country	China	Germany	Japan	Korea	United States
Australia	52,153	53	10,985	6,283	268
Brazil	12,851	1,194	3,004	1,368	1,207
Canada	2,496	311	1,522	1,074	8,815
Chile	15,249	415	4,875	3,252	2,349
Peru	5,621	593	1,030	856	351

Sources: UN Comtrade; and IMF staff calculations.
Note: Data show exports of metals from the countries listed at the left of the rows to the countries listed at the tops of the columns. The gradient of color from green to red refers to the absolute size of trade volume in each panel.

major metal companies producing iron ore suggest that the rapid increase in investment during the period of high metal prices in the early 2000s has been followed by a gradual decline since 2011, closely following the trajectory of metal prices (Figure 1.SF.5, panel 3). As mentioned earlier, for ferrous metals, investment is a good indicator of future supply capacity. For nonferrous metals, the actual quantity available from mineral deposits is much more relevant for predicting supply. A unique data set of discoveries is used here to allow an assessment of the emergence of new frontiers of metal extraction. That assessment offers evidence that prices have played little role in driving discoveries of mineral deposits (see Box 1.SF.1). Instead, rapid improvements in institutions, including those related to property rights in Latin America and Africa, have led to a gradual increase in the number of major discoveries of metals in those regions since the 1990s. The results have important implications both for the welfare of individual countries and for our global understanding of the balance of forces shaping metal markets and the pattern of global trade in metals.

The pattern of global metal trade has evolved dramatically over the past decades,[7] with the major destination countries shifting from West to East and the source countries from North to South. In 2002, metals were exported mainly from Canada and Russia to the United States or from Australia to Japan, Korea, and China. In contrast, by 2014 almost half of metal exports were going from Australia, Brazil, and Chile to China. China has become the largest importer of metals, with its share increasing from less than 10 percent to 46 percent from 2002 to 2014 (Table 1.SF.2).

Many developing economies depend heavily on metal exports. These exports have risen sharply as a percentage of GDP, and the group of largest metal exporters (as a percentage of GDP) has changed substantially as a result (Table 1.SF.3). Metal exports from Chile, Mauritania, and Niger now account for more than half of these countries' total exports of goods. These countries are thus vulnerable to fluctuations in metal prices such as those that have recently occurred as a result of shifts in demand from large importers such as China. Discoveries of new metal deposits have expanded the list of resource-dependent countries that face new challenges in terms of macroeconomic management.

China's recent attempts to rebalance its economy away from investment toward domestic consumption are leading not only to lower Chinese demand for metals, but also to a compositional shift in that demand, which may have different implications for different metals. Metals are heavily used in machinery, construction, transportation equipment, and manufacturing industries, while oil is used mainly in transportation. Thus the decline in growth of manufacturing, machinery, and construction has led to slowing demand for metal since 2010 (Figure 1.SF.6). The metal price index has decreased correspondingly. The potential future rise in the share of the service sector should lead to lower

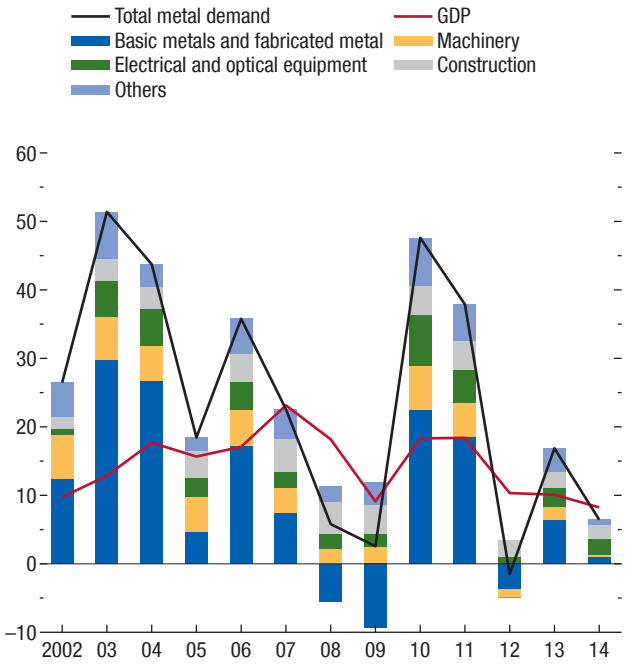
[7]Here, metals include aluminum, copper, iron ore, lead, nickel, tin, uranium, and zinc.

Table 1.SF.3. Net Metal Exports
(Percent of GDP)

2002	Zambia	11.27
	Chile	8.82
	Guinea	8.02
	Mozambique	7.27
	Papua New Guinea	7.07
	Niger	4.31
	Iceland	4.21
	Peru	3.62
	Namibia	2.88
	Bolivia	2.16
2014	Mongolia	26.52
	Mauritania	21.06
	Chile	15.00
	Zambia	14.76
	Iceland	8.67
	Peru	6.23
	Niger	5.94
	Australia	5.23
	Bolivia	4.75
	Guyana	4.64

Sources: UN Comtrade; and IMF staff calculations.

Figure 1.SF.6. China: Composition of Metal Use and Growth Rates by Sector
(Percent)



Sources: Bureau of National Statistics, China; World Input-Output Database; and IMF staff calculations.
Note: The growth rates of total demand for metals are calculated as the sum of output growth rates for each sector, weighted by the shares of metal input in the individual sector in the total economy. The share of metal input for each sector is calculated based on the World Input-Output Database. For the calculation, the value of the share of metal input in the most recent year is chosen, that is, 2011, considering that the share of metal input has been quite stable over the years. Given that the output data for China are not available at the sector level, profit data by sector are used as a proxy for most of the industries, and for nonindustry sectors, GDP data by industrial classification are used.

consumption of metals. Notwithstanding the dramatic increase in Chinese imports of metals, these represent less than 2 percent of China's GDP (Figure 1.SF.7).

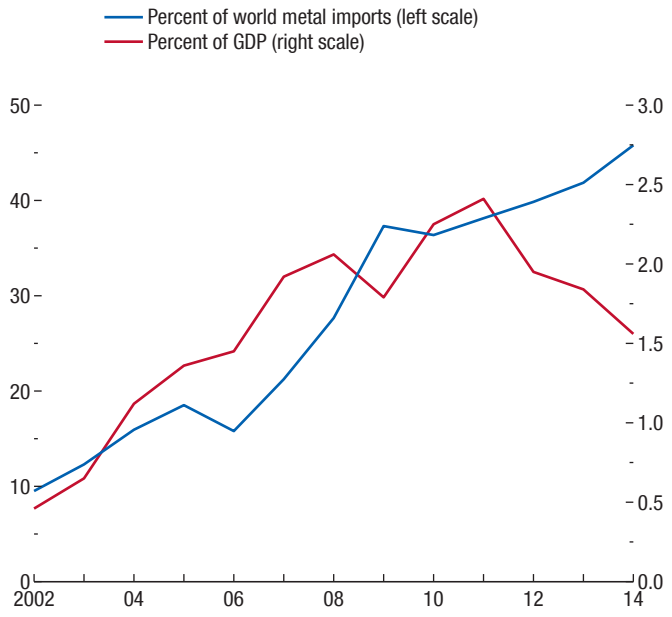
What Lies Ahead?

The slower pace of investment in China, that country's sharp stock market decline since June, and the ample supply of metals have been exerting downward pressure on metal prices. Considering that the decline in metal prices started much earlier, it makes sense to ask what should be expected. As mentioned earlier, futures markets point to lower prices, though the decline is projected to bottom out. But it is helpful in this regard to go beyond futures and review the forces underpinning demand and supply of metals.

On the demand side, the Chinese economy is projected to slow further, albeit gradually, but with considerable uncertainty as to both the time frame for the slowdown and the full extent of the slowing. A basic econometric exercise using historical data and relating the IMF's metal price index to China's industrial production (with both variables expressed as logarithms) shows that the fall in prices can be explained quite well by the decline in industrial production (Figure 1.SF.8), with 60 percent of the variance in metal prices explained by fluctuations in China's industrial production. In addition, this simple regression suggests that the fall in China's industrial production in recent months could produce further metal price declines, as evidenced by the decoupling between the fitted and actual growth rates in the metal price index.

