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World Economic Outlook

Uneven Growth
Short- and Long-Term Factors

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ASSUMPTIONS AND CONVENTIONS

A number of assumptions have been adopted for the projections presented in the *World Economic Outlook* (WEO). It has been assumed that real effective exchange rates remained constant at their average levels during February 6–March 6, 2015, except for those for the currencies participating in the European exchange rate mechanism II (ERM II), which are assumed to have remained constant in nominal terms relative to the euro; that established policies of national authorities will be maintained (for specific assumptions about fiscal and monetary policies for selected economies, see Box A1 in the Statistical Appendix); that the average price of oil will be $58.14 a barrel in 2015 and $65.65 a barrel in 2016 and will remain unchanged in real terms over the medium term; that the six-month London interbank offered rate (LIBOR) on U.S. dollar deposits will average 0.7 percent in 2015 and 1.9 percent in 2016; that the three-month euro deposit rate will average 0.0 percent in 2015 and 2016; and that the six-month Japanese yen deposit rate will yield on average 0.1 percent in 2015 and 0.2 percent in 2016. These are, of course, working hypotheses rather than forecasts, and the uncertainties surrounding them add to the margin of error that would in any event be involved in the projections. The estimates and projections are based on statistical information available through April 3, 2015.

The following conventions are used throughout the WEO:

. . . to indicate that data are not available or not applicable;

– between years or months (for example, 2014–15 or January–June) to indicate the years or months covered, including the beginning and ending years or months;

/ between years or months (for example, 2014/15) to indicate a fiscal or financial year.

"Billion" means a thousand million; "trillion" means a thousand billion.

"Basis points" refers to hundredths of 1 percentage point (for example, 25 basis points are equivalent to ¼ of 1 percentage point).

Data refer to calendar years, except in the case of a few countries that use fiscal years. Please refer to Table F in the Statistical Appendix, which lists the economies with exceptional reporting periods for national accounts and government finance data for each country.

For some countries, the figures for 2014 and earlier are based on estimates rather than actual outturns. Please refer to Table G in the Statistical Appendix, which lists the latest actual outturns for the indicators in the national accounts, prices, government finance, and balance of payments indicators for each country.

- On January 1, 2015, Lithuania became the 19th country to join the euro area. Data for Lithuania are not included in the euro area aggregates because Eurostat has not fully released the consolidated data for the group, but the data are included in the advanced economies and subgroups aggregated by the WEO.
- As in the October 2014 WEO, data for Syria are excluded from 2011 onward because of the uncertain political situation.
- As in the October 2014 WEO, the consumer price projections for Argentina are excluded because of a structural break in the data. Please refer to note 6 in Table A7 for further details.
- Because of the ongoing IMF program with Pakistan, the series from which nominal exchange rate assumptions are calculated are not made public—the nominal exchange rate is a market-sensitive issue in Pakistan.
- The series from which the nominal exchange rate assumptions are calculated are not made public for Egypt because the nominal exchange rate is a market-sensitive issue in Egypt.
- Starting with the April 2015 WEO, the classification for official external financing among emerging market and developing economies classified as net debtors has been eliminated because of a lack of available data.

If no source is listed on tables and figures, data are drawn from the WEO database.

When countries are not listed alphabetically, they are ordered on the basis of economic size.

Minor discrepancies between sums of constituent figures and totals shown reflect rounding.

As used in this report, the terms "country" and "economy" do not in all cases refer to a territorial entity that is a state as understood by international law and practice. As used here, the term also covers some territorial entities that are not states but for which statistical data are maintained on a separate and independent basis.

Composite data are provided for various groups of countries organized according to economic characteristics or region. Unless noted otherwise, country group composites represent calculations based on 90 percent or more of the weighted group data.

The boundaries, colors, denominations, and any other information shown on the maps do not imply, on the part of the International Monetary Fund, any judgment on the legal status of any territory or any endorsement or acceptance of such boundaries.

FURTHER INFORMATION AND DATA

This version of the *World Economic Outlook* (WEO) is available in full through the IMF eLibrary (www.elibrary.imf.org) and the IMF website (www.imf.org). Accompanying the publication on the IMF website is a larger compilation of data from the WEO database than is included in the report itself, including files containing the series most frequently requested by readers. These files may be downloaded for use in a variety of software packages.

The data appearing in the *World Economic Outlook* are compiled by the IMF staff at the time of the WEO exercises. The historical data and projections are based on the information gathered by the IMF country desk officers in the context of their missions to IMF member countries and through their ongoing analysis of the evolving situation in each country. Historical data are updated on a continual basis as more information becomes available, and structural breaks in data are often adjusted to produce smooth series with the use of splicing and other techniques. IMF staff estimates continue to serve as proxies for historical series when complete information is unavailable. As a result, WEO data can differ from those in other sources with official data, including the IMF's *International Financial Statistics*.

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PREFACE

The analysis and projections contained in the *World Economic Outlook* are integral elements of the IMF's surveillance of economic developments and policies in its member countries, of developments in international financial markets, and of the global economic system. The survey of prospects and policies is the product of a comprehensive interdepartmental review of world economic developments, which draws primarily on information the IMF staff gathers through its consultations with member countries. These consultations are carried out in particular by the IMF's area departments—namely, the African Department, Asia and Pacific Department, European Department, Middle East and Central Asia Department, and Western Hemisphere Department—together with the Strategy, Policy, and Review Department, the Monetary and Capital Markets Department, and the Fiscal Affairs Department.

The analysis in this report was coordinated in the Research Department under the general direction of Olivier Blanchard, Economic Counsellor and Director of Research. The project was directed by Gian Maria Milesi-Ferretti, Deputy Director, Research Department, and Thomas Helbling, Division Chief, Research Department.

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FOREWORD

What strikes me as I write this is the complexity of the forces shaping macroeconomic evolutions around the world and the resulting difficulty of distilling a simple bottom line. Let me develop and expand.

Two deep forces are shaping these evolutions over the medium term:

Legacies of both the financial and the euro area crises are still visible in many countries. To varying degrees, weak banks and high levels of debt—public, corporate, or household—still weigh on spending and growth. Low growth, in turn, makes deleveraging a slow process.

Potential output growth has declined. As shown in Chapter 3, potential growth in advanced economies was already declining before the crisis. Aging, together with a slowdown in total productivity, has been at work. The crisis made it worse, with the large decrease in investment leading to even lower capital growth. As we exit from the crisis, and as suggested by Chapter 4, capital growth will recover, but aging and weak productivity growth will continue to weigh. The effects are even more pronounced in emerging markets, where aging, lower capital accumulation, and lower productivity growth are combining to significantly lower potential growth in the future. More subdued prospects lead, in turn, to lower spending and lower growth today.

On top of these two underlying forces, the current scene is dominated by two factors that both have major distributional implications, namely, the decline in the price of oil and large exchange rate movements.

The sharp decline in the price of oil came as a surprise. Many explanations have been offered after the fact, the most convincing of which focus on the steady increase in supply from nonconventional sources combined with a change in strategy by OPEC (the Organization of the Petroleum Exporting Countries). Most of these explanations suggest that the decline will likely be long lasting.

The price declines have effected a large reallocation of real income from oil exporters to oil importers. The early evidence suggests that in oil importers from the United States, to the euro area, to China, and to India, the increase in real income is increasing spending. Oil exporters have cut spending but to a smaller extent: many have substantial financial reserves and are in a position to reduce spending slowly.

Exchange rate movements have been unusually large. Among major currencies, the dollar has seen a major appreciation and the euro and the yen a major depreciation. These movements clearly reflect major differences in monetary policy, with the United States expecting to exit the zero lower bound this year, but with no such prospects for the euro area or Japan. Given that these differences have been clear for some time, the surprise here may be how long it took for these exchange rate movements to occur. To the extent that both the euro area and Japan were at risk of another relapse, the euro and yen depreciations will help. To some extent, the United States has the policy room to offset the adverse effects of the dollar appreciation. Thus, this adjustment of exchange rates must be seen, on net, as good news for the world economy.

Now, put these four forces together. Some countries suffer from legacies, others do not. Some countries suffer from lower potential growth, others do not. Some countries gain from the decrease in the price of oil, others lose. Some countries' currencies move with the dollar, others move with the euro and the yen. Add to this a couple of idiosyncratic developments, such as the economic troubles in Russia or the weakness of Brazil. It is no surprise that the assessment must be granular. On net, our baseline forecasts are that advanced economies will do better this year than last year, that emerging markets and low-income countries will slow down relative to last year, and that, as a result, global growth will be roughly the same as last year. But these aggregate numbers do not do justice to the diversity of underlying evolutions.

Moving from the baseline to the risks, have they increased? I see macroeconomic risks as having slightly decreased. The major risk last year—namely, a recession in the euro area —has decreased, as has the risk of deflation. But financial and geopolitical

risks have increased. Large movements in relative prices, whether exchange rates or the price of oil, create losers and winners. Energy companies and oil-producing countries face both tougher conditions and higher risks. So do non-U.S. companies and governments that have borrowed in dollars. If large exchange rate movements were to continue, they could both create further financial risks and reignite talk of currency wars. A Greek crisis cannot be ruled out, an event that would surely unsettle financial markets. Turmoil continues in Ukraine and in the Middle East, although so far without systemic economic implications.

Finally, given the diversity of situations, it is obvious that policy advice must be country specific. Even so, some general principles continue to hold. Measures to sustain growth both in the short and the longer term continue to be of the essence. With the introduction of quantitative easing in the euro area, monetary policy in advanced economies has largely accomplished what it can. Fiscal room exists in some countries but is limited; the decrease in the price of oil has created an opportunity to decrease energy subsidies and replace them with better-targeted programs. The case for more infrastructure investment that we made in the previous *World Economic Outlook* remains. And while structural reforms cannot do miracles, they can increase the level of output and increase growth for some time. The proper menu differs by country. Given the short-term political costs associated with many of these reforms, the challenge will be to choose carefully among them.

Olivier Blanchard
Economic Counsellor

EXECUTIVE SUMMARY

Global growth remains moderate, with uneven prospects across the main countries and regions. It is projected to be 3.5 percent in 2015, in line with forecasts in the January 2015 World Economic Outlook (WEO) Update. *Relative to last year, the outlook for advanced economies is improving, while growth in emerging market and developing economies is projected to be lower, primarily reflecting weaker prospects for some large emerging market economies and oil-exporting countries.*

A number of complex forces are shaping the outlook. These include medium- and long-term trends, global shocks, and many country- or region-specific factors:

- In emerging markets, negative growth surprises for the past four years have led to diminished expectations regarding medium-term growth prospects.
- In advanced economies, prospects for potential output are clouded by aging populations, weak investment, and lackluster total factor productivity growth. Expectations of lower potential growth weaken investment today.
- Several advanced economies and some emerging markets are still dealing with crisis legacies, including persistent negative output gaps and high private or public debt or both.
- Inflation and inflation expectations in most advanced economies are below target and are in some cases still declining—a particular concern for countries with crisis legacies of high debt and low growth, and little or no room to ease monetary policy.
- Long-term bond yields have declined further and are at record lows in many advanced economies. To the extent that this decline reflects lower real interest rates, as opposed to lower inflation expectations, it supports the recovery.
- Lower oil prices—which reflect to a significant extent supply factors—provide a boost to growth globally and in many oil importers but will weigh on activity in oil exporters.
- Exchange rates across major currencies have changed substantially in recent months, reflecting variations in country growth rates, monetary policies, and the lower price of oil. By redistributing demand toward countries with more difficult macroeconomic conditions and less policy space, these changes could be beneficial to the global outlook. The result would be less risk of more severe distress and its possible spillover effects in these economies.

The net effect of these forces can be seen in higher projected growth this year in advanced economies relative to 2014, but slower projected growth in emerging markets. Nevertheless, emerging markets and developing economies still account for more than 70 percent of global growth in 2015.

This growth outlook for emerging markets primarily reflects more subdued prospects for some large emerging market economies as well as weaker activity in some major oil exporters because of the sharp drop in oil prices. The authorities in China are now expected to put greater weight on reducing vulnerabilities from recent rapid credit and investment growth. Hence the forecast assumes a further slowdown in investment, particularly in real estate. The outlook for Brazil is affected by a drought, the tightening of macroeconomic policies, and weak private sector sentiment, related in part to the fallout from the Petrobras investigation. The growth forecasts for Russia reflect the economic impact of sharply lower oil prices and increased geopolitical tensions. For other emerging market commodity exporters, the impact of lower oil and other commodity prices on the terms of trade and real incomes is projected to take a toll on medium-term growth. Growth in emerging markets is expected to pick up in 2016, driving an increase in global growth to 3.8 percent, mostly reflecting some waning of downward pressures on activity in countries and regions with weak growth in 2015, such as Russia, Brazil, and the rest of Latin America.

In many emerging market and developing economies, macroeconomic policy space to support growth remains limited. In oil importers, however, lower oil prices will reduce inflation pressure and external vulnerabilities, and in economies with oil subsidies, the lower prices may provide some fiscal space or,

where needed, scope to strengthen fiscal positions. Oil exporters have to absorb a large terms-of-trade shock and face greater fiscal and external vulnerabilities. Those with fiscal space can allow public spending to adjust gradually to lower oil revenues. In oil-exporting countries with some exchange rate flexibility, a depreciation would facilitate the adjustment. Emerging market and developing economies also have an important structural reform agenda, including measures to support capital accumulation (such as removing infrastructure bottlenecks, easing limits on trade and investment, and improving business conditions) and raise labor force participation and productivity (through reforms to education, labor, and product markets). And lower oil prices offer an opportunity to reform energy subsidies but also energy taxation (including in advanced economies).

Advanced economies are generally benefiting from lower oil prices. Growth in the United States is projected to exceed 3 percent in 2015–16, with domestic demand supported by lower oil prices, more moderate fiscal adjustment, and continued support from an accommodative monetary policy stance, despite the projected gradual rise in interest rates and some drag on net exports from recent dollar appreciation. After weak second and third quarters in 2014, growth in the euro area is showing signs of picking up, supported by lower oil prices, low interest rates, and a weaker euro. And after a disappointing 2014, growth in Japan is also projected to pick up, sustained by a weaker yen and lower oil prices.

In an environment of moderate and uneven growth, raising actual and potential output continues to be a policy priority in advanced economies. In many of these economies, the main macroeconomic policy issues are the persistent and sizable output gaps, as well as disinflation dynamics, which, as discussed in earlier WEO reports, pose risks to activity where monetary policy is constrained at the zero lower bound. Accommodative monetary policy—including through unconventional means—remains essential to prevent real interest rates from rising, and the recent decision by the European Central Bank to expand its asset purchase program through sovereign asset purchases is welcome. A strong case can be made for increased infrastructure investment in some advanced economies and for structural economic reforms more generally. Priorities vary, but many of these economies would benefit from reforms to strengthen labor force participation and trend employment, given aging populations, as well as measures to tackle private debt overhang.

The distribution of risks to global growth is now more balanced relative to the October 2014 WEO, but still tilted to the downside. A greater lift to demand from oil prices is a significant upside risk. The most salient downside risks identified in the October 2014 WEO remain relevant, however. Geopolitical tensions could intensify, affecting major economies. Disruptive asset price shifts in financial markets remain a concern. Term and other risk premiums in bond markets are still low in historical terms, and the context underlying this asset price configuration—very accommodative monetary policies in the major advanced economies—is expected to start changing in 2015. Triggers for turmoil include changing expectations about these elements as well as unexpected portfolio shifts more broadly. A further sharp dollar appreciation could trigger financial tensions elsewhere, particularly in emerging markets. Risks of stagnation and low inflation in advanced economies are still present, notwithstanding the recent upgrade to the near-term growth forecasts for some of these economies.

CHAPTER 1

RECENT DEVELOPMENTS AND PROSPECTS

Global growth in 2014 was a modest 3.4 percent, reflecting a pickup in growth in advanced economies relative to the previous year and a slowdown in emerging market and developing economies. Despite the slowdown, emerging market and developing economies still accounted for three-fourths of global growth in 2014.

Complex forces that affected global activity in 2014 are still shaping the outlook. These include medium- and long-term trends, such as population aging and declining potential growth; global shocks, such as lower oil prices; and many country- or region-specific factors, such as crisis legacies and exchange rate swings triggered by actual and expected changes in monetary policies. Overall, global growth is projected to reach 3.5 percent and 3.8 percent in 2015 and 2016, respectively, in line with the projections in the January 2015 World Economic Outlook (WEO) Update. *Growth is projected to be stronger in 2015 relative to 2014 in advanced economies, but weaker in emerging markets, reflecting more subdued prospects for some large emerging market economies and oil exporters.*

Medium-term prospects have become less optimistic for advanced economies, and especially for emerging markets, in which activity has been slowing since 2010. At the same time, the distribution of risks to global growth is now more balanced relative to the October 2014 WEO, but is still tilted to the downside. A greater boost to demand from oil prices is an important upside risk, while on the downside, the most salient risks identified in the October 2014 WEO remain relevant, including those related to geopolitical tensions, disruptive asset price shifts in financial markets, and, in advanced economies, stagnation and low inflation.

In this setting, raising actual and potential output continues to be a general policy priority. In many advanced economies, accommodative monetary policy remains essential to support economic activity and lift inflation expectations. There is also a strong case for increasing infrastructure investment in some economies, and for implementing structural reforms to tackle legacies of the crisis and boost potential output. In many emerging market economies, macroeconomic policy space to support growth remains limited. But in some, lower oil prices will help reduce inflation and external vulnerabilities, thereby reducing pressure on central banks to raise policy interest rates. Structural reforms to raise productivity, with a varied agenda across countries, are of the essence to sustain potential output.

Recent Developments and Prospects

The World Economy in Recent Months

Four key developments have shaped the global outlook since the release of the October 2014 WEO.

Uneven Global Growth, Slower Inflation in 2014

While preliminary statistics indicate that global growth in the second half of 2014 was broadly in line with the October 2014 projections (Figure 1.1), these broad numbers masked marked growth surprises pointing to more divergence among major economies, with the U.S. recovery stronger than expected, but economic performance in many other parts of the world falling short of expectations. Specifically:

- Growth in the United States was stronger than expected, averaging about 4 percent annualized in the last three quarters of 2014. Consumption—the main engine of growth—has benefited from steady job creation and income growth, lower oil prices, and improved consumer confidence. The unemployment rate declined to 5.5 percent in February, more than 1 percentage point below its level of a year ago.
- In Japan, after a weak second half of the year, growth in 2014 was close to zero, reflecting weak consumption and plummeting residential investment.
- In the euro area, activity was weaker than expected in the middle part of 2014 but showed signs of a pickup in the fourth quarter and in early 2015, with consumption supported by lower oil prices and higher net exports.
- Although activity was broadly in line with the forecast, investment growth in China declined in the second half of 2014, reflecting a correction in

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

(Percent change, unless noted otherwise)

	Year over Year						Q4 over Q4		
			Projections		Difference from January 2015 *WEO Update*[1]			Projections	
	2013	2014	2015	2016	2015	2016	2014	2015	2016
World Output[2]	**3.4**	**3.4**	**3.5**	**3.8**	**0.0**	**0.1**	**3.2**	**3.5**	**3.7**
Advanced Economies	**1.4**	**1.8**	**2.4**	**2.4**	**0.0**	**0.0**	**1.7**	**2.5**	**2.3**
United States	2.2	2.4	3.1	3.1	–0.5	–0.2	2.4	3.1	2.8
Euro Area[3]	–0.5	0.9	1.5	1.6	0.3	0.2	0.9	1.7	1.6
Germany	0.2	1.6	1.6	1.7	0.3	0.2	1.5	1.7	1.7
France	0.3	0.4	1.2	1.5	0.3	0.2	0.2	1.6	1.3
Italy	–1.7	–0.4	0.5	1.1	0.1	0.3	–0.5	1.0	1.1
Spain	–1.2	1.4	2.5	2.0	0.5	0.2	2.0	2.4	1.8
Japan	1.6	–0.1	1.0	1.2	0.4	0.4	–0.7	2.4	0.5
United Kingdom	1.7	2.6	2.7	2.3	0.0	–0.1	2.7	2.7	2.2
Canada	2.0	2.5	2.2	2.0	–0.1	–0.1	2.6	1.8	2.0
Other Advanced Economies[4]	2.2	2.8	2.8	3.1	–0.2	–0.1	2.6	3.0	3.1
Emerging Market and Developing Economies[5]	**5.0**	**4.6**	**4.3**	**4.7**	**0.0**	**0.0**	**4.6**	**4.4**	**5.0**
Commonwealth of Independent States	2.2	1.0	–2.6	0.3	–1.2	–0.5	–1.2	–4.9	1.7
Russia	1.3	0.6	–3.8	–1.1	–0.8	–0.1	0.1	–6.4	2.0
Excluding Russia	4.2	1.9	0.4	3.2	–2.0	–1.2	. . .	. . .	. . .
Emerging and Developing Asia	7.0	6.8	6.6	6.4	0.2	0.2	6.7	6.8	6.4
China	7.8	7.4	6.8	6.3	0.0	0.0	7.2	6.8	6.3
India[6]	6.9	7.2	7.5	7.5	1.2	1.0	6.8	7.9	7.5
ASEAN-5[7]	5.2	4.6	5.2	5.3	0.0	0.0	5.0	5.0	5.5
Emerging and Developing Europe[8]	2.9	2.8	2.9	3.2	0.0	0.1	2.7	4.1	2.1
Latin America and the Caribbean	2.9	1.3	0.9	2.0	–0.4	–0.3	1.1	0.5	2.4
Brazil	2.7	0.1	–1.0	1.0	–1.3	–0.5	–0.2	–1.4	2.3
Mexico	1.4	2.1	3.0	3.3	–0.2	–0.2	2.6	3.3	3.2
Middle East, North Africa, Afghanistan, and Pakistan	2.4	2.6	2.9	3.8	–0.4	–0.1	. . .	. . .	. . .
Saudi Arabia	2.7	3.6	3.0	2.7	0.2	0.0	2.0	2.8	2.7
Sub-Saharan Africa	5.2	5.0	4.5	5.1	–0.4	–0.1	. . .	. . .	. . .
Nigeria	5.4	6.3	4.8	5.0	0.0	–0.2	. . .	. . .	. . .
South Africa	2.2	1.5	2.0	2.1	–0.1	–0.4	1.3	1.6	2.4
Memorandum									
European Union	0.1	1.4	1.8	1.9	0.2	0.1	1.4	2.0	2.0
Low-Income Developing Countries	6.1	6.0	5.5	6.0	–0.4	–0.1	. . .	. . .	. . .
Middle East and North Africa	2.3	2.4	2.7	3.7	–0.5	–0.1	. . .	. . .	. . .
World Growth Based on Market Exchange Rates	2.5	2.6	2.9	3.2	–0.1	0.0	2.4	2.9	3.1
World Trade Volume (goods and services)	**3.5**	**3.4**	**3.7**	**4.7**	**–0.1**	**–0.6**	**. . .**	**. . .**	**. . .**
Imports									
Advanced Economies	2.1	3.3	3.3	4.3	–0.4	–0.5	. . .	. . .	. . .
Emerging Market and Developing Economies	5.5	3.7	3.5	5.5	0.3	–0.6	. . .	. . .	. . .
Exports									
Advanced Economies	3.1	3.3	3.2	4.1	–0.3	–0.5	. . .	. . .	. . .
Emerging Market and Developing Economies	4.6	3.4	5.3	5.7	0.0	–0.5	. . .	. . .	. . .
Commodity Prices (U.S. dollars)									
Oil[9]	–0.9	–7.5	–39.6	12.9	1.5	0.3	–28.7	–16.4	8.0
Nonfuel (average based on world commodity export weights)	–1.2	–4.0	–14.1	–1.0	–4.8	–0.3	–7.6	–10.0	0.1
Consumer Prices									
Advanced Economies	1.4	1.4	0.4	1.4	–0.6	–0.1	1.0	0.6	1.6
Emerging Market and Developing Economies[5]	5.9	5.1	5.4	4.8	–0.3	–0.6	5.1	5.7	4.5
London Interbank Offered Rate (percent)									
On U.S. Dollar Deposits (six month)	0.4	0.3	0.7	1.9	0.0	0.0	. . .	. . .	. . .
On Euro Deposits (three month)	0.2	0.2	0.0	0.0	0.0	–0.1	. . .	. . .	. . .
On Japanese Yen Deposits (six month)	0.2	0.2	0.1	0.2	0.0	0.1	. . .	. . .	. . .

Note: Real effective exchange rates are assumed to remain constant at the levels prevailing during February 6–March 6, 2015. Economies are listed on the basis of economic size. The aggregated quarterly data are seasonally adjusted. Lithuania is included in the advanced economies. In the January 2015 *WEO Update*, Lithuania was included in the emerging market and developing economies.

[1]Difference based on rounded figures for both the current and January 2015 *WEO Update* forecasts.

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

[3]Excludes Lithuania, which joined the euro area in January 2015. Data for Lithuania are not included in the euro area aggregates because Eurostat has not fully released the consolidated data for the group.

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

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

[6]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. Growth rates in the January 2015 *WEO Update* were based on the GDP at market prices with FY2004/05 as a base year.

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

[8]The projections for Lithuania are included in the January 2015 *WEO Update* but are excluded in the columns comparing the current forecasts with those in the January 2015 *WEO Update*.

[9]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 $58.14 in 2015 and $65.65 in 2016.

the real estate sector, and high-frequency indicators point to some further slowdown.

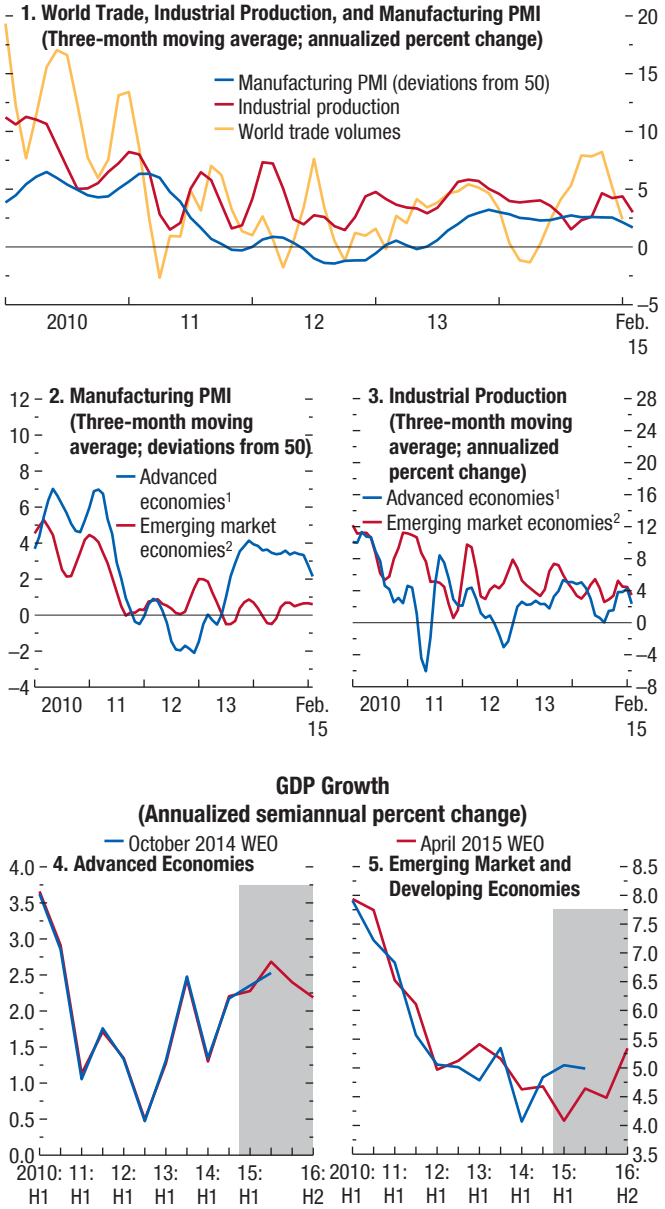
- Growth in Latin America in the second half of 2014 was modest, reflecting weak activity in Brazil, lower-than-expected growth in Mexico, and weakening momentum in other economies in the region.
- Economic performance in Russia was a bit stronger than expected in the second half of 2014, but the increase in geopolitical tensions, declining confidence, and the repercussions of the oil price decline point to a more severe weakening of the outlook in the Commonwealth of Independent States (CIS) as a whole at the start of the year.

Headline inflation has declined in advanced economies (Figure 1.2), reflecting the decline in oil prices, softer prices for other commodities, and a weakening of demand in a number of countries already experiencing below-target inflation, such as the euro area and Japan. This decline in inflation, together with changes in the growth outlook and announcements by the Bank of Japan in October and the European Central Bank (ECB) in January of larger-than-expected asset purchase programs, has strengthened expectations of a protracted divergence in monetary policy stances across the main advanced economies, widening long-term interest rate differentials (Figure 1.3). 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, with the notable exception of countries suffering sizable exchange rate depreciations, such as Russia.

The weaker-than-expected growth for emerging markets, coming on the heels of sequential negative growth surprises for the past four years, has led to diminished expectations for their medium-term growth prospects, as also noted in recent WEO reports, implying a weaker global outlook. In retrospect, the strong economic performance in emerging markets in the immediate postcrisis period partly reflected high growth in China, particularly in investment, which contributed importantly to the strength in commodity prices, as well as an easing of global financial conditions. The gradual slowdown in China and the partly related decline in commodity prices (which also reflected a sizable supply response) weakened the growth momentum to some extent in commodity-exporting countries and others with close trade links to China, and the eas-

Figure 1.1. Global Activity Indicators

Global growth in the second half of 2014 was broadly in line with October 2014 projections, but this masks marked growth surprises, which point to greater divergence among major economies. While U.S. activity was stronger than expected, economic performance in other major economies fell short of expectations.

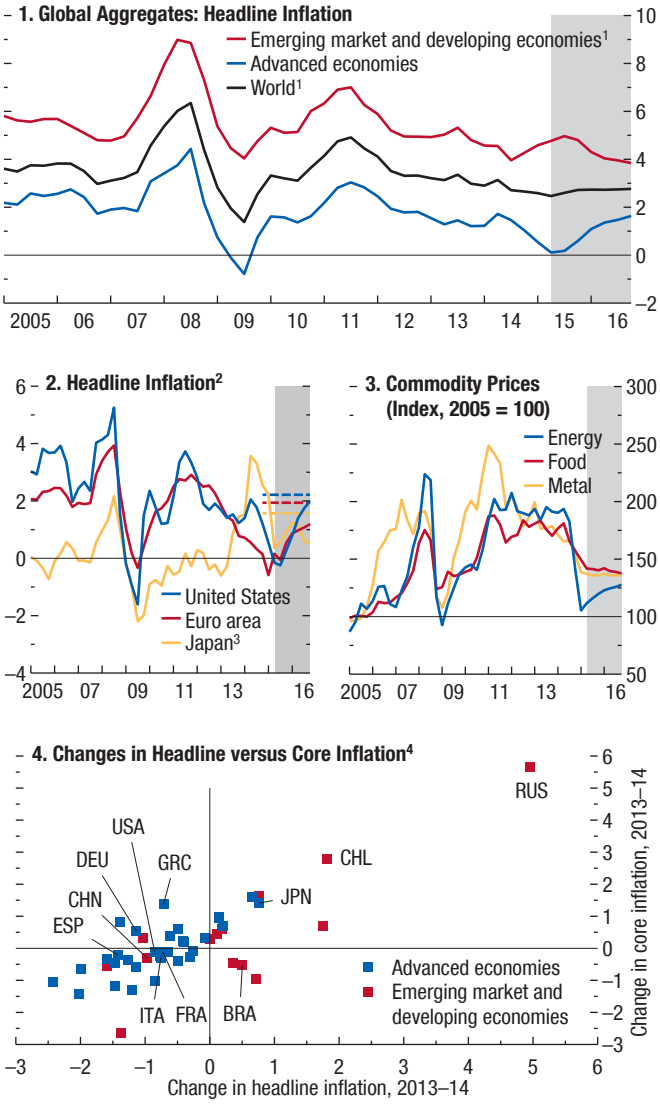


Sources: CPB Netherlands Bureau for Economic Policy Analysis; Haver Analytics; Markit Economics; and IMF staff estimates.
Note: IP = industrial production; PMI = purchasing managers' index.
[1]Australia, Canada, Czech Republic, Denmark, euro area, Hong Kong SAR (IP only), Israel, Japan, Korea, New Zealand, 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).

Figure 1.2. Global Inflation

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

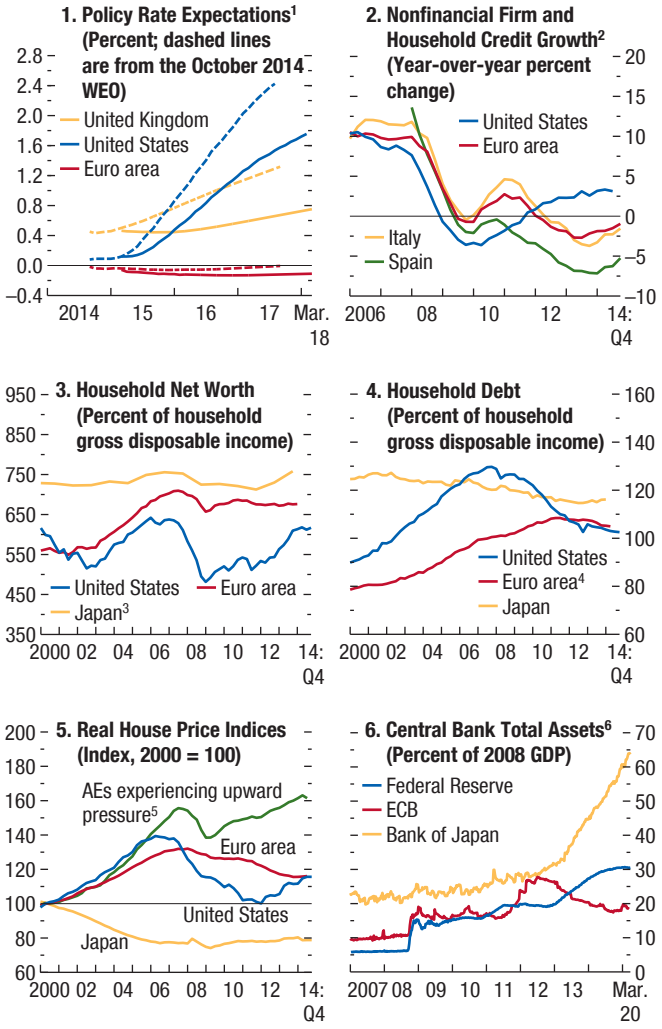
Headline inflation has declined in advanced economies, reflecting the decline in oil prices, softer prices for other commodities, and a weakening of demand in a number of countries already experiencing below-target inflation, such as the euro area and Japan. With regard to emerging markets, lower prices for oil and other commodities have generally contributed to reductions in inflation through 2014, with the notable exception of countries suffering sizable exchange rate depreciations, such as Russia.



Sources: Consensus Economics; IMF, Primary Commodity Price System; and IMF staff estimates.
Note: Data labels in the figure use International Organization for Standardization (ISO) country codes.
[1]Excludes Venezuela.
[2]Dashed lines are the six- to ten-year inflation expectations.
[3]In Japan, the increase in inflation in 2014 reflects, to a large extent, the increase in the consumption tax.
[4]Changes in inflation are calculated as the year-over-year inflation rate in December 2014 minus the year-over-year inflation rate in December 2013.

Figure 1.3. Advanced Economies: Monetary Conditions

The decline in headline inflation, together with changes in the growth outlook and the announcements by the Bank of Japan in October and the European Central Bank in January of larger-than-expected asset purchase programs, has strengthened expectations of a protracted divergence in monetary policy stances across the main advanced economies, widening long-term interest differentials.



Sources: 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 interbank average rate for the United Kingdom, and the euro interbank offered forward rate for the euro area; updated March 27, 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, Estonia, France, Hong Kong SAR, Israel, New Zealand, Norway, Portugal, Sweden, and the United Kingdom.
[6]Data are through March 20, 2015, except in the case of the ECB (March 6, 2015). ECB calculations are based on the Eurosystem's weekly financial statement.

ing of financial conditions for emerging markets after the crisis likely contributed to higher output, but not to a steadily higher growth rate. And increased geopolitical tensions played a role in explaining the growth slowdown, particularly in CIS countries and some in the Middle East.

These developments in emerging markets come on top of concerns about slowing potential output in advanced economies, reflecting long-term factors such as demographics and a protracted period of weak investment following the crisis. These topics are discussed in more detail in Chapter 3 (potential output) and Chapter 4 (investment).

Decline in Oil Prices

Oil prices have declined by about 45 percent since September (Figure 1.4). A variety of factors have played a part: weaker-than-expected global activity; weaker demand for oil, given activity; and greater supply.

Unexpected demand weakness in some major economies, in particular emerging market economies, has clearly played a role in the oil price decrease. Some of this demand weakness may have materialized early in 2014 (and hence already be reflected in the October 2014 WEO), with its impact on oil prices initially muted by an increase in precautionary demand, resulting from rising geopolitical tensions. Declines in prices of other commodities (such as industrial metals) also suggest some weakening in demand.