On the supply side, the drop in investment is unlikely to lead to a substantial price rebound in the near future. Low energy prices have in fact helped reduce mining and refining costs, including those for copper, steel, and aluminum. High-cost mines will certainly close down first, considering that current metal prices may be close to these mines' break-even point. However, a recent analysis of the cost-price relationship released by consulting firm SNL Metals & Mining concludes that during cyclical low points in metal prices, the copper price has fallen to at least the ninth decile of high-cost producers, which indicates that prices would need to fall further before substantial

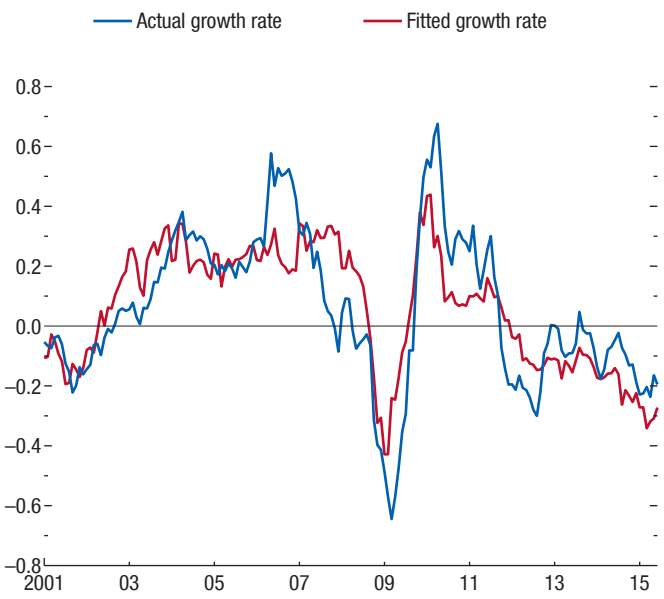
Figure 1.SF.7. China: Metal Imports



Sources: UN Comtrade; and IMF staff calculations.

Figure 1.SF.8. Growth Rates of Metal Price Index

(Percent)



Sources: IMF, Primary Commodity Price System; and IMF staff calculations.
Note: The figure shows the actual and fitted annual growth rate of the metal price index. The fitted growth rate is based on the regression of the annual growth rate of the metal price index on the annual growth rate of China's industrial production.

capacity becomes vulnerable to closure.[8] Moreover, the secular expansion of the frontier of metal extraction to Latin America and Africa as a result of improvements in the investment climate is unlikely to revert to any great extent. Instead, those improvements should continue steadily. Thus ample supply is likely to continue pushing metal prices farther down.

[8]See http://www.snl.com/Sectors/MetalsMining/Default.aspx.

The balance between weaker demand and a steady increase in supply suggests that given the existing cost structure, metal markets are likely to experience a continued glut, leading to a low-for-long price scenario. In turn, the risks associated with such a scenario are that investment will continue to falter and lead to a sharp increase in prices down the road.

Box 1.SF.1. The New Frontiers of Metal Extraction: The North-to-South Shift

Fundamental factors underpinning the demand for primary commodities, including metals, have received much attention, but supply-side factors have not. As noted in the Special Feature text, the center of gravity of global demand has shifted from West to East as a result of the high growth in emerging markets—especially China—in the past two decades. This box argues that developments in the supply of metals have been perhaps just as dramatic. The box focuses on discoveries of major metal deposits that signal previously unknown possibilities to expand global supply.[1] The main finding is that the new frontiers of metal exploitation have shifted from North to South, that is, from advanced to emerging market and developing economies.

Metal Discoveries through Space and Time

A critical look at the data on known reserves of subsoil assets suggests that emerging market and developing economies have substantial deposits of metals that have yet to be discovered. There is an estimated $130,000 in known subsoil assets beneath the average square kilometer of Organisation for Economic Co-operation and Development (OECD) countries, which contrasts with only about $25,000 in Africa (see Collier 2010 and McKinsey Global Institute 2013). It is unlikely that those differences represent differences in geological formations between advanced and developing economies. Rather, differences in the quality of property rights and political stability can help explain why relatively less exploration effort has been devoted to emerging market and developing economies. Improvements in the institutional environments of these economies accelerated rapidly in the 1990s, however, and a cursory look at the data on political risk seems to indicate that the timing of the improvements coincides with the increase in the share of discoveries in Latin America and Africa (Figure 1.SF.1.1).

Data on discoveries of a wide range of metal deposits obtained from the consulting firm MinEx suggest that the frontier of metal exploitation has gradually moved from advanced to emerging market and developing economies (Figure 1.SF.1.2). The total number of discoveries has remained broadly constant, but the distribution has changed. Although high-income OECD countries accounted for 37 to 50 percent of all discoveries during 1950–89, this share fell to 26 percent in the first decade of this century, with sub-Saharan Africa and Latin America and the Caribbean doubling their shares. Latin America has experienced the most discoveries of metal deposits in the past two decades.

Figure 1.SF.1.1. Metal Deposit Discoveries in Latin America and the Caribbean and Sub-Saharan Africa

Sources: MinEx Consulting; PRS Group, *International Country Risk Guide;* and IMF staff calculations.

What Do the Data Show about the Drivers of Discoveries?

Investments in exploration and extraction activities involve sunk costs and are thus subject to the holdup problem.[2] For an investment to be expected to be profitable, a stable political environment, a low risk of expropriation,

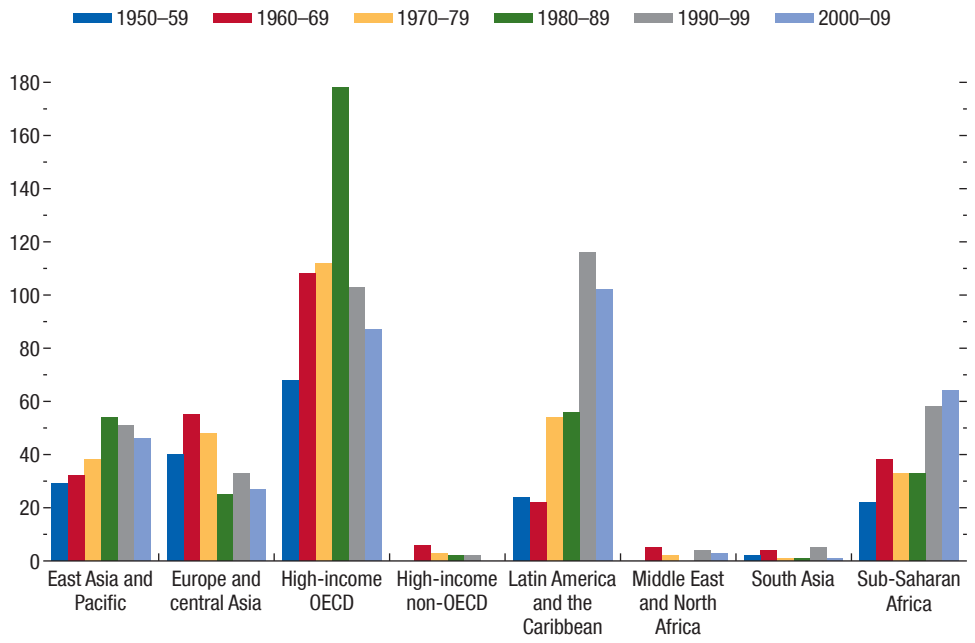
The authors of this box are Rabah Arezki and Frederik Toscani.

[1]The data used in this box are from MinEx Consulting. The list of metals used in the analysis is comprehensive and includes precious metals and rare earth. The data set excludes iron ore and bauxite, which tend to be relatively more abundant than other metals and require for their exploitation proximity to port facilities in the case of the former and substantial energy availability for the latter.

[2]The results presented in this section are also robust to an array of checks, including additional controls and estimators.

Box 1.SF.1 *(continued)*

Figure 1.SF.1.2. Number of Metal Deposit Discoveries by Region and Decade



Source: MinEx Consulting.
Note: OECD = Organisation for Economic Co-operation and Development.

and a favorable investment climate are crucial (Acemoglu, Johnson, and Robinson 2001; Bohn and Deacon 2000). Cust and Harding (2014) provide evidence that institutions substantially affect oil and gas exploration.[3] Mining could be seen as more expropriable than oil extraction because mining output does not move through pipelines and takes place exclusively on land.

The approach in this box is to estimate, using a panel data set, a zero-inflated Poisson model with the number of mine discoveries by country, year, and metal as the dependent variable.[4] N_{itm} denotes the number of mines discovered in country i at time t and for a specific metal m. N_{itm} is assumed to follow a Poisson distribution.

The main explanatory variable of interest is a country's political risk rating, obtained from the *International Country Risk Guide*'s (ICRG's) Political Risk Index. The regressions include metal fixed effects because metals differ in their abundance and location. They also include country fixed effects to capture time-invariant country characteristics that are hard to observe, such as actual geology, and year fixed effects to control for technology and other global shocks. In addition, price changes for the corresponding metals over the past five years are controlled for. The baseline specification uses the standard log-linear approach to model the expected number of mine discoveries for metal m in country i at time t in the three-way Poisson regression model:

$$\ln E(N_{itm}) = \alpha + \beta \Delta p_{t-1,m} + \gamma ICRG_{it-1} + \delta X_{itm},$$

Arezki, van der Ploeg, and Toscani (forthcoming) present extensive technical details and an in-depth discussion of endogeneity.

[3]These authors' identification strategy relies on exploiting variations in institutions and oil deposits sitting on both sides of a border.

[4]Large numbers of zeros and the heteroscedasticity of errors may imply that ordinary least-squares results will be biased and inconsistent. Silva and Tenreyro (2006) suggest the Poisson pseudo–maximum likelihood estimator to address this issue. This box follows this suggestion and uses zero-inflated Poisson models. The count data are modeled as a Poisson count model, and a logit model is used to predict zeros.

Box 1.SF.1 *(continued)*

Table 1.SF.1.1. Impact of Political Institutions on Mineral Discoveries

Variables	(1)	(2)	(3)	(4)
Political Risk Rating, Lagged	0.0216***	0.0171**	0.0192**	0.0195**
	(0.00729)	(0.00782)	(0.00783)	(0.00787)
Polity2 Score, Lagged		0.0128	0.0179	0.0173
		(0.0155)	(0.0156)	(0.0155)
Stock of Discoveries, Lagged			0.0161***	0.0162***
			(0.00343)	(0.00344)
Political Risk Rating x Change in Metals Price				–0.00635
				(0.0165)
Log Change in Metals Price	–0.449	–0.464	–0.466	–0.0207
	(0.316)	(0.320)	(0.320)	(1.159)
Log Change in Metals Price, Lagged	–0.334	–0.341	–0.345	–0.345
	(0.315)	(0.314)	(0.322)	(0.322)
Number of Observations	37,252	35,480	31,812	31,812

Source: IMF staff estimates.
Note: Robust standard errors are in parentheses. Country, year, and metal fixed effects are included in all regressions.
*$p < .1$; **$p < .05$; ***$p < .01$.

in which the vector α includes country, time, and metal fixed effects. The key controls of interest are the natural logarithm of the world market price for metal *m* and the measure of political risk *ICRG*. The vector *X* includes other controls. It should be noted that the quality of institutions may be endogenous to metal discoveries in that these discoveries may, for instance, trigger conflicts over resources and erode institutions (Ross 2001, 2012). Any such endogeneity will, however, tend to bias the coefficient associated with institutions toward zero, and as such, that coefficient should be interpreted as presenting a lower bound. To alleviate issues of reverse causality somewhat, the political risk rating is included with a one-year lag. In addition, lagged discoveries are controlled for, to account for the clustering of discoveries. The interactions between *ICRG* and metal price and between price and fixed effects are also explored. Other robustness checks consist of adding controls such as GDP per capita and the initial capital stock and using price levels instead of changes. The main results remain unchanged.

The political risk rating, reflecting property rights and political stability, is found to be statistically and economically significant (Table 1.SF.1.1). The results indicate that a one standard deviation improvement in the political risk rating (which corresponds to a move from, for example, Mali to South Africa, South Africa to Chile, or Chile to Canada) would lead to 1.2 times as many metal discoveries in those countries. To provide a further sense of the relevant magnitude, a thought experiment is conducted in which Latin America's and sub-Saharan Africa's median property rights suddenly jump to the levels of the most advanced economies in each of these regions, which are, respectively, Chile and Botswana. This experiment yields a 15 percent increase in the number of mines discovered worldwide, all else equal. The figure increases to 25 percent if instead Latin America and sub-Saharan Africa were to suddenly adopt the same level of property rights as in the United States, again all else equal. Notwithstanding the dramatic increase in institutions forced by the thought experiment, the magnitudes suggest that institutions play an important role in driving exploration for and ultimately discoveries of metals. Institutions affect discoveries through a variety of channels besides the perception of risk on the part of the potential foreign investors. For instance, better institutions could affect the adoption of better technology or improve the quality of the labor force and in turn affect the number of discoveries. The analysis here does not attempt to separate those channels.

Results also suggest that movements in metal prices over the past five years are not statistically significant in explaining the number of discoveries. The likelihood of additional discoveries appears to increase with

Box 1.SF.1 *(continued)*

previous discoveries, as would be expected given the reduced risk of exploring close to a known deposit.

What Are the Implications?

The North-South shift in the frontier of metal exploitation is likely to have important consequences for individual economies with newly found metal deposits, especially in Latin America and Africa. Indeed, these discoveries expand the list of resource-rich countries. New mines mean more investment and jobs, especially in the resource sector, and increased government revenues. New trade routes have been inaugurated from Latin America and Africa to emerging Asia. However, these newly found resources pose challenges for the conduct of macroeconomic policy in developing economies in both the short and the long term.

While demand for metals emanating from emerging markets has been a key driver of recent global metal market developments, progress in the quality of institutions has helped increase the supply of metals and shifted its composition. A future steady increase in institutions along with slowing demand could lead to excess supply and exercise further downward pressure on prices.

Box 1.1. What Is the Effect of Recessions?

The global financial crisis put the spotlight on the issue of hysteresis, the hypothesis that recessions may have permanent effects and lead to lower output later. Figure 1.1.1 shows why. The figure shows the evolution of U.S. and euro area output since 2000. Its visually striking implication is that, since the global financial crisis, output appears to be evolving on a lower path, perhaps even a lower growth path, especially in the euro area.

To get a sense of how unusual such evolution is, Blanchard, Cerutti, and Summers (2015) look at 122 recessions in 23 advanced economies since the 1960s. Their analysis of the relative evolution of output after each recession takes a nonparametric approach that estimates and extrapolates prerecession trends—taking into account, among other factors, that an economy may have been in a boom, and thus above trend, before the recession started. Figure 1.1.2 shows the case of Portugal, which is representative of other countries. All but one of the recessions in Portugal since 1960 appear to be associated not only with lower output relative to trend, but with a subsequent decrease in trend growth, and thus increasing gaps between actual and past trend output.

More generally, these authors' analysis of the average output gaps between the prerecession trend and actual log GDP (covering from three to seven years after the recession) concludes that a surprisingly high two-thirds of recessions are followed by lower output relative to the prerecession trend. Even more surprisingly, almost half of those are followed not only by lower output, but also by lower output growth relative to the prerecession trend.

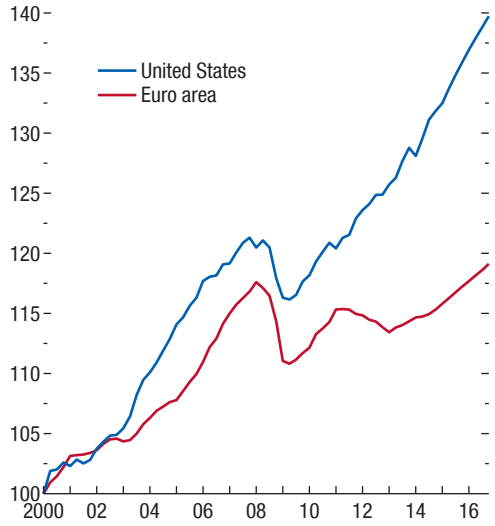
But correlation does not necessarily imply causality. One can think of three different explanations:

- *Hysteresis:* A number of mechanisms have been suggested that could generate lower output paths after recessions. Financial crises, like the recent global meltdown, often trigger institutional changes, such as tougher capital requirements or changes in bank business models, which could affect the long-term level of output. In the labor market, a recession and the associated high unemployment may lead some workers either to drop out permanently or to become unemployable.[1] Firms may cut back on research and development during a recession,

The authors of this box are Olivier Blanchard and Eugenio Cerutti, drawing on Blanchard, Cerutti, and Summers 2015.