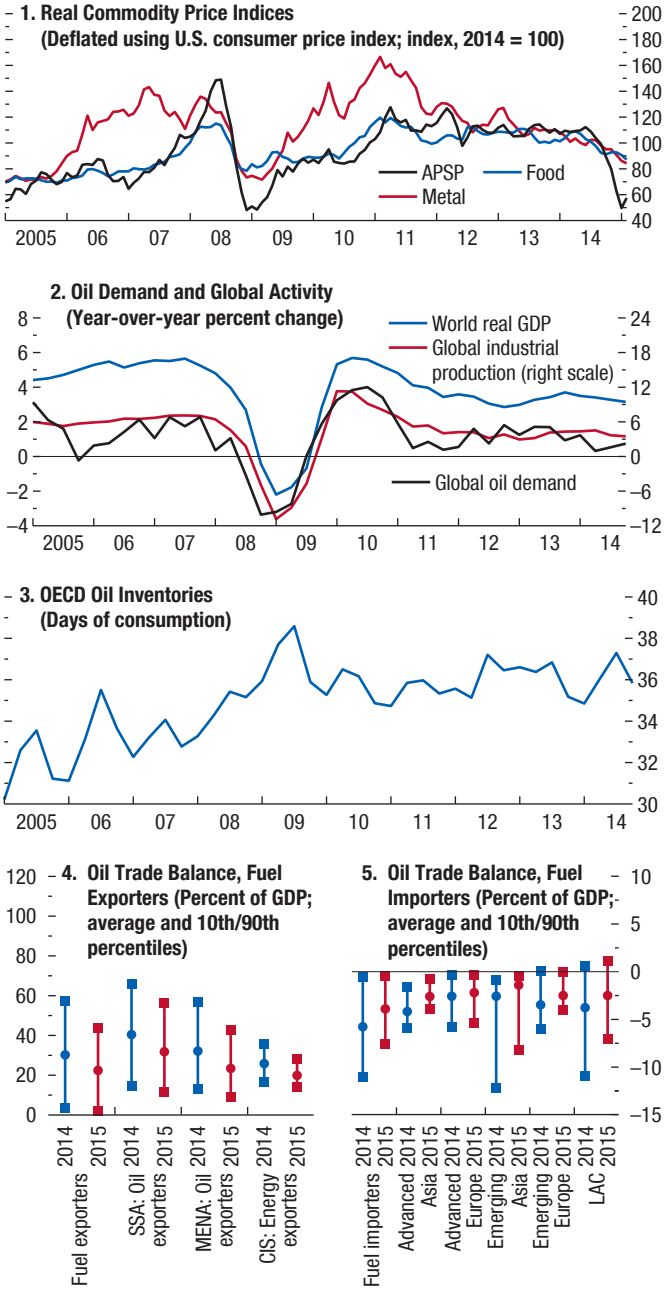
But several facts point to important contributions from other factors (see Box 1.1 for a discussion). For instance, oil prices have declined much more sharply than prices of other commodities in recent months, suggesting that factors specific to the oil market—as opposed to global demand—have played an important role. These factors include greater-than-expected supply as well as some weakness in the demand for oil driven by improvements in energy efficiency rather than by weak global aggregate demand.

Supply factors include the steady rise in production in countries not belonging to the Organization of the Petroleum Exporting Countries (OPEC), especially the United States; the faster-than-expected recovery of production in some stressed OPEC producers (for example, Iraq); and especially OPEC's November 2014 decision to maintain production levels despite the sharp decline in prices.

With regard to oil-specific demand, reports by the International Energy Agency suggest that, even with

Figure 1.4. Commodity and Oil Markets

Oil prices have declined by about 45 percent since September owing to a variety of factors. Unexpected demand weakness in some major economies, in particular emerging market economies, has clearly played a role. However, a sharper decline in oil prices relative to other commodities suggests that factors specific to the oil market—as opposed to global aggregate demand—are also at work. These include greater-than-expected oil supply as well as some weakness in oil demand driven by improvements in energy efficiency.



Sources: Organisation for Economic Co-operation and Development; and IMF staff estimates.
Note: APSP = average petroleum spot price; CIS = Commonwealth of Independent States; LAC = Latin American and the Caribbean; MENA = Middle East and North Africa; OECD = Organisation for Economic Co-operation and Development; SSA = sub-Saharan Africa.

aggregate demand developments taken into account, oil demand has fallen short of expectations.

The global impact of lower oil prices depends largely on how persistent they are expected to be. Oil futures prices point to a partial recovery in oil prices in coming years, consistent with the expected negative impact of lower oil prices on investment and future capacity growth in the oil sector (see the Special Feature), but prices are expected to remain well below the October 2014 WEO baseline into the medium term (for instance, projected prices for 2019 declined from $93 to $73 a barrel). At the same time, uncertainty about the future path of oil prices has increased, as discussed further in the "Risks" section later in this chapter.

To highlight the implications of lower oil prices for the global outlook, the chapter presents Scenario Box 1, which builds on Arezki and Blanchard 2014. The model underlying the scenario assumes that the oil price path is in line with futures prices, and for simplicity, that the decline in prices is entirely driven by higher supply. In this regard, the model's results are an upper bound on the global stimulus provided by lower oil prices.

The model simulations take into account differences across countries in energy intensity and oil production and in the size of the oil price decline in domestic currency, in light of the sharp currency movements discussed further later in the chapter, as well as differences in the pass-through of lower oil prices to private sector consumers and producers due to changes in government policy (such as changes in subsidies). Specifically, many countries, especially emerging market and developing economies and oil producers, control the prices of petroleum products through a variety of instruments, including subsidies, tariffs, and pricing formulas. These mechanisms typically translate into an incomplete pass-through from international to domestic prices. The model simulations use an indicator that ranges between 0 and 1 for each of the countries included, with 1 denoting fully managed prices and 0 denoting market-based prices. The simulations assess the extent of the pass-through in a particular country based on the petroleum product pricing mechanism in place in that country before the oil price slump.[1]

[1]The information regarding the pricing mechanism is based on an update of Kojima 2013 for emerging market and developing economies and assumes that advanced economies have full pass-through from international to domestic prices.

Overall, the model implies that the oil shock would provide a sizable boost to economic activity, with global output being higher by about 1 percentage point by 2016 in the case of full pass-through from international to domestic prices, reflecting in particular higher demand in large oil importers. If the pass-through of lower oil prices to consumers and producers is incomplete (as assumed in the WEO baseline), the expansionary effect in some large emerging markets would be dampened, but global output would still rise by more than ½ percentage point over the same horizon.

Two factors could imply a weaker boost to global activity than suggested by the model simulations. First, declines in global demand have affected oil prices to some extent. And second, macroeconomic distress in large oil exporters could extend beyond the pure impact of the terms-of-trade loss captured in the model, given interaction with other shocks or initial conditions.

Large Exchange Rate Movements

Exchange rate movements in recent months have been sizable, reflecting—arguably with some delay—changes in expectations about growth and monetary policy across major economies as well as the large decline in oil prices (see "External Sector Developments" later in the chapter for further discussion). Among major currencies, as of February 2015, the U.S. dollar had appreciated by about 10 percent in real effective terms relative to the values used in the October 2014 WEO, with a particularly marked real appreciation (14 percent) against the currencies of major advanced economies.[2] The strengthening of the U.S. currency implies that most countries experienced a somewhat smaller decline in oil prices relative to the headline U.S. dollar figure. The renminbi, which has remained broadly stable against the dollar, had appreciated by about 11 percent in real effective terms as of February. Among other major currencies, the euro and the yen had both depreciated by about 7 percent. And since the abandonment of the exchange rate floor relative to the euro on January 15, the Swiss franc has appreciated substantially.

The currencies of major oil exporters with floating exchange rates had depreciated as of February 2015. The decline was particularly sharp for

[2]The real effective exchange rate figures are based on relative consumer prices.

Scenario Box 1. The Global Impact of Lower Oil Prices

Two simulations of the IMF's G20 Model are used in this scenario to explore the potential impact on global activity of the decline in the expected price of oil since August 2014, as depicted in Scenario Figure 1. Relative to the path expected for global oil prices at the time of the October 2014 *World Economic Outlook,* expected oil prices are now roughly 40 percent lower for 2015, with that decline expected to moderate gradually to roughly 20 percent by 2020. For simplicity, the simulations assume that an increase in oil supply drives the full decline in the oil price path. Consequently, the simulations do not account for the implications of the decline in demand for oil that underlies a portion of the actual fall in oil prices. In addition, each country's domestic-currency price of oil has been adjusted to reflect the change in its bilateral U.S. dollar exchange rate since August 2014; however, the simulations do not include implications of the exchange rate changes for any other parts of the economy.

The first simulation (blue lines in Scenario Figure 1) assumes that the decline in oil prices is passed on fully to households and firms in all countries. The second simulation (red lines) accounts for the fact that in some countries included in the simulations (such as Brazil, China, India, and Russia), domestic oil prices are managed to some extent.

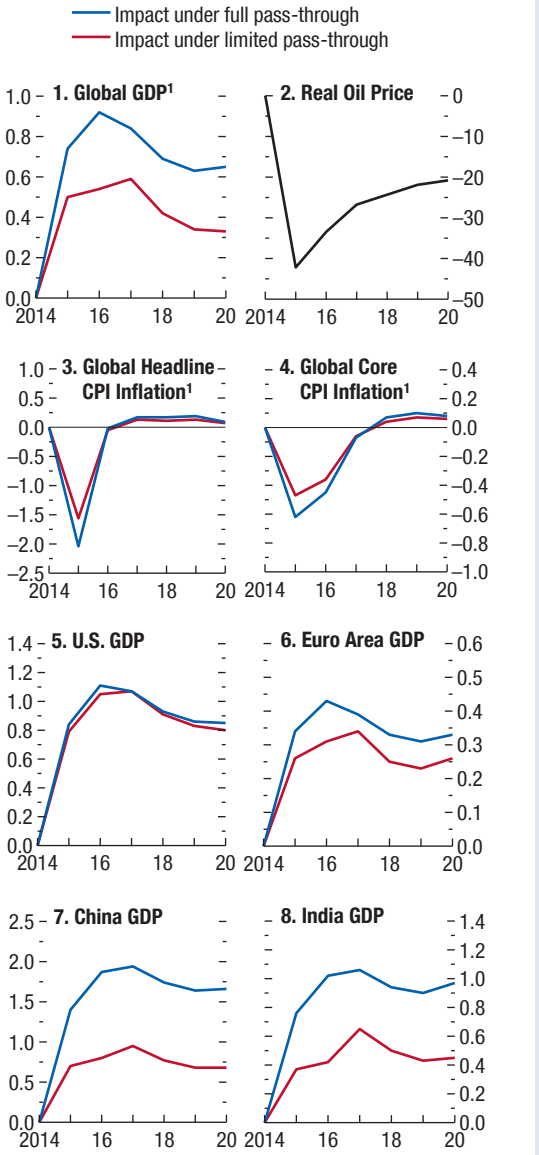
In these countries, the difference between the managed domestic price and the global price accrues to the fiscal authority. With global oil prices falling and only some of that decline passing through to final domestic prices, fiscal or quasi-fiscal revenues rise in the case of the oil importers among these price-managing countries and fall in the case of the oil exporters among them.

It is assumed that for the first two years, the fiscal authorities in the oil importers save the additional revenue, but after two years, it is used to increase transfers to households. In the case of the oil exporters among these price-managing countries, the loss in revenue is offset in part by lower subsidies.

To summarize the results of the simulations: if this decline in global oil prices were to be fully passed through to final prices, the model estimates suggest that global GDP, excluding those countries in which oil supply is increasing, would rise by roughly 1 percent by 2016. If on the other hand the decline in oil prices were not to be fully passed through and the resulting increase in fiscal revenue were to be saved, the increase in global GDP would be reduced

Scenario Figure 1. Potential Impact of the Decline in Oil Prices since August 2014

(Percent change)



Source: IMF, G20 Model simulations.
Note: CPI = consumer price index.
[1]Excluding other oil exporters: Algeria, Angola, Azerbaijan, Bahrain, Brunei Darussalam, Chad, Republic of Congo, Ecuador, Equatorial Guinea, Gabon, Islamic Republic of Iran, Iraq, Kazakhstan, Kuwait, Libya, Nigeria, Oman, Qatar, Trinidad and Tobago, Turkmenistan, United Arab Emirates, Uzbekistan, Venezuela, and Yemen.

Scenario Box 1 *(continued)*

by almost half. This outcome reflects a notably more modest boost to real activity in countries with managed prices. The impact on output of more limited pass-through elsewhere in advanced economies with market-based oil prices (for example, the euro area and the United States) would be limited to the spillovers from weaker activity in countries with managed prices. More limited pass-through would also moderate the impact of the decline in oil prices on global inflation.

the Russian ruble (a depreciation of 30 percent in real effective terms). Among advanced economies' currencies, the Canadian dollar and the Norwegian krone had depreciated by 8 percent and 7 percent, respectively. Among the remaining major emerging markets, India—a major oil importer—saw its currency strengthen by close to 10 percent in real effective terms, whereas the Brazilian *real* had depreciated by 9 percent, reflecting a weaker outlook. More generally, movements in real effective exchange rates in recent months have broadly reflected changes in growth forecasts as well as differences in the exposure to lower oil prices—as discussed further in "External Sector Developments."

In principle, exchange rate movements redistribute demand across countries and hence primarily affect relative economic prospects, as opposed to global growth. But these changes should help support the global recovery for a couple of reasons:

- To the extent that they redistribute demand toward countries that would want to ease monetary policy but are constrained by the zero lower bound on policy interest rates and away from countries that can ease monetary policy, these exchange rate movements can imply a boost to global demand. This boost would occur because those countries constrained by the zero lower bound would not raise rates in response to a depreciation, while those countries able to do so would ease monetary policy relative to the baseline in response to an appreciation. An additional benefit for countries with depreciating currencies and inflation below target would be higher domestic prices.
- Relatedly, a redistribution of demand toward countries experiencing more difficult macroeconomic conditions can be beneficial because it can reduce risks of more severe distress in these economies and its possible spillovers.

On the other hand, sharp exchange rate movements can also cause disruptions—for example, such movements could lead to rapid increases in the value of foreign-currency debt for countries whose currencies are depreciating. This concern is of particular relevance for countries that have seen a large increase in corporate foreign-currency exposures in recent years, as discussed in the April 2015 *Global Financial Stability Report* (GFSR). These issues are discussed further in the "Risks" section of this chapter.

Scenario Box 2 explores the implications of these exchange rate movements for the global outlook. To isolate the impact of these movements, and in line with the notion that at least part of the exchange rate adjustment reflects a delayed response to differences in economic prospects and expected monetary policy stance, the scenario assumes that the change in exchange rates is generated by a "portfolio preference shock"—in other words, an increased willingness by international investors to hold financial instruments issued by the countries with appreciating currencies and vice versa.[3] Under this scenario, global GDP is boosted by about ½ percentage point, for the reasons discussed earlier, with an expansionary boost to countries and regions with depreciating currencies (such as the euro area and Japan) and weaker growth in countries with appreciating currencies (such as China and the United States). The peak impact on activity is found to be somewhat muted in the case of delayed response of trade flows to exchange rate fluctuations.

Lower Long-Term Interest Rates, More Accommodative Financial Conditions

Long-term government bond yields have declined further in major advanced economies (Figure 1.5). This decline reflects in part lower inflation expectations, resulting from continuing weakness in inflation

[3]The simulations can be augmented with shifts in relative prospects for aggregate demand. Because these shifts typically result in relatively modest exchange rate movements, the impact on activity can be gauged by roughly adding such shifts in demand to the impact on activity of the portfolio preference shift.

Scenario Box 2. Global Implications of Exchange Rate Movements

Two simulations of the IMF's G20 Model are used in this scenario to examine the potential macroeconomic impact of the shifts in real exchange rates since August 2014, as depicted in Scenario Figure 2. Both simulations replicate all bilateral changes in Group of 20 countries' real exchange rates relative to the U.S. dollar between August 2014 and February 2015 using shocks that represent changes in investor preferences for U.S.-dollar-denominated assets. The exchange rate shifts are assumed to be persistent, dissipating only gradually during the next five years. One simulation uses the base case version of the model (solid line in Scenario Figure 2), and the other uses a version of the model in which trade responds more gradually to the exchange rate movements (dashed line) to capture the possibility that lags in the transmission of exchange rates to trade have lengthened with the fragmentation of production chains.

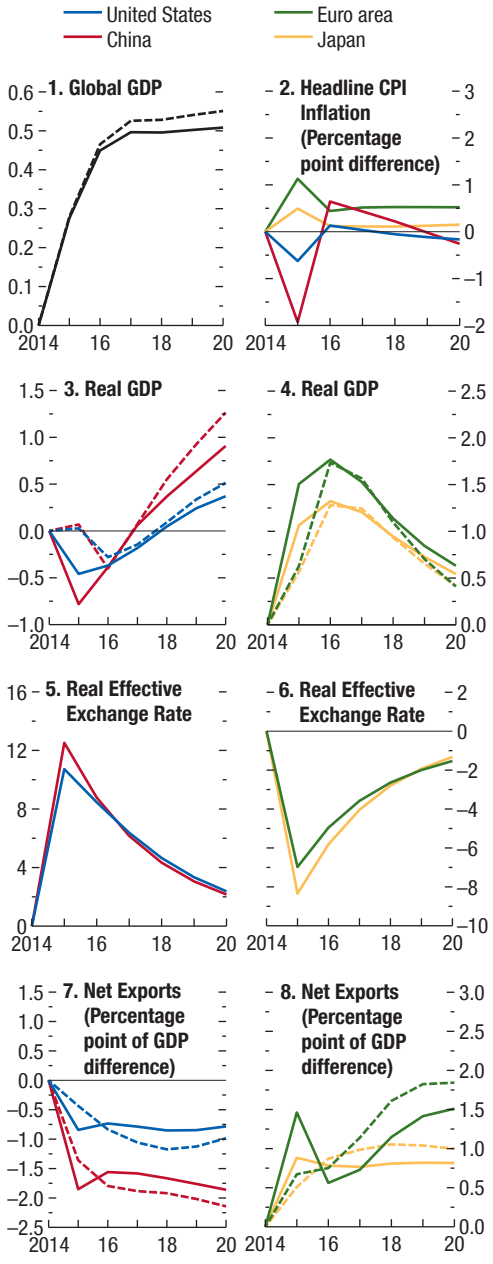
The impact on GDP under the simulations is negative for countries whose currencies are appreciating (for example, China and the United States) and positive for countries whose currencies are depreciating (for example, the euro area and Japan). The magnitudes of the impact depend on the extent of the exchange rate shift, the degree of openness of the country's economy, and the responsiveness of trade volumes to the changes in relative international prices. To the extent that conventional monetary policy space is available, countries experiencing an appreciation respond by easing monetary policy to help support output. Except for the euro area and Japan, countries experiencing expansions owing to depreciating currencies respond by tightening monetary policy. Baseline cycle positions in the euro area and Japan allow the expansions generated by the depreciations to be accommodated, and thus monetary policy is not tightened.

With monetary policy rates unchanged and inflation rising in the euro area and Japan, falling real interest rates help support domestic demand and amplify the expansions. Because the euro area and Japan are able to accommodate their expansions, while China and the United States are able to ease monetary policy, these exchange rate shifts generate a mild expansion of global GDP.

In the simulation in which trade volumes respond more gradually to the change in international relative prices than in the base case (dashed lines), the initial declines in output in appreciating countries are milder, while the expansions in depreciating countries are more modest. The more gradual response of trade volumes has a minimal impact on global GDP relative to the first simulation.

Scenario Figure 2. Impact of Exchange Rate Shifts since August 2014

(Percent difference, unless noted otherwise)

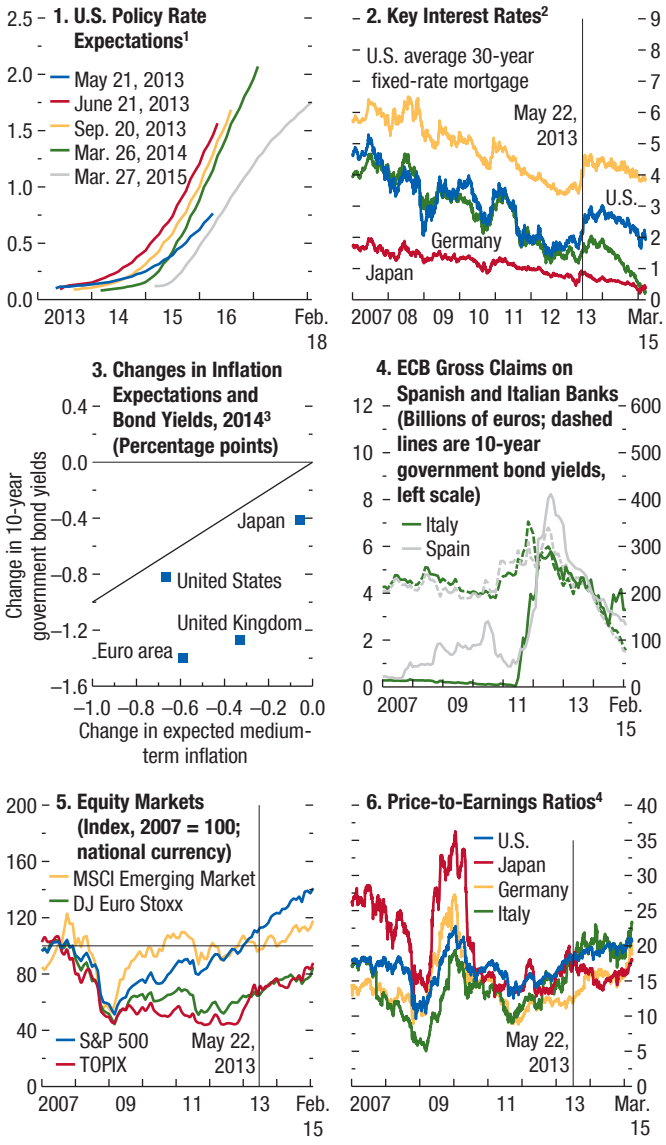


Source: IMF, G-20 Model simulations.
Note: Solid lines denote base case trade response; dashed lines denote gradual trade response. CPI = consumer price index.

Figure 1.5. Financial Market Conditions in Advanced Economies

(Percent, unless noted otherwise)

Long-term government bond yields have declined further in major advanced economies, reflecting lower inflation expectations, the drop in oil prices, weak domestic demand in some cases, and lower expected short-term neutral rates. Very accommodative monetary conditions have also played a role by reducing term premiums.



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 March 20, 2015.
[3]Changes are calculated from the beginning of 2014 to the beginning of 2015. Interest rates are measured by 10-year government bond yields. Expected medium-term inflation is measured by the implied rate from 5-year 5-year-forward inflation swaps.
[4]Data are through March 26, 2015.

outcomes, the sharp decline in oil prices, and (in the euro area and especially in Japan) weak domestic demand. But the decline in long-term nominal interest rates appears to reflect primarily a decline in real interest rates, including a compression of term premiums and reductions in the expected short-term neutral rate (see the April 2015 GFSR). Very accommodative monetary conditions have clearly played a role in the reduction in term premiums—in October 2014 the Bank of Japan expanded its quantitative and qualitative monetary easing framework, and in January of this year the ECB announced a larger-than-expected program of asset purchases, including government bonds. And although in the United States the Federal Reserve wound down its asset purchases in late 2014 and the country's economic recovery has been stronger than expected, increased demand for U.S. assets, as reflected in a sharp appreciation of the dollar, as well as subdued inflation pressure, has exerted downward pressure on long-term Treasury yields (with the 10-year yield falling 80 basis points between October and January).

With declining bond yields and easier financial conditions in advanced economies, monetary policy conditions have also eased in several emerging market oil importers, which have reduced policy rates as lower oil prices and slowing demand pressures have reduced inflation rates (Figure 1.6). In contrast, policy rates have been raised sharply in Russia, which is facing pressure on the ruble, and monetary policy has been tightened in Brazil as well. More generally, risk spreads have risen and currencies have depreciated in a number of commodity exporters, and risk spreads on high-yield bonds and other products exposed to energy prices have also widened.

Overall, the decline in long-term interest rates, looser monetary policy conditions, and compressed spreads in advanced economies are supportive of economic recovery and have favorable impacts on debt dynamics. But they also raise some concerns, as discussed in the "Risks" section. Low inflation expectations, particularly in the euro area and Japan, highlight the risk of a disanchoring of such expectations. 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.

The Forecast

Policy Assumptions

Fiscal consolidation is projected to moderate in advanced economies over the forecast horizon (Figure 1.7). In emerging markets, the fiscal policy stance is projected to remain broadly unchanged—albeit with marked differences across countries and regions, as discussed in the April 2015 *Fiscal Monitor*. On the monetary policy front, U.S. policy rates are expected to increase beginning in the second half of the year (see Figure 1.3). Monetary policy normalization in the United Kingdom is projected not to begin before mid-2016. In the euro area, where monthly purchases of government bonds started on March 9, 2015, as well as Japan, very accommodative policy stances are expected to remain in place. Policy rates are generally expected to be on hold in a number of emerging market economies until rate increases start in the United States (Figures 1.5 and 1.8).

Other Assumptions

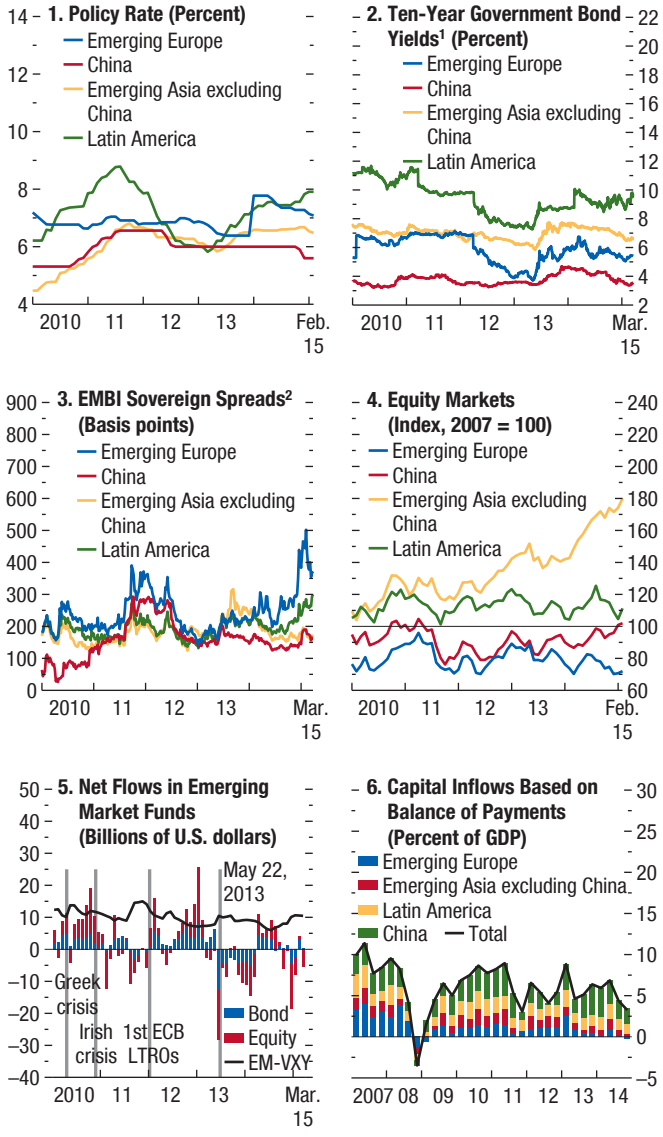
Global financial conditions are assumed to remain accommodative, with some gradual tightening reflected in, among other things, rising 10-year yields on U.S. Treasury bonds as the expected date for liftoff from the zero bound in the United States approaches. The process of normalizing monetary policy in the United Kingdom and the United States is assumed to proceed smoothly, without large and protracted increases in financial market volatility or sharp movements in long-term interest rates. Fuel prices are projected to increase gradually over the forecast horizon, from an average of $51 a barrel in 2015 to about $64 a barrel in 2017. In contrast, nonfuel commodity prices are expected to stabilize at lower levels after recent declines in both food and metals prices. Geopolitical tensions are assumed to stay elevated, with the situation in Russia and 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 increase slightly from 3.4 percent in 2014 to 3.5 percent in 2015 and

Figure 1.6. Financial Market Conditions and Capital Flows in Emerging Market Economies

As financial conditions have eased in advanced economies, financial conditions have also eased in several emerging market oil importers, which have reduced policy rates as lower oil prices and slowing demand pressures have lowered inflation. Brazil and Russia are notable exceptions where policy rates have instead risen. More generally, risk spreads have risen and currencies have depreciated in a number of commodity exporters, and risk spreads on high-yield bonds and other products exposed to energy prices have also widened.

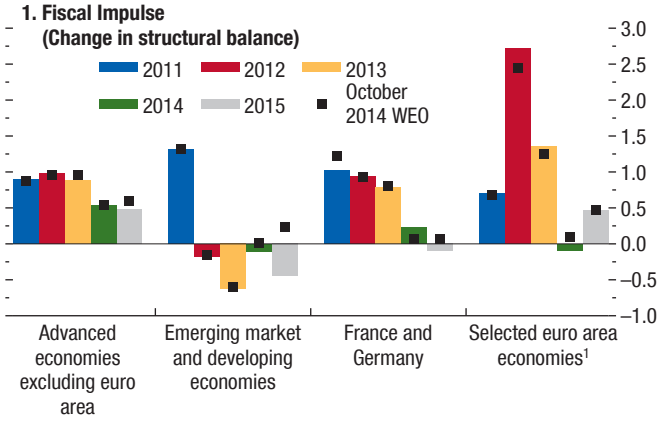


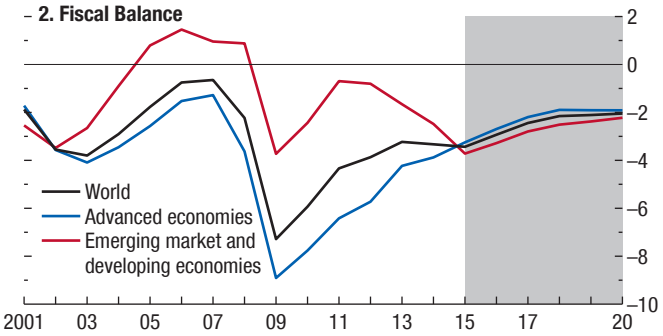
Sources: Bloomberg, L.P.; EPFR Global; Haver Analytics; IMF, *International Financial Statistics;* and IMF staff calculations.
Note: Emerging Asia excluding China comprises India, Indonesia, Malaysia, the Philippines, and Thailand; emerging Europe comprises Poland, Romania (capital inflows only), Russia, and Turkey; Latin America comprises Brazil, Chile, Colombia, Mexico, and Peru. ECB = European Central Bank; EMBI = J.P. Morgan Emerging Market Bond Index; LTROs = longer-term refinancing operations; EM-VXY = J.P. Morgan Emerging Market Volatility Index.
[1]Data are through March 18, 2015.
[2]Data are through March 20, 2015.

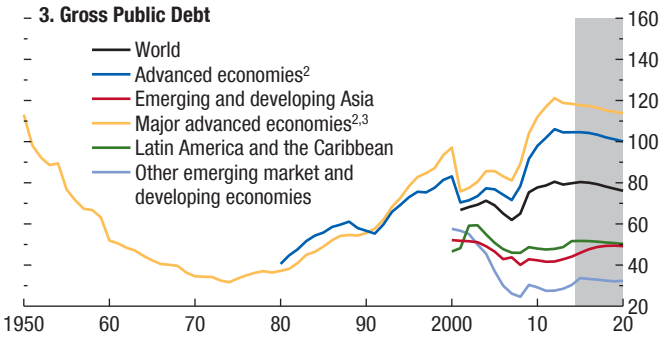
Figure 1.7. Fiscal Policies

(Percent of GDP, unless noted otherwise)

Fiscal consolidation is projected to moderate in advanced economies over the forecast horizon. In emerging markets, the fiscal policy stance is projected to remain broadly unchanged—albeit with marked differences across countries and regions.



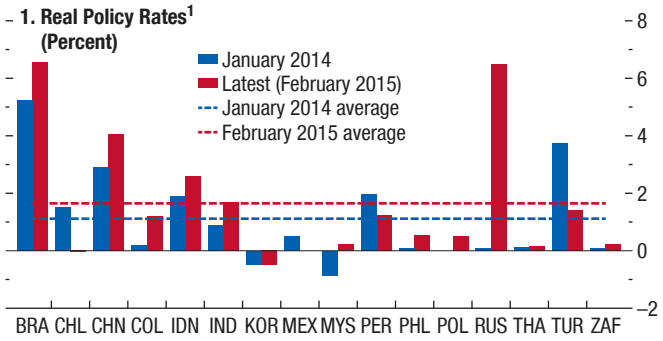


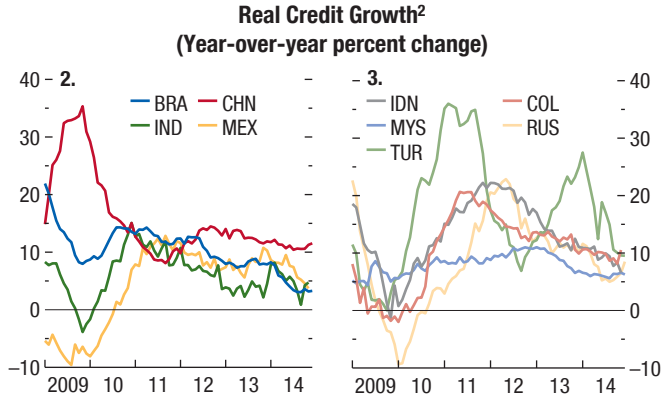


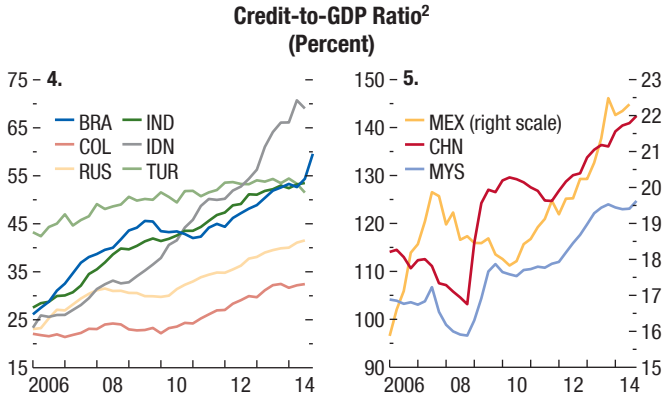
Source: IMF staff estimates.
[1]Euro area countries (Greece, Ireland, Italy, Portugal, Spain) with high borrowing spreads during the 2010–11 sovereign debt crisis.
[2]Data up to 2000 exclude the United States.
[3]Canada, France, Germany, Italy, Japan, United Kingdom, United States.

Figure 1.8. Monetary Policies and Credit in Emerging Market Economies

Real policy rates have, on average, remained close to their January 2014 levels and below precrisis levels in many emerging market economies. Bank credit growth has continued to slow, although it remains rapid in some economies. Economy-wide leverage, as measured by the ratio of bank credit to GDP, has therefore continued to increase.







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 WEO 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.

then to pick up further in 2016 to an annual rate of 3.8 percent (see Table 1.1). The increase in growth in 2015 will be driven by a rebound in advanced economies, supported by the decline in oil prices, with the United States playing the most important role (Figure 1.9). This rebound will contribute to reducing still-sizable output gaps.

In emerging markets, in contrast, growth is projected to decline in 2015—for the fifth year in a row. A variety of factors explain this decline: sharp downward revisions to growth for oil exporters, especially countries facing difficult initial conditions in addition to the oil price shock (for example, Russia and Venezuela); a slowdown in China that reflects a move toward a more sustainable pattern of growth that is less reliant on investment; and a continued weakening of the outlook for Latin America resulting from a softening of other commodity prices. As discussed earlier, in emerging market oil importers, a more limited pass-through to consumers of the windfall gains from lower oil prices is expected to mute the attendant boost to growth, with lower prices assumed to accrue in part to governments (for example, in the form of savings from lower energy subsidies—see the April 2015 *Fiscal Monitor*), where they may be used to shore up public finances.

- A pickup in emerging markets is assumed to drive the global growth rebound in 2016, primarily reflecting a partial waning of setbacks to domestic demand and production (including from geopolitical tensions) in a number of economies, including Brazil and Russia.

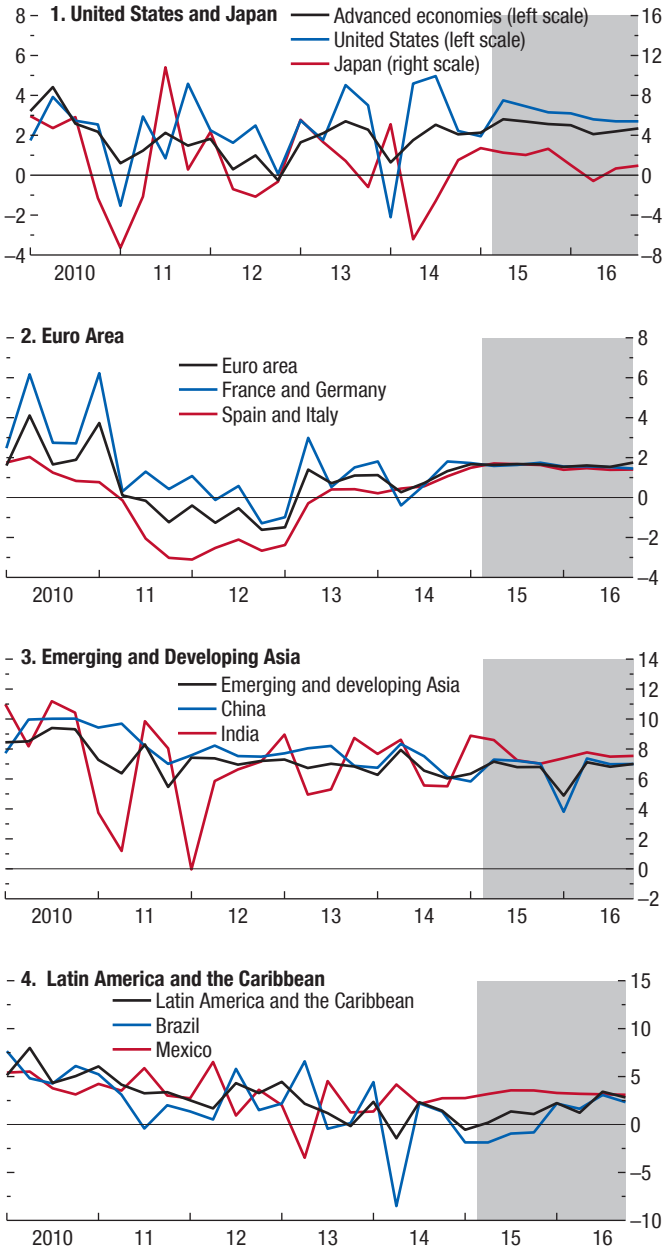
The outlook for 2015 is broadly in line with the one in the January 2015 *WEO Update*. Relative to the October 2014 WEO, global growth has been revised downward by 0.3 percentage point in 2015 and 0.2 percentage point in 2016, entirely reflecting weaker projected growth in emerging markets. (Growth forecast comparisons in the remainder of this WEO report are made in relation to those in the October 2014 WEO.)

Global Outlook for the Medium Term

Global growth is forecast to increase marginally beyond 2016, reflecting a further pickup in growth in emerging market and developing economies that would offset more modest growth in advanced economies. This pickup primarily reflects the assumption of a gradual return to more "normal" rates of growth in countries and regions under stress or growing well below potential in 2015–16 (such as Russia, Brazil, the rest of Latin America, and parts of the Middle

Figure 1.9. GDP Growth Forecasts
(Annualized quarterly percent change)

Global growth is projected to increase slightly to 3.5 percent in 2015 and then to rise further in 2016 to 3.7 percent. The increase in 2015 will be driven by a rebound in advanced economies, supported by the decline in oil prices, with the United States playing the most important role. In emerging markets, in contrast, growth is projected to decline in 2015, reflecting downward revisions for oil exporters, a slowdown in China that reflects a move toward more sustainable growth that is less reliant on investment, and a weaker outlook for Latin America resulting from a softening of other commodity prices.



Source: IMF staff estimates.

East). On the other hand, advanced economies are projected to grow at more modest rates from 2017 onward, reflecting the gradual closure of output gaps—particularly in the euro area and the United States (where the persistence of crisis legacies and policy uncertainty play a role)—as well as the effects of demographics on labor supply and hence on potential output (Chapter 3).

Growth Outlook for Individual Countries and Regions

- A solid recovery is expected to continue in the *United States*, where growth averaged about 4 percent in the last three quarters of 2014. Conditions remain in place for robust economic performance in 2015. Markedly lower energy prices, tame inflation, reduced fiscal drag, strengthened balance sheets, and an improving housing market are expected to sustain the momentum of the past three quarters. 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 3.1 percent in 2015 as well as 2016, in line with the October forecast. However, the picture over a longer horizon is less upbeat, with potential growth estimated to be only about 2 percent, weighed down by an aging population and weaker total factor productivity growth.
- The *euro area* continued to recover during the past year, but private investment remained weak, with Ireland, Spain, and Germany being notable exceptions. Lower oil prices, lower interest rates, and euro depreciation, as well as the shift to a broadly neutral fiscal stance, are projected to boost activity in 2015–16. At the same time, potential growth remains weak—a result of crisis legacies, but also 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. Specifically, growth is expected to increase from 0.9 percent in 2014 to 1.5 percent this year and 1.6 percent in 2016, slightly stronger in 2015 than envisioned last October. Growth is forecast to pick up for 2015 and 2016 in *Germany* (1.6 percent in 2015 and 1.7 percent in 2016), in *France* (1.2 percent in 2015 and 1.5 percent in 2016), in *Italy* (0.5 percent in 2015 and 1.1 percent in 2016), and especially in *Spain* (2.5 percent in 2015 and 2 percent in 2016).
- Activity in *Japan* disappointed following the April 2014 consumption tax hike, which caused a sharper-than-predicted contraction in consumption. GDP growth is projected to rise from –0.1 percent in 2014 to 1 percent in 2015 and 1.2 percent in 2016, a slight upward revision relative to the October 2014 WEO. The gradual pickup reflects support from the weaker yen, higher real wages, 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. In the *United Kingdom*, continued steady growth is expected (2.7 percent in 2015), supported by lower oil prices and improved financial market conditions. *Canada*'s growth of 2.2 percent this year will be supported by the strength of the U.S. recovery. *Australia*'s projected growth of 2.8 percent in 2015 is broadly unchanged from the October prediction, as lower commodity prices and resource-related investment are offset by supportive monetary policy and a somewhat weaker exchange rate. The robust recovery in *Sweden* (2.7 percent growth projected in 2015) is supported by consumption and double-digit housing investment. But in *Switzerland*, the sharp exchange rate appreciation is likely to weigh on growth in the near term, with 2015 growth projected to be 0.8 percent, a downward revision of 0.8 percentage point. And lower oil prices will weigh on *Norway*, where GDP is projected to grow by 1 percent this year, a downward revision of about 0.9 percentage point.
- Growth in *China* is expected to decline to 6.8 percent this year and 6.3 percent in 2016. These projections have been revised downward by ¼ and ½ percentage point, respectively, as previous excesses in real estate, credit, and investment continue to unwind. The Chinese authorities are now expected to put greater weight on reducing vulnerabilities from recent rapid credit and investment growth, and hence the forecast assumes less of a policy response to the underlying moderation. Ongoing implementation of structural reforms and lower oil and commodity prices are expected to expand consumer-oriented activities, partly buffering the slowdown.
- Elsewhere in *emerging and developing Asia*, *India*'s growth is expected to strengthen from 7.2 percent

last year to 7.5 percent this year and next.[4] Growth will benefit from recent policy reforms, a consequent pickup in investment, and lower oil prices. Trends within the Association of Southeast Asian Nations–5 will continue to diverge. *Malaysia*'s growth is expected to slow markedly to 4.8 percent this year (a downward revision of 0.4 percentage point) on weaker terms of trade. But growth is expected to pick up in *Thailand,* as a result of reduced policy uncertainty, and in the *Philippines,* owing to stronger consumption resulting from the oil price windfall. *Indonesia*'s growth forecast of 5.2 percent this year is broadly in line with last year's growth.

- Growth in *Latin America and the Caribbean* declined for the fourth consecutive year to 1.3 percent last year. With no apparent impulse for a near-term pickup in activity, lower commodity prices, and reduced policy space in many economies, regional growth is projected at 0.9 percent this year (1.3 percentage points less than previously projected and well below the 4.2 percent average growth observed in 2004–13) before recovering to 2 percent in 2016. Downward revisions are concentrated among South American commodity exporters. *Bolivia, Chile, Colombia*, *Ecuador*, and *Peru* have all seen downward revisions to their 2015 growth projections of ½ to 2 percentage points. *Brazil*'s economy is projected to contract by 1 percent this year—more than 2 percentage points below the October 2014 forecast. Private sector sentiment remains stubbornly weak because of unaddressed competitiveness challenges, the risk of near-term electricity and water rationing, and the fallout from the Petrobras investigation; greater-than-expected need for fiscal tightening also plays a role in the downward revisions. *Mexico*'s projected growth of 3 percent this year is a ½ percentage point downward revision. *Argentina*'s economic prospects for 2015 have improved relative to October as balance of payments pressures have moderated, but GDP is still expected to contract slightly (–0.3 percent). In *Venezuela* activity is projected to contract sharply (–7 percent) as the oil price decline has compounded an already difficult situation.
- Economies in the *Commonwealth of Independent States* slowed further in the latter half of 2014, and the outlook for the region has deteriorated markedly. The downward revisions are driven by *Russia*, whose economy is now expected to contract by 3.8 percent this year, more than 4 percentage points below the previous forecast, and by 1.1 percent in 2016. Falling oil prices and international sanctions have compounded the country's underlying structural weaknesses and have undermined confidence, resulting in a significant depreciation of the ruble. The remainder of the CIS is projected to grow at 0.4 percent in 2015, 3.6 percentage points below the previous forecast. *Ukraine*'s economy is expected to bottom out in 2015 as activity stabilizes with the beginning of reconstruction work, but the economy is still projected to contract by 5.5 percent. Elsewhere in the region, lower commodity prices and spillovers from Russia (through trade, foreign direct investment, and especially remittances) are also dampening the outlook, particularly in light of existing structural vulnerabilities, resulting in large downward revisions to 2015 growth projections for *Armenia, Belarus*, *Georgia*, and *Kazakhstan*, among others.
- Growth in *emerging and developing Europe* is projected to rise slightly from 2.8 percent last year to 2.9 percent this year (unchanged from the previous forecast) and to 3.2 percent in 2016. Lower oil prices and the gradual recovery in the euro area are expected to provide a lift to the region, offsetting the effects of the contraction in Russia and still-elevated corporate debt levels. *Turkey* is projected to grow by 3.1 percent this year, up from 2.3 percent last year and a 0.1 percentage point upward revision, as consumption will be boosted by lower energy prices. Growth in *Hungary* is projected to decline this year to 2.7 percent on account of lower investment growth and less supportive fiscal conditions. Growth in *Poland* is projected to increase to 3.5 percent in 2015, supported by domestic demand and improved conditions in trading partners.
- Growth remained tepid across the *Middle East, North Africa, Afghanistan, and Pakistan* last year, and only a modest strengthening is expected this year. Growth is projected to rise from 2.6 percent in 2014 to 2.9 percent this year and to 3.8 percent in 2016. This year's projected growth is 1 percentage point

[4]Following a revision of national accounts statistics, now using fiscal year 2011/12 as the base year, India's GDP growth rate at market prices in 2013 and 2014 was revised upward substantially.

below the previous projection, with the region's oil-exporting economies accounting for all of the downward revision, mostly due to the decline in oil prices. *Saudi Arabia*'s growth forecast of 3 percent this year is a downward revision of 1½ percentage points, although nearly half of this revision is due to a rebasing of real GDP data. Other oil exporters, including *Iraq*, the *Islamic Republic of Iran*, and the *United Arab Emirates*, have also seen substantial downward revisions to their growth forecasts. Growth in the region's oil importers is expected to strengthen from 3 percent last year to 4 percent this year and to 4.4 percent in 2016, as domestic demand is expected to strengthen with improved confidence, monetary easing, lower oil prices, and reduced fiscal drag.

- Growth in *sub-Saharan Africa* remains strong but is expected to slow this year to 4.5 percent (from 5 percent in 2014 and a substantial downward revision of 1¼ percentage points) in the face of headwinds from declining commodity prices and the epidemic in Ebola-affected countries. The oil price decline will have a severe impact on the region's oil exporters, including *Nigeria*, with 2015 growth for those countries marked down by more than 2½ percentage points. In contrast, projected growth in the region's oil importers is broadly unchanged, as the favorable impact of lower oil prices is offset to a large extent by lower prices of commodity exports. *South Africa*'s growth is expected to rise to 2 percent this year, a 0.3 percentage point revision downward, and 2.1 percent in 2016, reflecting more binding electricity supply constraints and a tighter fiscal stance in 2016 than previously expected.

Global Inflation

Inflation is projected to decline in 2015 in both advanced economies and most emerging market and developing economies, reflecting primarily the impact of the decline in 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 advanced economies, inflation is projected to rise in 2016 and thereafter, but to remain generally below central bank targets.
- In the euro area, headline inflation turned negative in December 2014, and medium-term inflation expectations have dropped substantially since mid-2014, although they have stabilized somewhat after the ECB's recent actions. The projected modest pickup in economic activity, together with the partial recovery in oil prices and the impact of the euro depreciation, is assumed to imply an increase in both headline and core inflation starting in the second quarter of 2015, but both measures of price increases are expected to remain below the ECB's medium-term price stability objective.
- In Japan, the projected modest pickup in growth and the waning downward pressure on prices from lower commodity prices as well as higher real wage growth on tight labor market conditions are expected to help push up underlying prices next year, but under current policies and constant real exchange rates, inflation is projected to rise only gradually to about 1½ percent in the medium term.
- In the United States, annual inflation in 2015 is projected to decline to 0.4 percent, increasing gradually beginning in midyear as the effects of the oil price decline wear off, while the effects of dollar appreciation and muted wage dynamics 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. Consumer prices are projected to decline in both 2015 and 2016 in Switzerland, following the sharp appreciation of the currency in January, and to remain subdued elsewhere, notably in the Czech Republic and Sweden.

In emerging market economies the decline in oil prices and a slowdown in activity are expected to contribute to lower inflation in 2015, even though not all the decline in the price of oil will be passed on to end-user prices. Countries that experienced large nominal exchange rate depreciations are a notable exception to this trend. In subsequent years the effect of lower oil prices is expected to be phased out, but this effect is projected to be offset by a gradual decline in underlying inflation toward medium-term inflation targets.

- In China, consumer price index inflation is forecast to be 1.2 percent in 2015, reflecting the decline in commodity prices, the sharp appreciation of the renminbi, and some weakening in domestic demand, but to increase gradually thereafter.
- In India, inflation is expected to remain close to target in 2015. In Brazil, inflation is expected to rise above the ceiling of the tolerance band this year, 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 spike to about 18 percent in 2015 in Russia, reflecting the large depreciation of the ruble, and to decline to about 10 percent next year.

- A few emerging markets, especially some in Europe, are projected to experience headline inflation well below target in 2015, with modest increases in 2016. These economies include Poland and a number of smaller countries whose currencies are tightly linked to the euro.

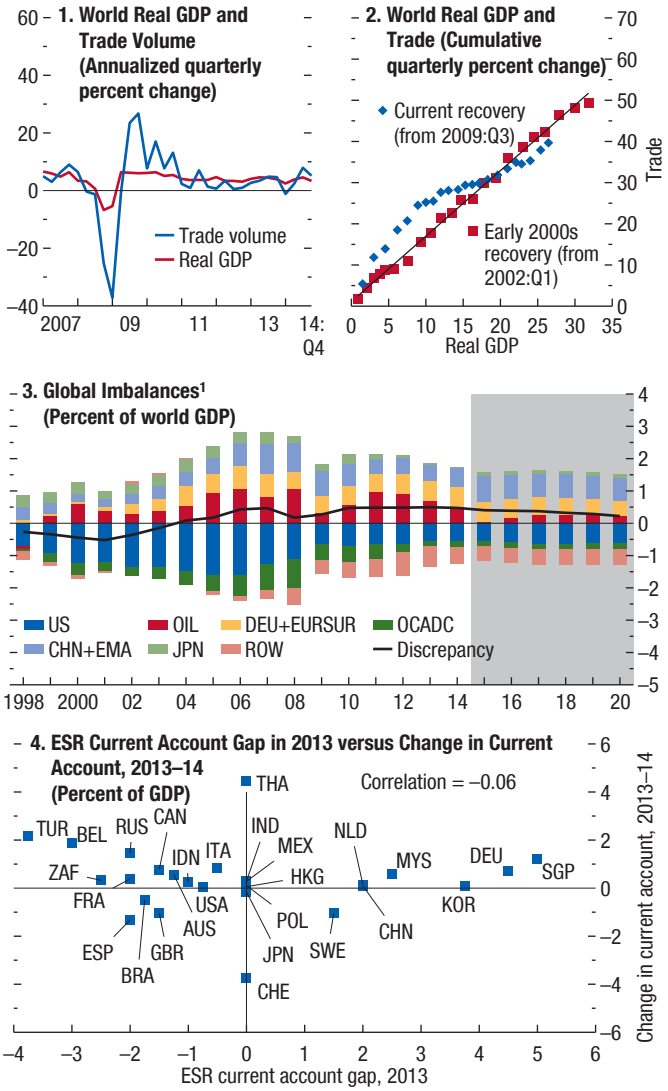
External Sector Developments

Preliminary data suggest a further slowdown in global trade in 2014 (Figure 1.10), reflecting to an important extent weaker trade dynamics in emerging market and developing economies. Part of this slowdown is related to weaker-than-expected GDP growth, but the growth in trade volumes remains relatively modest even after developments in overall economic activity are taken into account. Box 1.2 discusses the extent to which cyclical and structural factors can account for the more subdued pace of trade growth. The evidence indicates that both cyclical and structural factors are important—the cyclical weakness in (trade-intensive) investment clearly plays a role, but the long-term relationship between world trade and GDP is also changing, possibly reflecting a more modest pace in the fragmentation of global production processes (value chains) after years of rapid change.

Capital flows to and from advanced economies have remained relatively subdued, in line with the postcrisis pattern. And capital flows to emerging markets slowed in the second half of 2014 after a strong first half of the year (Figure 1.6), also reflecting the increase in geopolitical tensions and concerns about weaker growth prospects, particularly for commodity exporters. Global current account imbalances remained broadly stable in 2014, after several years of contraction. Changes in current account balances relative to GDP in 2014 generally went in the direction of narrowing the current account gaps for 2013 discussed in the *2014 Pilot External Sector Report* (IMF 2014) (Figure 1.10, panel 4). These gaps measure deviations of current account balances from a level consistent with underlying fundamentals and desirable policies. Movements in real effective exchange rates in 2014 relative to 2013 were also consistent with a reduction of the exchange rate gaps identified for 2013 by the *2014 Pilot External Sector Report* (Figure 1.11, panel 1). Exchange rate

Figure 1.10. External Sector

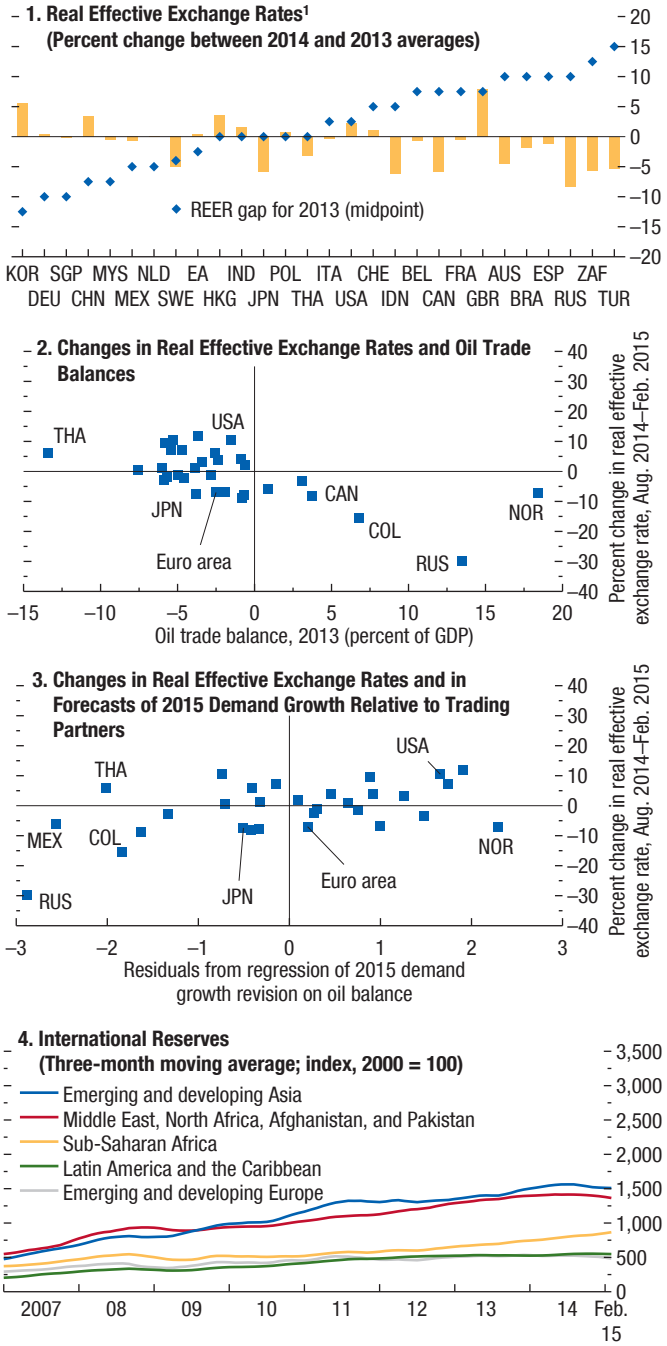
Global trade growth slowed further in 2014, reflecting to an important extent weaker trade dynamics in emerging market and developing economies. Part of this slowdown is related to weaker-than-expected GDP growth, but the growth in trade remains modest even after developments in overall economic activity are taken into account. Global current account imbalances remained broadly stable in 2014, after several years of contraction, and are projected to remain so for the next five years. Changes in current account balances relative to GDP in 2014 generally went in the direction of narrowing the current account gaps for 2013 discussed in the IMF's 2014 *Pilot External Sector Report* (IMF 2014).



Sources: CPB Netherlands Bureau for Economic Policy Analysis; IMF, *2014 Pilot External Sector Report* (ESR); and IMF staff estimates.
Note: Data labels in the figure use International Organization for Standardization (ISO) country codes.
[1]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 precrisis current account deficit countries (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 1.11. Exchange Rates and Reserves

Movements in real effective exchange rates in 2014 were consistent with a reduction of the gaps identified for 2013 by the IMF's *2014 Pilot External Sector Report* (IMF 2014). For countries with floating exchange rates, exchange rate changes since fall 2014 have been correlated with shifts in underlying fundamentals: their dependence on oil and revisions in the outlook for domestic demand relative to external demand. Reserve accumulation has slowed in Latin America and emerging and developing Europe, reflecting lower capital inflows and reserve losses from foreign exchange interventions.



Sources: Global Insight; IMF, *2014 Pilot External Sector Report;* IMF, *International Financial Statistics;* and IMF staff calculations.
Note: EA = euro area; REER = real effective exchange rate. Data labels in the figure use International Organization for Standardization (ISO) country codes.
[1]REER gaps and classifications are based on the 2014 *Pilot External Sector Report.*

changes have been particularly large across a broad set of currencies since fall 2014. As shown in Figure 1.11, for countries with floating exchange rates, these movements are strongly correlated with shifts in underlying fundamentals: their dependence on oil, proxied by the size of their oil balance in relation to GDP (panel 2), and revisions in the outlook for domestic demand relative to external demand during this period (panel 3).[5]

These exchange rate changes, together with the large oil price changes, are projected to imply shifts in global current account balances in 2015. The most notable development in this respect is the projected disappearance of the aggregate current account surplus in fuel exporters in 2015, for the first time since 1998. Oil exporters are projected to return to current account surpluses with the recovery in oil prices, but these surpluses are expected to be smaller than during the past decade.

As discussed earlier in this chapter, the decline in oil prices and the real exchange rate changes occurring in recent months have been supportive of the recovery. Their overall impact on global current account imbalances is, however, mixed. The oil price and real exchange rate changes of the past few months help rebalancing in countries that would benefit from a strengthening of their external positions (such as Spain) but also tend to further boost surpluses in other countries in Europe with large initial surpluses (such as Germany and the Netherlands). For both China and the United States, exchange rate movements weaken the current account balance, whereas the decline in oil prices strengthens it, with projections showing a slight widening in the Chinese surplus and in the U.S. deficit. Overall, WEO projections—which are based on stable real effective exchange rates at levels prevailing in early 2015—suggest broadly stable current account imbalances as a share of global GDP for the next five years (Figure 1.12, panel 2).

Risks

The distribution of risks to global growth is more balanced than that presented in the October 2014 WEO but is still tilted to the downside. A greater boost to demand from lower oil prices is an important upside risk. And downside risks have moderated given a lower baseline path for growth in emerging market economies.

[5]For the same set of countries, however, the correlation of exchange rate changes between February and August 2014 with these variables is in contrast virtually zero, further highlighting the difficulty of systematically explaining short-term exchange rate movements using macroeconomic fundamentals.

In particular, after a series of downward revisions to the baseline growth forecasts, risks of a sharper slowdown in China and still-lower potential output growth in emerging market economies have decreased. The most salient downside risks identified in the October 2014 WEO remain relevant, including geopolitical risks, disruptive asset price shifts in financial markets, and risks of stagnation and low inflation in advanced economies.

Oil also presents new downside risks, because prices could rise faster than expected. Similarly, the recent exchange rate realignment is helpful in raising demand in economies that have faced weaker activity, but there are balance sheet and funding risks, especially in emerging market economies, if dollar appreciation continues.

Global GDP Forecast

The fan chart for the global GDP forecast suggests a broadly symmetric confidence interval around the projected path for global growth (Figure 1.12, panel 1), consistent with the view that the risks are now more balanced. The width of the interval, however, has increased compared with the October WEO. This means that the likelihood of either substantially higher growth or a global recession is higher now than in October.

Two factors explain the implied higher uncertainty around the forecast, on both the upside and the downside:

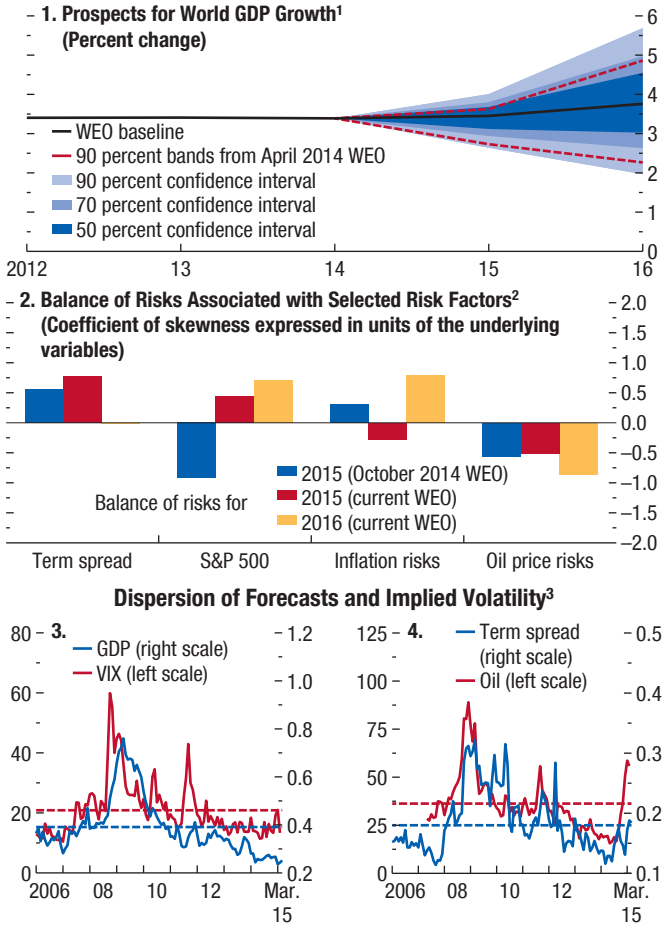
- First, baseline uncertainty has increased because the forecast horizon for the current and next year is longer compared with October, when more data affecting both current- and next-year outcomes were already known.[6]
- Second, the underlying indicators for oil-price- and, to a lesser extent, inflation-related risks suggest increases in uncertainty. For both variables, the dispersion in related Consensus Economics *Consensus Forecasts* has increased (Figure 1.12, panel 4). For oil prices, the implied volatility in oil futures options has also risen (Figure 1.12, panel 4). These increases are indicative of greater divergence in views about underlying prospects—clearly affected by substantial surprises in both variables during the past year.

The greater divergence in views about key variables that could affect growth outcomes does not necessar-

[6]The forecast errors for both current- and next-year forecasts tend to be larger for the April than for the October WEO reports. See Timmermann 2006 for a discussion.

Figure 1.12. Risks to the Global Outlook

The fan chart, which indicates the degree of uncertainty about the global growth outlook, suggests that the distribution of risks is more balanced than that presented in the October 2014 WEO. The width of the confidence interval around the projected path for global growth has increased, however, for two main reasons: higher baseline uncertainty because the forecast horizon for the current and next year is longer compared with October, and higher uncertainty regarding risks related to oil prices and, to a lesser extent, inflation.



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

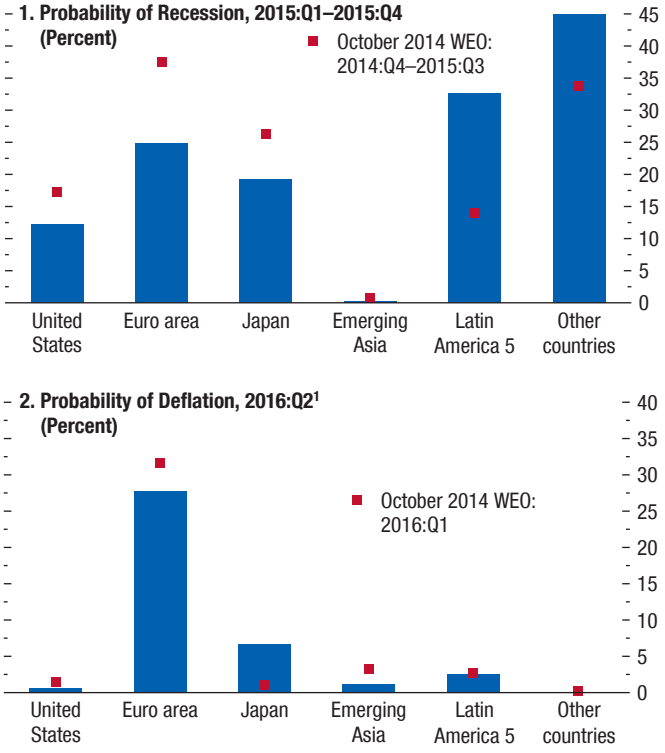
[1]The fan chart shows the uncertainty around the WEO central forecast with 50, 70, and 90 percent confidence intervals. As shown, the 70 percent confidence interval includes the 50 percent interval, and the 90 percent confidence interval includes the 50 and 70 percent intervals. See Appendix 1.2 in the April 2009 WEO for details. The 90 percent intervals for the current-year and one-year-ahead forecasts from the April 2014 WEO report 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. Note that the risks associated with the Standard & Poor's (S&P) 500 for 2016 are based on options contracts for December 2016.

[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 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 1.13. Recession and Deflation Risks

The IMF staff's Global Projection Model suggests a decrease in the probability of a recession in many major economies and regions over a four-quarter horizon compared with the October 2014 WEO. The decrease largely reflects stronger growth starting points. The probablility of a recession has, however, increased for Latin America and the rest of the world. Deflation risks are primarily a concern for the euro area, where the probabilities are still high despite some decline. In other economies and regions, they are well below 10 percent.



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

ily imply larger forecast errors for the WEO baseline projections in the period ahead. Indeed, simulations using the IMF's Global Projection Model, which draw on past shocks over a longer horizon, suggest a decrease in the probability of a recession in the major advanced economies over a four-quarter horizon relative to October 2014 (Figure 1.13). However, the risk of a recession is now higher in Latin America and the "other countries" group, reflecting weaker initial conditions for their forecasts.

Immediate and Short-Term Risks

Low oil prices: Oil prices present a two-sided risk. One concerns the oil price path, which presents downside risks to global growth. The other concerns the growth impact of the oil price change under the baseline, which offers upside risks.

- On the *upside*, the impact on domestic demand of sizable real income gains due to the oil price windfall could be stronger than currently incorporated in the baseline (see Scenario Box 1). The forecasts are relatively conservative, and for a number of large emerging market oil importers, they assume limited pass-through to domestic end users and higher public or public sector savings. But these savings could be lower than the forecasts assume if governments instead use the windfall to fund other reforms, including, for example, higher infrastructure spending.
- On the *downside*, oil prices could rebound faster than expected for at least two reasons (not related to a stronger pickup in global demand, which would support global growth). The first is a correction for an earlier overreaction as market participants decide that the price path currently embedded in futures contracts is too low given forecasts of demand and supply. The second is a stronger negative supply response to lower prices, which would mean a shorter-lived and smaller boost to global demand.

Disruptive asset price shifts and financial market turmoil: These remain a downside risk, as elaborated in the April 2015 GFSR. Two reasons underpin this risk. First, term premiums and risk premiums in bond markets are still very low (see the earlier discussion on low long-term interest rates). At the same time, financial market volatility, although slightly higher than six months ago, has also been low from a historical perspective. Second, the context underlying this asset price configuration—in particular, very accommodative monetary policies in the major advanced economies—is expected to start changing in 2015. News that changes expectations about these fault lines and unexpected portfolio shifts more broadly could trigger turmoil, as relative risks and returns would change. The unexpected end to the Swiss National Bank's floor for the Swiss franc–euro exchange rate is a case in point.

A particular concern in this respect are surprises about the first interest rate increase in the United States after a long period of very accommodative monetary policy. Market expectations of the pace of interest rate increases in the United States (as measured by the rates implied

by federal funds futures contracts) incorporate a much slower pace of interest rate normalization relative to the median interest rate forecast of members of the Federal Open Market Committee, even though market forecasts for economic growth appear to be broadly in line with those of committee members.

Emerging market economies are particularly exposed: they could face a reversal in capital flows, particularly if U.S. long-term interest rates increase rapidly, as they did during May–August 2013. Given the sharp fall in oil prices, oil exporters have become more vulnerable to these risks, in light of their higher external and balance sheet vulnerabilities, whereas many oil importers have gained buffers.

In addition, financial stress in the euro area triggered by policy uncertainty associated with Greece or political turbulence in the euro area could reemerge and reintensify the links between banks and sovereigns and the real economy.

A further sizable strengthening of the U.S. dollar: This also represents a risk. Recent dollar appreciation largely reflects changing fundamentals and policies, as discussed earlier, including relative domestic demand strength, expected monetary policy divergence among major advanced economies, and changing external positions with lower oil prices. U.S. dollar appreciation against most currencies could possibly 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. This concern is particularly relevant for emerging market economies with high degrees of international financial integration, in which, as discussed in the April 2015 GFSR, foreign-currency corporate debt has increased substantially over the past few years. An important part of the increase has been in the energy sector, in which much of the revenue is in U.S. dollars, a natural hedge against depreciation (but not against declines in energy prices in dollars). But foreign-currency debt has also increased in firms operating in other sectors, with some of them, especially in the nontradables sectors, lacking natural revenue hedges. The balance sheet shock generated by the sudden large appreciation of the Swiss franc on some countries in central and eastern Europe with sizable domestic mortgage lending denominated in that currency highlights the nature of these risks.

Protracted low inflation or deflation: The impact on activity of protracted low inflation or outright deflation in advanced economies with high public or private debt continues to be an important concern. The oil price decline has led to further declines in headline inflation, accentuating the undershooting of the target in many advanced economies. As discussed in earlier WEO reports, the problem is the combination of protracted undershooting and constraints on monetary policy at the zero lower bound for nominal interest rates.[7] If the undershooting sets off a downward drift in medium-term inflation expectations, longer-term real interest rates would start rising, hampering the recovery and potentially exacerbating debt overhang problems. In this regard, the decline of some indicators for such expectations in the second half of 2014 (for example, the break-even inflation rate implied by five-year five-year-forward inflation swaps) is a concern, even though these indicators have stabilized this year. And persistently low inflation in the euro area would have spillovers onto a number of smaller European countries whose currencies are closely tied to the euro.

But in principle, two factors should mitigate such concerns. First, to the extent that further declines in inflation (or price-level declines) primarily reflect the fall in oil prices, the effect on inflation (price-level effect) should be temporary, unless the second-round effects, which experience from the recent commodity price boom suggests should be small, instead turn out to be sizable. Second, in oil importers the effects of oil prices on inflation tend to be strongest for consumer prices, given the substantial weight of imported energy in those prices, and much smaller for the price of domestic value added, as measured by the GDP deflator, since the latter includes only second-round effects on wages and other domestic factors. As the GDP deflator is the more relevant price measure for real interest rates for firms (and obviously the relevant measure for the public-debt-to-GDP ratio), the potentially negative impact on debt ratios from the oil price fall should be smaller.

Deflation probabilities from the IMF's Global Projection Model indicate that risks of deflation, defined as a price-level decline in a four-quarter window, during the period from the third quarter of 2015 through the second quarter of 2016 are primarily a concern

[7]Some central banks, including the ECB, have opted for slightly negative interest rates on bank deposits, and yields on government bonds of countries such as Germany and Switzerland have turned negative even at longer maturities.

for the euro area (Figure 1.13), but the probability has decreased below 30 percent. In other economies and regions, they are well below 10 percent. The model's probabilities for a price-level decline during the period exclude temporary disinflationary effects due to lower oil prices and thus reflect only the risks from other shocks to activity.

Geopolitical risks: Ongoing events in Russia and 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.

Near-term growth risks in China: Investment growth slowed in China in 2014, including in the real estate sector, after a boom in 2009–12. Some further slowdown is already factored into the baseline, but it could be stronger than expected, as striking a balance between reducing vulnerabilities, supporting growth, and implementing reforms remains challenging. Moreover, the impact of slowing investment on aggregate demand has been cushioned by policy stimulus, but the Chinese authorities are now expected to put greater weight on reducing vulnerabilities from recent rapid credit and investment growth. As a result, investors might be more concerned about risks of a further slowdown, which could feed into current investment.

Medium-Term Risks

Low potential growth in advanced economies: As discussed in Chapter 3, potential growth is likely to be lower than it was before the crisis, reflecting predictable effects from demographics—such as aging and declining fertility rates—as well as protracted crisis effects, notably lower growth in the capital stock (see also Chapter 4). Despite considerable two-sided risks to projections of potential output, crisis legacies—notably financial sector weakness, still-high public debt ratios, and private debt overhang—remain an important concern in some economies, particularly in the euro area, and could continue to negatively affect investment for longer if they are not addressed. In turn, a protracted period of large negative output gaps and high and increasingly long-term unemployment could lead to higher permanent losses in skills and labor force participation.

Secular stagnation in advanced economies: The risk of secular stagnation (discussed in more detail in a scenario analysis in the October 2014 WEO) will remain as long as demand is weak and inflation is expected to stay below target for an extended period, amid constraints on monetary policy at the zero lower bound. After six years of demand weakness, the likelihood of damage to potential output is increasingly a concern, and the considerations previously presented apply.

Lower potential growth in emerging market economies: As noted in Chapter 3, potential growth in major emerging market economies has been decreasing since the global financial crisis. A sequence of downward revisions to medium-term growth forecasts for many economies during the past three years indicates that this has been a broader development. The baseline projections already incorporate some decline in potential growth, in part due to demographic factors.

Risks to potential growth stem from two sources. Capital growth could slow further, especially if relevant structural constraints are not addressed or if commodity prices continue to fall. Total factor productivity growth could fall more than expected under current convergence expectations. Other macroeconomic factors, notably a tightening of financial conditions in emerging market economies, if protracted, could also lead to lower potential growth as discussed earlier.

Hard landing in China: Since the policy stimulus deployed during the global financial crisis, booming credit and investment have been key sources of growth in China, and vulnerabilities have been building. This is a medium-term risk because the Chinese government still has sufficient buffers to prevent a sharp growth slowdown by using public resources and state influence. The current reform effort to rebalance the economy is important to reduce this risk, since without reforms to change the pattern of growth, vulnerabilities will continue to increase, and the available policy space will shrink.

Policies

Global growth is expected to strengthen modestly in 2015–16, helped in part by the boost to global demand from lower oil prices and policy changes. But the recovery remains fragile in a number of advanced economies, marked by weak investment, and medium-term growth is low in many economies. Raising actual

and potential output therefore continues to be a general policy priority.

Macroeconomic policy requirements vary from country group to country group and among individual countries. In many advanced economies, accommodative monetary policy remains essential to prevent real interest rates from rising prematurely, given persistent and sizable output gaps as well as strong disinflation dynamics and associated risks (Figure 1.14). A strong case can be made for increasing infrastructure investment in some economies. In many emerging market economies, macroeconomic policy space to support growth remains constrained. With limited fiscal space, a general rebalancing of fiscal policy through budget-neutral tax changes and reprioritization of spending can help support growth. In oil importers, lower oil prices will reduce the burden on monetary policy to deal with inflation pressure and external vulnerabilities and, in the case of economies with oil subsidies, may provide some fiscal space. Oil exporters have to absorb a large terms-of-trade shock and face greater fiscal and external vulnerabilities.