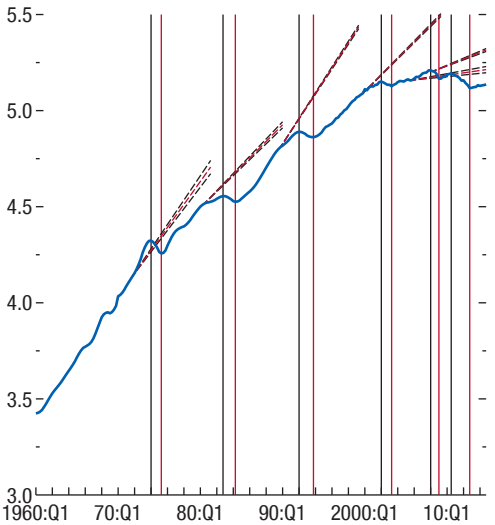
[1]Blanchard and Summers (1986) also relate the increase in unemployment in Europe during the 1980s to hysteresis in the form of prolonged unemployment episodes leading to a change in labor market institutions.

Figure 1.1.1. Advanced Economies: Real GDP
(Index, 2000:Q1 = 100)



Source: IMF staff calculations.

Figure 1.1.2. Portugal: Evolution of Log Real GDP and Extrapolated Trends



Source: IMF staff calculations.
Note: Peaks in log GDP are indicated by black vertical lines, troughs by red vertical lines. Recession dates are 1974:Q1–75:Q2; 1982:Q4–84:Q2; 1992:Q1–93:Q4; 2002:Q1–03:Q2; 2008:Q1–09:Q1; 2010:Q1–12:Q4.

Box 1.1 *(continued)*

leading to a lower productivity level than had there not been a recession. It is more difficult, but not impossible, to think of mechanisms through which a recession leads to lower output *growth* later.[2] A recession may trigger changes in behavior or to institutions' permanently cutting back on research and development or lowering reallocation forever. Changes may range from increased legal or self-imposed restrictions on risk taking by financial institutions to changes in taxation discouraging entrepreneurship.

- *Dynamic effects of supply shocks:* Supply shocks (for example, oil shocks and financial crises) may be behind both the recession and the lower output later. For example, it is plausible to argue that the sharp decline in output at the start of the global crisis and the subsequent lower growth path stem from the same underlying cause—namely, the crisis in the financial system, manifesting itself through an acute effect at the start and a more chronic effect thereafter.
- *Reverse causality:* A recession could be partly due to the anticipation of lower growth to come. For example, an exogenous decrease in underlying potential growth might lead households to reduce consumption and firms to reduce investment, leading to an initial recession.

To distinguish between these three explanations, Blanchard, Cerutti, and Summers (2015) focus on decompositions based on the recessions' proximate cause. They home in on recessions induced by intentional disinflation—demand shock recessions characterized by a large increase in nominal interest rates followed by subsequent disinflation—in which the correlation is more likely to reflect hysteresis than the other two hypotheses. They find that, even for those recessions, the proportion followed by lower output relative to the prerecession trend is substantial (in about 17 of the 28 intentional-disinflation recessions).

The policy implications of these findings are important, but potentially conflicting. When hysteresis is present, in general, macroeconomic policies must be more aggressive. Deviations of output from its optimal level are much longer lasting and thus more costly than usually assumed. Nevertheless, to the extent that the other two explanations are also relevant, there is the risk of overestimating potential output during and after a recession, and by implication of overestimating the output gap. Macroeconomic policies based on an overestimated output gap may turn out to be too aggressive. Hence, the macroeconomic policy mix must be not only country specific, but also recession specific.

[2]In order to differentiate the impact of a recession on the growth rate from its impact on the level of output, Ball (2014) calls the former "super-hysteresis."

Box 1.2. Small Economies, Large Current Account Deficits

Despite the narrowing of global current account imbalances, the number of countries with large current account deficits remains high. Over the period 2012–14, 62 countries had an average current account deficit exceeding 7 percent of GDP—only 4 fewer than over 2005–08.[1] This box presents stylized facts on the characteristics of these countries and tries to shed light on the potential drivers of their external borrowing and their external vulnerabilities.

The first striking fact about these countries is their small size. Despite representing about one-third of the IMF membership and half of the countries with current account deficits, their aggregate GDP is below 1½ percent of world GDP at market prices, and their aggregate current account deficit is about one-tenth of global current account deficits (somewhat smaller than the deficit in the United Kingdom). Their geographic distribution is heterogeneous, with 22 economies in sub-Saharan Africa, 12 in the Caribbean, 3 in Central America, 5 in the Pacific islands, 4 in Asia, 7 in the Middle East and North Africa, 5 in emerging Europe, and 4 in the Commonwealth of Independent States. Roughly half are low-income countries, and the other half are emerging markets. Table 1.2.1 provides a comparison of country characteristics for the median country in this group compared to the rest of the world, highlighting that these countries have both small populations and low GDP per capita as well. They are also highly dependent on oil imports.

Table 1.2.2 examines more formally whether the variables in Table 1.2.1 are systematically related to current account balances, estimating a simple cross-sectional regression in which the dependent variable is the average current-account-to-GDP ratio over the period 2012–14 and the parsimonious set of explanatory variables includes GDP per capita, population, and a proxy for net oil exports and imports over the same time period. There is of course a vast literature estimating current account regressions (see, for instance, Chinn and Prasad 2003, Lee and others 2008, and Prati and others 2011). In contrast to

Table 1.2.1. Median Country Characteristics
(2012–14 average)

	Population (millions)	GDP per Capita (thousands of U.S. dollars)	Oil Net Exports (percent of GDP)
Large Current Account Deficits	3.8	2.4	–7.3
Others	10.5	9.3	–2.9

Sources: World Bank, *World Development Indicators;* and IMF staff estimates.

Table 1.2.2. Cross-Sectional Current Account Models
(Variables expressed as 2012–14 averages, unless noted otherwise

	(1)	(2)[1]	(3)	(4)
Log GDP Per Capita	3.40***	2.22***	3.49***	3.34***
	(0.44)	(0.31)	(0.43)	(0.43)
Log Population	1.43***	1.40***	0.97**	1.13***
	(0.29)	(0.28)	(0.31)	(0.32)
Hydrocarbon-Rich Dummy	9.18***	8.65***	9.02***	
	(1.82)	(2.04)	(1.77)	
Caribbean Dummy			–7.36**	–3.55
			(2.42)	(2.41)
Oil Net Exports (percent of GDP)				0.24***
				(0.06)
Number of Observations	188	172	188	171
R^2	0.40	0.46	0.42	0.49
Adjusted R^2	0.39	0.45	0.41	0.48

Note: Standard errors are in parentheses.
[1]The dependent and explanatory variables are expressed as 1995–2014 averages.
**$p < .01$; ***$p < .001$.

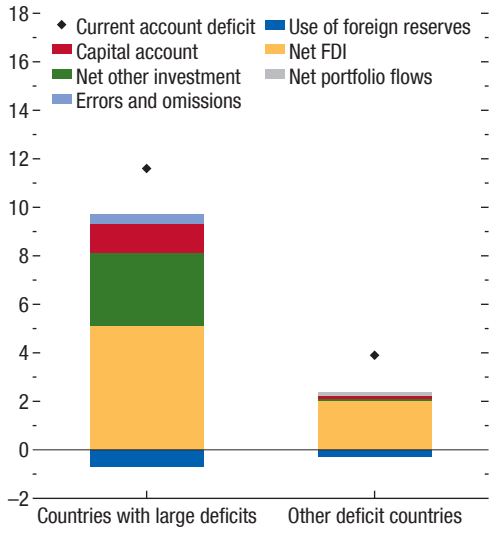
The authors of this box are Carolina Osorio-Buitrón and Gian Maria Milesi-Ferretti.

[1]The number of countries with current account surpluses exceeding 7 percent of GDP in 2012–14 was much smaller (15), but their aggregate size was four times larger. The majority are oil exporters.

Box 1.2 *(continued)*

Figure 1.2.1. Sources of External Financing, Current Account Deficit Countries

(Percent of GDP; median values, 2012–14)



Sources: IMF, *Balance of Payments Statistics;* and IMF staff calculations.
Note: The figure presents the median values of the 2012–14 averages in each country group for each financing source. FDI = foreign direct investment.

that in most of the literature, the focus here is purely on the cross-section, and the very limited number of control variables permits a truly global sample (wider than commonly used samples).