There is a broad need for structural reforms in many economies, advanced and emerging market alike. In this regard, lower oil prices also offer an opportunity to reform energy subsidies and taxes in many oil exporters and importers.

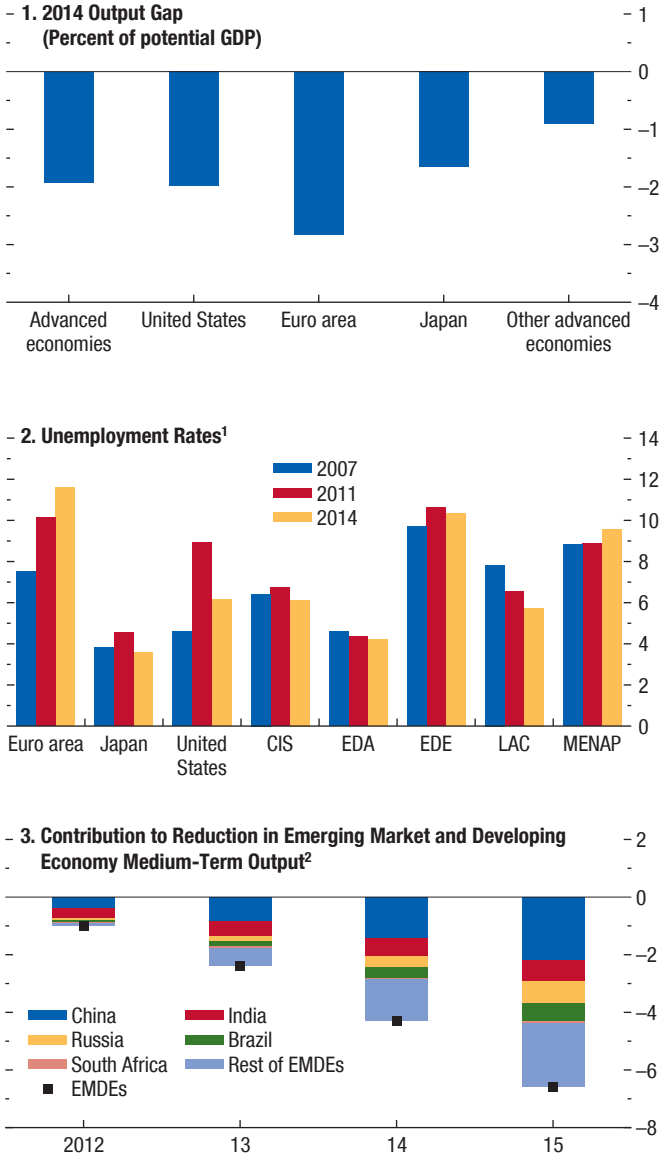
Continuing to Fight Low Inflation in Advanced Economies

Lower oil prices provide a welcome boost to demand in most advanced economies, but by lowering oil-related consumer prices, they contribute temporarily to further downward pressure on inflation. This is primarily a problem in advanced Europe, notably the euro area, and in Japan. With policy rates at the zero lower bound, monetary policy must stay accommodative through unconventional measures (including large-scale asset purchases) to prevent real interest rates from rising. Monetary policy efforts should be accompanied by a cleanup of bank balance sheets to improve credit supply. Complementary fiscal policy action in countries with fiscal space is also needed, as are demand-supporting structural reforms, in particular to improve productivity and stimulate investment. And as discussed in the April 2015 *Fiscal Monitor*, dealing with high public debt in a low-growth and low-inflation environment remains a key challenge in many advanced economies.

Figure 1.14. Capacity, Unemployment, and Output Trends

(Percent, unless noted otherwise)

Economic activity across the main countries and regions remains uneven. In advanced economies, the brakes placed on growth by high public and private debt are coming off, but at different rates across countries, and unemployment levels and output gaps are still high in some cases. Medium-term growth prospects have also been revised downward in many economies, particularly among major emerging markets, compared to the projections made in the September 2011 WEO.



Source: IMF staff estimates.
Note: CIS = Commonwealth of Independent States; EDA = emerging and developing Asia; EDE = emerging and developing Europe; EMDEs = emerging market and developing economies; LAC = Latin America and the Caribbean; MENAP = Middle East, North Africa, Afghanistan, and Pakistan.
[1]Sub-Saharan Africa is omitted because of data limitations.
[2]Relative to the September 2011 WEO.

Within these broad contours, challenges differ considerably across countries.

In the euro area, notwithstanding the pickup in activity, the recovery remains fragile and uneven, with sizable output gaps and euro-area-wide inflation expected to remain substantially below target beyond normal monetary policy horizons. Hence, further policy action is needed to ensure a stronger euro-area-wide recovery, especially in private investment (Chapter 4).

On the monetary policy front, the ECB's decision to expand its asset purchase program through sovereign asset purchases until the path of inflation is consistent with achieving the ECB's price stability target is welcome. These monetary policy efforts should be supported by measures that aim to strengthen bank balance sheets, which would help to improve monetary policy transmission and credit market conditions. Stricter regulation of nonperforming loans and measures to improve insolvency and foreclosure procedures are a priority in this regard.

On the fiscal policy front, the broadly neutral euro-area-wide fiscal policy stance in 2015–16 strikes a better balance between supporting demand and improving debt sustainability. Nevertheless, countries with fiscal space, notably Germany, could do more to encourage growth, especially by undertaking much-needed public investment. Countries with limited fiscal space should use the new flexibility under the Stability and Growth Pact to undertake public investment and structural reforms and rebalance their economies. Should activity and inflation disappoint, threatening a descent into a bad deflationary equilibrium, additional fiscal support should be considered to complement further monetary easing.

In *Japan*, economic activity has rebounded after a short recession in mid-2014. Inflation has started to decline again, however, and oil prices will add to downward pressure on prices, 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 consider strengthening its policies along two dimensions as necessary to the attainment of the 2 percent inflation target. First, the portfolio-rebalancing effects of its asset purchases could be strengthened by increasing the share of private assets in purchases and extending the program to longer-maturity government bonds. Second, more forecast-oriented monetary policy communication would increase the transparency of its assessment of inflation prospects and signal its commitment to the inflation target, mainly through the discussion of envisaged policy changes if inflation is not on track.

On the fiscal front, the stronger-than-expected contraction in consumption after the consumption tax increase last April highlights that it is critical for fiscal policy consolidation to be attuned to economic conditions and prospects. But risks to public debt sustainability remain a key concern given high public debt ratios, and a credible medium-term strategy for fiscal adjustment with specific measures is urgently needed to maintain market confidence.

In the *United States*, growth rebounded strongly in much of 2014 and is expected to run above trend in 2015–16. The main near-term policy issue is the appropriate timing and pace of monetary policy normalization. On one hand, although uncertainty remains about the extent of underlying labor market slack, particularly in light of the decline in labor force participation, a broad range of other labor market indicators suggests a notable improvement in the labor market. On the other, the appreciation of the dollar will put some downward pressure on GDP growth by dampening external demand, and there is little evidence of meaningful wage and price pressures so far.

The Federal Reserve has communicated that the timing for the liftoff of interest rates will depend on progress toward its goals of maximum employment and 2 percent inflation and that interest rate normalization will be gradual. After the liftoff—expected later this year—market participants generally expect an even more gradual rate increase to a lower natural rate than forecast by Federal Open Market Committee members, as noted in the "Risks" discussion. At the same time, long-term U.S. interest rates have fallen further as a result of still-weak conditions in many other major economies, strong demand for safe U.S. assets, and expectations of future dollar strength, and there is potential for a rapid increase in those long-term rates. This divergence in expectations carries the possibility of surprises and disruptive market adjustments and further underscores the importance of an effective policy communication strategy.

On the fiscal policy front, the priority remains to agree on a credible medium-term fiscal consolidation plan to prepare for rising aging-related fiscal costs; this plan will need to include higher tax revenue.

Boosting Potential Output

As discussed in Chapter 3, potential output growth in advanced economies is expected to strengthen

only very moderately in 2015–20 even though crisis legacies are slowly waning. The main reason for the subdued forecast is population aging, which underlies the projected low growth and possible decline in trend employment under current policies affecting labor force participation. This picture highlights the general need for structural policies to strengthen both labor force participation and trend employment.

- In Japan, where female labor force participation is below average, removing tax disincentives and improving child care options would increase incentives for women to work.
- 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 address protracted low demand, priorities include fewer tax 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, removing tax disincentives and providing targeted support to low-income families for child care would help raise labor force participation.

As discussed in the October 2014 WEO, 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, such investment would also provide much-needed short-term support to domestic demand in some of these economies.

In other areas, priorities for spurring medium-term growth vary considerably:

- 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 energy markets. 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 to 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.

Emerging Market and Developing Economies

Growth in emerging market economies has fallen short of expectations during the past few years after a decade of very rapid growth. The shortfall reflects in part weak growth in advanced economy trading partners since the global financial crisis and the growth moderation in China, but a variety of country-specific factors are also at play.[8] Efforts to rebalance growth toward domestic sources in recent years have supported domestic activity, but they have also increased macroeconomic vulnerabilities and reduced policy space in some economies. Several countries have experienced inflation above target or weaker fiscal positions than before the crisis—or both.

Reducing vulnerabilities against the backdrop of still-high risks of capital flow reversals must remain an important policy goal. Macroeconomic weaknesses would be costly if this risk materialized. In particular, stronger growth in advanced economies and the expected normalization of monetary policy in the United States later this year could lead to a more persistent reversal of the substantial capital flows to emerging market economies in search of higher returns since the crisis—reversals so far have been short lived and with limited reductions in flows, especially to Latin America (see Figure 1.5).

In this context, the sharp oil price decline in the second half of 2014 has mitigated external vulnerabilities in oil importers. But the decline has also introduced new growth challenges and increased external and fiscal vulnerabilities in oil exporters:

- Many oil importers have successfully lowered their vulnerability to adverse shocks during the past year by adopting tighter macroeconomic policies to reduce inflation and narrow external current account deficits. Lower oil prices will further alleviate infla-

[8]See Chapter 4 in the April 2014 WEO for details.

tion pressure and reduce external vulnerabilities with lower bills for oil imports. The trade-off between supporting demand if there is economic slack and reducing macroeconomic vulnerabilities has become less pronounced as a result, which may allow some central banks in economies with slack to reduce policy rates.

- In oil importers in which external borrowing has risen strongly over the past few years and exposure to external funding risks remains high, efforts to strengthen public finances and raise domestic savings must continue. In economies with oil subsidies, windfall gains from lower oil prices will lead to higher public sector savings, except where some or all of the gains are used to increase spending or reduce taxes. Whether all the gains should be saved depends on the extent of economic slack in a particular economy, the strength of its fiscal position, and its needs. In particular, these gains may provide an opportunity to finance critical structural reforms, notably energy subsidy reforms, or growth-enhancing spending, including on infrastructure.

In oil exporters, addressing higher external and fiscal vulnerabilities has become a priority, although the urgency varies considerably across countries. Some oil exporters increased fiscal savings while oil prices were high and accumulated funds that can now be used to smooth the adjustment in public spending to lower prices. Nevertheless, with some of the oil price decline expected to be permanent, it will be important not to delay such adjustment, to ensure intergenerational equity in using oil wealth and preserve some policy space for future shocks. In oil exporters with limited policy space, allowing substantial exchange rate depreciation will be the main avenue available to cushion the impact of the shock on their economies. Some will have to strengthen their monetary frameworks to forestall the risk that depreciation will lead to persistently higher inflation and further depreciation pressures.

More broadly, emerging market and developing economies not relying on exchange rate pegs should be ready to respond to external financial shocks by allowing more exchange rate flexibility, complemented with other measures such as foreign exchange intervention to limit excessive market volatility. This may require strengthening the credibility of the macroeconomic policy framework in some, and the macroprudential policy framework must be ready to keep balance sheet exposures to foreign exchange risks manageable (Indonesia, Malaysia, Turkey). Enforcing or (if needed) strengthening prudential regulation and supervision as well as macroprudential frameworks will also be important in economies in which rapid recent credit growth and increased private sector leverage have led to sharply higher credit-to-GDP ratios and higher credit-related vulnerabilities (including Brazil, China, Thailand, and Turkey; see also Figure 1.8).

In China, rebalancing toward domestic demand has so far been driven primarily by rapid growth in investment and credit, an unsustainable pattern of growth that has led to rising vulnerabilities in the corporate, financial, and government sectors. To avoid a further buildup of attendant risks, policies need to be carefully calibrated to simultaneously contain vulnerabilities, manage the corresponding slowdown, and unleash sustainable sources of growth. In this light, implementing the authorities' structural reforms to give market mechanisms a more decisive role, eliminate distortions, and strengthen institutions is crucial. Implementing these reforms should help achieve more efficient use of resources and hence faster productivity growth, as well as boost living standards across the income spectrum. 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.

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, 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 (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). In India, the postelection recovery of confidence and lower oil prices offer an opportunity to pursue such structural reforms.

Navigating the Risks Posed by Lower Commodity Prices in Low-Income Countries

Growth in low-income countries as a group has stayed high while growth in advanced and emerging market economies has weakened. But growth challenges and vulnerabilities have increased as a result of weaker activity in advanced and emerging market economies and lower commodity prices. And greater access to foreign market financing has increased some low-income countries' exposure to volatility in international financial markets.

Near-term growth prospects have already been revised downward for low-income countries as a group during the past year as a result, albeit less so than for other country groups. In a number of these countries, fiscal deficits have increased and public debt ratios have risen. The sharp drop in oil prices has amplified the growth challenge for low-income oil exporters. Maintaining sound fiscal and external positions will also become more challenging, given the strain on budget revenues and foreign exchange earnings.

Policies must respond to 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 the broadening of the revenue base and adjusting nonessential expenditure while maintaining essential investment 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 those oil exporters with limited buffers, fiscal adjustment will be both inevitable and urgent. It will also be critical to manage foreign-currency exposures in balance sheets carefully.

Low-income countries also need to make progress in meeting the Sustainable Development Goals, which are set to replace the Millennium Development Goals in September 2015. Despite strong growth in a majority of these countries, 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 increased growth challenges and vulnerabilities discussed earlier will be important for progress on these development goals. In addition, policies will need to focus on sustainable resource mobilization to boost growth. 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.

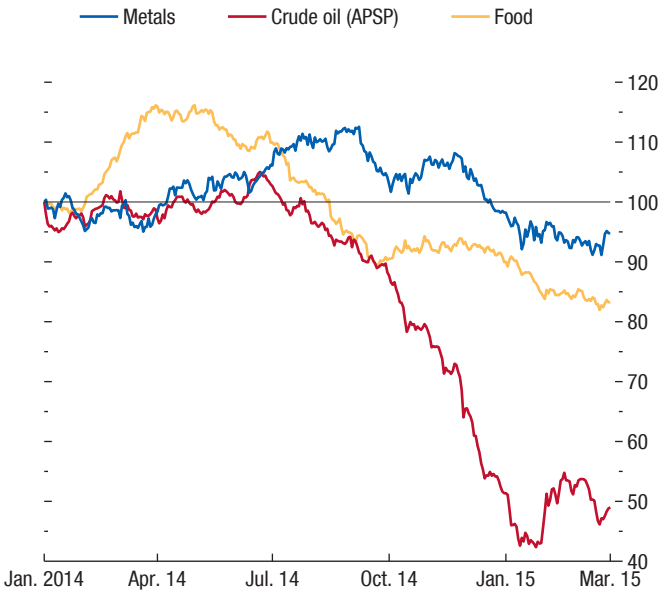
Special Feature: Commodity Market Developments and Forecasts, with a Focus on Investment in an Era of Low Oil Prices

Commodity prices have fallen markedly since the release of the October 2014 World Economic Outlook (WEO), *led by a dramatic drop in crude oil prices driven by both supply and demand factors. Metal prices have fallen because of slowing demand growth in China and significant increases in the supply of most metals. Food prices have declined mostly on account of favorable harvests.*

Commodity prices have declined 28 percent since September 2014, mainly owing to a 38 percent drop in energy prices (Figure 1.SF.1). Much of that decline is the result of a 43 percent decrease in crude oil prices; natural gas and coal prices declined by less, partly because contracts are indexed to oil prices with a lag. Nonfuel commodity prices also fell: those for metals by 15 percent and those for agricultural commodities by 6 percent.

The authors of this feature are Rabah Arezki (team leader), Akito Matsumoto, Shane Streifel, and Hongyan Zhao with research assistance from Vanessa Diaz Montelongo and Rachel Fan. The authors are grateful to Rystad Energy and Per Magnus Nysveen in particular for kindly providing proprietary data on capital expenditures and cost structures.

Figure 1.SF.1. Commodity Price Indices
(January 1, 2014 = 100)



Sources: Bloomberg, L.P.; and IMF, Primary Commodity Price System.
Note: Metals index is a weighted index of aluminum, copper, lead, nickel, tin, and zinc. Food index is a weighted index of barley, corn, wheat, rice, soybean meal, soybeans, soybean oil, swine, palm oil, poultry, and sugar. Data are through March 25, 2015. APSP = average petroleum spot price—average of U.K. Brent, Dubai, and West Texas Intermediate, equally weighted.

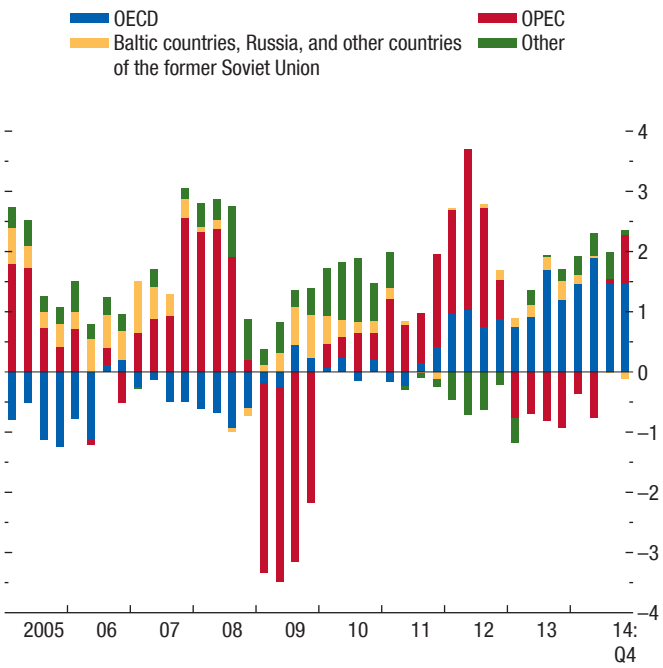
The large fall in oil prices was driven by both demand and supply factors, as discussed in Arezki and Blanchard 2014 (see also Box 1.1). On the supply side, three factors were particularly relevant:

- *Surprise increases in oil production of the Organization of the Petroleum Exporting Countries (OPEC):* These increases resulted in part from the faster-than-expected recovery of oil production in some OPEC members, including Iraq and, at times, Libya, after earlier outages and declines (Figure 1.SF.2).
- *Production increases outside OPEC:* Although these increases were broadly in line with expectations in the second half of 2014, they surpassed expectations in 2013 and early 2014. Overall, production outside OPEC rose by nearly 1.3 million barrels a day (mbd) in 2013 and more than 2.0 mbd in 2014. Most of the supply increases reflect growing production in North America, led by shale oil in the United States.
- *An unexpected shift in the OPEC supply function:* In November 2014, OPEC members decided not to lower production in response to the emergence of a positive net flow supply (the difference between global production and global consumption). Instead, they decided to maintain their collective production target of 30 mbd, despite increasing oil inventories (associated with the positive net flow supply).

Global growth in oil consumption slowed significantly during 2014 to about 0.7 mbd (a 0.7 percent increase from 2013), about half the growth recorded in 2012–13. The slowdown primarily reflects renewed consumption declines in Organisation for Economic Co-operation and Development (OECD) countries (mainly in Europe and the Pacific) after an unusual increase in consumption in 2013 (OECD oil demand has generally been declining since 2005). Oil consumption growth in emerging market economies remained low at about 1.1 mbd (2.5 percent increase from previous year) but accounted for the entire net growth in consumption.

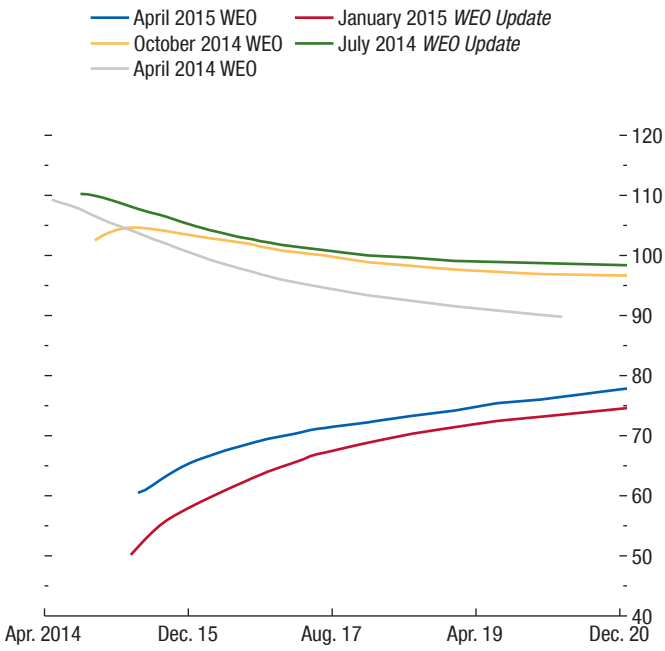
With supply running well ahead of demand, OECD crude oil inventories have increased, particularly in North America. Stocks at Cushing, Oklahoma, the pricing point of New York Mercantile Exchange West Texas Intermediate (WTI) futures, have surged this

Figure 1.SF.2. Oil Supply Growth
(Million barrels a day; year-over-year percent change)



Sources: International Energy Agency; and IMF staff calculations.
Note: OECD = Organisation for Economic Co-operation and Development; OPEC = Organization of the Petroleum Exporting Countries.

Figure 1.SF.3. Brent Futures Curves
(U.S. dollars a barrel; expiration dates on x-axis)



Sources: Bloomberg, L.P.; and IMF staff estimates.

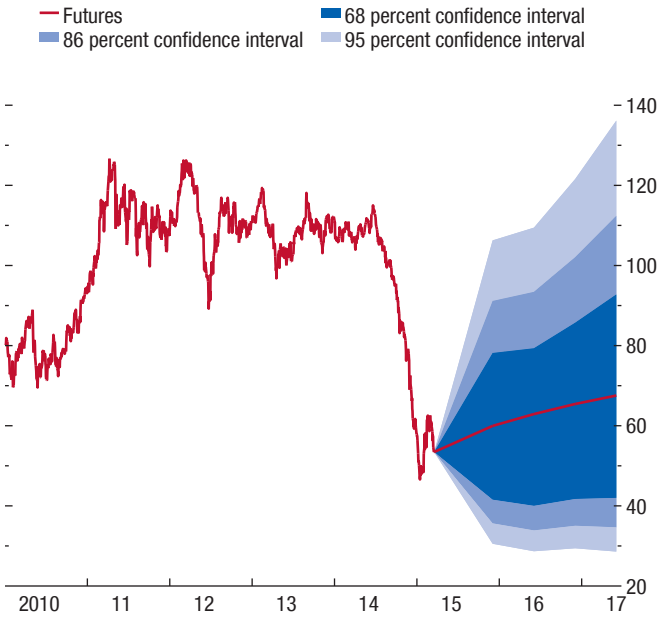
year, and WTI is again trading at a large discount to internationally traded Brent.[1] The inventory buildup at Cushing has resulted from continuing increases in U.S. production and Canadian imports, a decline in refinery activity because of maintenance, and the seasonal drop in oil consumption with the approach of spring. According to the International Energy Agency (IEA), OECD oil inventories may approach all-time highs in mid-2015, but global oil balances are expected to tighten in the second half of the year and into 2016.

Prices of oil futures point to rising prices (Figure 1.SF.3). The baseline assumptions for the IMF's average petroleum spot price, which are based on futures prices, suggest average annual prices of $58.10 a barrel in 2015, $65.70 in 2016, and $69.20 in 2017 (Figure 1.SF.4). This pattern of increases likely reflects market perceptions that production growth will slow as weak oil prices dampen incentives for oil investment and drilling.

There is substantial uncertainty around the baseline assumptions for oil prices. On the upside, changes to

[1]Incidentally, the U.S. Department of Energy recently announced that it will resume Strategic Petroleum Reserve purchases.

Figure 1.SF.4. Brent Price Prospects, March 17, 2015
(U.S. dollars a barrel)



Sources: Bloomberg, L.P.; and IMF staff estimates.

OPEC policy could be a major factor. In addition, oil demand could be somewhat higher with stronger economic growth after the oil price decline in 2014. Geopolitical risks remain ever present, with added stress for troubled oil-producing countries arising from lower oil export revenues. Risks to the downside include a prolonged surplus due to more subdued aggregate demand growth and sustained oil production growth. Should the industry adjust more quickly than anticipated to lower oil prices and reduce costs, production may exceed expectations, and the market could remain in surplus into 2016.

A key factor in the oil market adjustment to lower prices is the response of investment and, in turn, future oil production. Capital expenditures on oil development have already started to fall. According to Rystad Energy, overall capital expenditure among major oil companies was 7 percent lower in the third quarter of 2014 compared with average quarterly levels in 2013. Projections from the same source indicate that such capital expenditures will fall markedly throughout 2017. Moreover, production from some high-cost sources of supply may not be sustained if current oil prices do not cover variable costs. The second part of this special feature is dedicated to the response of investment to low oil prices.

Metal prices have declined 15 percent since September 2014 following slower demand growth in China and substantial supply increases for most metals, notably iron ore. The higher supply reflects additional increases on top of an already substantial increase in capacity during the past few years, and metal prices are now 44 percent below their 2011 peak. The slowdown in growth in China is occurring in most sectors, but most notably in construction. China consumes about 47 percent of the world's base metals (up from 13 percent in 2000) and accounted for the bulk of global consumption growth during 2000–14. Global metal consumption is expected to continue growing moderately, with slowing growth in China partly offset by higher demand growth in the rest of the world as economic activity recovers. Average annual metal prices are expected to decline 17 percent in 2015, largely on account of the decreases in the second half of 2014, and then fall slightly in 2016. Subsequently, prices are expected to broadly stabilize as markets rebalance, mainly from the supply side. The largest price decline in 2015 is expected for iron ore, which has seen the greatest increase in production capacity from Australia and Brazil.

Prices of agricultural commodities have declined by 6 percent overall. Food prices have decreased 7 percent relative to September 2014, with declines in all main indices except that for seafood, which increased slightly. Relative to their 2011 peak, food prices have declined by 23 percent following record or near-record harvests for major crops. Prices of beverages and agricultural raw materials are also down relative to September 2014 and their highs in 2011. A notable exception is tea prices, which have climbed because of dry-weather concerns in Kenya. Arabica coffee prices rose sharply in 2014 as a result of weather-related supply shortfalls in Brazil, but production is expected to rebound this year, and prices have moderated. Meat prices also jumped last year on tight supply in the United States but have since dropped because of the impact on demand and with expected expansion of herds.

Annual food prices are projected to decline by 16 percent in 2015 and 3 percent in 2016 with expected further improvement in supply conditions for many food commodities—assuming favorable weather. Large declines are expected for principal cereal and vegetable oil prices, particularly those for wheat and soybeans. Lower fuel costs will also improve agricultural producer profitability and curb demand for biofuels, particularly for biodiesel from sugar and palm oil. Ethanol production from corn in the United States is largely driven by government mandates. The one exception to the otherwise downward price trajectory is for meat prices, which are expected to rise moderately during the forecast period on strong demand and relatively tight supply.

Investment in an Era of Lower Oil Prices

Against the backdrop of lower oil prices, global investment in the oil sector—in which oil is an output—has decreased noticeably during the past nine months, reflecting lower investment in oil sands, deepwater oil, and to a lesser extent shale oil.[2] Low oil prices render exploration and extraction activities less profitable and, at times, not economical, leading to a reduction in investment. Growth in global oil production is expected to decline moderately, but with a significant delay. In some instances, oil production could be halted in fields with marginal costs that exceed oil prices—a possibility for some oil sand and

[2]The analysis presented in this subsection focuses on crude oil production and excludes natural gas liquids and condensate and refinery gains.

deepwater oil production. Low oil prices are, nevertheless, expected to lead to significant efficiency gains that will bring down costs and limit somewhat the adjustment in investment and production.

Understanding the dynamic response of investment in the oil sector to the fall in oil prices is important for at least two reasons. First, at the global level, the response of oil investment conditions the response of oil production and in turn feeds back into oil prices. Given the expected delayed response of oil production, oil prices will, all else equal, rebound to higher levels—but only gradually. Second, for selected countries, investment in the oil sector can be a large portion of total investment and may have important macroeconomic consequences.

In the non-oil sector—in which oil is an input—lower oil prices translate into lower costs, boosting profits and investment. Obviously, the more energy intensive the non-oil sector in a particular country, the bigger the boost for that country. For instance, oil consumption as a share of GDP is 3.7 percent in Japan, whereas it is 12.4 percent in Thailand. This implies that the Thai economy might benefit more from lower oil prices than might the Japanese economy. Chapter 4 covers the issue in more depth. Notwithstanding the policy response to the fall in international oil prices, the economic structure of any given country will determine the relative strength of the consumption and investment channels.

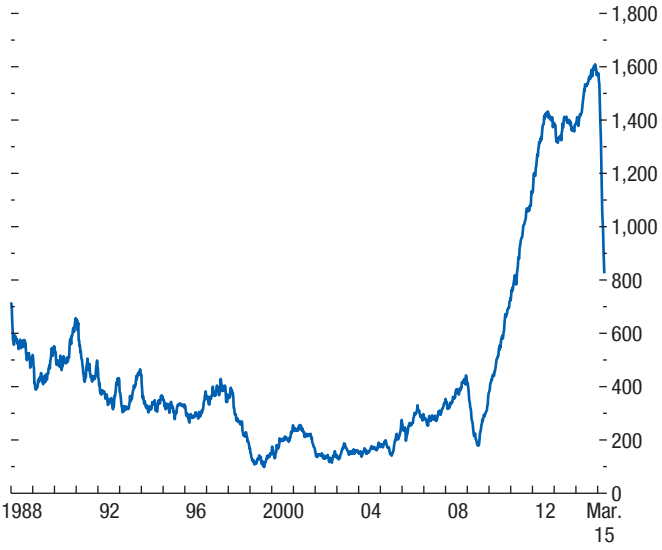
The next subsection addresses the following questions:

- How does investment in the oil sector respond to the decline in oil prices?
- How does oil production respond to the decline in oil prices?

Investment in the Oil Sector

Investment in the oil sector has fallen as a result of the recent oil price slump. Press reports since September 2014 indicate that firms in the upstream sector around the world are cutting back on capital expenditures and laying off workers. In the United States, the number of oil rigs—apparatuses for on-land oil drilling—in use has fallen markedly since September 2014, albeit by far less than the increase in the number of rigs during the past few years (Figure 1.SF.5). A cursory exploration of these data suggests that the lag between the onset of the fall in oil prices and the change in rig count is between three and six months.

Figure 1.SF.5. United States: Weekly Rig Count
(Number of rigs in operation)



Source: Baker Hughes Inc.

Historically, global investment in the oil sector has closely followed oil price developments (Figure 1.SF.6).[3] The increase in global capital expenditure in the oil sector in the 2000s is unprecedented and reflects a prolonged era of high oil prices. Indeed, the rapid increase in oil demand, especially from large emerging market economies such as China and India, has driven up oil prices and encouraged further investment in tight oil formations that were previously uneconomical at lower oil prices.[4]

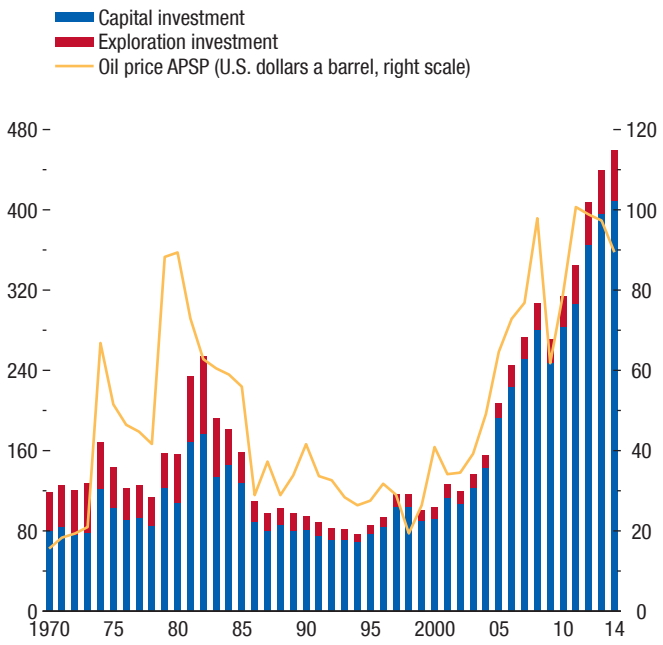
During previous episodes of dramatic price declines, investment in the oil sector has plummeted—particularly in the 1980s, when Saudi Arabia voluntarily stopped being the swing producer, which sent oil prices plunging from $27 to $14 a barrel.[5] At the outset of that episode, exploration spending, a risky activity, dropped more than nonexploration expendi-

[3]Investment and oil price series are deflated using a price index for private fixed investment in mining and oil field machinery in the United States obtained from the Bureau of Economic Analysis website.

[4]See, for instance, Blanchard and Galí 2009, Hamilton 2003, Kilian 2009, and Cashin and others 2014 for systematic investigations of the relative role of demand and supply factors in oil prices. See Aastveit, Bjørnland, and Thorsrud, forthcoming, for a study focusing on the role of demand from emerging markets.

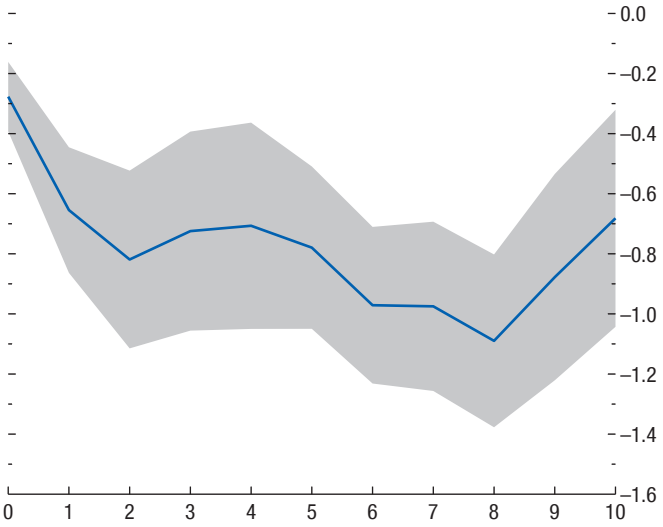
[5]A swing producer is a supplier that adjusts production with the aim of achieving a target price for a particular commodity.

Figure 1.SF.6. Global Oil Investment and Oil Price
(Billions of constant 2010 U.S. dollars, unless noted otherwise)



Sources: IMF, Primary Commodity Price System; Rystad Energy research and analysis; and IMF staff calculations.
Note: APSP = average petroleum spot price—average of U.K. Brent, Dubai, and West Texas Intermediate, equally weighted.

Figure 1.SF.7. Response of Oil Investment to Oil Prices
(Percent change; years forward on x-axis)



Source: IMF staff estimates.
Note: The figure shows the deviation of oil investment from trend in response to a change in oil prices. The computed cumulative response is based on the regression of the first difference in the logs of oil investment on the distributed lags (10) of the first difference in the logs of oil prices after country fixed effects are controlled for. Shaded areas correspond to 95 percent confidence intervals.

ture. Another dramatic (but more transitory) decline in prices occurred in late 2008 during the global financial crisis. Oil investment dropped markedly then but rebounded sharply the following year.

An empirical investigation using annual and historical data from Rystad for the period 1970 to 2014 including 41 countries—representing more than 90 percent of the world's oil investment and production—confirms the rapid and quantitatively large effect of lower oil prices on investment in the oil sector. Results are obtained from a simple panel distributed-lag regression that includes the growth rate of real investment as the dependent variable and the growth rate of the price of crude oil among the explanatory variables (Figure 1.SF.7). According to the estimates, a 1 percent reduction in the price of crude oil is associated with a decrease of more than 0.6 percent in the deviation from trend investment after three years. These results suggest that the impact of lower oil prices on investment is felt within one year,[6] confirming that the recent decline in oil prices is already having a marked impact on investment in the oil sector.[7]

Uncertainty about the future course of oil prices has also increased. Documenting increased uncertainty is not easy, but a basic measure of uncertainty based on information derived from oil futures options between July 2014 and January 2015 suggests that in recent months, markets have anticipated a significantly higher probability of extremes in oil prices.[8] This increased uncertainty may reduce investment growth in the oil sector and could even limit investment growth in non-oil

[6]These estimates imply that the decline in oil prices in the WEO baseline would be associated with a 14 percent decline in investment relative to trend in the first year and cumulative declines of 30 percent over three years and 20 percent over five years.

[7]This specification controls for country-specific fixed effects, which in turn control for time-invariant characteristics such as cross-country differences in oil endowment and institutions. For instance, Deacon and Bohn (2000) present empirical evidence that ownership risk slows resource use in some circumstances. The regression thus relies solely on variation in oil prices to explain within-country variation in investment. The results should be interpreted with some caution, however, given that they represent correlations rather than a causal relationship.

[8]Other measures of uncertainty about oil prices include indices of oil volatility, which have recently increased sharply, even though the increase is in part mechanical and has resulted from the fall in oil prices.

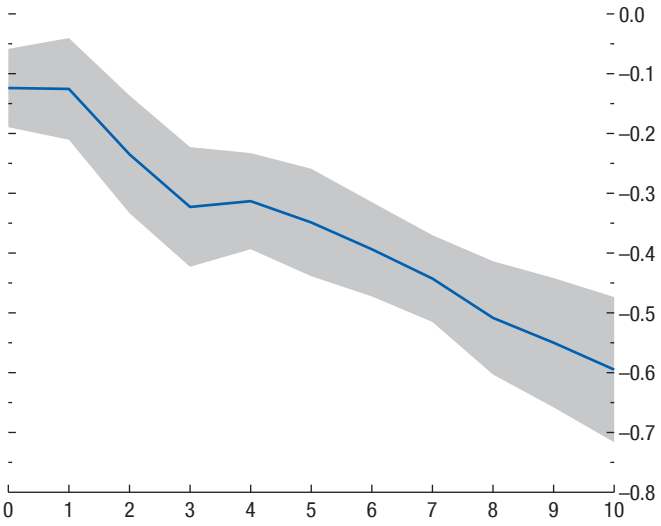
sectors that use oil intensively.[9] The effect of uncertainty is compounded by the largely irreversible nature of investment in the conventional oil sector.[10] The literature on aggregate investment has documented, both theoretically and empirically, the importance of uncertainty in raising the option value of waiting to invest, especially in a context of partial irreversibility (see, for instance, Bertola and Caballero 1994; Bloom, Bond, and Van Reenen 2007). There is also direct evidence that uncertainty reduces investment in the oil sector.[11]

This special feature now turns to the impact that reduced investment in the oil sector may have on oil production.

Production in the Oil Sector

Growth in oil production is not expected to slow significantly in the short term as a result of the recent oil price slump. Historically, episodes of falling oil prices and, in turn, falling oil investment have not been immediately followed by a decrease in production. The response of oil production is typically delayed because of the long gestation period involved in translating new investment into production. More precisely, falling oil prices do little to change the incentives of producers that have already installed their production capacity. Instead, lower oil prices affect future production through lower exploration expenditures and less investment in the development of new fields.[12]

Figure 1.SF.8. Response of Oil Production to Oil Investment
(Percent change; years forward on x-axis)



Source: IMF staff estimates.
Note: The figure shows the deviation of oil production from trend in response to a change in oil investment. The computed cumulative response is based on the regression of the first difference in the logs of oil production on the distributed lags (10) of the first difference in the logs of oil investment after country fixed effects are controlled for. Shaded areas correspond to 95 percent confidence intervals.

Empirical evidence—from the same sample of 41 countries for the period 1970–2014 referred to earlier—confirms the slow response of production to the fall in investment in the oil sector. Results from a simple panel distributed-lag regression including oil production as a dependent variable and oil investment as an explanatory variable suggest that a 1 percent reduction in investment is associated with a 0.4 percent downward deviation in production from its trend, but only after five years (Figure 1.SF.8).[13] There are caveats to interpreting these results as reflecting a causal relationship, although investment changes naturally precede changes in production. The implications of lower oil prices for investment and future production are already reflected in market participants' expectations; the oil futures curve is upward sloping, which implies higher expected future spot prices. The IEA also lowered its forecasts for non-OPEC

[9]For an investigation into the effect of oil price uncertainty on world real economic activity, see, for instance, Soojin 2014 and Elder and Serletis 2010. The latter suggests that the effect of uncertainty is both economically and statistically significant, even though methodological challenges remain in the measurement of uncertainty and in determining its impact independent of lower oil prices.

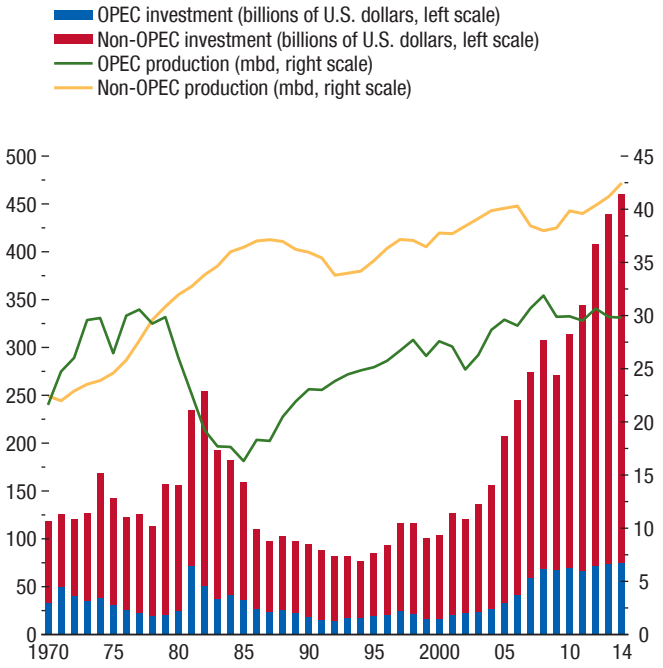
[10]Unconventional oil production, in particular tight oil production, requires less in the way of sunk costs and thus may be less subject to uncertainty about future oil prices.

[11]For instance, Kellogg (2014) estimates the response of investment to changes in uncertainty using data on oil drilling in Texas and the expected volatility of the future price of oil. The author finds that drilling activity responds to changes in price volatility on a scale consistent with the optimal response prescribed in theory and that the cost of failing to respond to volatility shocks is economically significant.

[12]Anderson, Kellogg, and Salant (2014) document empirically that changes in oil prices affect producers' incentives at the extensive margin rather than at the intensive margin. In other words, changes in oil prices affect exploration expenditures and the decision to invest in new fields but do not substantially affect production from existing fields. To explain these facts, Anderson, Kellogg, and Salant (2014) reformulate Hotelling's (1931) classic model of exhaustible resource extraction as a drilling problem: firms choose when to drill, but production from existing wells is constrained by reservoir pressure, which declines as oil is extracted. The model incorporates a modified Hotelling rule for drilling revenues net of costs and explains why production is typically constrained.

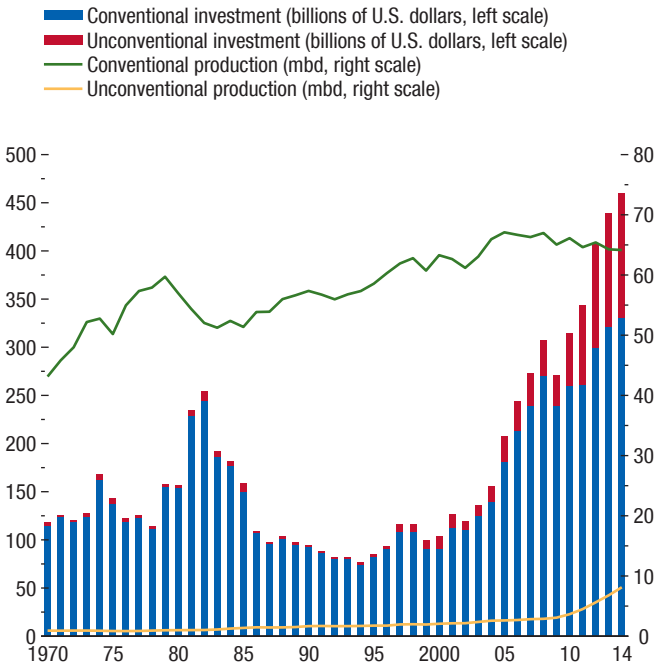
[13]These estimates imply that the fall in investment induced by the decline in oil prices in the WEO baseline would be associated with a 4.4 percent decline in production relative to trend over three years and a decline of more than 10 percent over five years.

Figure 1.SF.9. OPEC and Non-OPEC Oil Production and Investment



Sources: Rystad Energy research and analysis; and IMF staff calculations.
Note: mbd = million barrels a day; OPEC = Organization of the Petroleum Exporting Countries.

Figure 1.SF.10. Conventional and Unconventional Oil Production and Investment



Sources: Rystad Energy research and analysis; and IMF staff calculations.
Note: mbd = million barrels a day.

oil production—as a result of reductions in capital expenditure growth—in its latest *Medium-Term Oil Market Report* (IEA 2015), although sizable changes in future production are not expected for a few years. For the near term, the IEA raised its production forecast for 2015; however, production growth is expected to slow noticeably in North America.

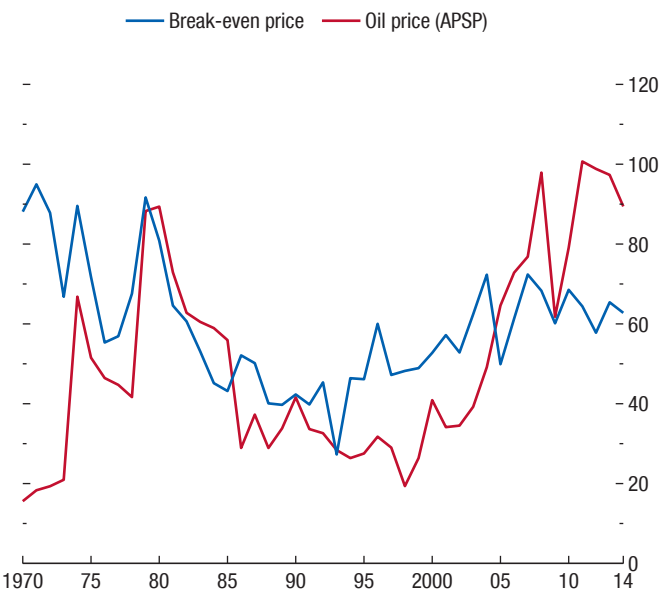
The production of OPEC members and in particular of Saudi Arabia—the biggest oil producer within OPEC—is also guided by strategic considerations. OPEC has explicitly sought to influence oil prices, which suggests that the oil market is not a fully competitive market in which producers are atomistic and take prices as given. For example, faced with the increase in production from non-OPEC sources in the 1980s, Saudi Arabia reduced production significantly during the course of a few years (Figure 1.SF.9). The production cuts were not sufficient to curb the fall in oil prices, and Saudi Arabia changed course in 1986, which led to a further decline in oil prices (see Gately 1986). A similar situation seems to have played out with the increase in production in unconventional oil from North America (Figure 1.SF.10). In the past few months, Saudi Arabia has openly stated that it will not cut production in the face of growing production from non-OPEC countries and in turn lower oil prices, despite pressures from other OPEC members. Some commentators have argued that this strategy is aimed at easing relatively costlier oil extraction activities out of the market. As discussed later in this subsection, U.S. oil production will be somewhat affected by oil prices at their current lower levels but less so than some non-OPEC production.

There is a possibility that oil production may respond more quickly to lower prices than it has in the past. The evolution of global break-even prices—oil prices at which it becomes worthwhile to extract—shows that prices during the 2000s were hovering well above break-even prices until the recent slump, when it became unprofitable for some fields to operate (Figure 1.SF.11). Despite relatively large decommissioning costs, the sizable gap that has emerged between current (approximately $52 a barrel as of March 2015) and break-even oil prices will eventually lead to a halt in production in some fields that are no longer profitable. Of course, active cost-reduction measures and other efficiency gains, including from consolidation in the oil industry,

will limit the effect of lower oil prices on oil investment and, in turn, on oil production. In addition, average production costs for shale oil, which has been driving global production growth, are now likely to be closer to marginal costs because field depletion rates tend to be higher than those of conventional oil. The spatial distribution of operating costs per barrel suggests that Canada, the North Sea, and the United Kingdom are among the most expensive places to operate oil fields (Figure 1.SF.12).[14] As a result, the oil price slump will affect production in those locations earlier and more intensely than in other locations. A detailed investigation of the cost structure associated with U.S. shale oil production suggests that shale oil production has experienced rapid efficiency gains, considering that it is still relatively early in the investment cycle. Projections from Rystad show that lower oil prices are expected to have a smaller impact on production of shale oil in the United States than on deepwater and oil sand production, especially in Brazil, Canada, and the United Kingdom.

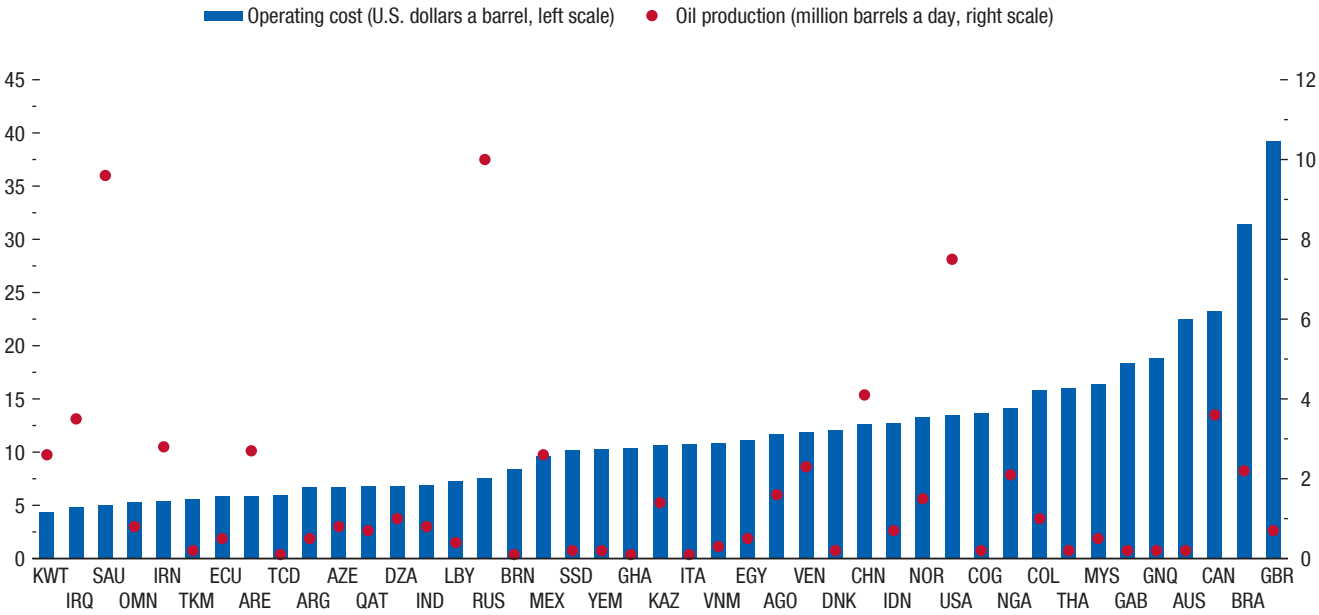
[14]Shale oil production in the United States appears to be more resilient to falling oil prices, considering growing efficiency gains. Rates of return will be significantly lower, however, and some highly leveraged firms that did not hedge against lower prices are already under financial stress and have been cutting their capital expenditures significantly and laying off substantial numbers of workers.

Figure 1.SF.11. Evolution of Break-Even Prices
(Constant 2010 U.S. dollars a barrel)



Sources: IMF, Primary Commodity Price System; Rystad Energy research and analysis; and IMF staff calculations.
Note: APSP = average petroleum spot price—average of U.K. Brent, Dubai, and West Texas Intermediate, equally weighted.

Figure 1.SF.12. Oil Production and Operating Costs by Country



Sources: Rystad Energy research and analysis; and IMF staff calculations.
Note: Data labels in the figure use International Organization for Standardization (ISO) country codes.

Box 1.1. The Oil Price Collapse: Demand or Supply?

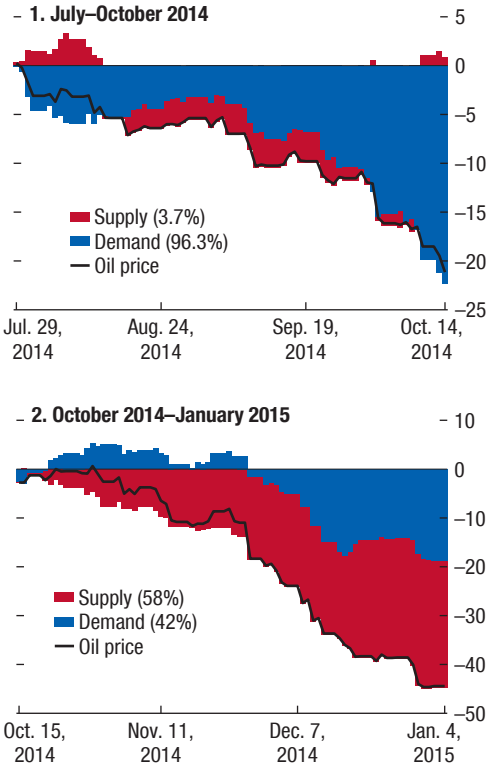
Oil prices fell by half between June and December 2014. The implications of this decline for the global economy depend crucially on the underlying factors. If the decline was driven by increased oil supply, it would boost global growth through several channels—particularly by raising real incomes of oil consumers. If, however, it was driven by lower economic activity, the price decline would merely be a symptom of weaker global demand.

Identifying the shocks underlying the decline is challenging. Crude oil is a storable good, and as such, a real asset: its current price depends not only on current demand and supply conditions, but also on expectations of future market conditions. These expectations in turn depend on many factors, including global economic prospects, but they also affect prospects (for instance, pessimism about future oil supply would lead to higher prices and hence lower activity). This box discusses two useful approaches to disentangling the supply and demand shocks behind the oil price collapse in 2014. Since identification of the shocks depends on the underlying model, the two sets of results present a broad picture of the likely factors behind the oil price collapse rather than a precise quantitative assessment.

The first approach disentangles oil demand and supply shocks by examining the comovement of oil prices and stock prices. Specifically, it estimates a vector autoregression (VAR) model with daily data on oil prices (Brent crude oil variety prices) and global stock prices (Morgan Stanley Capital International [MSCI] All Country World Index) from January 2, 1991, to January 5, 2015. Demand and oil supply shocks are identified by assuming that a positive (negative) demand shock is associated with an increase (decrease) in both stock and oil prices, whereas a supply shock has opposite effects on oil and stock prices: higher (lower) oil supply reduces (increases) oil prices and increases (reduces) stock prices.[1]

The results indicate that the sharp decline in oil prices since mid-2014 has been driven by both demand and supply shocks, with the relative contribution of these factors changing over time. Whereas the fall in oil prices between July and mid-October 2014 can be explained mostly by weak demand (Figure 1.1.1, panel 1), higher oil supply was the largest contributor during the mid-October 2014 to early January 2015 period, accounting for about 64 percent of the oil price decline during that time (Figure 1.1.1, panel 2).[2]

Figure 1.1.1. Drivers of Oil Prices: Daily Two-Variable Model, July 2014–January 2015
(Cumulative change in log oil prices in percent)



Source: IMF staff calculations.

The authors of this box are Samya Beidas-Strom and Carolina Osorio Buitron.

[1]The methodology for identification through contemporaneous sign restrictions follows Matheson and Stavrev 2014.

[2]Estimates based on an alternative stock price index, the MSCI World Index for advanced economies, are broadly unchanged relative to the benchmark. The relative contributions of demand and supply factors change somewhat if U.S. stock prices (Standard & Poor's [S&P] 500) are used to capture oil demand shocks, but the results are qualitatively similar. The results are also robust to excluding energy stocks. Fluctuations in energy stock prices need not be related to demand shocks in the oil market, as they may reflect changes in expectations about the profitability of companies in this sector. Hence, the identification is enhanced by focusing on non–energy stock prices in the

Box 1.1 *(continued)*

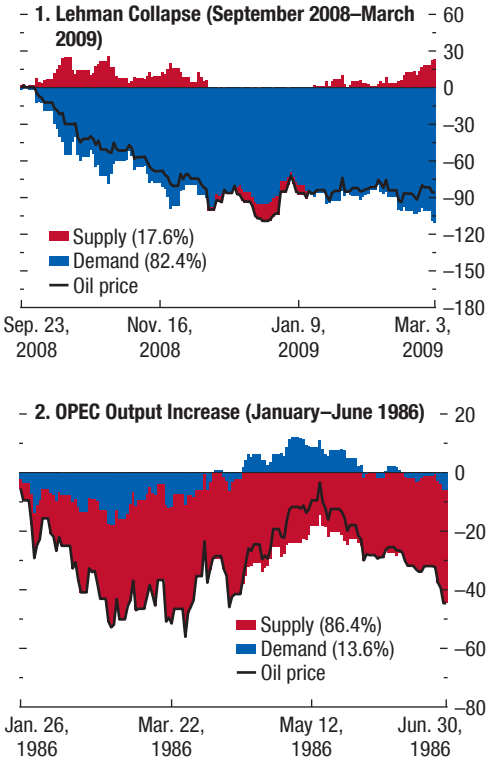
A look at past episodes suggests that the oil price collapse during the global financial crisis is mostly explained by demand shocks (Figure 1.1.2, panel 1), whereas in 1986 the collapse was driven predominantly by supply shocks (Figure 1.1.2, panel 2).[3] This difference is consistent with the fact that in the 1986 episode, members of the Organization of the Petroleum Exporting Countries (OPEC) decided to raise production to increase their market share (Gately 1986).

The second approach is based on a structural VAR model for the global oil market, estimated with quarterly data from 1985 to 2014. It includes four variables: global industrial production (as a proxy for global demand conditions), global oil production, Organisation for Economic Co-operation and Development member countries' oil inventories, and the real price of oil.[4] The identification method is similar to the one in the previous approach, with additional restrictions.[5] Prices and global demand move together when there are shocks to demand; they move in opposite directions for supply shocks. In addition, if inventory demand rises (driven, for instance, by precautionary motives), oil prices, inventories, and oil supply will move together, while global demand will move in the other direction.

The results suggest that contemporaneous and past supply and demand surprises explain roughly two-thirds of the oil price decline between the second and fourth quarters of 2014, with supply accounting for a larger share of that two-thirds (Figure 1.1.3, panel 1). Shocks to inventory demand do not appear to explain the fall in prices during that period. Instead, a positive shock to inventory demand explains much of the observed actual increase in oil prices in the second quarter of 2014, plausibly as a result of increased geopolitical tensions in the Middle East and elsewhere at the time. Such positive shocks to inventory demand persisted through the remainder of the year, providing some offset to the negative price effects of other shocks.

The sizable unexplained component (a residual shock in the model) during 2014 is consistent with the view that the oil price collapse reflected in part expected changes in oil market fundamentals. The model does not capture such expectations if they involve changes in patterns relative to those captured by past data.[6]

Figure 1.1.2. Drivers of Oil Prices: Daily Two-Variable Model, 1986 and 2008
(Cumulative change in log oil prices in percent)



Source: IMF staff calculations.
Note: OPEC = Organization of the Petroleum Exporting Countries.

United States (U.S. non–energy stock prices are used because of the lack of sectoral data for global stock prices). The results are very similar to those obtained with the S&P 500.

[3]The 1986 episode is based on estimates of the model using the MSCI World Index, for which data are available before 1991.

[4]The real oil price is defined here as U.S. refiners' acquisition cost of imported crude oil as reported by the U.S. Energy Information Agency.

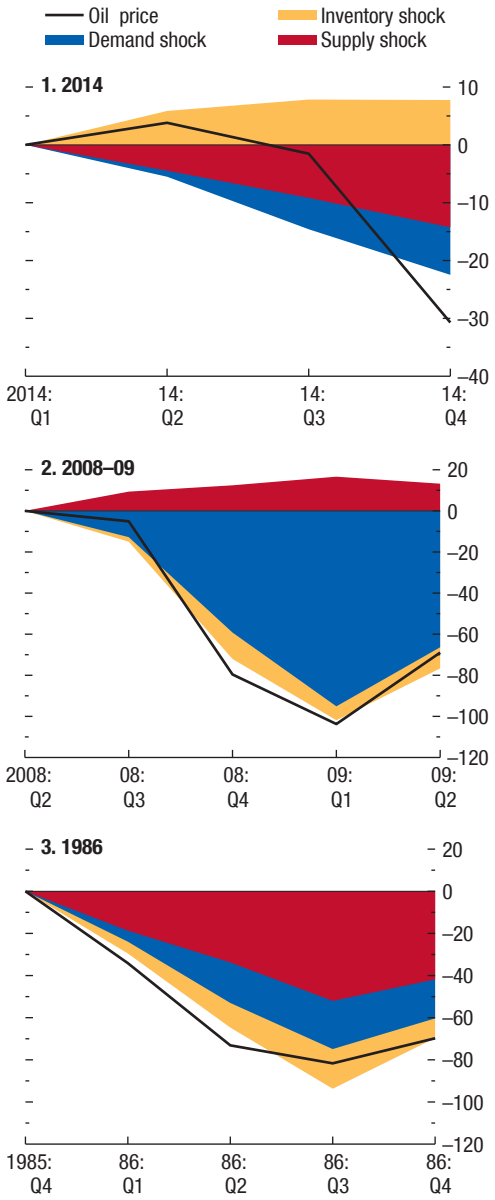
[5]The identification scheme is based on sign restrictions and follows Kilian and Murphy 2014. The VAR results are updated estimates of the VAR model specification in Beidas-Strom and Pescatori 2014. For alternative approaches using a global vector autoregression (GVAR) model, see Cashin and others 2014.

[6]The surge in shale and tight oil production in North America, the change in OPEC's supply function and consequent oil price regime, expectations of production disruptions, backstop technologies reducing oil intensity, and changes in world real interest rates, among others, were not fully predictable using past patterns in the data. See Beidas-Strom and Pescatori 2014 for more details.

Box 1.1 *(continued)*

Figure 1.1.3. Drivers of Oil Prices: Quarterly Four-Variable Model

(Cumulative change in log deviation from mean oil price in percent)[1,2]



Source: IMF staff calculations.
[1]From a sign-restricted structural vector autoregression (SVAR) model that picks the median impulse response function for the historical decomposition.
[2]The difference between the oil price deviation and the identified shocks is an unidentified residual shock.

Shock decompositions for past episodes of oil price declines based on the second approach are in line with conventional narratives. Specifically, the model identifies positive supply shocks as the main factor explaining the oil price decline in 1986, and demand shocks as the main factor explaining the collapse in prices during 2008 and early 2009 (Figure 1.1.3, panels 2 and 3).

In sum, the results of the two approaches suggest that both demand and supply factors played a role in the oil price collapse in 2014. They also suggest that current market conditions do not explain all of the decline. Indeed, Baumeister and Kilian (2015) emphasize the contributions of oil-market-specific developments before June 2014 to the oil price collapse, whereas the second approach presented here would suggest that changes in expectations also played a role. It is difficult to disentangle supply and demand factors in expectations, but recent revisions to the global growth outlook for 2015–20 alone seem too small to justify a predominant role of demand in those changes in expectations. Standard estimates of short- and medium-term price elasticities of demand and supply would have required larger revisions to the growth forecasts.

Box 1.2. Understanding the Role of Cyclical and Structural Factors in the Global Trade Slowdown

Global trade growth has been weak since the global financial crisis, outside of an initial rebound in 2010 (Figure 1.2.1). Weak economic growth during this period, especially in advanced economies, is widely seen as a key explanatory factor. Indeed, growth forecast errors for global trade and global GDP are highly correlated. Nevertheless, the ratio of trade growth to GDP growth, the so-called income elasticity of trade, has also been declining. Indeed, this trend started before the crisis—the income elasticity of trade was slightly above 2 in 1986–2000 but stood at only 1.3 in 2001–14.

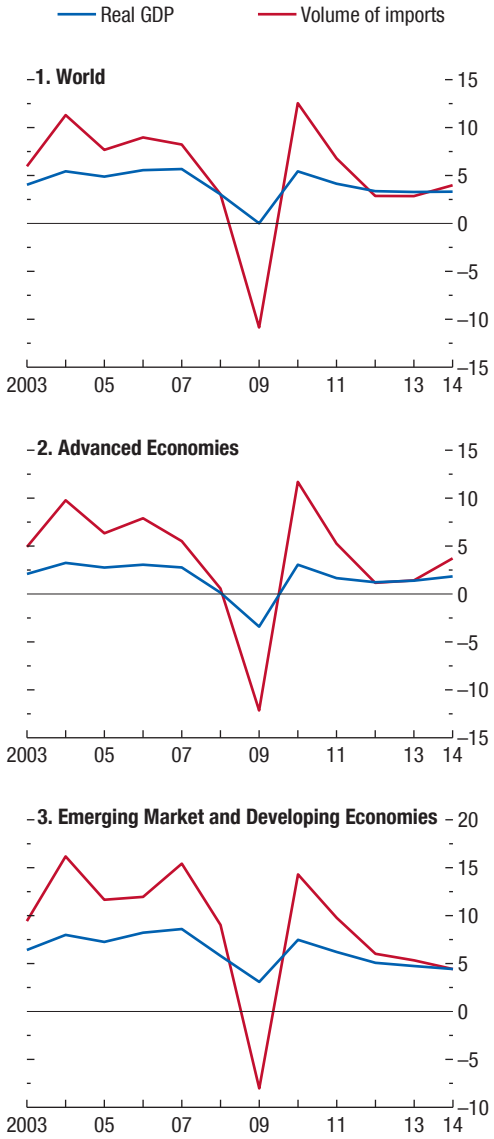
This box aims to shed light on the factors contributing to the slowdown in trade by analyzing cyclical factors—focusing on the 2012–14 period—as well as structural factors, taking a longer-term view. Quantifying the contributions of these factors is important to developing an understanding of prospects for global trade when global growth strengthens, as is currently projected.

Cyclical Factors

Highly synchronized output contractions took place across advanced economies during the global financial crisis. Contractions were larger in deficit economies in which external adjustment resulted from expenditure reduction, as is shown in Chapter 4 in the October 2014 *World Economic Outlook*. Sharp collapses in domestic demand and output in these deficit economies led to declines in their imports.

To quantify the impact of weak demand on imports, a standard econometric model is employed to link import volumes to domestic GDP, using data for a panel of 18 Organisation for Economic Co-operation and Development (OECD) countries through the second quarter of 2014.[1] Figure 1.2.2 shows actual trade volumes, the model's predictions, and the predictions of a linear trend. Dating the beginning of the recent slowdown in trade at the end of 2011 shows cumulative 4.6 percent real import growth. The linear trend fitted for the 1985–2014 period predicts cumulative 13.2 percent real import growth—almost three times what is observed in the data. The standard import

Figure 1.2.1. Growth in Real GDP and Volume of Imports
(Percent)



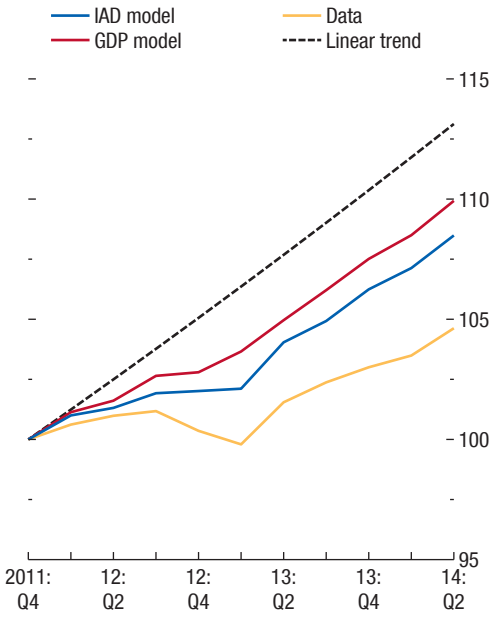
Source: IMF staff calculations.

The authors of this box are Emine Boz and Michele Ruta.

[1]The estimated model is $\Delta\ln(M_{c,t}) = \delta_c + \beta_D \Delta\ln(D_{c,t}) + \beta_P \Delta\ln(P_{c,t}) + \varepsilon_{c,t}$, in which $M_{c,t}$, $D_{c,t}$, and $P_{c,t}$ denote real imports, real aggregate demand, and relative import prices, respectively. Aggregate demand is measured using GDP in this standard empirical import equation.

Box 1.2 *(continued)*

Figure 1.2.2. Cumulative Import Volumes: Data, Model, and Linear Trend
(Index, 2011:Q4 = 100)



Source: IMF staff calculations.
Note: IAD = import-intensity-adjusted demand.

model accounts for a little more than one-third of the slowdown: it predicts cumulative import growth of 10 percent for the same period.

In addition to weak economic activity and slow global trade growth, the past few years have also been characterized by weak investment. The slowdowns in import growth and in investment and export growth may be interconnected. Investment and exports tend to have high import components, so weaker demand for those elements of expenditure may lead to weaker demand for imports.

Bussière and others (2013) construct an *import-intensity-adjusted demand* (IAD) measure that weights the components of GDP according to their relative trade intensity computed from input-output tables.[2]

As shown in Figure 1.2.2, the IAD model, which takes into account not only weakness in demand but also shifts in expenditures toward less-import-intensive components, predicts import growth for 2012–14 of 8.6 percent, accounting for about half of the gap between observed import growth and what is implied by the linear trend. Hence, compositional shifts alone contributed 1.4 percentage points to the slowdown, a significant magnitude given that imports grew by only 4.6 percent in that period. Nevertheless, about half of the slowdown in OECD imports during the past three years remains unexplained; therefore, the analysis turns to exploring structural factors.

Structural Factors

Although cyclical factors explain part of the global trade slowdown, the changing long-term relationship between world trade and GDP may also be at play. The growth rate of world trade volumes was roughly double that of real income growth, which is usually proxied by global real GDP growth for 1986–2000. This period, dubbed the "long 1990s," appears to have been exceptional when compared with the preceding and subsequent periods, when trade volumes grew only slightly faster than real GDP.

The relationship between trade and income is examined here by using an error correction model to estimate the long-term income elasticity of trade (trade elasticity).[3]

The results suggest that during 1970–2013, long-term trade elasticity was 1.7. Within that period, however, trade elasticity varied considerably (Figure 1.2.3). In the period 1986–2000, a 1 percent increase in world real GDP was associated with a 2.2 percent increase in the volume of world trade. This elasticity is substantially higher than that in either the preceding (1970–85) or the subsequent (2001–13) periods, when trade elasticity was 1.3.

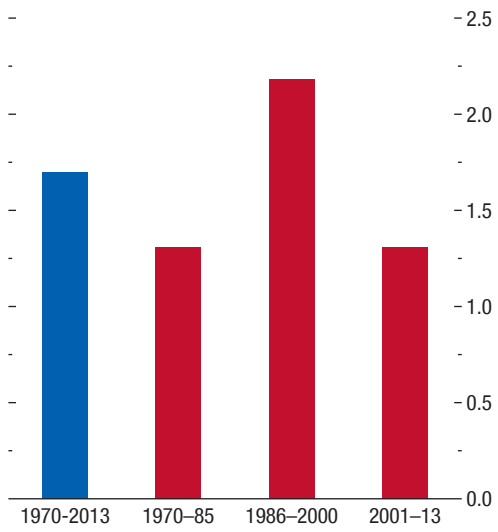
Further decomposition of global trade into components—manufacturing goods, commodities, and ser-

[2]Boz, Bussière, and Marsilli (2014) use this approach to tease out the role of the compositional shifts in aggregate demand in the recent period of weak trade growth. Import-intensity-adjusted demand is formally defined as $\ln(IAD_t) = \omega_{C,t} \ln(C_t) + \omega_{G,t} \ln(G_t) + \omega_{I,t} \ln(I_t) + \omega_{X,t} \ln(X_t)$, in which ω is the weight capturing the import content of the corresponding component of final demand expenditure.

[3]This analysis draws on Constantinescu, Mattoo, and Ruta 2015, which estimates the following equation: $\Delta \ln (M_t) = \alpha + \beta \Delta \ln (Y_t) + \gamma \ln (M_{t-1}) + \delta \ln (Y_{t-1}) + \varepsilon_t$, in which M and Y are real imports and real GDP, respectively, and ε is an error term. The approach follows Irwin 2002 and Escaith, Lindenberg, and Miroudot 2010.

Box 1.2 *(continued)*

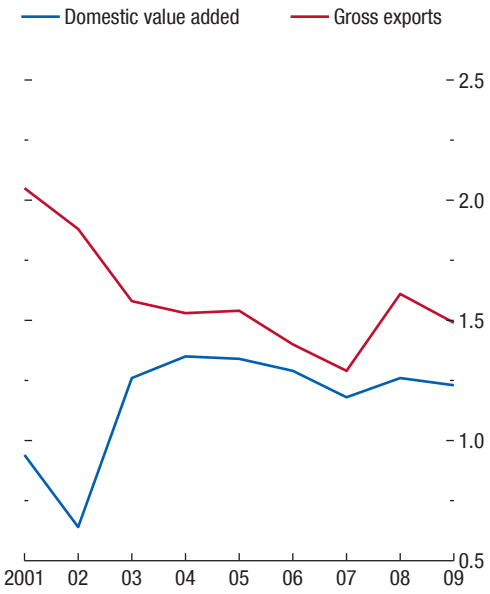
Figure 1.2.3. Long-Term Elasticity



Source: IMF staff calculations.

Figure 1.2.4. Long-Term Elasticities

(X-axis indicates final year of seven-year period)



Source: IMF staff calculations.

vices—suggests that the main force underlying lower world trade elasticity was the decline in trade elasticity for goods in the 2000s, which was driven by manufacturing trade. The factors behind the decline in trade elasticity, particularly of manufacturing trade, could range from protectionism to the changing structure of trade or aggregate demand. The evidence provided in this box suggests that an important explanation lies in changes in international vertical specialization. The long-term trade elasticity increased during the long 1990s as production fragmented internationally into global supply chains, and decreased in the 2000s as the pace of this process decelerated.

China offers a good illustration of these changing international production relationships. To a large extent, the manufacturing supply chain between China and the advanced economies consisted of China's importation of parts and components that were then assembled into final goods exported to advanced economies. The share of imports of parts and components in China's merchandise exports declined from a peak of 60 percent in the mid-1990s to the current share of approximately 35 percent. The lower share of imported parts and components reflects the replacement of foreign with domestic inputs by Chinese firms, a finding corroborated by evidence of increasing domestic value added in Chinese firms (Kee and Tang 2014).

To analyze the impact of global supply chains more systematically, the long-term elasticities of value-added trade with respect to income are estimated on a seven-year rolling basis and compared with those of gross trade calculated in the same way.[4] Intuitively, if the slower expansion of global supply chains is a contributing factor to the trade slowdown, the gap between the gross and value-added trade elasticities would be expected to close over time, with the former converging to the value of the latter. Figure 1.2.4 shows that the world long-term elasticities of gross trade to GDP did indeed decrease over time, approaching the

[4]Data on world domestic value added and foreign value added in gross exports from the Organisation for Economic Co-operation and Development–World Trade Organization (OECD-WTO) data set are available only beginning in 1995 and for selected years. The regressions use a time series Duval and others (2014) developed by interpolating the OECD-WTO data.

Box 1.2 *(continued)*

lower and more stable estimates of value-added trade elasticities.