Results show a very strong cross-sectional relationship between current account balances and GDP per capita: for instance, a country with GDP per capita of $5,000 will have on average a current account balance 6 percentage points of GDP stronger than a country with GDP per capita of $1,000. The regression also yields a positive relationship between current account balances and population, which is statistically and economically significant, after GDP per capita is controlled for. For instance, a country with a population of 10 million has on average a current account balance that is about 2.8 percentage points of GDP stronger than a country with the same GDP per capita but a population of 1 million. These results are not specific to the 2012–14 period, as shown in column (2) of Table 1.2.2. Possible reasons why countries with smaller populations have on average larger deficits are discussed later in this box.[2] A dummy for oil exporters is also highly significant, and even more so the oil trade balance. Column (3) shows that the significance of population is not solely driven by Caribbean islands, which have large deficits and very small populations—but it suggests that these countries do run larger deficits than others, after their size and level of development are controlled for. The intensity of their oil dependence is clearly a factor explaining their deficits—as shown in column (4), substituting the oil balance for the oil exporter dummy reduces the economic and statistical significance of the Caribbean dummy.

External Financing

Figure 1.2.1 provides information on the structure of external financing for the countries in the large-deficit sample. These countries have relied to an important extent on net foreign direct investment (FDI) flows—the median is about 5 percentage points of GDP—as well as net flows of other investments (a broad category including private and official loans). This variable understates net inflows in the presence of debt relief, since the latter is recorded as a capital account transfer accompanied by a repayment of other investment liabilities. Indeed, capital account transfers account for close to 1 percent of GDP of median current account financing. Median portfolio flows are negligible, even though a few countries have relied heavily on them. Neither median changes in foreign exchange reserves nor errors and omissions play an important role.

Given the balance of payments identity, net sources of current account financing are also correlated with both GDP per capita and population. The correlation is especially strong for capital account transfers, foreign official flows, and foreign direct investment—all of which are proportionately higher, as a share of domestic GDP, in poor countries as well as in countries with small populations.

[2]Since the current-account-to-GDP ratio in small economies tends to be more volatile than that in larger ones, countries with small populations could be overrepresented in the sample of large-deficit countries. But volatility is unlikely to be the main driver of the relationship between population and the current account, as the negative correlation between these variables is systematic across all countries. Moreover, small economies are not overrepresented in the sample of countries with large surpluses.

Box 1.2 (continued)

Drivers of Large External Financing

Large current account deficits can in principle be associated with a variety of factors:

- *Sizable reliance on development assistance, particularly in small economies:* Countries with smaller populations tend to receive more aid as a share of GDP than larger nations (see Alesina and Dollar 2005).[3] With greater reliance on aid flows, the current account balance can overstate the access to external borrowing (through grants classified under the capital account), and borrowing costs may be lower than for other countries, given concessional loans. Indeed, if the financial account is used as the dependent variable in the regressions of Table 1.2.2 (thereby netting out the part of current account financing accounted for by capital transfers), the link with population size weakens, both economically and statistically.
- *Legacy effects from large past external borrowing, which imply a strongly negative income balance:* Such legacy effects are intensified by low economic growth.
- *Negative growth shocks, such as natural disasters or conflicts, which (temporarily) curtail a country's production possibilities, as well as the induced increase in spending associated with reconstruction needs:* In small states, the macroeconomic consequences of natural disasters are particularly large, as these shocks tend to affect a larger share of the population and of the economy.[4] While existing estimates of the GDP cost of natural disasters are not a significant determinant of current account balances when added to the regression specifications of Table 1.2.2, these estimates' incomplete coverage poses a challenge to testing their empirical relevance in a reliable fashion.
- *Measurement issues:* The sample of large-deficit countries includes 18 with tourism-based economies, for which there is anecdotal evidence that tourist spending may be underestimated and hence the current account deficit overestimated (see, for instance, IMF 2015d). When added to the regressions presented in Table 1.2.2, tourism revenues as a share of total exports are negatively correlated with the current account balance (and reduce the size and significance of the coefficient on population), consistent with the hypothesis that such revenues may be underestimated. Analogously, large-deficit countries rely more on remittances than other deficit countries.[5] However, these flows are notoriously difficult to distinguish from capital inflows and to measure accurately, for instance, because individual remittances often fall below financial institutions' reporting thresholds (see UNECE 2011).

Different countries in the diverse high current account deficit sample fall into each of these categories. Chronic current account deficits with low GDP per capita and sizable reliance on development assistance is the most common profile among countries in the sample. Indeed, while some 50 countries in the group experienced a worsening in current account deficits relative to their average current account values during 1995–2011, only 11 of them had deficits averaging less than 5 percent of GDP during the earlier period. In a number of these countries, legacy effects from past external borrowing were alleviated through debt forgiveness or debt reduction agreements, either during the 2012–14 period or in the preceding decade (for instance, Liberia, Mozambique, and St. Kitts and Nevis). However, the number of countries with very high net external liabilities remains elevated, as discussed next.

Turning to reasons for sizable changes in current account balances, Mauritania, Mongolia, Mozambique, and Papua New Guinea have had booms in FDI related to natural resources, and The Bahamas, Grenada, and Guyana have had natural disasters with estimated macroeconomic costs exceeding 2 percentage points of GDP a year.

External Risks for High-Deficit Countries

Many countries in the large-deficit sample have structural vulnerabilities. For instance, small developing states, which constitute a third of the sample, face vulnerabilities and policy challenges due to their size, which adds to production and distribution costs, hampers the delivery of public goods, poses other administrative capacity constraints, and leaves them

[3]Hence, a country's size, measured by its population, has been used as a measure of donor interest (Bräutigam and Knack 2004) and as an instrument for aid flows (see, for instance, Rajan and Subramanian 2008).

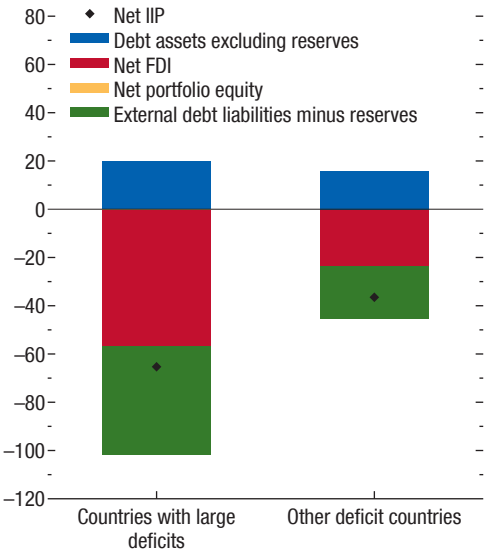
[4]It is estimated that natural disasters cost microstates (countries with populations of 200,000 or less) between 3 and 5 percent of GDP annually (Jahan and Wang 2013).

[5]The median remittances-to-GDP ratio is roughly 3 percent in large-deficit countries and close to zero for other deficit countries.

Box 1.2 *(continued)*

Figure 1.2.2. Composition of Net International Investment Position, Current Account Deficit Countries

(Percent of GDP; median values, 2013)



Sources: IMF, *Balance of Payments Statistics;* and Lane and Milesi-Ferretti 2007.
Note: The figure presents the median values for 2013 in each country group for each investment type. FDI = foreign direct investment; IIP = international investment position.

with minimal diversification against external shocks, including natural disasters (IMF 2013, 2015e).

More generally, with sizable reliance on external financing, countries in this sample are generally sensitive to changes in the global macroeconomic environment, given their generally small size, openness, and reliance on external financing. These changes include, for example, a tightening of external financing conditions and a growth slowdown in emerging market economies. Declines in commodity prices hurt natural resource exporters, but as Table 1.1.1 highlights, lower oil prices are actually beneficial for a large majority of countries in this group. Of course an assessment of external sector risks has to take into account sizable differences in the macroeconomic environment, as well as the level and structure of external financing—and risks arising from external factors are exacerbated by domestic macroeconomic shocks and weak economic growth.

A heavy reliance on portfolio flows to finance large current account deficits can imply a higher risk of capital flow reversals should global attitudes toward risk change. For the period 2012–14, 10 countries in the large-deficit group (excluding financial centers, which by their nature have large portfolio flows) had average net portfolio inflows exceeding 2 percent of GDP (for instance, Ghana, Kenya, Mongolia, and Serbia).

Furthermore, 5 countries in the sample, including countries with conflicts such as Ukraine, as well as others such as Papua New Guinea, had substantial drawdowns in foreign exchange reserves during 2012–14 (averaging more than 2 percent of GDP a year).