Overall, both cyclical and structural factors seem to have played a role in the recent slowdown in trade. A combination of weak economic activity and compositional shifts in demand toward less-import-intensive goods can account for roughly half of the observed slowdown. Global supply chains' slower expansion, evident in the decline in the long-term income elasticity of trade, appears to have contributed to the slowdown as well.

Other factors not analyzed in this box may also have contributed to the trade slowdown. These include a slower pace of trade liberalization as well as narrowing wage differentials between advanced and emerging market economies. Finally, uncertainty about the accuracy of trade data, particularly for the services sector, complicates the task of drawing definitive conclusions about the true size of the trade slowdown.

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CHAPTER 2

COUNTRY AND REGIONAL PERSPECTIVES

Global growth is forecast at 3.5 percent in 2015 and 3.8 percent in 2016, with uneven prospects across the main countries and regions. Growth in emerging market economies is softening, reflecting an adjustment to diminished medium-term growth expectations and lower revenues from commodity exports, as well as country-specific factors. The outlook for advanced economies is showing signs of improvement, owing to the boost to disposable incomes from lower oil prices, continued support from accommodative monetary policy stances, and more moderate fiscal adjustment. The distribution of risks to near-term global growth has become more balanced relative to October 2014 but is still tilted to the downside. The decline in oil prices could boost activity more than expected. Geopolitical tensions continue to pose threats, and risks of disruptive shifts in asset prices remain relevant. In some advanced economies, protracted low inflation or deflation also pose risks to activity.

During the global financial crisis and in the years that followed, the principal global shocks—the 2008–09 subprime and Lehman Brothers crisis and the 2011–12 euro area crisis—had similar effects on all regions, albeit to varying degrees. But the forces that are now shaping the global outlook—most notably declining oil and commodity prices—are more redistributive in nature, benefiting some regions and countries while hurting others (Figure 2.1). Growth divergences among the major economies, and the resulting interest rate and currency adjustments, are also having varying effects across regions. These forces provide the backdrop for this chapter's regional perspectives:

- Recent sharp declines in oil (and to a lesser extent, commodity) prices, although a net positive for the global economy and for oil- and commodity-importing regions, are weighing on the commodity-exporting countries of Latin America and the Caribbean, the Commonwealth of Independent States, the Middle East and North Africa, and sub-Saharan Africa.
- The diverging trajectories of the major economies—robust growth in the United States, the weaker recoveries progressing in the euro area and Japan, and slowing growth in China—also have varying implications across regions and countries, boosting those with strong trade links with the United States, but hurting those more tightly linked with the other major economies.
- The strengthening of the U.S. dollar and the weakening of the euro and yen are also having a redistributive effect. Most obviously, they are a welcome boost to the tepid recoveries in the euro area and Japan and are a (so far manageable) headwind to the U.S. recovery. But they are also generating tensions between financial stability and competitiveness in regions and countries that have seen rising dollar-denominated indebtedness in recent years.

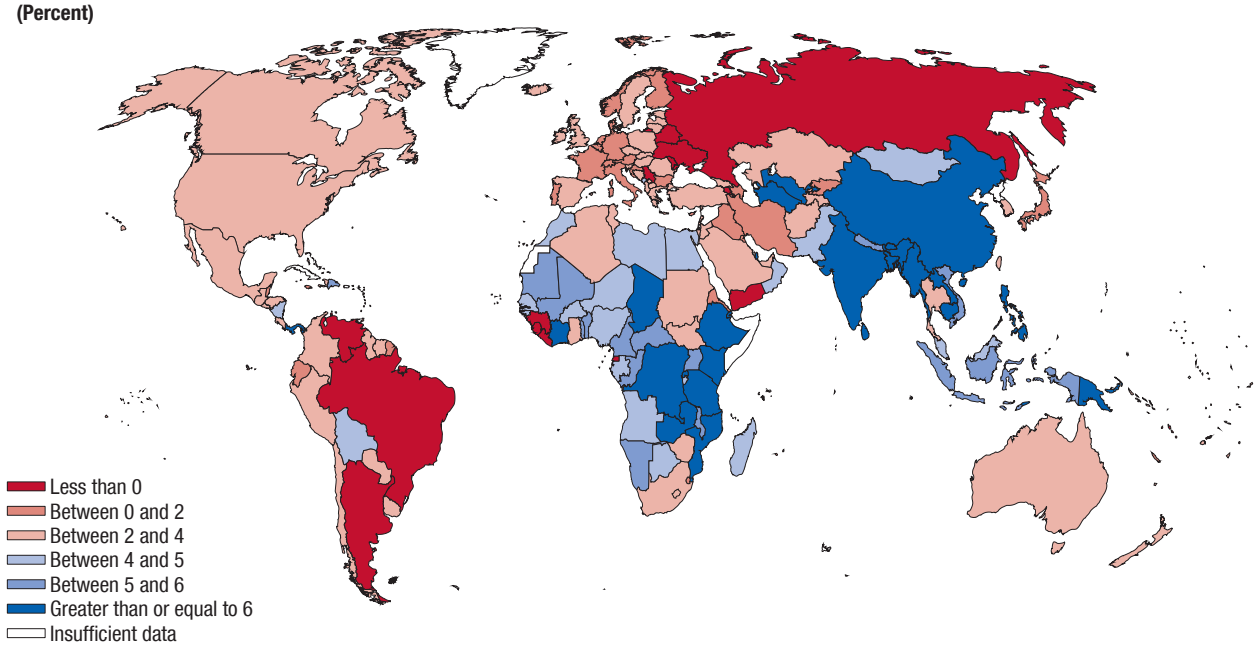
The United States and Canada: A Solid Recovery

Growth in the United States and Canada remains solid. However, while lower energy prices have boosted growth momentum in the United States, they pose downside risks to the Canadian economy owing to the relatively large size of its energy sector. In the United States, labor markets and business and consumer confidence have shown solid improvements. The economy has also so far been resilient to the weaker external conditions and the strengthening dollar. The next prominent policy challenge will be a smooth normalization of monetary policy. Building political consensus around a medium-term fiscal consolidation plan and supply-side reforms to boost medium-term growth—including simplifying the tax system, investing in infrastructure and human capital, and immigration reform—will continue to be a challenge. In Canada, continued monetary policy accommodation and gradual fiscal consolidation would help achieve growth that is more balanced and more broadly based.

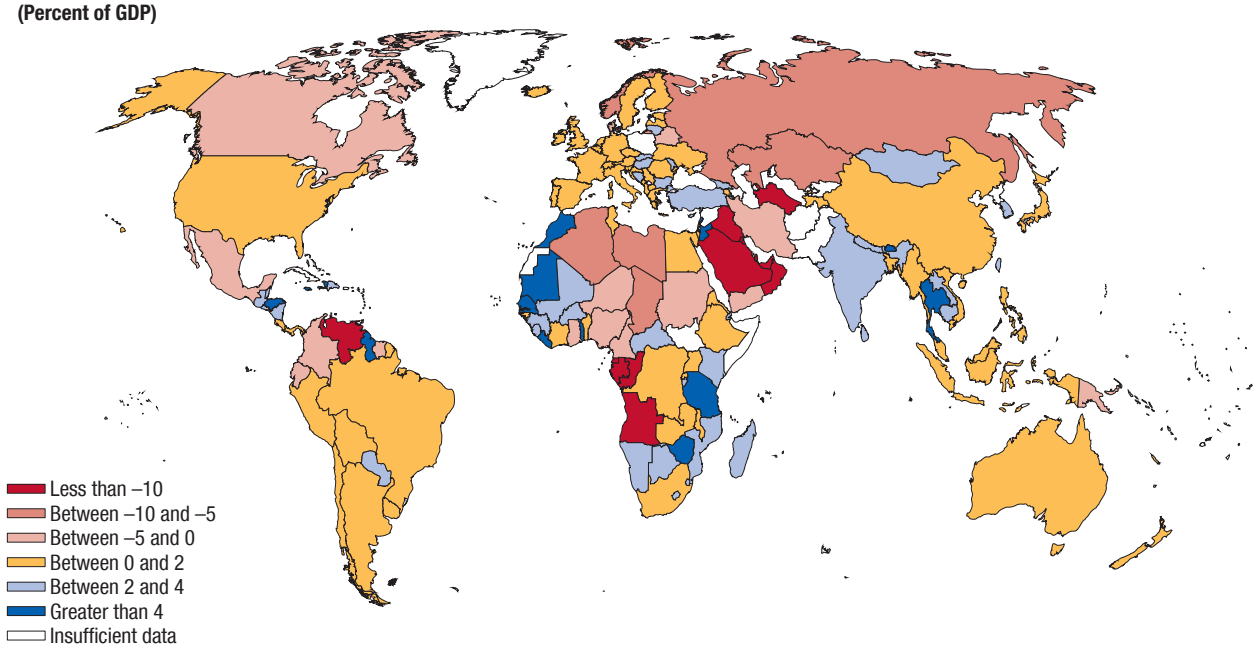
Growth in the United States has been energetic, averaging 3.9 percent annualized in the last three quarters of 2014. Consumption—the main engine of growth—has benefited from steady job creation and income growth, lower oil prices, and improved

Figure 2.1. 2015 GDP Growth Forecasts and the Effects of an Oil Supply Shock

1. 2015 GDP Growth Forecasts[1]
(Percent)



2. Oil Trade Balance, Pure Price Effects[2]
(Percent of GDP)



Source: IMF staff estimates.
[1]Data for Syria are excluded because of the uncertain political situation.
[2]The map shows the impact on the oil trade balance (as a percentage of GDP) of the projected decline in oil prices in 2015 relative to the oil price assumption underlying the October 2014 *World Economic Outlook* projections. The calculations assume unchanged volumes of oil exports and imports relative to projections in October.

consumer confidence. The unemployment rate reached 5.5 percent in February, 1.2 percentage points below its level of a year ago (Figure 2.2). Overall, nonresidential investment has supported growth, although lower oil prices have had a negative impact on energy sector investment.

Despite the recovery, there is little evidence of meaningful price and wage pressures. The core personal consumption expenditure price index in February was only 1.4 percent higher than a year before, with headline inflation even lower at 0.2 percent, largely reflecting falling energy prices. Real wages grew less than 1 percent in 2014, even as the labor market steadily strengthened.

Asset purchases by the Federal Reserve ended in October 2014, and the liftoff of policy interest rates from the zero bound is expected in the third quarter of this year, but policy rates are expected to rise only slowly. The Federal Reserve has clearly communicated that the timing of the liftoff will depend on progress toward its goals of maximum employment and 2 percent inflation. Long-term interest rates have further declined, mainly reflecting weaker external conditions, excess demand for safe assets, and expectations of future dollar strength.

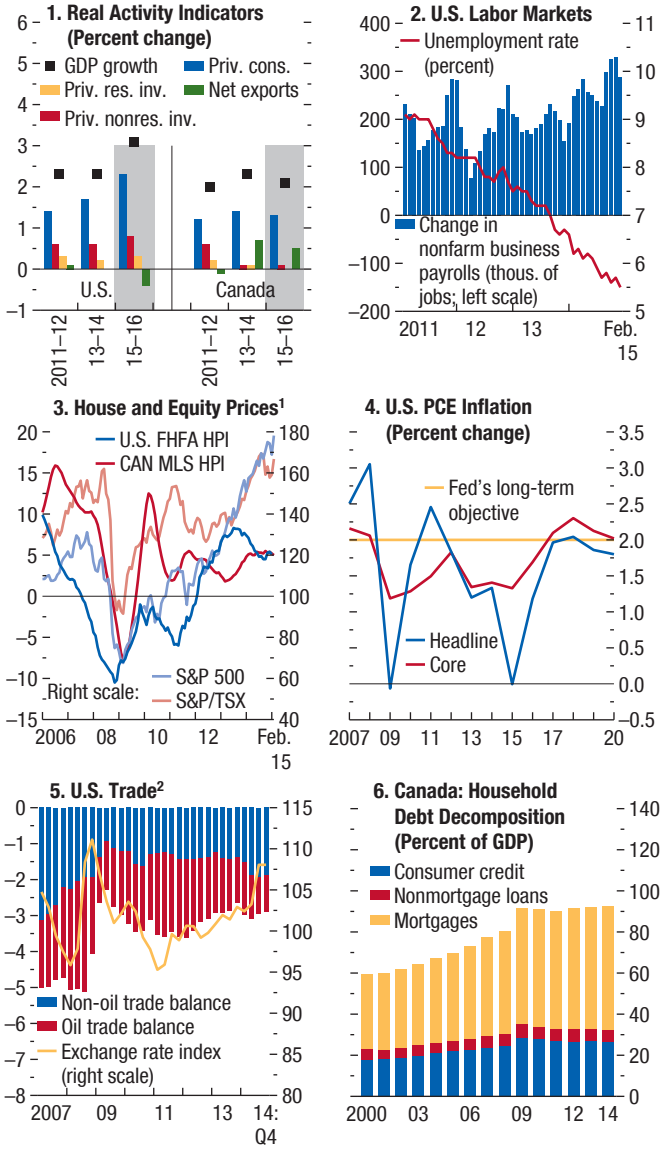
Conditions remain in place for robust U.S. economic performance in 2015. Markedly lower energy prices; tame inflation; an accommodative monetary policy stance; favorable financial conditions; reduced fiscal drag; strengthened household, corporate, and bank balance sheets; and an improving housing market will combine to maintain solid growth momentum. These forces are expected to more than offset the strengthening of the dollar. Growth is projected to reach 3.1 percent in 2015—as was projected in the October 2014 *World Economic Outlook* (WEO)—and to remain at 3.1 percent in 2016 (Table 2.1).

However, the picture over a longer horizon is less upbeat. Potential growth is estimated to be only about 2.0 percent, weighed down by an aging population and weak innovation and productivity growth (see Chapter 3).

Addressing the issue of potential growth will require implementation of an ambitious agenda of supply-side policies in a fractious political environment. Forging agreement on a credible medium-term fiscal consolidation plan is a high priority, to ensure that debt does not rise again with aging-related fiscal costs. Keeping debt in check will require efforts to lower the growth

Figure 2.2. United States and Canada: A Solid Recovery

In the United States, underlying growth is solid. Consumption is growing at a healthy pace, as improvements in labor markets have been strong, but investment still has much room to recover. Wage and price pressures remain subdued, partly because of lower energy prices. Canada's growth slowed in the first quarter of 2014 but rebounded strongly in the next two quarters, with exports benefiting from the U.S. recovery and a weaker currency. Housing market risks and the unfolding effects of the oil shock call for continued vigilance in Canada.



Sources: Canadian Real Estate Association; Central Bank of Canada (BoC); Duke/*CFO Magazine* Global Business Outlook Survey; Haver Analytics; Statistics Canada; U.S. Bureau of Economic Analysis; U.S. Bureau of Labor Statistics; and IMF staff estimates.

Note: Cons. = consumption; Fed = U.S. Federal Reserve; inv. = investment; FHFA = Federal Housing Finance Agency; HPI = Housing Price Index; MLS = Multiple Listing Service; nonres. = nonresidential; priv. = private; PCE = personal consumption expenditure; res. = residential; S&P = Standard & Poor's; thous. = thousands; TSX = Toronto Stock Exchange.

[1]Year-over-year percent change for house prices; index, January 2005 = 100 for S&P and TSX.

[2]Percent of GDP for the non-oil and oil trade balances; trade-weighted index, January 1997 = 100, for the exchange rate.

Table 2.1. Advanced 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
Advanced Economies	**1.8**	**2.4**	**2.4**	**1.4**	**0.4**	**1.4**	**0.4**	**0.6**	**0.4**	**7.3**	**6.9**	**6.6**
United States	2.4	3.1	3.1	1.6	0.1	1.5	–2.4	–2.3	–2.4	6.2	5.5	5.1
Euro Area[4,5]	0.9	1.5	1.6	0.4	0.1	1.0	2.3	3.3	3.1	11.6	11.1	10.6
Japan	–0.1	1.0	1.2	2.7	1.0	0.9	0.5	1.9	2.0	3.6	3.7	3.7
United Kingdom[4]	2.6	2.7	2.3	1.5	0.1	1.7	–5.5	–4.8	–4.6	6.2	5.4	5.4
Canada	2.5	2.2	2.0	1.9	0.9	2.0	–2.2	–2.6	–2.3	6.9	7.0	6.9
Other Advanced Economies[6]	2.8	2.8	3.1	1.4	1.1	1.9	4.8	4.9	4.3	4.7	4.7	4.6

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 Table A6 in the Statistical Appendix.
[2]Percent of GDP.
[3]Percent. National definitions of unemployment may differ.
[4]Based on Eurostat's harmonized index of consumer prices.
[5]Excludes Lithuania. Current account position corrected for reporting discrepancies in intra-area transactions.
[6]Excludes the G7 (Canada, France, Germany, Italy, Japan, United Kingdom, United States) and euro area countries but includes Lithuania.

of health care costs, reform social security, and increase tax revenues. Policies should also be targeted toward raising labor force participation (including removing disincentives in the tax system, providing child care support, and enacting skills-based immigration reform), encouraging innovation, strengthening productivity, and tackling poverty and long-term unemployment. The October 2014 WEO made a clear case that key infrastructure investments could be made in the United States at relatively modest near-term costs but with important benefits for long-term output.

The risks to the near-term outlook are broadly balanced. On the downside, a stronger dollar could suppress exports, and low oil prices could suppress investment in the oil sector by more than is currently projected. Moreover, the recent compression of term premiums could unwind, which would tighten lending conditions and jeopardize the housing market recovery. Uncertainty about fiscal prospects linked to political brinkmanship over the debt limit or the 2016 budget could also undermine confidence and damage growth. On the upside, lower energy prices could have a bigger effect than currently expected on consumption or on non-oil corporate investment. And labor markets could recover at a faster pace, boosting household incomes and confidence. Finally, improvements in mortgage availability resulting from recent policy efforts could catalyze a faster housing market recovery.

Canada's recent growth performance has been solid, alongside a stronger recovery in the United States, exchange rate depreciation, and high energy demand. These developments have led to a welcome pickup in exports but have yet to translate into strong investment and hiring. The economy is expected to grow 2.2 percent in 2015 (broadly unchanged from the October WEO forecast), helped by a strengthening U.S. economy. But risks are tilted to the downside because the unusually large fall in oil prices could further weaken business investment in the energy sector and lower employment growth.

The Bank of Canada took preemptive action and cut its policy rate by 25 basis points in January as insurance against adverse effects of the oil price shock on the economy. Overall, maintaining monetary accommodation along with gradual fiscal consolidation at the general government level would be conducive to rebalancing growth away from household consumption and toward business investment to generate a broader, more durable recovery. Targeted macroprudential policies would help address high housing sector vulnerabilities.

Europe

Advanced Europe: Spillovers from a Fragile Euro Area Recovery

There are signs of a pickup and some positive momentum in the euro area, reflecting lower oil prices and supportive financial conditions, but risks of prolonged low growth and low inflation remain. The priority is to boost growth and inflation through a comprehensive approach that, in addition to quantitative easing, features the use of available fiscal space, especially for investment; productivity-enhancing structural reforms; and steps to

strengthen bank balance sheets. Growth is more robust in European advanced economies outside the euro area, but some of these economies may need to tighten macroprudential policies if housing-related risks do not subside.

In the euro area, activity was weaker than expected in the middle part of 2014 as private investment remained weak, except in Ireland, Spain, and Germany. Growth was stronger than expected in the fourth quarter, but uneven across countries. The slowdown in investment derives from persistent economic slack, declining growth expectations, ongoing political and policy uncertainty, geopolitical tensions, and tight credit conditions. In contrast, a smaller fiscal drag and improving consumption have benefited growth, as have net exports.

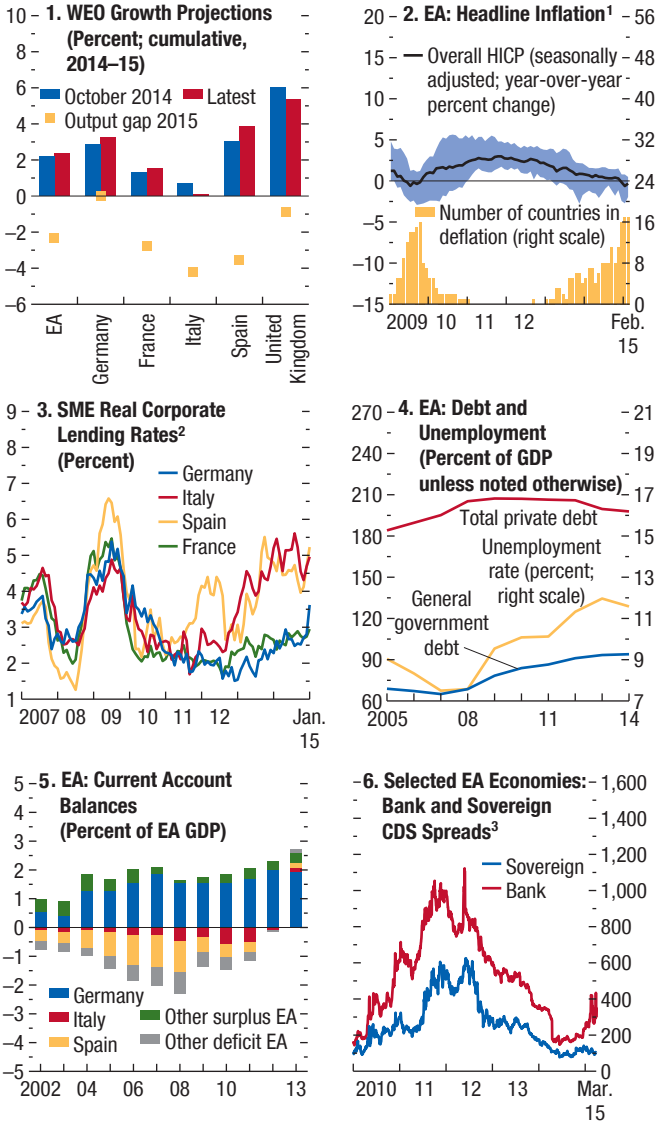
The European Central Bank (ECB) announced a decisive asset purchase program, including purchases of sovereign bonds, to address persistently low inflation in the euro area. Both core and headline inflation have been well below the ECB's medium-term price stability objective for some time (Figure 2.3), with headline inflation turning negative in December 2014. The larger-than-expected ECB asset purchase program has contributed to the depreciation of the euro, mainly against the U.S. dollar. In real effective terms, the exchange rate has depreciated more than 5 percent since October. Preliminary indications are that ECB action has stalled the decline in inflation expectations and led to even more supportive financial conditions.

A push forward on policies since late 2014 has included completion of the comprehensive assessment of banks, launch of the Single Supervisory Mechanism, announcement of plans for a European Fund for Strategic Investments using existing European Union funds and country contributions to catalyze private investment, and issuance of new guidance to enhance flexibility under the Stability and Growth Pact for countries undertaking structural reforms or investment. But there has been modest progress in key core economies with respect to a more accommodative fiscal stance and bringing down large current account surpluses.

The outlook for the euro area is broadly unchanged relative to the October 2014 WEO. Growth is expected to increase to 1.5 percent in 2015 from 0.9 percent in 2014. The higher growth in 2015 reflects stronger growth momentum at the end of 2014, supportive wage increases, a near-term boost from lower oil prices, and the ECB's actions that have helped

Figure 2.3. Advanced Europe: Spillovers from a Stagnant Euro Area

The euro area's recovery remains uneven across countries. The outlook is for modest growth. Widespread low inflation has raised real interest rates. Financial fragmentation, while improving, continues to be present. Debt and unemployment remain high, and current account surpluses have increased. Financial markets, pricing in ECB policy actions, have remained supportive.



Sources: Bloomberg, L.P.; European Central Bank (ECB); Eurostat; Haver Analytics; and IMF staff estimates.
Note: Euro area (EA) = Austria, Belgium, Cyprus, Estonia, Finland, France, Germany, Greece, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Portugal, Slovak Republic, Slovenia, Spain. CDS = credit default swap; HICP = Harmonised Index of Consumer Prices; SME = small and medium-sized enterprises.
[1]Shaded area shows variation in the HICP across all euro area countries.
[2]Monetary and financial institutions' lending to corporations of less than €1 million, one to five years.
[3]Euro area countries (Greece, Ireland, Italy, Portugal, and Spain) with high borrowing spreads during the 2010–11 sovereign debt crisis. Bank and sovereign five-year CDS spreads in basis points are weighted by total assets and general government gross debt, respectively. Data are through March 30, 2015. Data for sovereign spreads exclude Greece.

improve financial conditions. Beyond 2015, euro area growth is expected to hover around 1½ percent, reflecting both demand- and supply-side constraints. Inflation is forecast to be about 0.1 percent in 2015 and is expected to remain below the ECB's medium-term price stability objective during the forecast period because of persistent slack.

The medium-term outlook of modest growth and subdued inflation in the euro area is driven largely by crisis legacies, notwithstanding the positive effects of the ECB's actions. High real debt burdens, impaired balance sheets, high unemployment, and investor pessimism about prospects for a robust recovery will continue to weigh on demand. The comprehensive assessment improved the transparency of bank balance sheets and confidence, but credit flows are likely to remain weak until bank balance sheets are strengthened and credit demand recovers. Uncertainty and pessimism regarding the euro area's resolve to address its economic challenges are likely to dampen confidence, as will national and global political developments (such as recent developments in Greece and in Russia and Ukraine). Despite some progress, deep-seated obstacles to productivity and competitiveness are likely to weigh on the region's medium-term growth potential.

Output growth is expected to be more robust in most other advanced European economies (Table 2.2). In the United Kingdom, lower oil prices and improved financial market conditions are expected to support continued steady growth. The robust recovery and outlook in Sweden are supported by consumption and double-digit housing investment. In Switzerland, however, the sharp exchange rate appreciation is likely to weigh on growth in the near term. Inflation has softened in all countries as a result of the oil price decline and—to varying degrees—because of the decline in euro area inflation. These countries have introduced macroprudential measures to mitigate financial stability concerns arising from their housing markets, but whether existing measures will be sufficient to contain risks is not yet clear.

For all advanced European economies, risks to the outlook are more balanced than in the October 2014 WEO. The most important downside risk stems from the possibility of stagnation and persistently low inflation in the euro area, which has been weighing on growth and inflation elsewhere in Europe. Economic shocks—from slower global growth, geopolitical events, faltering euro area reforms, political and policy uncertainty, and policy reversals—could lower inflation expectations and trigger a debt deflation dynamic. Upside risks could come from a larger positive impact of lower oil prices and the ECB's actions. For Sweden, Switzerland, and the United Kingdom, containing financial stability risks from housing and mortgage markets remains important.

A comprehensive strategy is needed to reverse low inflation in the euro area and guard against stagnation. Such a strategy will require simultaneous action on many fronts, in addition to the ECB's actions to expand its balance sheet through sovereign asset purchases until there is a sustained adjustment in the path of inflation.

- Concerted efforts to address high nonperforming loans are vital to strengthening bank balance sheets and improving monetary transmission and credit growth. Stricter regulations on nonperforming loans and improvements to insolvency and foreclosure procedures would provide banks with stronger incentives to accelerate the disposal of these loans.
- A broadly neutral overall fiscal policy stance strikes a balance between supporting growth and fostering debt sustainability, but countries with fiscal space should do more to boost growth, including via infrastructure investment. Countries with limited space should use the new flexibility under the Stability and Growth Pact to undertake investments and structural reforms and pursue growth-friendly fiscal policies.
- Structural reforms must be implemented to raise productivity and medium-term growth, revive investment, encourage hiring, and promote rebalancing. The priorities include greater labor and product market flexibility, deregulation to remove barriers to investment, and progress toward a more integrated common market.

In other advanced European economies, policies should focus on sustaining the recovery while ensuring financial stability. In the United Kingdom, monetary policy should stay accommodative for now, given currently weak inflation pressures. Some countries should consider further easing, including through foreign asset purchases (Switzerland) and additional quantitative easing (Sweden). Bank capital should be strengthened to mitigate financial sector vulnerabilities, and macroprudential measures should be tightened if housing-related risks are not checked. Should these measures prove insufficient, interest rate increases could be contemplated, with careful consideration given to the trade-off between damage to the real economy and the ultimate costs of financial vulnerabilities. Measures to increase housing supply are a

Table 2.2. 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	**1.5**	**1.9**	**2.1**	**1.1**	**0.5**	**1.6**	**1.8**	**2.2**	**1.9**	. . .	. . .	. . .
Advanced Europe	**1.3**	**1.7**	**1.8**	**0.6**	**0.1**	**1.1**	**2.2**	**2.6**	**2.4**	**10.2**	**9.7**	**9.3**
Euro Area[4,5]	0.9	1.5	1.6	0.4	0.1	1.0	2.3	3.3	3.1	11.6	11.1	10.6
Germany	1.6	1.6	1.7	0.8	0.2	1.3	7.5	8.4	7.9	5.0	4.9	4.8
France	0.4	1.2	1.5	0.6	0.1	0.8	–1.1	–0.1	–0.3	10.2	10.1	9.9
Italy	–0.4	0.5	1.1	0.2	0.0	0.8	1.8	2.6	2.5	12.8	12.6	12.3
Spain	1.4	2.5	2.0	–0.2	–0.7	0.7	0.1	0.3	0.4	24.5	22.6	21.1
Netherlands	0.9	1.6	1.6	0.3	–0.1	0.9	10.3	10.4	10.1	7.4	7.2	7.0
Belgium	1.0	1.3	1.5	0.5	0.1	0.9	1.6	2.3	2.4	8.5	8.4	8.2
Austria	0.3	0.9	1.6	1.5	1.1	1.5	1.8	1.9	1.8	5.0	5.1	5.0
Greece	0.8	2.5	3.7	–1.4	–0.3	0.3	0.9	1.4	1.1	26.5	24.8	22.1
Portugal	0.9	1.6	1.5	–0.2	0.6	1.3	0.6	1.4	1.0	13.9	13.1	12.6
Ireland	4.8	3.9	3.3	0.3	0.2	1.5	6.2	4.9	4.8	11.3	9.8	8.8
Finland	–0.1	0.8	1.4	1.2	0.6	1.6	–0.6	–0.3	–0.3	8.6	8.7	8.5
Slovak Republic	2.4	2.9	3.3	–0.1	0.0	1.4	0.2	0.4	0.4	13.2	12.4	11.7
Lithuania	2.9	2.8	3.2	0.2	–0.3	2.0	–0.4	0.2	–0.8	10.7	10.6	10.5
Slovenia	2.6	2.1	1.9	0.2	–0.4	0.7	5.8	7.1	6.5	9.8	9.0	8.3
Luxembourg	2.9	2.5	2.3	0.7	0.5	1.6	5.2	4.7	4.6	7.1	6.9	6.7
Latvia	2.4	2.3	3.3	0.7	0.5	1.7	–3.1	–2.2	–3.0	10.8	10.4	10.2
Estonia	2.1	2.5	3.4	0.5	0.4	1.7	–0.1	–0.4	–0.7	7.0	7.0	6.8
Cyprus	–2.3	0.2	1.4	–0.3	–1.0	0.9	–1.9	–1.9	–1.4	16.2	15.9	14.9
Malta	3.5	3.2	2.7	0.8	1.1	1.4	2.7	3.1	3.1	5.9	6.1	6.3
United Kingdom[5]	2.6	2.7	2.3	1.5	0.1	1.7	–5.5	–4.8	–4.6	6.2	5.4	5.4
Switzerland	2.0	0.8	1.2	0.0	–1.2	–0.4	7.0	5.8	5.5	3.2	3.4	3.6
Sweden	2.1	2.7	2.8	–0.2	0.2	1.1	6.3	6.3	6.3	7.9	7.7	7.6
Norway	2.2	1.0	1.5	2.0	2.3	2.2	8.5	7.6	7.0	3.5	3.8	3.9
Czech Republic	2.0	2.5	2.7	0.4	–0.1	1.3	0.6	1.6	0.9	6.1	6.1	5.7
Denmark	1.0	1.6	2.0	0.6	0.8	1.6	6.3	6.1	5.5	6.5	6.2	5.5
Iceland	1.8	3.5	3.2	2.0	0.9	2.1	4.7	6.1	4.7	5.0	4.0	4.0
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**	**2.9**	**3.2**	**3.8**	**2.7**	**3.7**	**–2.9**	**–2.4**	**–3.0**	. . .	. . .	. . .
Turkey	2.9	3.1	3.6	8.9	6.6	6.5	–5.7	–4.2	–4.8	9.9	11.4	11.6
Poland	3.3	3.5	3.5	0.0	–0.8	1.2	–1.2	–1.8	–2.4	9.0	8.0	7.7
Romania	2.9	2.7	2.9	1.1	1.0	2.4	–0.5	–1.1	–1.5	6.8	6.7	6.7
Hungary	3.6	2.7	2.3	–0.3	0.0	2.3	4.2	4.8	4.1	7.8	7.6	7.4
Bulgaria[5]	1.7	1.2	1.5	–1.6	–1.0	0.6	0.0	0.2	–0.8	11.5	10.9	10.3
Serbia	–1.8	–0.5	1.5	2.1	2.7	4.0	–6.0	–4.7	–4.7	19.7	20.7	22.0
Croatia	–0.4	0.5	1.0	–0.2	–0.9	0.9	0.7	2.2	2.0	17.1	17.3	16.9

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. 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]Excludes Lithuania. 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.

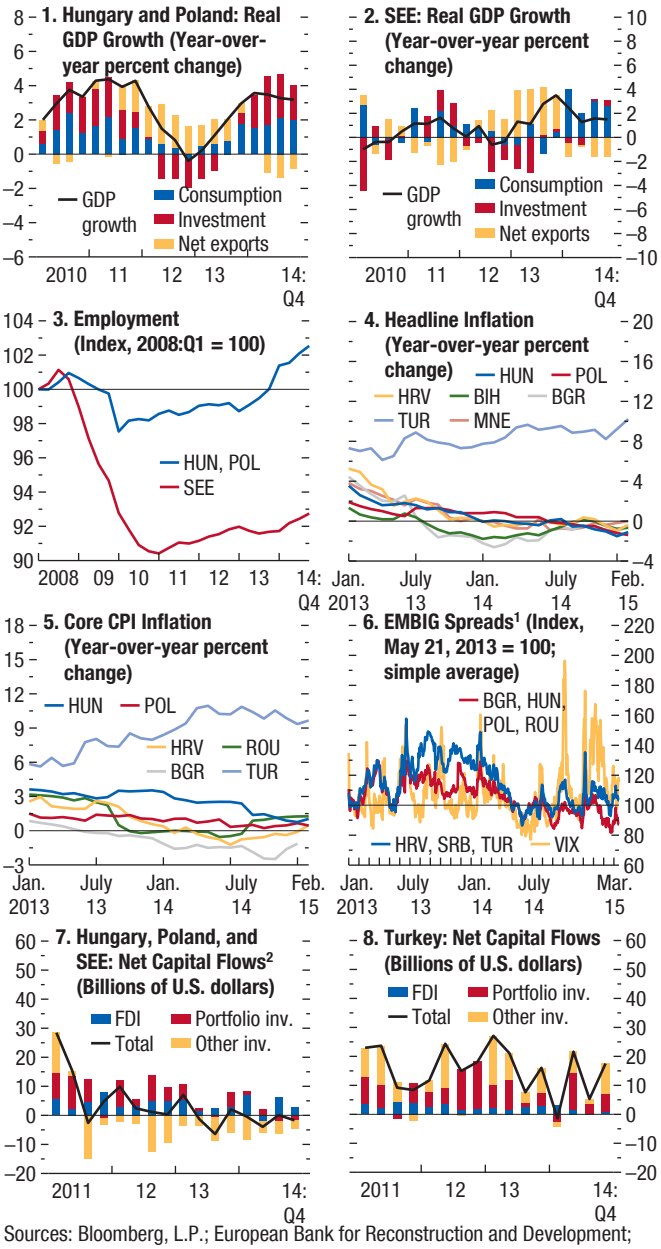
priority in Sweden and the United Kingdom. Internationally, the broader financial sector reform agenda should be completed, including reforms dealing with large and systemically important banks and those enhancing cross-border resolution mechanisms. Labor market reforms are needed in Sweden to accelerate and sustain the transition of vulnerable groups to employment.

Emerging and Developing Europe: Slower Growth amid Weak External Demand

Economic activity softened in emerging and developing Europe last year, and more countries slipped into deflation. Lower oil prices this year will boost growth somewhat but will add to disinflation pres-

Figure 2.4. Emerging and Developing Europe: Slower Growth amid Weak External Demand

Economic activity slowed in 2014, but it remained solid in Hungary and Poland, with private consumption becoming the key growth driver amid improving labor market conditions. Inflation declined further, except in Turkey, on low euro area inflation, remaining economic slack, and lower energy and food prices.



Sources: Bloomberg, L.P.; European Bank for Reconstruction and Development; Haver Analytics; and IMF staff calculations.

Note: Southeastern Europe (SEE) includes Albania, Bosnia and Herzegovina, Bulgaria, Croatia, Kosovo, FYR Macedonia, Montenegro, Romania, and Serbia, wherever data are available. All country group aggregates are weighted by GDP valued at purchasing power parity as a share of group GDP, unless noted otherwise. Data labels in the figure use International Organization for Standardization (ISO) country codes. CPI = consumer price index; EMBIG = J.P. Morgan Emerging Markets Bond Index Global; FDI = foreign direct investment; inv. = investment.; VIX = Chicago Board Options Exchange Market Volatility Index.

[1]Data are through March 27, 2015.

[2]Data for 2014:Q4 include Bulgaria, Hungary, FYR Macedonia, Montenegro, Poland (monthly), Romania, and Serbia.

sures. External demand remains subdued, and high corporate debt continues to weigh on investment. Monetary policy space, where available, should be used to support domestic demand, while countries with weak fiscal positions should shore up sustainability to counter risks of potential market volatility.

Economic growth slowed in Turkey and southeastern Europe (where some countries entered recession) last year, but remained strong in Hungary and Poland (Figure 2.4). Growth was generally driven by domestic demand (except in Turkey), largely reflecting stronger private consumption as labor market conditions improved and real wages rose with lower imported inflation.

Headline and core inflation continued to decline on account of very low inflation in the euro area, lower food and energy prices, and economic slack. Hungary and Poland joined other countries in deflation, but inflation remained high in Turkey as a result of exchange rate depreciation, monetary easing, and increased domestic food prices.