In addition, with large and persistent current account deficits, a sizable number of countries in the sample have high net external liabilities, despite the external transfers and debt reduction agreements discussed earlier (Figure 1.2.2). In many countries, net FDI represents the lion's share of net foreign liabilities. The value of FDI liabilities is generally tied to a country's economic prospects, which implies better risk sharing in comparison to foreign-currency debt.[6] This notwithstanding, large FDI liabilities also imply sizable income outflows, and a country with large FDI liabilities is still vulnerable to a sharp decline in FDI flows, should its prospects or those for the sector in which its FDI is primarily located (for example, resource extraction or tourism) deteriorate.

Figure 1.2.2 also shows that external debt liabilities net of reserves exceed 40 percent of GDP in more than half of the sample of countries, and empirical evidence suggests that a country's net external debt position is correlated with the probability of an external crisis (Catão and Milesi-Ferretti 2014). In a number of countries in the sample, the sizable share of concessional loans is a mitigating factor (for more than 20 of them, that share was above 50 percent in 2013). However, the share of concessional loans is generally declining and is below one-third for about half of the sample.

In sum, this box documents that a sizable number of countries still run large current account deficits. These countries are overwhelmingly small—in terms of GDP per capita, population, or both. Factors that can

[6]In a number of cases a large share of FDI inflows is associated with matching imports of machinery and equipment. Therefore, a decline in FDI could reduce FDI-related imports and strengthen the current account balance, as was the case in many countries in the Caribbean during the global financial crisis.

Box 1.2 *(continued)*

Table 1.2.3. Profile of Countries with Large Current Account Deficits

	Large Debt Relief[1]	Fragile[2]	Natural Resource Rich[3]	Tourism Based[4]	Financial Center
Albania				Yes	
Anguilla					
Antigua and Barbuda				Yes	Yes
Armenia					
Bahamas, The				Yes	Yes
Barbados					Yes
Benin	Yes				
Bhutan					
Bosnia and Herzegovina		Yes			
Burundi	Yes	Yes			
Cabo Verde				Yes	
Cambodia				Yes	
Chad		Yes	Yes		
Comoros	Yes	Yes			
Congo, Dem. Rep. of the	Yes	Yes	Yes		
Djibouti					
Dominica				Yes	
Fiji				Yes	
Gambia, The					
Georgia					
Ghana			Yes		
Grenada				Yes	
Guinea		Yes	Yes		
Guyana	Yes				
Honduras					
Jamaica				Yes	
Jordan				Yes	
Kenya					
Kiribati		Yes			
Kosovo		Yes			
Kyrgyz Republic			Yes		
Lao P.D.R.					
Lebanon				Yes	Yes
Lesotho					
Liberia	Yes	Yes	Yes		
Marshall Islands		Yes			
Mauritania			Yes		
Mongolia			Yes		
Montenegro				Yes	
Montserrat					
Morocco					
Mozambique	Yes				
Nicaragua	Yes				
Niger					
Palau				Yes	
Panama					Yes
Papua New Guinea			Yes		
Rwanda	Yes				
São Tomé & Príncipe	Yes	Yes	Yes		
Senegal	Yes				
Serbia					
Seychelles	Yes			Yes	Yes
Sierra Leone	Yes	Yes	Yes		

Box 1.2 *(continued)*

Table 1.2.3. Profile of Countries with Large Current Account Deficits *(continued)*

	Large Debt Relief[1]	Fragile[2]	Natural Resource Rich[3]	Tourism Based[4]	Financial Center
St. Kitts and Nevis				Yes	
St. Lucia				Yes	
St. Vincent and the Grenadines				Yes	
Sudan		Yes			
Tanzania	Yes				
Togo	Yes	Yes			
Tunisia					
Tuvalu		Yes			
Uganda	Yes				
Ukraine					
Zimbabwe		Yes			

[1]Countries with cumulative debt relief since 2000 greater than 10 percent of GDP.
[2]Countries classified as fragile in IMF 2015c.
[3]Countries that are hydrocarbon rich, potentially hydrocarbon rich, or mineral rich according to the IMF's *Guide to Resource Transparency*.
[4]Tourism-based economies have a ratio of international tourism receipts to total exports that exceeds 25 percent and international tourism receipts in excess of 10 percent of GDP.

help explain the incidence of large deficits in countries with small populations include higher grants and external assistance relative to the size of the economy and vulnerabilities of particular relevance to small countries (such as the effects of recurrent natural disasters), as well as measurement problems (for instance, in regard to revenues from tourism or remittances). In recent years, these countries have benefited from a very benign external financing environment, with several of them issuing international securities for the first time. The environment is likely to change, and this will pose policy challenges, particularly to those countries with large net external liabilities and sizable recourse to nonconcessional debt.

Box 1.3. Capital Flows and Financial Deepening in Developing Economies

Low-income developing countries have integrated significantly with global financial markets over the past few decades—with annual gross private capital inflows increasing from $4 billion in the early 1980s to more than $60 billion in recent years, representing almost 6.4 percent of GDP in 2013.[1] This acceleration, which occurred together with the commodity price boom, has been driven by foreign direct investment, which has increased from about 2 percent of GDP in the early 2000s to more than 4 percent since 2011. Other inflows to the nonofficial sector have also increased in recent years, but they still account for less than 1.5 percent of GDP. Portfolio flows have been a negligible source of external financing for low-income developing countries, although they have been increasing recently in some frontier economies (Araujo and others 2015).

Low-income developing countries are typically more credit constrained than advanced economies, and capital inflows can be an important source of financial deepening for these economies to stimulate investment and efficient allocation of resources. Capital inflows can raise private credit directly—through increased bank deposits and collateral valuation effects (thanks to increased asset prices)—and indirectly, through their effect on macroeconomic and financial variables that influence the demand for and the supply of credit.[2] Foreign direct investment could, for example, have positive spillovers on local firms, easing financing constraints (Harrison, Love, and McMillan 2004), and increase their demand for credit.[3]

Against this backdrop, this box examines the role of global capital flows in driving credit to the private sector in low-income developing countries. Figure 1.3.1 suggests strong comovement between domestic bank lending and international capital flows in these countries, although the acceleration in credit from the mid-2000s surpassed that in capital inflows. The specific contribution of the latter in driving private credit (as a percentage of GDP) is identified here by estimating the following specification:

$$CRED_{i,t} = \alpha CRED_{i,t-1} + \beta CF_{i,t} + \gamma X_{i,t} + \delta_i + \varepsilon_{i,t}.$$

The vector $X_{i,t}$ includes a set of standard control variables (real per capita GDP, interest rate, GDP growth, and a banking crisis dummy), while α measures the persistence of private credit. The model is estimated with annual data for a sample of 36 low-income developing countries over the period 1980–2012, with country fixed effects δ_i and robust clustered standard errors.[4]

Given the obvious challenges in establishing a causal relationship between capital flows and domestic credit, the analysis relies on an instrument for capital inflows, which are uncorrelated with domestic economic conditions in recipient economies (see Gori, Li, and Presbitero, forthcoming). Gross capital inflows to emerging markets are taken as an instrument for capital inflows to low-income developing countries on the basis of the following three conditions. First, aggregate capital inflows to emerging markets are strongly and positively correlated with capital inflows to low-income developing countries, as shown in Figure 1.3.1, especially in the period before the global financial crisis, and this is confirmed by the first-stage coefficients (Table 1.3.1).[5]

The authors of this box are Filippo Gori, Bin Grace Li, and Andrea F. Presbitero.

[1]Weighted average; the unweighted average is 9.6 percent of GDP. The definition of private capital inflows used here follows Bluedorn and others 2013 and excludes from total capital inflows changes in recorded reserves, IMF lending, and other flows that record the official sector as a counterparty (for example, other flows to the central bank or monetary authority and general government, which are typically official lending or aid).

[2]Recent studies have explored the relationship between financial integration and domestic financial deepening for advanced and emerging market economies but not for low-income developing countries. The size of the domestic banking system and the scale of financial globalization have been shown to be strongly correlated (Lane and Milesi-Ferretti 2008), and episodes of capital inflows, mainly debt driven, have been associated with an increase in domestic credit growth (Furceri, Guichard, and Rusticelli 2012; Lane and McQuade 2014; Igan and Tan 2015).