Lower oil prices are expected to provide a lift to the region, offsetting the effects of weak euro area growth, recession in Russia, and still-elevated corporate debt (Table 2.2):

- Growth in Hungary is forecast to soften in 2015 to 2.7 percent, on account of lower investment growth and less supportive fiscal conditions. Growth in Poland is projected to increase to 3.5 percent in 2015, supported by domestic demand and improved economic conditions in trading partners.
- Turkey's growth is expected to average 3.1 percent in 2015–16, up from 2.9 percent in 2014, as private consumption gets a lift from lower energy prices. The current account deficit will narrow further thanks to a substantial fall in the value of energy imports.
- Growth in southeastern Europe is projected to improve in 2015–16, driven by rebuilding of flood-damaged areas in Bosnia and Herzegovina and Serbia, and by employment gains elsewhere.

Risks remain tilted to the downside. A deeper recession in Russia or a slowdown in the euro area poses external demand risks, while sudden increases in the U.S. term premium and U.S. dollar fluctuations could trigger market volatility in countries whose fiscal and external deficits are still sizable. The ECB's quantitative easing could have a more positive effect if the impact on euro area growth and inflation is larger. Tailwinds from lower oil prices pose some upside risks to activity.

Supporting domestic demand remains a priority, especially in countries with strong links to the euro area. Many economies need to maintain easy monetary conditions while fiscal buffers are gradually rebuilt.

- Monetary policy should remain accommodative in Poland and Romania, given the benign inflation outlook and quantitative easing in the euro area. Hungary, with output still below potential and persistent disinflation pressures, has scope for further cautious monetary policy easing. In Turkey, further easing of monetary conditions should be considered only once inflation expectations are anchored at the target rate and the real interest rate is clearly in positive territory.
- In a number of countries, elevated public debt and high fiscal deficits highlight the need for fiscal consolidation, including via spending restraint (Hungary, Serbia) and restructuring of key state-owned enterprises (Serbia). Public investment can be brought forward to offset the drag from planned near-term fiscal tightening, as envisaged in Poland and Romania, supported by higher absorption of European Union funds. A tighter fiscal stance in Turkey—as envisaged in the new medium-term program—will contribute to gradually narrowing external imbalances and will reduce pressure on monetary policy.
- Making progress in tackling the large stock of nonperforming loans is a priority for most countries. Improving legal and tax treatment of loan write-offs—as recently adopted in Albania—and further strengthening debt restructuring and bank resolution frameworks are crucial.

Asia and Pacific: Moderating but Still Outperforming Other Regions

Asia's growth is forecast to hold steady in 2015, and the region is expected to continue outperforming the rest of the world over the medium term. While the Chinese economy is shifting to a more sustainable pace, growth is projected to pick up elsewhere in the region. This reflects the boost from lower world oil prices, strengthening external demand, and still-accommodative financial conditions despite some recent tightening. Risks are two sided, but downside risks dominate. Elevated household and corporate debt amid higher real interest rates and a strong U.S. dollar could amplify shocks. Growth risks from within the region are also on the rise, and realignments of the major reserve currencies could create an uncomfortable trade-off between financial stability and competitiveness. Policymakers should maintain prudent frameworks and build buffers to enhance resilience, and implement reforms to support demand rebalancing and relieve bottlenecks to growth.

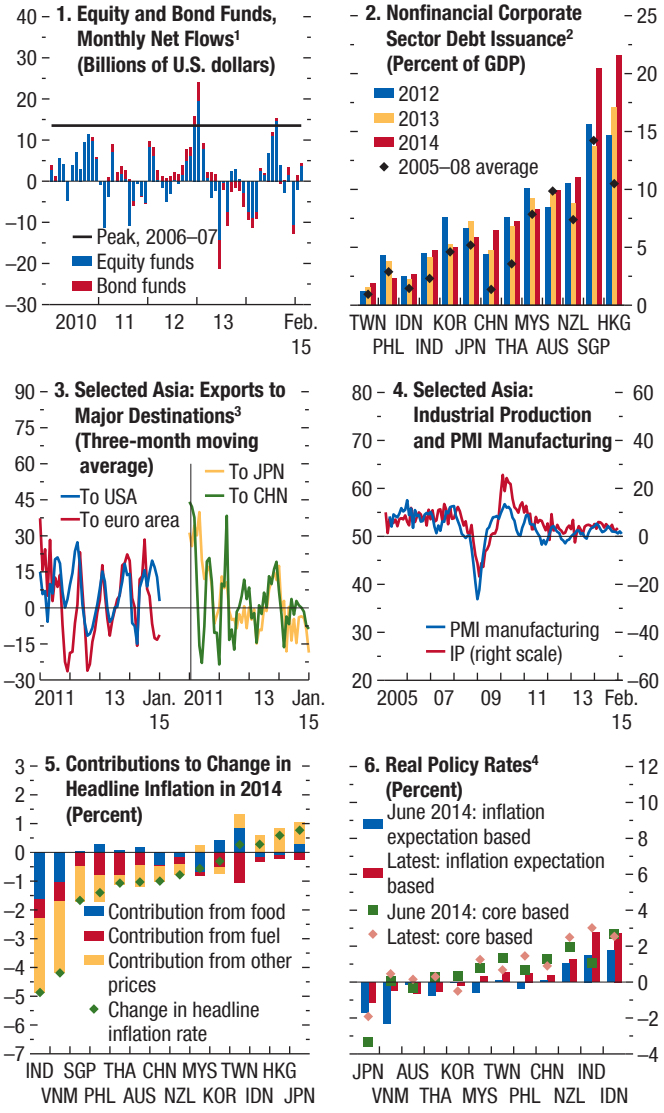
Although the Asia and Pacific region remained the world's growth leader, activity in the region slowed modestly in 2014, responding to the drag from within and outside the region. Growth decelerated last year to 5.6 percent, from 5.9 percent in 2013. While growth picked up across much of the region, slowdowns in several large economies, including China, Indonesia, and Japan, provided a counterweight. Export volume growth declined, reflecting soft demand in China, the euro area, and Japan, which more than offset buoyancy in the United States (Figure 2.5). Investment was generally slower, especially in China, where the correction in real estate gathered pace. Consumption, which remained relatively robust except in Japan, was the primary growth driver across most of the region.

In 2015, the sharp fall in world commodity prices will support GDP growth across the region. With the region being a net oil importer, the drop in oil prices will generate a windfall spur to purchasing power of about 1.7 percent of regional GDP in 2015, providing support to domestic spending and raising current accounts. Exporters of commodities (Australia, Indonesia, Malaysia, New Zealand) will see a drop in foreign earnings and a drag on growth, although currency depreciation will offer some cushion. Headline inflation—already on a downward trend on cooling growth and stronger trade-weighted exchange rates—is expected to moderate further as the recent oil price decline is felt at the pump, although core inflation has eased only modestly.

Accommodative financial conditions have begun to tighten. Private-credit-to-GDP ratios are significantly above trend in some countries. Sizable portfolio outflows, slower corporate debt issuance (especially in emerging Asia), and rising short-term market interest rates since the last quarter of 2014 are in line with global trends and reflect expectations of higher policy rates in the United States. In addition, real short-term interest rates have risen marginally with easing core inflation, while U.S. dollar appreciation has increased debt service costs for the region's unhedged issuers of foreign-exchange-denominated corporate bonds. For households, higher real debt service costs could crimp consumption spending. Bank lending is expanding at a somewhat slower pace (albeit a still-buoyant one in

Figure 2.5. Asia and Pacific: Moderating but Still Outperforming

Asia is forecast to remain the global growth leader, although the region's growth momentum is moderating. Financial conditions have only recently started to tighten and have supported domestic demand, but exports have slowed. Inflation has dropped on the back of lower fuel and food prices, and high-frequency indicators point to a moderation in growth.



Sources: CEIC; Dealogic; Haver Analytics; and IMF staff estimates.
Note: IP = industrial production; PMI = purchasing managers' index. Data labels in the figure use International Organization for Standardization (ISO) country codes.
[1]Data include exchange-traded fund flows and mutual fund flows for Australia, emerging Asia, Hong Kong SAR, Korea, New Zealand, Singapore, and Taiwan Province of China.
[2]Data include both bond issuance and syndicated loan issuance. Data are compiled on residency basis.
[3]Selected Asia comprises East Asia (China, Hong Kong SAR, Korea, Taiwan Province of China), Japan, Malaysia, the Philippines, Singapore, and Thailand. Indonesia and Vietnam are excluded because of data lags.
[4]Data are as of March 2015. Core inflation used for the latest core-based rate is as of February 2015 or latest available.

major economies), with rising loan-to-deposit ratios possibly portending additional slowing.

Despite the tailwind from oil prices, Asia's near-term growth outlook has been marked down slightly. Downward growth revisions for major emerging markets outside Asia will soften the external contribution to Asia's growth, as will the further tightening of international financial conditions. A slower but more sustainable growth path in China will exert additional drag. Relative to the October 2014 WEO, Asia's growth forecast has been trimmed very modestly to 5.6 and 5.5 percent in 2015 and 2016, respectively, but with diverse performances across the region (Table 2.3):

- In China, growth fell to 7.4 percent in 2014 and is expected to fall further to 6.8 percent in 2015 (0.3 percentage point lower than the October 2014 WEO forecast) as previous excesses in real estate, credit, and investment continue to unwind. Ongoing implementation of structural reforms and lower commodity prices are expected to expand consumer-oriented activities, partially buffering the slowdown.
- In Japan, activity disappointed following the mid-2014 consumption tax hike, which caused a sharper-than-predicted contraction in consumption. GDP growth is projected to pick up to 1 percent in 2015 (above potential and broadly unchanged from the October 2014 WEO forecast) from –0.1 percent in 2014. This increase reflects support from the weaker yen, higher real wages, and higher equity prices due to the Bank of Japan's additional quantitative and qualitative easing, as well as lower commodity prices. By 2016, with output above potential, the pace of growth is expected to help push up underlying price and wage inflation.
- India's growth is expected to strengthen from 7.2 percent in 2014 to 7.5 percent in 2015. Growth will benefit from recent policy reforms, a consequent pickup in investment, and lower oil prices. Lower oil prices will raise real disposable incomes, particularly among poorer households, and help drive down inflation.
- The downturn in the global commodity cycle is continuing to hit Australia's economy, exacerbating the long-anticipated decline in resource-related investment. However, supportive monetary policy and a somewhat weaker exchange rate will underpin nonresource activity, with growth gradually rising in 2015–16 to about 3 percent (broadly as projected in the October 2014 WEO).

Table 2.3. 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**	**5.6**	**5.5**	**3.2**	**2.6**	**2.8**	**1.6**	**2.4**	**2.2**	. . .	. . .	. . .
Advanced Asia	**1.6**	**2.2**	**2.4**	**2.2**	**1.2**	**1.6**	**2.2**	**3.1**	**2.8**	**3.8**	**3.9**	**3.9**
Japan	–0.1	1.0	1.2	2.7	1.0	0.9	0.5	1.9	2.0	3.6	3.7	3.7
Korea	3.3	3.3	3.5	1.3	1.5	2.5	6.3	7.1	5.2	3.5	3.6	3.5
Australia	2.7	2.8	3.2	2.5	2.0	2.3	–2.8	–4.0	–3.7	6.1	6.4	6.2
Taiwan Province of China	3.7	3.8	4.1	1.2	0.7	1.3	12.3	12.4	11.7	4.0	4.0	4.0
Singapore	2.9	3.0	3.0	1.0	0.0	1.7	19.1	20.7	18.8	2.0	2.0	2.0
Hong Kong SAR	2.3	2.8	3.1	4.4	3.2	3.4	1.6	2.0	2.2	3.2	3.2	3.1
New Zealand	3.2	2.9	2.7	1.2	0.8	2.1	–3.5	–4.8	–5.2	5.4	5.3	5.2
Emerging and Developing Asia	**6.8**	**6.6**	**6.4**	**3.5**	**3.0**	**3.1**	**1.3**	**2.1**	**2.0**	. . .	. . .	. . .
China	7.4	6.8	6.3	2.0	1.2	1.5	2.0	3.2	3.2	4.1	4.1	4.1
India	7.2	7.5	7.5	6.0	6.1	5.7	–1.4	–1.3	–1.6	. . .	. . .	. . .
ASEAN-5	**4.6**	**5.2**	**5.3**	**4.7**	**4.1**	**4.2**	**1.3**	**1.1**	**0.6**	. . .	. . .	. . .
Indonesia	5.0	5.2	5.5	6.4	6.8	5.8	–3.0	–3.0	–2.9	6.1	5.8	5.6
Thailand	0.7	3.7	4.0	1.9	0.3	2.4	3.8	4.4	2.4	0.8	0.8	0.8
Malaysia	6.0	4.8	4.9	3.1	2.7	3.0	4.6	2.1	1.4	2.9	3.0	3.0
Philippines	6.1	6.7	6.3	4.2	2.1	2.8	4.4	5.5	5.0	6.8	6.2	6.0
Vietnam	6.0	6.0	5.8	4.1	2.5	3.2	5.4	4.8	4.9	2.5	2.5	2.5
Other Emerging and Developing Asia[4]	**6.4**	**6.7**	**6.7**	**5.9**	**5.5**	**5.7**	**–2.5**	**–2.7**	**–2.7**	. . .	. . .	. . .
Memorandum												
Emerging Asia[5]	6.8	6.6	6.4	3.4	2.9	3.0	1.4	2.2	2.1	. . .	. . .	. . .

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]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.

- Korea's growth momentum has stalled somewhat, reflecting fragile household and investor sentiment. The projected growth of 3.3 percent this year rests on the assumption that supportive monetary and macroprudential policies and more favorable terms of trade spur a rebound in aggregate demand.
- Trends within the Association of Southeast Asian Nations will continue to diverge. Indonesia's growth is forecast to remain broadly unchanged in 2015 (though this is lower than previously projected), but to rise in 2016 as reforms are implemented. Malaysia's growth is expected to slow this year (to 4.8 percent) on weaker terms of trade. Thailand's outlook is expected to improve on greater clarity on near-term policies, and growth in the Philippines has been revised upward to 6.7 percent in 2015 on stronger consumption from the oil price windfall.
- As a group, Asia's other emerging and developing economies are projected to see a pickup in growth, but with variation across countries. In Papua New Guinea, the coming on stream of a large natural gas project will provide a one-time boost to growth. Activity in the Pacific island countries and other small states is also expected to be robust. On the other hand, low commodity prices will curtail Mongolia's growth.

Downside risks continue to dominate the growth outlook, including the following:

- *Slower growth in China and Japan*—Significantly slower growth than currently projected for China or Japan would also affect the rest of the region and the world economy given these economies' large size and deep trade and financial linkages with other nations. For China, the main risk is failure to implement the reform agenda to address financial risks, rebalance the economy, and tap new sources of growth. In Japan, the challenge is to implement structural reforms to boost medium-term growth prospects while balancing near-term fiscal stimulus with a convincing medium-term consolidation plan. Asia's medium-term growth

prospects are also critically dependent on the success of these reform strategies.

- *Persistent U.S. dollar strength against the euro and yen*—Sustained realignments of the major reserve currencies brought about by asynchronous monetary policies could pose a growth risk to Asia through trade and balance sheet channels. Asian emerging markets whose firms borrowed heavily in U.S. dollars may need to find an appropriate balance between preserving financial stability (via moving their currency in tandem with the U.S. dollar) and maintaining external competitiveness (by stabilizing their exchange rate against major trade partners and competitors). This process could also trigger a cascade of disruptive adjustments.
- *Side effects from global financial conditions*—Increased leverage by households and firms within Asia spurred by accommodative global financial conditions increases sensitivity to changes in monetary policy abroad. Higher debt-servicing costs and reduced rollover rates would affect corporate profitability and investment and could pose a significant drag on household consumption, particularly if accompanied by a drop in house prices.

Policies should remain focused on maintaining prudent frameworks and boosting resilience and potential growth:

- Monetary policy should not respond to the decline in headline inflation from the drop in oil prices. However, loosening is called for if the effect of lower oil prices is transmitted to core inflation or inflation expectations. To date, moderating prices are apparent only in narrow categories of the consumer basket. However, in economies in which output gaps are currently negative (Australia, Japan, Korea, Thailand), policymakers may need to act to prevent a persistent decline in inflation expectations.
- On the fiscal policy front, and following the lead of India, Indonesia, and Malaysia, countries should seize the opportunity provided by the current low fuel and food prices to further reform or phase out subsidies, which tend to be poorly targeted. Doing so would improve spending efficiency and shield public spending from future oil price fluctuations. Countries with elevated public debt (Japan, Malaysia) should continue to consolidate, with the conduct of fiscal policy attuned to economic conditions and prospects. Asian emerging markets with large infrastructure gaps should consider giving public investment spending priority over easing monetary policy.
- Exchange rates should be permitted to respond to shifts in balance of payments flows due to changes in commodity prices and capital flows, including from asynchronous monetary policies in advanced economies. Foreign exchange intervention should remain in the toolkit to address disorderly market conditions, especially in cases in which overshooting threatens financial stability.
- In addition to strong regulation and supervision, protecting financial stability may also require proactive use of macroprudential policies to tame the effects of the financial cycle on asset prices, credit, and aggregate demand.
- Structural reforms are needed to restart productivity gains across the region. In China, financial and state-owned enterprise reforms are needed to increase the efficiency of resource allocation. Reforms in the pension system and other social safety net areas will help shift the composition of growth toward domestic consumption, which is likely to prove more sustainable in the long term. In Japan, policy initiatives to raise services productivity and labor force participation should be further implemented. For other countries, including India, members of the Association of Southeast Asian Nations, and most other emerging market and developing economies, addressing supply bottlenecks by expanding essential infrastructure and raising productivity would increase near-term demand and support resilience to realignments of reserve currencies.

Latin America and the Caribbean: Another Year of Subpar Growth

Growth in Latin America and the Caribbean slowed to 1.3 percent in 2014 and is projected to soften to an even lower rate in 2015. The downturn in global commodity markets remains the main drag on activity in South America, even though lower oil prices and a solid U.S. recovery provide a boost to other parts of the region. Low business and consumer confidence in Brazil and the intensifying economic crisis in Venezuela weigh further on the near-term outlook. Flexible exchange rates can play a critical role in adapting to tougher external conditions, but policymakers will also need to ensure prudent fiscal positions are in place and catch up on structural reforms to raise investment and productivity.

Growth in Latin America and the Caribbean declined for the fourth consecutive year, to 1.3 percent in 2014, coming close to the October 2014 WEO projection (Figure 2.6). Investment continued to lead the downturn, as subdued external demand and worsening terms of trade caused companies to curtail capital budgets, notably in South America. In some countries, policy uncertainties intensified weak private sector sentiment. Falling commodity prices also prompted further widening of external current account deficits in most commodity-exporting economies, although net importers benefited from the sharp decline in oil prices.

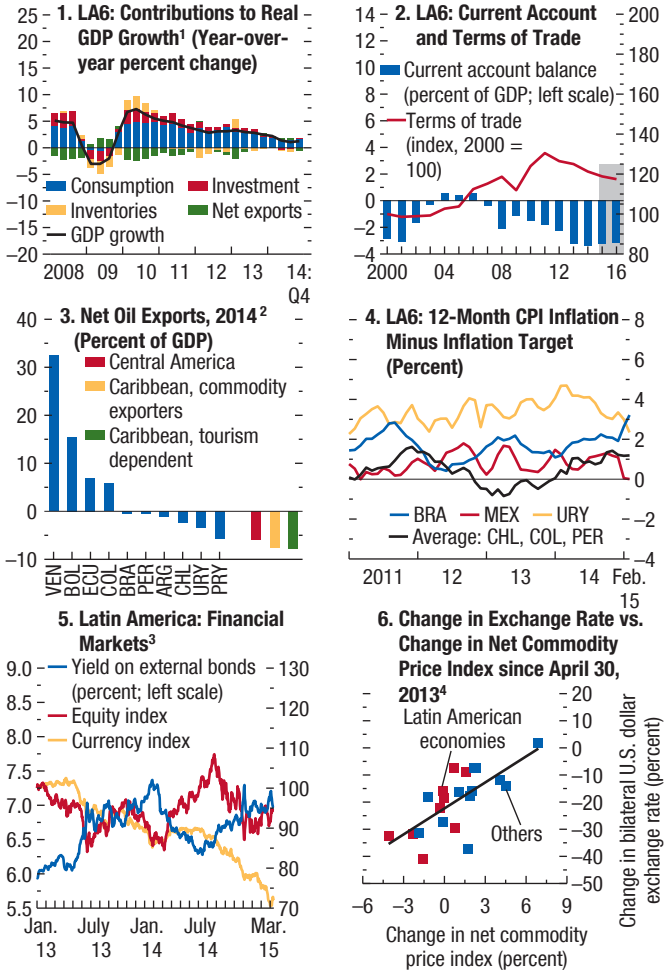
Currencies in countries with flexible exchange rates reacted quickly to the shifting external outlook and weaker domestic conditions, depreciating by about 10 percent on average in trade-weighted terms since the end of August 2014 and in some cases by as much as 15–20 percent. Equity markets fell and external credit spreads widened. Corporate bond issuance generally held up, but companies exposed to the commodity market have started to face tighter financing conditions. Credit growth has continued to slow.

With no apparent impulse for a near-term pickup in activity and the prospect of persistently lower commodity prices and reduced policy space in many economies, regional growth is now projected to dip below 1 percent in 2015 (about 1¼ percentage points lower than projected in the October 2014 WEO), well below the 4.1 percent average growth observed during 2004–13 (Table 2.4). Downward revisions are concentrated among South American commodity exporters. Meanwhile, output remains close to potential, as evidenced by still-low unemployment in many economies.

- Brazil's economy is projected to contract by 1 percent in 2015—almost 2½ percentage points below the October 2014 WEO forecast. Private sector sentiment has remained stubbornly weak, even since election-related uncertainty dissipated, reflecting the risk of near-term electricity and water rationing, unaddressed competitiveness challenges, and fallout from the Petrobras investigation. The Brazilian authorities' renewed commitment to rein in the fiscal deficit and reduce inflation will help restore confidence in Brazil's macroeconomic policy framework, but it will further curb near-term demand.
- Projections for the Andean economies are comparatively favorable but have also been pared down since October—projected growth this year for Chile, Colombia, and Peru is ½ to 1.3 percentage points lower than in October. In Chile, uncertainty over

Figure 2.6. Latin America and the Caribbean: Persistent Weakness

Growth in Latin America and the Caribbean has slowed further as falling commodity prices have hit the region's commodity exporters. External current account deficits have continued to widen in most countries in the region, although the recent collapse in oil prices has provided relief to net importers, notably in Central America and the Caribbean. Lower oil prices should also assist disinflation, but their effects will be partly offset by weaker exchange rates, which are playing a crucial role in facilitating external adjustment.



Sources: Bloomberg, L.P.; Haver Analytics; national authorities; and IMF staff estimates.

Note: CPI = consumer price index; LA6 = Brazil, Chile, Colombia, Mexico, Peru, Uruguay. Country group aggregates are weighted by purchasing-power-parity GDP as a share of group GDP, unless noted otherwise. Data labels in the figure use International Organization for Standardization (ISO) country codes.

[1]Seasonally adjusted, purchasing-power-parity-weighted average. Inventories include statistical discrepancies.

[2]Data for Bolivia include natural gas exports. Simple average for Central America (Belize, Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, Panama); Caribbean, commodity exporters (Guyana, Suriname, Trinidad and Tobago); and Caribbean, tourism dependent (The Bahamas, Barbados, Eastern Caribbean Currency Union countries, Jamaica).

[3]Yield on external bonds is based on the J.P. Morgan Emerging Markets Bond Index for Latin America. Equity index is the MSCI Emerging Markets Latin America equity local net total return index. Currency index is the Bloomberg J.P. Morgan Latin America Currency Index. Both indices are rebased to January 2, 2013 = 100. Data are through March 26, 2015.

[4]Net commodity price index is based on Gruss 2014. Data are through the end of February 2015.

Table 2.4. 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**	**3.0**	**3.0**	**1.9**	**0.5**	**1.7**	**–2.3**	**–2.3**	**–2.4**	. . .	. . .	. . .
United States	2.4	3.1	3.1	1.6	0.1	1.5	–2.4	–2.3	–2.4	6.2	5.5	5.1
Canada	2.5	2.2	2.0	1.9	0.9	2.0	–2.2	–2.6	–2.3	6.9	7.0	6.9
Mexico	2.1	3.0	3.3	4.0	3.2	3.0	–2.1	–2.2	–2.2	4.8	4.3	4.0
South America[4]	**0.7**	**–0.2**	**1.3**	. . .	. . .	. . .	**–2.9**	**–3.5**	**–3.2**	. . .	. . .	. . .
Brazil	0.1	–1.0	1.0	6.3	7.8	5.9	–3.9	–3.7	–3.4	4.8	5.9	6.3
Argentina[5,6]	0.5	–0.3	0.1	. . .	18.6	23.2	–0.9	–1.7	–1.8	7.3	7.0	8.1
Colombia	4.6	3.4	3.7	2.9	3.4	3.0	–5.0	–5.8	–4.9	9.1	9.0	8.9
Venezuela	–4.0	–7.0	–4.0	62.2	96.8	83.7	4.3	–4.7	–0.8	8.0	12.8	16.1
Chile	1.8	2.7	3.3	4.4	3.0	3.0	–1.2	–1.2	–2.0	6.4	7.2	7.0
Peru	2.4	3.8	5.0	3.2	2.5	2.0	–4.1	–4.6	–4.3	6.0	6.0	6.0
Ecuador	3.6	1.9	3.6	3.6	3.2	3.0	–0.8	–3.3	–3.0	5.0	5.0	5.0
Bolivia	5.4	4.3	4.3	5.8	5.1	5.0	0.7	–2.8	–4.2	4.0	4.0	4.0
Uruguay	3.3	2.8	2.9	8.9	7.9	7.5	–4.7	–3.8	–4.1	6.5	6.8	7.0
Paraguay	4.4	4.0	4.0	5.0	3.6	4.5	0.1	–1.7	–2.2	5.5	5.5	5.5
Central America[7]	**4.0**	**4.2**	**4.3**	**3.4**	**2.6**	**3.3**	**–5.9**	**–5.0**	**–5.2**	. . .	. . .	. . .
Caribbean[8]	**4.7**	**3.7**	**3.5**	**4.0**	**3.3**	**4.2**	**–3.1**	**–2.4**	**–2.7**	. . .	. . .	. . .
Memorandum												
Latin America and the Caribbean[9]	1.3	0.9	2.0	. . .	. . .	. . .	–2.8	–3.2	–3.0	. . .	. . .	. . .
Excluding Argentina	1.4	1.0	2.2	7.9	9.0	7.6	–3.0	–3.4	–3.1	. . .	. . .	. . .
Eastern Caribbean Currency Union[10]	1.7	2.0	2.1	0.8	0.7	1.6	–15.8	–13.9	–14.5	. . .	. . .	. . .

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 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 GDP 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 December 15, 2014, the Executive Board recognized the implementation of the specified actions it had called for by end-September 2014 and the initial steps taken by the Argentine authorities to remedy the inaccurate provision of data. The Executive Board will review this issue again as per the calendar specified in December 2013 and in line with the procedures set forth in the Fund's legal framework.

[6]Consumer price data from December 2013 onwards 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 April 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 end-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 December 15, 2014, the Executive Board recognized the implementation of the specified actions it had called for by end-September 2014 and the steps taken by the Argentine authorities to remedy the inaccurate provision of data. The Executive Board will review this issue again as per the calendar specified in December 2013 and in line with the procedures set forth in the Fund's 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 also note 6.

[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.

the impact of policy reforms appears to be weighing on investment, although there are signs that growth has started to recover. In the case of Peru, weak exports and investment caused a sharp slowdown in 2014, but concerted policy action and new mining operations should support a rebound this year. In Colombia, lower oil prices will cause growth to dip below 4 percent.

- Argentina's growth is projected to be slightly negative in 2015, with stronger public spending and higher private consumption partly offsetting falling investment and exports. In Venezuela, the oil price collapse has compounded an already difficult situation. Pervasive administrative controls and other policy distortions have intensified shortages of basic goods, driven up inflation to above 60 percent in 2014, and caused a deep recession.
- Mexico's economy is projected to grow by 3 percent this year—a solid prospect, though lower than previously expected, as lingering sluggishness in domestic demand and a tighter fiscal stance dampen the positive spillovers from stronger U.S. growth.

- On the bright side, lower oil prices and the robust U.S. recovery have improved the outlook for Central America. Remittances grew 9 percent in 2014 and, together with stronger exports, will continue to underpin domestic activity and facilitate the important task of strengthening fiscal positions in a number of countries.
- Similarly, the tourism-dependent economies of the Caribbean have started to see a recovery in tourist arrivals. Nonetheless, long-standing competitiveness gaps, high public debt, and financial sector fragilities remain pressing concerns.

Risks around this subdued outlook are considerable and somewhat weighed to the downside. Activity in the region's commodity exporters might weaken further in the face of adverse shocks, notably a sharper-than-expected investment slowdown in China. To be sure, further declines in commodity prices would bolster net importers, especially in Central America and the Caribbean. The caveat is that many of these economies currently obtain concessional financing from Venezuela on part of their oil imports. A possible curtailment of this Petrocaribe support could put pressure on public finances in some of these countries.

Lackluster economic prospects, along with an impending rise in U.S. interest rates, might also restrict the availability of external funding and cause further corrections in financial markets. This scenario could put strains on some corporate borrowers, especially in sectors facing sharply lower earnings and elevated leverage. On the upside, strong U.S. growth could provide a larger-than-expected lift to trading partners in the region.

A key risk in the medium term is protracted weakness in investment that would further reduce the region's potential growth. Misguided efforts to address the current slowdown with excessive policy stimulus, rather than by tackling supply-side bottlenecks and competitiveness problems, could also undermine countries' hard-won macroeconomic stability.

The principal challenge for the region, therefore, is to manage the adjustment to a new external environment while preserving sound fundamentals and raising potential growth.

Exchange rate flexibility can play a critical role in absorbing adverse terms-of-trade shocks and rebalancing demand. The room for easing monetary policy is limited: inflation generally exceeds midpoint targets, and depreciating currencies will at least partly offset the benign effect of lower commodity prices. Nonetheless, countries with well-anchored inflation expectations still have some flexibility to fine-tune their policy stances in response to weak incoming data.

The weakening of public finances since the global financial crisis constrains fiscal policy options in many of the region's countries. Commodity exporters with solid buffers can still afford to smooth the ongoing slowdown but will also need to avoid a lasting rise in deficits. Many commodity importers, in turn, have gained relief from declining fuel subsidy burdens and should seize the opportunity to secure these gains by moving toward market-based pricing.

Beyond such adjustments, the difficult current outlook underscores the urgency of supply-side reforms. Enhancing growth prospects and sustaining poverty reduction in a more challenging external environment will require determined efforts to improve the business environment, raise productivity, and increase saving and investment.

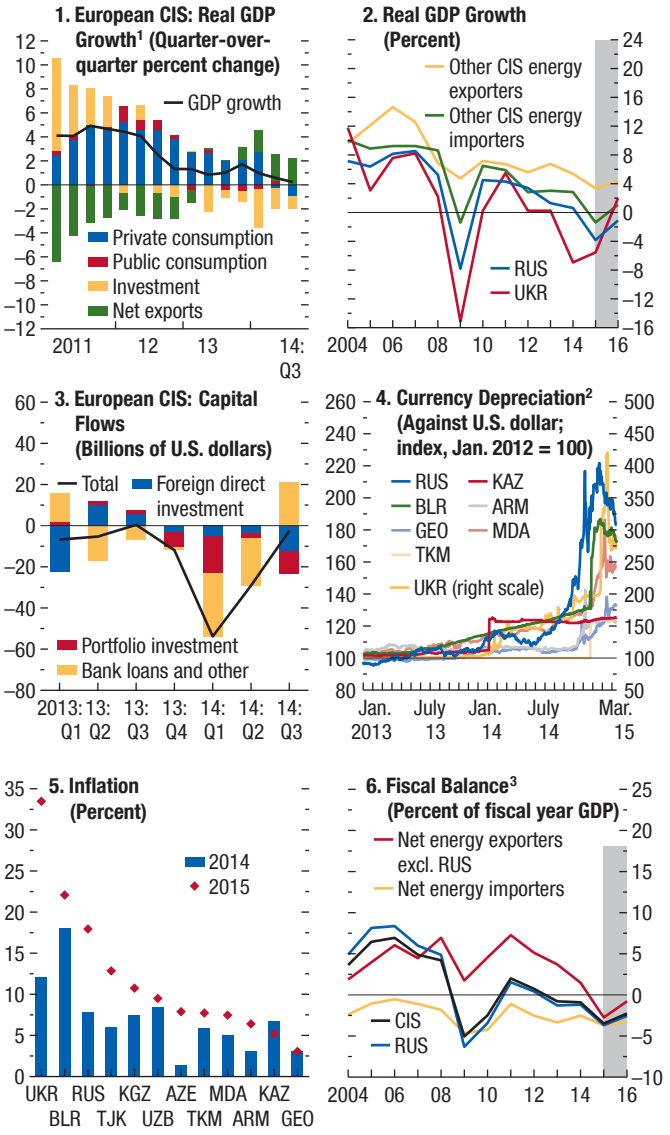
Commonwealth of Independent States: Oil Price Slump Worsens Outlook

The Commonwealth of Independent States region is projected to slide into recession in 2015. For oil exporters, sharply lower oil prices and the significant contraction in Russia imply a much weaker outlook. For oil importers, the benefits from lower oil prices will likely be more than offset by domestic economic weaknesses and spillovers from the contraction in Russia through remittances, trade, and foreign direct investment.

The European economies of the Commonwealth of Independent States slowed further in the second half of 2014, with the contribution from private consumption turning negative (Figure 2.7). Falling oil prices on top of international sanctions compounded Russia's underlying structural weaknesses, undermining confidence and resulting in a significant depreciation of the ruble, which added to inflation pressures. In response, the Central Bank of Russia hiked its policy rate by 750 basis points to 17 percent in December, and the Russian authorities announced various measures to normalize market conditions. Contagion from ruble depreciation also spread to other Commonwealth of Independent States countries. The recession in Ukraine deepened in 2014, largely reflecting the economic impact of the conflict in the east. Since last October, pressure on the hryvnia has increased substantially, contributing to

Figure 2.7. Commonwealth of Independent States: Coping with Geopolitical Risks and Lower Oil Prices

Russia and Ukraine are entering into recession amid high inflation as geopolitical tensions and the oil price slump take their toll. Other Commonwealth of Independent States (CIS) economies are also experiencing slowing growth and a deteriorating fiscal stance on account of negative spillovers, particularly from Russia.



Sources: Bloomberg, L.P.; Haver Analytics; and IMF staff estimates.
Note: European CIS = Belarus, Moldova, Russia, Ukraine; non-European CIS = Armenia, Azerbaijan, Georgia, Kazakhstan, Kyrgyz Republic, Tajikistan, Turkmenistan, Uzbekistan. Net energy exporters excl. Russia = Azerbaijan, Kazakhstan, Turkmenistan, Uzbekistan; net energy importers = Armenia, Belarus, Georgia, Kyrgyz Republic, Moldova, Tajikistan, Ukraine. Data labels in the figure use International Organization for Standardization (ISO) country codes.
[1]Moldova is excluded because of data limitations.
[2]Data are through March 27, 2015.
[3]Non-oil primary deficit for Russia, overall balance for net energy importers, and general government net lending/borrowing for both CIS and net energy exporters excluding Russia.

a drop in foreign exchange reserves and accelerating inflation.

The outlook for the Commonwealth of Independent States has deteriorated markedly, with a 2.6 percent contraction now projected in 2015 (about 4 percentage points below the October 2014 WEO forecast) and double-digit inflation projected in many countries (Table 2.5). Growth in the Caucasus and Central Asia is also expected to drop—from 5.3 percent in 2014 to 3.2 percent in 2015, a downward revision of 2.4 percentage points relative to the October 2014 WEO. The decline is projected as a result of spillovers from Russia (through remittances, trade, and foreign direct investment) and lower export prices for oil, metals, and minerals.

- The oil price slump, tighter financial conditions, international sanctions, and weaker confidence are projected to result in a recession in Russia in 2015. Output is expected to contract by 3.8 percent, a downward revision of about 4¼ percentage points compared with the October WEO forecast. In 2016, the output contraction is projected to ease to 1.1 percent as falling inflation and some import substitution contribute to a modest recovery in demand.
- Despite a recently announced government stimulus in Kazakhstan, lower oil prices and production delays in the Kashagan oil field, as well as weakness in the global economy, are expected to keep growth at 2.0 percent in 2015 (a downward revision of almost 3 percentage points) and 3.1 percent in 2016.
- Ukraine's economy is expected to bottom out in 2015 as activity stabilizes with the recovery in consumer and investor confidence and the commencement of reconstruction work. Output is still projected to decline by 5.5 percent in 2015, marking some improvement from the 6.8 percent contraction in 2014.
- Armenia and Belarus are projected to enter into recession in 2015, and Georgia's growth will slow. In all three economies, the downward turns reflect spillovers from Russia. In Moldova, lower credit growth together with lower exports and remittances will result in a small GDP contraction this year.