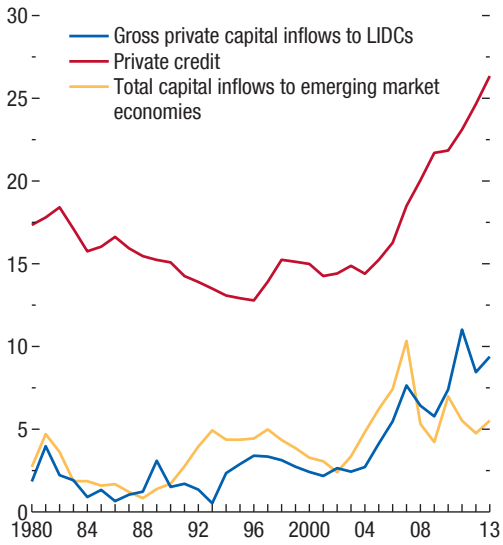
[3]While foreign direct investment is often concentrated in enclave sectors, it is becoming more important in manufacturing and service sectors, with significant spillovers to domestic firms (Amendolagine and others 2013).

[4]To deal with the volatility of capital flows during the global financial crisis (see Figure 1.3.1), a dummy for 2008–12 is added. The sample includes Bangladesh, Benin, Bolivia, Burkina Faso, Cambodia, Cameroon, Republic of Congo, Djibouti, Ethiopia, The Gambia, Ghana, Guinea, Guinea-Bissau, Haiti, Honduras, Kenya, Lao P.D.R., Lesotho, Madagascar, Malawi, Mali, Mongolia, Mozambique, Nepal, Nicaragua, Niger, Nigeria, Papua New Guinea, Rwanda, Senegal, Sierra Leone, Solomon Islands, Tanzania, Togo, Uganda, and Zambia. The analysis focuses on the overall relationship between domestic credit and capital flows, and although it controls for the incidence of banking crises, financial stability risks related to the cyclicality of capital flows are not tackled here.

[5]Moreover, the first-stage *F*-statistics are generally close to or above the critical value of 10, which signals (for values below) a weak instrument. Results are robust to the exclusion of the crisis

Box 1.3 *(continued)*

Figure 1.3.1. Gross Capital Inflows and Private Credit in Selected Low-Income Developing Countries
(Percent of GDP)



Source: IMF staff calculations.
Note: Unweighted averages. Gross private capital inflows (calculated with cross-border flows to the official sector within other capital inflows stripped out) to the sample of 36 low-income developing countries (those used in the regressions with at least 10 observations in each variable) and total gross capital inflows to emerging markets are based on IMF staff calculations; private credit refers to the same sample of 36 low-income developing countries (LIDCs) and is from the World Bank's Global Financial Development Database, integrated with the World Bank's World Development Indicators.

Second, they are unlikely to be affected by the countries' economic performance. Third, for the uniqueness condition, the instrument is valid only if it affects private credit through its effect on capital inflows. It is not restrictive to imagine that capital inflows to emerging markets could affect low-income developing countries through international capital flows, but there may be other channels at work, particularly trade. To control for the trade channel, the set of controls includes the trade balance of emerging markets.

A number of global factors affecting advanced and developing economies at the same time could also weaken the identification strategy, to the extent that changes in such factors simultaneously affect capital inflows to emerging markets and to low-income developing countries. A proxy for these factors is constructed by extracting the first principal component of real GDP in a large sample of 135 advanced, emerging market, and developing economies. This variable explains more than 82 percent of the cross-country comovement in real GDP and is included as a measure of the global business cycle. Given that a large share of the countries in the sample are commodity exporters, commodity prices and terms-of-trade shocks can boost both private credit and capital inflows. To show that results are not driven by commodity prices, the model is also estimated on the sample of noncommodity exporters.

The main results suggest that global capital inflows contribute to private credit creation in low-income developing countries, and this is true also for noncommodity exporters (columns (4)–(6) of the table).[6] Quantitatively, a 1 percentage point increase in total private capital inflows (as a share of GDP) increases the private-credit-to-GDP ratio by 0.32 percentage point (column 1). The results are largely driven by foreign direct investment and other private inflows (flows to the nonofficial sector, including bank loans and trade credit).[7] The response of domestic credit to foreign investment may reflect direct local funding of foreign firms and potential positive spillovers from foreign direct investment increasing the demand for credit by local firms. The statistically significant bearing between private credit and other private flows, by contrast, reflects a supply channel working through cross-border bank flows (although the magnitude of other private flows is still relatively small in low-income developing countries). These results contrast with those of studies on advanced and emerging market

years and the use of alternative instruments, such as the first principal components of capital outflows from advanced economies and capital outflows from the United States.

[6]Results are robust to the inclusion of country-specific net commodity terms of trade (defined as in Gruss 2014; see Chapter 2 for details).

[7]When capital flows are measured by portfolio flows, the model is weakly identified, and the coefficients on capital flows are imprecisely estimated. For that reason, results are not shown in Table 1.3.1. Results are similar when net flows are used.

Box 1.3 *(continued)*

Table 1.3.1. Gross Capital Inflows and Private Credit: Two-State Least-Squares Estimates

	(1)	(2)	(3)	(4)	(5)	(6)
Dependent variable: Private credit (% of GDP)$_t$						
Total Private Capital Inflows (% of GDP)$_t$	0.320***			0.283**		
	(0.006)			(0.028)		
Foreign Direct Investment Inflows (% of GDP)$_t$		0.611***			0.492**	
		(0.007)			(0.031)	
Other Inflows to Nonofficial Sector (% of GDP)$_t$			0.693**			0.731*
			(0.022)			(0.082)
Private Credit (% of GDP)$_{t-1}$	0.827***	0.802***	0.856***	0.849***	0.847***	0.836***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Real Per Capita GDP$_{t-1}$	3.208***	3.624**	3.100***	3.418	3.500	3.638*
	(0.004)	(0.014)	(0.003)	(0.144)	(0.178)	(0.088)
Real GDP Growth$_{t-1}$	0.016	0.013	0.019	–0.002	0.006	–0.023
	(0.442)	(0.594)	(0.437)	(0.924)	(0.813)	(0.468)
Interest Rate$_t$	–0.700**	–1.176***	–0.228	–0.458	–0.804	–0.004
	(0.023)	(0.004)	(0.443)	(0.335)	(0.217)	(0.990)
Banking Crisis$_{t-1}$ (0/1)	–1.772**	–1.869**	–1.371	–1.190	–1.443*	–0.744
	(0.015)	(0.023)	(0.108)	(0.138)	(0.051)	(0.474)
Emerging Market and Developing Economies Trade Balance$_t$	–0.133	–0.217*	–0.028	–0.101	–0.111	–0.058
	(0.139)	(0.073)	(0.735)	(0.312)	(0.348)	(0.546)
Global Business Cycle$_t$	–0.065	–0.528	0.400	–0.158	–0.518	0.271
	(0.823)	(0.205)	(0.241)	(0.653)	(0.319)	(0.429)
First-Stage Coefficient (Total Capital Inflows to Emerging Market and Developing Economies)	0.628***	0.324***	0.290**	0.537***	0.302***	0.208**
	(0.200)	(0.113)	(0.111)	(0.119)	(0.094)	(0.073)
Number of Observations	939	927	939	540	532	540
R^2	0.796	0.742	0.765	0.813	0.782	0.802
Sample	Low-income developing countries			Noncommodity-exporting low-income developing countries		
Number of Countries	36	36	36	21	21	21
Underidentification Test (Kleibergen-Paap rk LM)	0.005	0.008	0.015	0.001	0.005	0.016
Weak Identification Test (Kleibergen-Paap rk Wald)	9.817	8.183	6.864	20.440	10.346	8.025

Source: Authors' calculations.

Note: The table reports the regression results of a two-stage least-squares model in which the dependent variable is the ratio of private credit to GDP in country *i* at time *t*. Capital inflows are instrumented with total capital inflows to emerging markets. Standard errors, clustered at the country level, are in parentheses. The Kleibergen-Paap rk LM statistic tests the null hypothesis that the excluded instruments are not correlated with the endogenous regressor; the Kleibergen-Paap rk Wald *F*-statistic tests for weak identification. Each regression includes country fixed effects and a dummy for the crisis period 2008–12.

*$p < .10$; **$p < .05$; ***$p < .01$.

economies that find portfolio debt flows to be more important drivers of private credit (Furceri, Guichard, and Rusticelli 2012; Lane and McQuade 2014). For low-income developing countries, portfolio debt and equity flows represent only a tiny fraction of total flows, and there is no robust correlation with domestic credit.

This analysis identifies a causal relationship between capital flows and domestic private credit in low-income developing countries—confirming the potentially enabling role of global financial integration for financial deepening in these countries, conditional on financial depth itself being a robust driver of economic growth and development.

References

Aastveit, Knut Are, Hilde C. Bjørnland, and Leif Anders Thorsrud. Forthcoming. "What Drives Oil Prices? Emerging versus Developed Economies." *Journal of Applied Econometrics*.

Acemoglu, Daron, Simon Johnson, and James A. Robinson. 2001. "The Colonial Origins of Comparative Development: An Empirical Investigation." *American Economic Review* 91 (5): 1369–1401.

Alesina, Alberto, and David Dollar. 2005. "Who Gives Foreign Aid to Whom and Why?" *Journal of Economic Growth* 5 (1): 33–63.

Amendolagine, Vito, Amadou Boly, Nicola Daniele Coniglio, Francesco Prota, and Adnan Seric. 2013. "FDI and Local Linkages in Developing Countries: Evidence from Sub-Saharan Africa." *World Development* 50: 41–56.

Araujo, Juliana D., Antonio C. David, Carlos van Hombeeck, and Chris Papageorgiou. 2015. "Non-FDI Capital Inflows in Low-Income Developing Countries: Catching the Wave?" IMF Working Paper 15/86, International Monetary Fund, Washington.

Arezki, Rabah, Rick van der Ploeg, and Frederik Toscani. Forthcoming. "Shifting Frontiers in Global Resource Extraction: The Role of Institutions." IMF Working Paper, International Monetary Fund, Washington.

Ball, Lawrence. 2014. "Long-Term Damage from the Great Recession in OECD Countries." NBER Working Paper 20185, National Bureau of Economic Research, Cambridge, Massachusetts.

Blanchard, Olivier, Eugenio Cerutti, and Lawrence Summers. 2015. "Inflation and Activity: Two Explorations and Their Monetary Policy Implications." Paper presented at the ECB Forum on Central Banking, Sintra, Portugal, May 18.

Blanchard, Olivier, and Lawrence Summers. 1986. "Hysteresis and the European Unemployment Problem." In *NBER Macroeconomics Annual 1986*, edited by Stanley Fischer, 15–90. Cambridge, Massachusetts: MIT Press.

Bluedorn, John, Rupa Duttagupta, Jaime Guajardo, and Petia Topalova. 2013. "Capital Flows Are Fickle: Anytime, Anywhere." IMF Working Paper 13/183, International Monetary Fund, Washington.

Bohn, Henning, and Robert T. Deacon. 2000. "Ownership Risk, Investment, and the Use of Natural Resources." *American Economic Review* 90 (3), 526–49.

Bräutigam, Deborah A., and Stephen Knack. 2004. "Foreign Aid, Institutions, and Governance in Sub-Saharan Africa." *Economic Development and Cultural Change* 52 (2): 255–85.

Catão, Luis A. V., and Gian Maria Milesi-Ferretti. 2014. "External Liabilities and Crises." *Journal of International Economics* 94 (1): 18–32.

Chinn, Menzie D., and Eswar S. Prasad. 2003. "Medium-Term Determinants of Current Accounts in Industrial and Developing Countries: An Empirical Exploration." *Journal of International Economics* 59 (1): 47–76.

Collier, Paul. 2010. *The Plundered Planet: Why We Must—and How We Can—Manage Nature for Global Prosperity.* Oxford, U.K.: Oxford University Press.

Cust, James, and Torfinn Harding. 2014. "Institutions and the Location of Oil Exploration." OxCarre Research Paper 127, Department of Economics, Oxford Centre for the Analysis of Resource Rich Economies, University of Oxford, Oxford, U.K.

Fernald, John. 2014. "Productivity and Potential Output before, during, and after the Great Recession." In *NBER Macroeconomics Annual 2014,* Vol. 29, edited by Jonathan A. Parker and Michael Woodford, 1–51. Chicago: University of Chicago Press.

Furceri, Davide, Stéphanie Guichard, and Elena Rusticelli. 2012. "The Effect of Episodes of Large Capital Inflows on Domestic Credit." *North American Journal of Economics and Finance* 23 (3): 325–44.

Gauvin, Ludovic, and Cyril Rebillard. 2015. "Towards Recoupling? Assessing the Global Impact of a Chinese Hard Landing through Trade and Commodity Price Channels." Working Paper 562, Banque de France, Paris.

Gordon, Robert J. 2014. "The Demise of U.S. Economic Growth: Restatement, Rebuttal and Reflections." NBER Working Paper 19895, National Bureau of Economic Research, Cambridge, Massachusetts.

Gori, Filippo, Bin Grace Li, and Andrea Presbitero. Forthcoming. "Capital Inflows and Private Credit Growth." International Monetary Fund, Washington.

Gruss, Bertrand. 2014. "After the Boom—Commodity Prices and Economic Growth in Latin America and the Caribbean." IMF Working Paper 14/154, International Monetary Fund, Washington.

Harrison, Ann E., Inessa Love, and Margaret S. McMillan. 2004. "Global Capital Flows and Financing Constraints." *Journal of Development Economics* 75 (1): 269–301.

Husain, Aasim M., Rabah Arezki, Peter Breuer, Vikram Haksar, Thomas Helbling, Paulo A. Medas, and Martin Sommer. 2015. "Global Implications of Lower Oil Prices." Staff Discussion Note 15/15, International Monetary Fund, Washington.

Igan, Deniz, and Zhibo Tan. 2015. "Capital Inflows, Credit Growth, and Financial Systems." IMF Working Paper 15/193, International Monetary Fund, Washington.

International Monetary Fund (IMF). 2013. "Asia and Pacific Small States: Raising Potential Growth and Enhancing Resilience to Shocks." Washington.

———. 2015a. *2015 External Sector Report.* Washington.

———. 2015b. *2015 Spillover Report.* Washington.

———. 2015c. "IMF Engagement with Countries in Postconflict and Fragile Situations—Stocktaking." IMF Policy Paper. Washington.

———. 2015d. *Maldives 2014 Article IV Consultation—Staff Report.* IMF Country Report 15/68. Washington.

———. 2015e. *Macroeconomic Developments and Selected Issues in Small Developing States.* IMF Staff Report. Washington.

Jahan, Sarwat, and Ke Wang. 2013. "A Big Question on Small States." *Finance & Development* 50 (3): 44–47.

Lane, Philip R., and Peter McQuade. 2014. "Domestic Credit Growth and International Capital Flows." *Scandinavian Journal of Economics* 116 (1): 218–52.

Lane, Philip R., and Gian Maria Milesi-Ferretti. 2007. "The External Wealth of Nations Mark II: Revised and Extended Estimates of Foreign Assets and Liabilities, 1970–2004." *Journal of International Economics* 73 (2): 223–50.

———. 2008. "The Drivers of Financial Globalization." *American Economic Review* 98 (2): 327–32.

Lee, Jaewoo, Gian Maria Milesi-Ferretti, Jonathan Ostry, Alessandro Prati, and Luca Antonio Ricci. 2008. *Exchange Rate Assessments: CGER Methodologies.* IMF Occasional Paper 261. Washington: International Monetary Fund.

McKinsey Global Institute. 2013. *Reverse the Curse: Maximizing the Potential of Resource-Driven Economies.* London.

Organisation for Economic Co-operation and Development (OECD). 2015. *The Future of Productivity*. Preliminary version. Paris.

Prati, Alessandro, Luca Antonio Ricci, Lone Christiansen, Stephen Tokarick, and Theirry Tressel. 2011. *External Performance in Low-Income Countries*. Occasional Paper 272. Washington: International Monetary Fund.

Rajan, Raghuram, and Arvind Subramanian. 2008. "Aid and Growth: What Does the Cross-Country Evidence Really Show?" *Review of Economics and Statistics* 90 (4): 643–65.

Rausser, Gordon, and Martin Stuermer. 2014. "Collusion in the Copper Commodity Market: A Long-Run Perspective." Unpublished, University of California at Berkeley.

Ross, Michael L. 2001. "Does Oil Hinder Democracy?" *World Politics* 53 (3): 325–61.

———. 2012. *The Oil Curse: How Petroleum Wealth Shapes the Development of Nations.* Princeton, New Jersey: Princeton University Press.

Silva, J. M. C. Santos, and Silvana Tenreyro. 2006. "The Log of Gravity." *Review of Economics and Statistics* 88 (4): 641–58.

United Nations Economic Commission for Europe (UNECE). 2011. "Remittances." In *The Impact of Globalization on National Accounts,* chap. 11. New York and Geneva.