Risks to the outlook are largely on the downside. A prolonged period of uncertainty and the imposition of more sanctions on Russia could further weaken investment. Deterioration in bank and corporate balance sheets owing to the recent sharp depreciation of national currencies across the region could pose financial stability risks. An earlier-than-expected rebound

Table 2.5. 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**	**–2.6**	**0.3**	**8.1**	**16.8**	**9.4**	**2.2**	**2.5**	**3.7**	. . .	. . .	. . .
Net Energy Exporters	**1.5**	**–2.4**	**0.1**	**7.5**	**15.6**	**9.1**	**3.1**	**3.4**	**4.6**	. . .	. . .	. . .
Russia	0.6	–3.8	–1.1	7.8	17.9	9.8	3.1	5.4	6.3	5.1	6.5	6.5
Kazakhstan	4.3	2.0	3.1	6.7	5.2	5.5	1.6	–4.1	–3.1	5.2	5.2	5.2
Uzbekistan	8.1	6.2	6.5	8.4	9.5	9.8	0.1	0.2	0.2	. . .	. . .	. . .
Azerbaijan	2.8	0.6	2.5	1.4	7.9	6.2	15.3	5.3	8.2	6.0	6.0	6.0
Turkmenistan	10.3	9.0	9.2	6.0	7.7	6.6	–5.9	–11.1	–6.7	. . .	. . .	. . .
Net Energy Importers	**–2.6**	**–3.7**	**1.6**	**12.3**	**25.2**	**11.4**	**–5.7**	**–5.2**	**–4.2**	. . .	. . .	. . .
Ukraine[5]	–6.8	–5.5	2.0	12.1	33.5	10.6	–4.0	–1.4	–1.3	10.5	11.5	11.0
Belarus	1.6	–2.3	–0.1	18.1	22.1	17.4	–6.1	–7.0	–4.2	0.5	0.5	0.5
Georgia	4.7	2.0	3.0	3.1	3.0	5.0	–9.6	–11.5	–12.0	. . .	. . .	. . .
Armenia	3.4	–1.0	. . .	3.1	6.4	4.0	–9.2	–8.6	–8.6	18.0	17.9	17.7
Tajikistan	6.7	3.0	4.1	6.1	12.8	6.3	–9.1	–7.1	–5.8	. . .	. . .	. . .
Kyrgyz Republic	3.6	1.7	3.4	7.5	10.7	8.6	–13.7	–17.0	–15.2	7.6	7.5	7.4
Moldova	4.6	–1.0	3.0	5.1	7.5	6.3	–5.5	–4.5	–5.4	4.0	4.5	4.3
Memorandum												
Caucasus and Central Asia[6]	5.3	3.2	4.2	5.8	6.9	6.6	1.7	–3.4	–2.0	. . .	. . .	. . .
Low-Income CIS Countries[7]	6.7	4.2	5.0	6.9	8.7	8.2	–4.2	–3.8	–3.6	. . .	. . .	. . .
Net Energy Exporters Excluding Russia	5.4	3.4	4.4	5.9	6.9	6.7	3.0	–2.6	–1.2	. . .	. . .	. . .

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.

in oil prices confers some upside risks for oil exporters and also, via the beneficial impact on the Russian economy, for oil importers in the Commonwealth of Independent States.

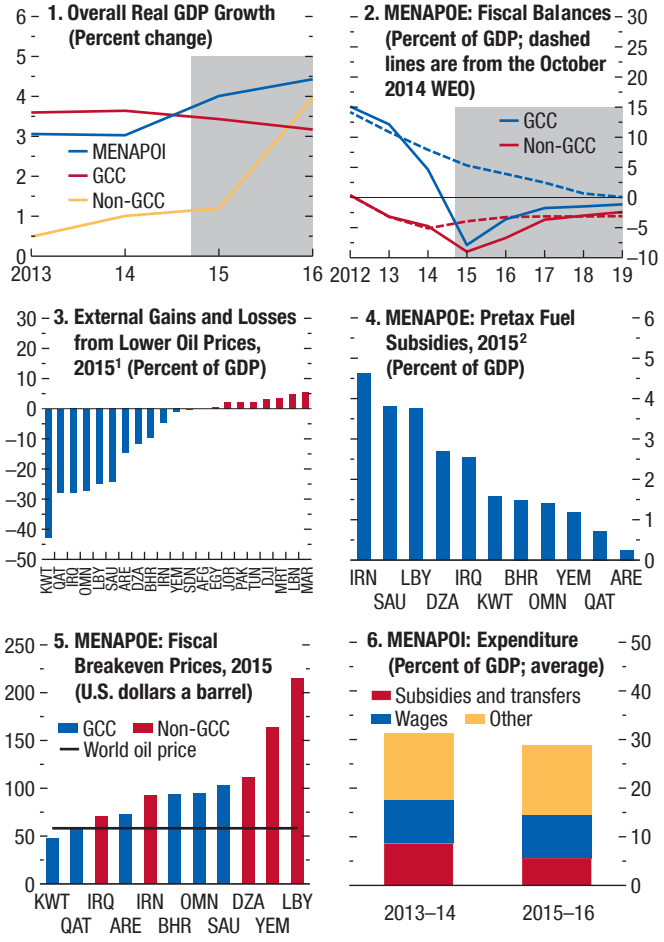
With worsening economic conditions and significant downside risks, a key priority is to preserve macroeconomic stability. For Russia, monetary policy tightening and the central bank's move to a floating exchange rate regime ahead of schedule were appropriate. With monetary policy constrained by above-target inflation and financial stability concerns, and in light of Russia's large fiscal buffers, a limited loosening of the non-oil structural balance in 2015 would be warranted. For Ukraine, bolstering reserves and a tighter fiscal stance remain appropriate. For Belarus, greater exchange rate flexibility combined with tight macroeconomic policies and deep structural reforms is needed to durably curb inflation and reduce external imbalances.

Faced with adverse spillovers from Russia, countries in the Caucasus and Central Asia should implement countercyclical fiscal policy if fiscal space, available financing, and the external position permit. These countries should generally allow greater exchange rate flexibility supported by appropriate macroeconomic and structural policies and, if necessary, further depreciation to minimize loss of reserves and the erosion of competitiveness. Increased exchange rate flexibility over time would also help economies adjust to adverse shocks. Tighter monetary policy may be needed to address inflation pressure resulting from currency depreciation.

In the medium term, most oil exporters will need to recalibrate their fiscal consolidation plans, since the oil shock is expected to persist. Priority should go to reining in hard-to-reverse current expenditures, widening tax bases, and strengthening tax administration. Growth-enhancing spending on infrastructure, health, and education as well as targeted social assistance should be preserved where possible. Oil importers should resume fiscal consolidation to rebuild buffers as soon as cyclical conditions allow. Structural reforms in governance, cor-

Figure 2.8. Middle East, North Africa, Afghanistan, and Pakistan: Oil, Conflicts, and Transitions

Growth remained tepid across the Middle East, North Africa, Afghanistan, and Pakistan (MENAP) in 2014 amid declining oil prices, intensifying conflicts, and continued policy uncertainty. The steep decline in oil prices has weakened the external and fiscal balances of the region's oil exporters, while providing much-needed breathing room for the oil importers. Across the region, lower oil prices provide an opportunity for structural and subsidy reforms, which would create fiscal space for growth-enhancing investments, improve competitiveness, and support jobs and inclusive growth.



Sources: Haver Analytics; IMF, Information Notice System; International Energy Agency; national authorities; and IMF staff estimates.
Note: Gulf Cooperation Council (GCC) = Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, United Arab Emirates; MENAP oil exporters (MENAPOE) = Algeria, Bahrain, Islamic Republic of Iran, Iraq, Kuwait, Libya, Oman, Qatar, Saudi Arabia, United Arab Emirates, Yemen; MENAP oil importers (MENAPOI) = Afghanistan, Djibouti, Egypt, Jordan, Lebanon, Mauritania, Morocco, Pakistan, Sudan, Syria, Tunisia. Data labels in the figure use International Organization for Standardization (ISO) country codes. Data from 2011 onward exclude Syria.
[1]External losses (gains) from lower oil prices are calculated as the projected difference in the U.S. dollar value of net oil exports in 2015, using the 2015 oil price assumptions in the April 2015 and October 2014 *World Economic Outlooks*, and the volume of net oil exports in the latter, with adjustments for idiosyncratic country-specific factors.
[2]The size of the subsidy bill is estimated using 2013 data. Calculations are based on a price-gap analysis following Clements and others 2013 and Sdralevich and others 2014.

ruption, education, and the financial sector need to be stepped up to diversify economies, improve the business climate, and enhance financial intermediation.

The Middle East, North Africa, Afghanistan, and Pakistan: Oil, Conflicts, and Transitions

Growth remained tepid across the Middle East, North Africa, Afghanistan, and Pakistan (MENAP) in 2014 amid declining oil prices, raging conflicts, and continued policy uncertainty. Only modest strengthening is expected this year, and substantial downward revisions to regional growth projections can be traced to the region's oil exporters. Risks remain to the downside. Faced with large losses from lower oil prices, most oil exporters need to recalibrate their medium-term fiscal consolidation plans. Across the region, lower oil prices create conditions for continuing subsidy reforms to build fiscal space for growth-enhancing spending. Structural reforms are also needed to raise prospects in a sustainable and inclusive manner.

Oil-Exporting Economies

As a result of the steep decline in oil prices, oil exporters in MENAP are experiencing large losses of export and fiscal revenues (Figure 2.8). Most of the region's oil exporters are expected to avoid sharp cuts in spending by drawing on their large buffers and using available financing.

Growth is now projected to remain broadly unchanged in 2015, at 2.4 percent, reflecting a downward revision of 1½ percentage points relative to the October 2014 WEO, and pick up to 3.5 percent in 2016 (Table 2.6). More specifically:

- Growth forecasts for Saudi Arabia have been marked down to 3.0 percent in 2015, 1½ percentage points downward relative to the October 2014 WEO, and to 2.7 percent in 2016. About half of the revisions are due to a rebasing of real GDP data.[1] With the decline in oil prices, the fiscal balance in Saudi Arabia will move into substantial deficit in 2015 and 2016.
- Growth in the Islamic Republic of Iran is projected to be 0.6 percent in 2015 and 1.3 percent in 2016, a downward revision from the October 2014 WEO

[1]The rebasing to 2010 has resulted in a higher share of oil GDP (43 percent compared with 21 percent previously) and, consequently, lower real GDP growth rates in 2013–14, when oil GDP growth was subdued.

Table 2.6. 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	**2.6**	**2.9**	**3.8**	**6.7**	**6.1**	**6.2**	**6.4**	**–1.9**	**–0.1**	. . .	. . .	. . .
Oil Exporters[4]	**2.4**	**2.4**	**3.5**	**5.6**	**5.6**	**6.0**	**10.0**	**–1.0**	**1.7**	. . .	. . .	. . .
Saudi Arabia	3.6	3.0	2.7	2.7	2.0	2.5	14.1	–1.0	3.7	5.5	. . .	. . .
Iran	3.0	0.6	1.3	15.5	16.5	17.0	3.8	0.8	1.2	11.2	12.3	13.2
United Arab Emirates	3.6	3.2	3.2	2.3	2.1	2.3	12.1	5.3	7.2	. . .	. . .	. . .
Algeria	4.1	2.6	3.9	2.9	4.0	4.0	–4.3	–15.7	–13.2	10.6	11.8	11.9
Iraq	–2.4	1.3	7.6	2.2	3.0	3.0	–3.5	–9.6	–3.6	. . .	. . .	. . .
Qatar	6.1	7.1	6.5	3.0	1.8	2.7	25.1	8.4	5.0	. . .	. . .	. . .
Kuwait	1.3	1.7	1.8	2.9	3.3	3.6	35.3	15.7	19.3	2.1	2.1	2.1
Oil Importers[5]	**3.0**	**4.0**	**4.4**	**9.2**	**7.0**	**6.6**	**–4.0**	**–4.2**	**–4.5**	. . .	. . .	. . .
Egypt	2.2	4.0	4.3	10.1	10.3	10.5	–0.8	–3.3	–4.3	13.4	13.1	12.5
Pakistan	4.1	4.3	4.7	8.6	4.7	4.5	–1.2	–1.3	–1.4	6.7	6.5	6.1
Morocco	2.9	4.4	5.0	0.4	1.5	2.0	–5.8	–3.4	–3.3	9.1	9.0	8.9
Sudan	3.4	3.3	3.9	36.9	19.0	10.5	–5.2	–4.2	–3.9	13.6	13.3	13.0
Tunisia	2.3	3.0	3.8	4.9	5.0	4.1	–8.9	–6.4	–5.2	15.3	15.0	14.0
Lebanon	2.0	2.5	2.5	1.9	1.1	2.8	–24.9	–22.2	–21.7	. . .	. . .	. . .
Jordan	3.1	3.8	4.5	2.9	1.2	2.5	–7.0	–7.6	–6.6	11.9	. . .	. . .
Memorandum												
Middle East and North Africa	2.4	2.7	3.7	6.5	6.2	6.4	7.0	–2.0	0.0	. . .	. . .	. . .
Israel[6]	2.8	3.5	3.3	0.5	–0.2	2.1	3.0	4.5	4.4	6.0	5.5	5.3
Maghreb[7]	1.0	3.3	5.6	2.5	3.3	3.6	–8.1	–14.6	–11.6	. . .	. . .	. . .
Mashreq[8]	2.2	3.9	4.2	8.9	8.9	9.3	–4.7	–6.2	–6.8	. . .	. . .	. . .

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]Includes Afghanistan, Djibouti, and Mauritania. Excludes Syria because of the uncertain political situation.
[6]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.
[7]The Maghreb comprises Algeria, Libya, Mauritania, Morocco, and Tunisia.
[8]The Mashreq comprises Egypt, Jordan, and Lebanon. Syria is excluded because of the uncertain political situation.

of about 1½ percentage points and 1 percentage point, respectively. The revisions reflect the impact of lower oil prices and continued uncertainty regarding progress toward a full agreement with the P5+1.[2]

- Growth in Iraq is projected to be 1.3 percent in 2015, supported by increased oil production, but non-oil activity is expected to stay flat because of difficult security conditions and fiscal spending cuts in response to lower oil prices.
- Growth in Algeria is expected to slow from 4.1 percent in 2014 to 2.6 percent in 2015, as lower oil prices exacerbate the economy's existing fiscal and external vulnerabilities.

Oil production and prices, as well as continued conflicts in the region, constitute important risks to the outlook. Heightened uncertainty in the oil market persists, with oil price volatility at historically high levels and risks for oil production skewed to the downside. Downside risks to non-oil growth also arise from the possibility that fiscal adjustment will be stronger than currently expected or private investment will be affected by declining confidence. Deepening conflicts and security disruptions in a number of oil-exporting countries could further undermine economic activity, delay reforms, and dampen confidence.

Policymakers need to prepare for a sustained period of lower oil prices and reassess their medium-term spending plans accordingly. Countries need to address fiscal vulnerabilities from rapidly eroding buffers and high break-even oil prices and to save equitable amounts of their nonrenewable oil wealth for future generations. To limit the drag on growth, fiscal consolidation plans should focus on reining in current

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

expenditures, including by limiting growth of public wage bills and reducing generalized energy subsidies, which remain large in many countries despite lower oil prices. Prioritizing capital expenditure and raising non-oil revenue collection should accompany efforts to contain spending.

In tandem with fiscal consolidation, significant structural reforms are needed to move away from past growth models driven by oil-backed government spending and raise productivity in the non-oil private sector. The challenge will be to promote diversification toward tradable activities and enable the private sector to become a more self-reliant engine of growth, while encouraging private sector job creation.

Oil-Importing Economies

In the region's oil importers, a weak recovery continued in 2014. The impetus provided by increased political stability and initial reforms was dampened by intensified regional conflicts and continued sociopolitical and security tensions. Weak growth in the euro area and deteriorating competitiveness from a strengthening U.S. dollar (against which some countries peg their exchange rates) also weighed on economic activity. However, signs of nascent improvement in confidence have emerged, reflected, among other things, in a rating upgrade for Egypt's and Pakistan's first international bond issues in seven years.

Growth is expected to rise from 3.0 percent last year to 4.0 percent in 2015 and 4.4 percent in 2016 (Table 2.6). Domestic demand should strengthen with improved confidence, monetary easing, and reduced fiscal drag. Recovery in Europe will support export growth, offsetting adverse effects from slower growth in the oil-exporting countries of the region. Lower oil prices are reducing vulnerabilities, but their growth impact is limited as governments will save much of the oil windfalls. Moreover, intensified security challenges and regional spillovers will constrain reform prospects. Country-specific factors are also at play:

- Egypt's macroeconomic stabilization plans and wide-ranging structural reforms are expected to increase confidence, and growth is expected to rise to 4 percent this year.[3] Nevertheless, continued fiscal consolidation, steady implementation of reforms, and external financing are needed to maintain macroeconomic stability and generate sustainable growth and jobs.
- In Morocco, steadfast policy implementation (including elimination of energy subsidies) has helped stabilize the economy. Improved external demand, strengthened domestic confidence, and recovery of agricultural production should boost growth to 4.4 percent in 2015 and 5 percent in 2016, but continued structural reforms, including to the business environment, are needed to improve competitiveness and employment.
- Pakistan's economy has stabilized, with a 4.3 percent growth forecast for 2015 and gradually improving fiscal and external positions. Further bold reforms are critical to solidify this progress and counter adverse effects on economic activity of falling cotton prices and security and political tensions.
- Confidence and growth in Tunisia are expected to return with the completion of the political transition, but widening external imbalances, lingering banking vulnerabilities, and security tensions will weigh on economic activity. In Jordan, lower oil prices and further reforms should contribute to higher growth this year. Lebanon's economy is weighed down by the political impasse and spillovers from the conflict in Syria. And Sudan is still adjusting to lower oil revenues due to the secession of South Sudan, in the context of a volatile regional environment, sanctions, and a heavy debt burden.

Risks to the outlook for the region are tilted to the downside. Intensified tensions and setbacks in political transitions could further undermine trade, confidence, reform efforts, and macroeconomic stability. Lower-than-expected growth in Europe, the member countries of the Cooperation Council for the Arab States of the Gulf, or emerging markets could slow tourism and exports, and with some lag, remittances and financing support. On the upside, greater-than-expected windfalls from lower oil prices could further bolster growth.

Increasing economic prospects and job creation will require multifaceted structural reforms. Business climate and governance reforms, better access to finance, and improved labor market efficiency and infrastructure are critical to lowering firms' operating costs and creating new jobs. Fostering worker talent through education aligned with private sector needs, adopting the latest technologies and management techniques, striving for greater trade integration, and recalibrating the role of the government toward supporting the pri-

[3] Projections do not incorporate the potential impact of the investment agreements reached at the March 2015 Egypt Economic Development Conference.

vate sector will promote productivity and innovation. International support through financing, access to key export markets, technical assistance, and policy advice would bolster these reform efforts.

Macroeconomic policies can support these growth- and equity-enhancing reforms while ensuring macroeconomic stability. The decline in oil prices creates favorable conditions for accelerating subsidy reforms and increasing energy taxes. Where fiscal and external sustainability is a concern, windfall gains should be saved. Where there is space, freed resources could be spent on growth-enhancing infrastructure, health care, and education. Given uncertainties surrounding the persistence of the oil price decline, countries should avoid entering into irreversible spending commitments, including increases in public sector wage spending. Increased reserves and low inflation provide an opportunity to enhance exchange rate flexibility to improve competitiveness—especially following the appreciation of the U.S. dollar—and the ability to adjust to shocks.

Sub-Saharan Africa: Resilience in the Face of Headwinds

Growth in sub-Saharan Africa remains strong, although it is expected to slow in 2015 in the face of headwinds from declining commodity prices and the epidemic in Ebola-affected countries. Key downside risks include further downgrades to growth in major trade partners, a sharper-than-expected tightening of global financing conditions, and mounting domestic security threats and policy uncertainty ahead of elections. Oil-exporting countries should enact prompt fiscal adjustments, while oil importers' policy stances should strike the right balance between promoting growth and preserving stability.

Sub-Saharan African growth for 2014 as a whole remained solid at 5.0 percent, albeit lower than the 5.2 percent growth in 2013. Growth in South Africa fell from 2.2 percent in 2013 to 1.5 percent in 2014, on account of mining strikes and electricity supply constraints. Elsewhere in the region, growth, driven by strong investment in mining and infrastructure and by private consumption, held up well, especially in the region's low-income countries. Exceptions were Guinea, Liberia, and Sierra Leone, where growth declined sharply as a result of the Ebola epidemic, which caused severe disruptions in agriculture and services and the postponement of mining development projects.

The region's oil-exporting countries, especially those with limited buffers (Chad, Nigeria), started to adjust to the decline in oil prices. This adjustment led to lower growth than was previously expected. By contrast, growth in the region's oil-importing countries was broadly in line with previous projections, although with considerable variation across countries.

Fiscal and current account balances worsened significantly in the region's oil-exporting countries, reflecting ambitious infrastructure investment agendas financed with shrinking oil revenues (Figure 2.9). Fiscal balances also deteriorated in other parts of the region, reflecting continued fiscal strains in the Ebola-affected countries and strong exceptional spending in Mozambique. By contrast, consolidation efforts led to improvement in fiscal balances in Ghana and Zambia. Weak oil and food prices have helped reinforce the region's generally low-inflation environment, which could allow countries dealing with lower growth to adopt more accommodative monetary policy stances. The dollar has appreciated recently, and this could undermine the competitiveness of some countries that are broadly pegged to the dollar.

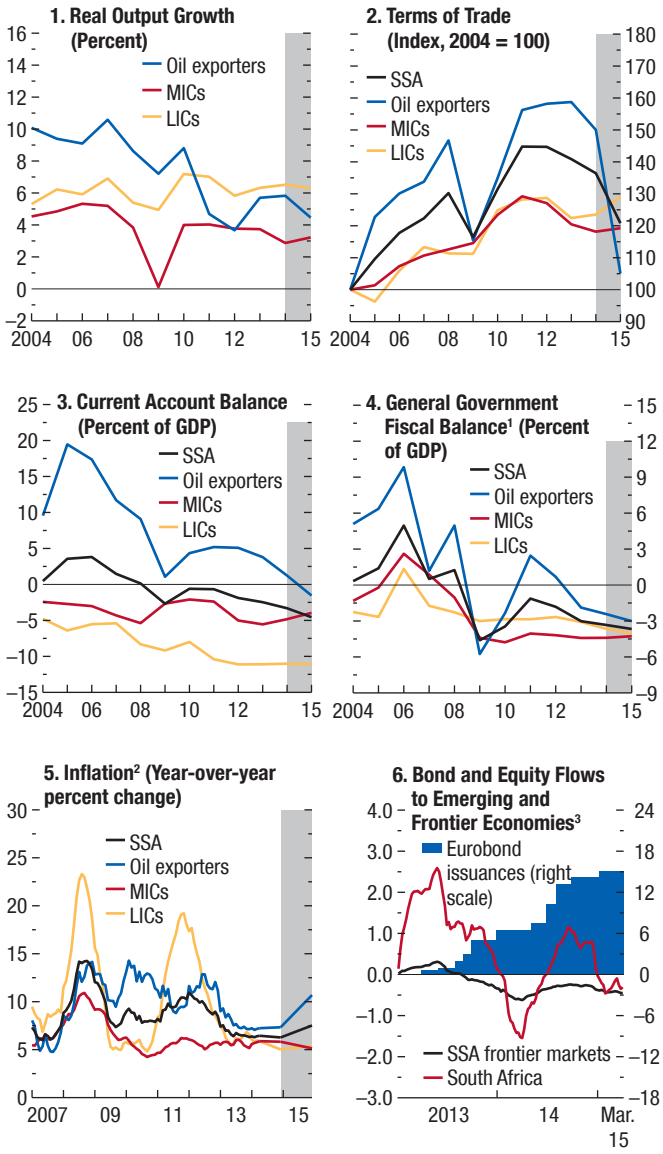
Favorable global financing conditions for most of the year encouraged a surge in sovereign bond issuance from $6.5 billion in 2013 to $8.7 billion in 2014, with maiden issuances by Côte d'Ivoire, Ethiopia, and Kenya. However, financing conditions have tightened considerably since December, and yields on the region's bonds have been trending up, especially in Ghana (owing to a high fiscal deficit) and Gabon and Nigeria (owing to lower oil prices).

Sub-Saharan Africa is projected to experience solid growth in 2015–16, but given the weaker global outlook, its economic prospects have been revised downward relative to earlier expectations (Table 2.7). In 2015, growth in sub-Saharan Africa is projected to fall to 4.5 percent—a substantial downward revision of 1¼ percentage points relative to the October 2014 WEO—before rebounding to 5.1 percent in 2016. Oil exporters in the region will be severely affected, with growth in 2015 marked down by almost 2½ percentage points. By contrast, growth in the region's oil importers in 2015–16 is expected to average 4¾ percent, a downward revision of 0.3 percentage point relative to the October 2014 WEO prediction, as the favorable impact of lower oil prices will be offset to a large extent by lower commodity export prices.

This outlook for the region is subject to significant downside risks. Recent episodes of volatility sug-

Figure 2.9. Sub-Saharan Africa: Resilience in the Face of Headwinds

Sub-Saharan African growth will remain solid notwithstanding a significant adverse shock from the decline in oil prices. Oil exporters will be faced with a formidable challenge to cope with the shock. For the rest of the region, lower oil prices represent a favorable development, which will be offset in some cases, however, by lower prices for other commodity exports.



Sources: EPFR Global; Haver Analytics; IMF, International Financial Statistics database; and IMF staff estimates.
Note: LIC = low-income country (SSA); MIC = middle-income country (SSA); SSA = sub-Saharan Africa. Oil exporters refer only to SSA oil exporters. See Table 2.7 for country groupings and the Statistical Appendix for country group aggregation methodology.
[1]General government includes the central government, state governments, local governments, and social security funds.
[2]Because of data limitations, Eritrea is excluded from LICs, Zimbabwe from LICs before December 2009, and South Sudan from oil exporters before June 2012.
[3]Bond and equity data refer to cumulative flows since January 2013 in billions of U.S. dollars. Frontier economies = Botswana, Democratic Republic of the Congo, Côte d'Ivoire, Gabon, Ghana, Kenya, Malawi, Mauritius, Namibia, Nigeria, Zambia, and Zimbabwe.

gest that frontier market economies and oil exporters planning to cover their financing needs through international markets could be vulnerable to a reversal in investor sentiment, especially in a tighter U.S. monetary policy environment. Further weakening of growth in Europe or in emerging markets, in particular in China, could reduce demand for exports, further depress commodity prices, and curtail foreign direct investment in mining and infrastructure. Failure to implement appropriate policies, most notably where large fiscal adjustments are needed, could also weaken macroeconomic stability. Risks originating within the region include stronger persistence and regional impact of the Ebola epidemic, rising security concerns, and political uncertainty ahead of key elections (for example, in Nigeria and Tanzania).

In view of their limited buffers, most oil exporters in the region will need to undertake prompt fiscal adjustment to address the persistent terms-of-trade shock that they are facing. Where feasible, such adjustment should be combined with increased exchange rate flexibility. Elsewhere, to sustain high and inclusive growth, policies will need to continue to strike the right balance between scaling up public investment and preserving debt sustainability and rebuilding fiscal buffers. The current environment of low oil prices provides a unique opportunity to undertake politically difficult reforms to eliminate remaining fuel subsidies. In anticipation of possible surges in the volatility of exchange rates and capital flows, countries should also carefully monitor their financial sectors, and those planning Eurobond issues may need to prepare contingency plans.

Table 2.7. 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**	**4.5**	**5.1**	**6.3**	**6.6**	**7.0**	**–3.3**	**–4.6**	**–4.1**	**. . .**	**. . .**	**. . .**
Oil Exporters[4]	**5.8**	**4.5**	**5.2**	**7.3**	**9.2**	**9.6**	**1.2**	**–1.5**	**–0.3**	**. . .**	**. . .**	**. . .**
Nigeria	6.3	4.8	5.0	8.1	9.6	10.7	2.2	0.7	1.3	. . .	. . .	. . .
Angola	4.2	4.5	3.9	7.3	8.4	8.5	–0.8	–6.3	–4.2	. . .	. . .	. . .
Gabon	5.1	4.4	5.5	4.5	2.5	2.5	11.2	–2.3	0.9	. . .	. . .	. . .
Chad	6.9	7.6	4.9	1.7	3.2	2.9	–8.7	–10.5	–8.3	. . .	. . .	. . .
Republic of Congo	6.0	5.2	7.5	0.9	3.0	2.9	–6.2	–11.3	–3.1	. . .	. . .	. . .
Middle-Income Countries[5]	**2.9**	**3.2**	**3.6**	**6.0**	**4.8**	**5.3**	**–4.8**	**–4.0**	**–4.1**	**. . .**	**. . .**	**. . .**
South Africa	1.5	2.0	2.1	6.1	4.5	5.6	–5.4	–4.6	–4.7	25.1	25.1	24.9
Ghana	4.2	3.5	6.4	15.5	12.2	10.2	–9.2	–7.0	–6.2	. . .	. . .	. . .
Côte d'Ivoire	7.5	7.7	7.8	0.4	1.2	1.5	–3.3	–2.3	–1.7	. . .	. . .	. . .
Cameroon	5.1	5.0	5.0	1.9	2.0	2.1	–4.2	–4.8	–4.8	. . .	. . .	. . .
Zambia	5.4	6.7	6.9	7.9	7.7	6.5	–0.2	0.3	0.9	. . .	. . .	. . .
Senegal	4.5	4.6	5.1	–0.5	1.5	1.4	–10.3	–7.6	–7.3	. . .	. . .	. . .
Low-Income Countries[6]	**6.5**	**6.3**	**6.9**	**5.1**	**4.8**	**5.2**	**–11.0**	**–11.1**	**–11.0**	**. . .**	**. . .**	**. . .**
Ethiopia	10.3	8.6	8.5	7.4	6.8	8.2	–9.0	–6.6	–6.3	. . .	. . .	. . .
Kenya	5.3	6.9	7.2	6.9	5.1	5.0	–9.2	–7.7	–7.4	. . .	. . .	. . .
Tanzania	7.2	7.2	7.1	6.1	4.2	4.5	–10.2	–10.0	–9.5	. . .	. . .	. . .
Uganda	4.9	5.4	5.6	4.7	4.9	4.8	–7.5	–8.8	–9.0	. . .	. . .	. . .
Madagascar	3.0	5.0	5.0	6.1	7.6	6.9	–2.3	–3.2	–3.4	. . .	. . .	. . .
Democratic Republic of the Congo	9.1	9.2	8.4	1.0	2.4	3.5	–9.6	–10.7	–9.5	. . .	. . .	. . .
Memorandum												
Sub-Saharan Africa Excluding South Sudan	5.0	4.5	5.0	6.4	6.4	7.0	–3.3	–4.5	–4.1	. . .	. . .	. . .

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 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.

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CHAPTER 3

WHERE ARE WE HEADED? PERSPECTIVES ON POTENTIAL OUTPUT

This chapter finds that potential output growth across advanced and emerging market economies has declined in recent years. In advanced economies, this decline started as far back as the early 2000s and worsened with the global financial crisis. In emerging market economies, in contrast, it began only after the crisis. The chapter's analysis suggests that potential output growth in advanced economies is likely to increase slightly from current rates as some crisis-related effects wear off, but to remain below precrisis rates in the medium term. The main reasons are aging populations and the gradual increase in capital growth from current rates as output and investment recover from the crisis. In contrast, in emerging market economies, potential output growth is expected to decline further, owing to aging populations, weaker investment, and lower total factor productivity growth as these economies catch up to the technological frontier.

Introduction

Output across advanced and emerging market economies remains much lower than was expected in 2008, just before the onset of the global financial crisis, and its growth path has also been lower (Figure 3.1). Indeed, medium-term (five-year-ahead) growth expectations have been steadily revised downward since 2011 for both advanced and emerging market economies (Figure 3.2).

The repeated downward revisions to medium-term growth forecasts highlight the uncertainties surrounding prospects for the growth rate of potential output (potential growth). In advanced economies, the apparent decline in potential growth seems to have started as far back as the early 2000s and was worsened by the crisis.[1] In emerging market economies, on the other

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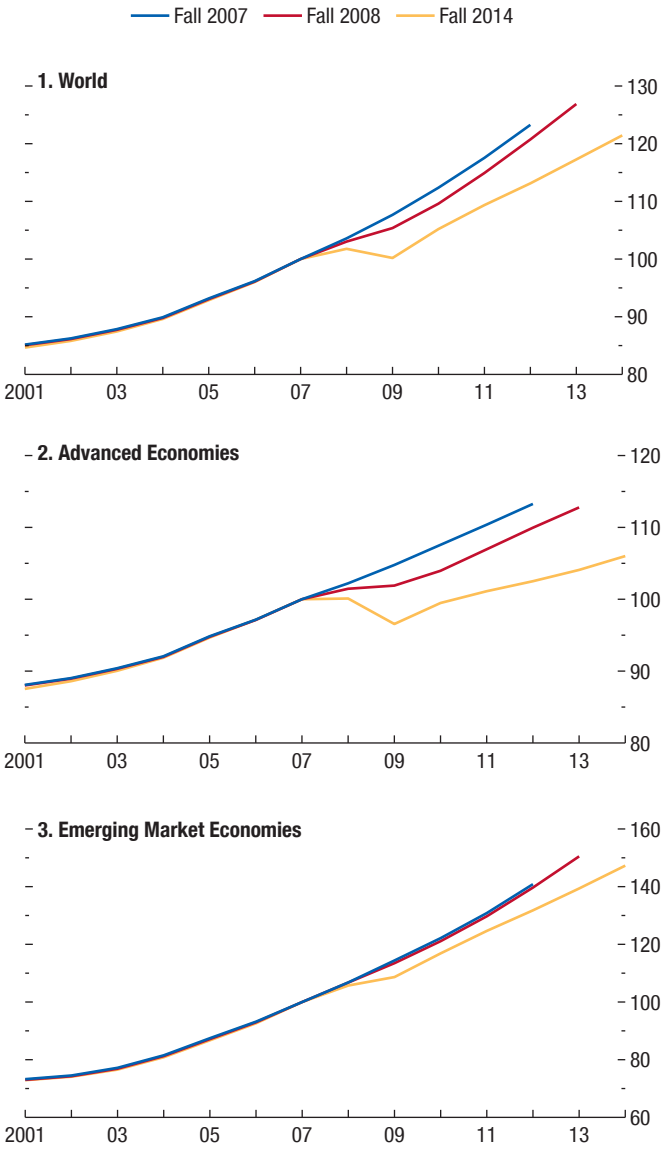
[1]Fernald (2012, 2014a, 2014b) shows that the slowdown in U.S. total factor productivity growth started well before the crisis (in the early 2000s). Balakrishnan and others (2015) find that for the United States, demographic trends explain about half of the decline

Figure 3.1. Output Compared to Precrisis Expectations
(Index, 2007 = 100)

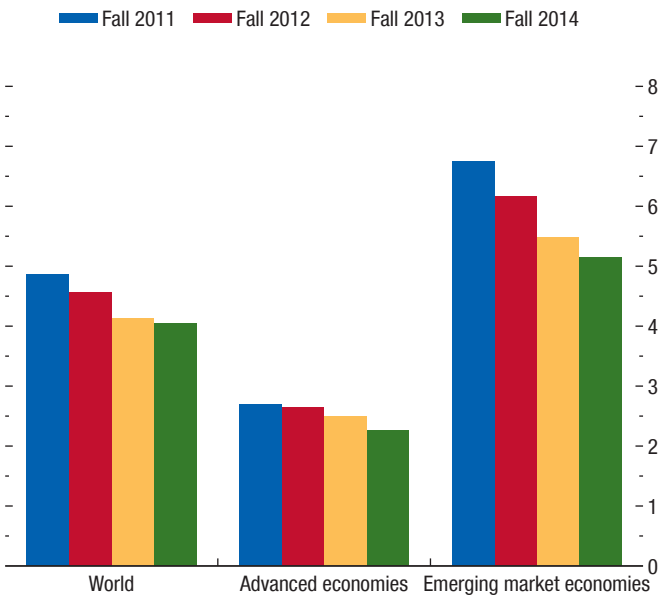
Output across advanced and emerging market economies remains much lower than was expected before the onset of the global financial crisis, and its growth path has also been lower.



Source: IMF staff estimates.
Note: The index is created using real GDP growth rates and their WEO forecasts. Economy groups are defined in Annex 3.1.

Figure 3.2. WEO Medium-Term Growth Projections
(Percent)

Medium-term growth expectations have steadily been revised downward since 2011 for both advanced and emerging market economies.



Source: IMF staff estimates.
Note: WEO medium-term growth projections are five-year-ahead growth forecasts. Economy groups are defined in Annex 3.1.

hand, the decline in both potential output and its growth rate appears to have emerged only in the wake of the crisis.

Assessing the medium-term trajectory of potential output is critical for the conduct of monetary and fiscal policy. A better understanding of how the components of potential growth—labor, capital accumulation, and total factor productivity—contribute to the overall slowdown can help inform the discussion on policies needed to raise it.

To contribute to the debate on prospects for potential output, this chapter constructs estimates of potential output for 16 major economies—members of the Group of Twenty (G20)—which accounted for about three-fourths of world GDP in 2014.[2] In this context, it seeks to answer the following questions:

- *Before the crisis:* How did potential output and its components evolve from the mid-1990s until the crisis?
- *During the crisis:* What happened to the level and growth rate of potential output and its components during the crisis?
- *Where are we headed?* What is the likely trajectory of potential output in the medium term (2015–20)? What are the policy implications?

The chapter starts with an overview of the concept and measurement of potential output used in the analysis. The subsequent sections then address each question in turn. The chapter's main findings are as follows:

- Before the crisis, potential growth began to decline in advanced economies while it increased in emerging market economies. In both cases, these dynamics were attributable mostly to changes in total factor productivity growth. In advanced economies, the decline reflected mainly a slowdown following a period of exceptional growth due to innovations in information technology, whereas in emerging market economies, the increase reflected mainly structural transformation.
- In the aftermath of the crisis, potential growth declined in both advanced and emerging market economies. Unlike previous financial crises, the global financial crisis is associated not only with a reduction in the level of potential output, but also with a reduction in its growth rate. In advanced economies, potential growth declined by about ½ percentage point, owing to reduced capital growth—particularly in the euro area countries analyzed in the chapter—and demographic factors not related to the crisis. In emerging market economies, potential growth declined by about 2 percentage points, with lower total factor productivity growth accounting for the entire decline.
- Looking forward, potential growth in advanced economies is expected to increase slightly, from an average of about 1.3 percent during 2008–14 to 1.6 percent during 2015–20. This growth is well below precrisis rates (2¼ percent during 2001–07) and stems from the negative effect of demographic factors on potential employment growth and the

in the labor force participation rate during the crisis. Chapter 3 in the April 2014 *World Economic Outlook* (WEO) and Chapter 4 of this WEO report find that the crisis has contributed to the decline in capital accumulation growth in advanced economies.

[2]The 10 advanced and 6 emerging market economies are Australia, Brazil, Canada, China, France, Germany, India, Italy, Japan, Korea, Mexico, Russia, Spain, Turkey, the United Kingdom, and the United States. See Annex 3.1 for details. Data limitations preclude the analysis for Argentina, Indonesia, Saudi Arabia, and South Africa. Estimates for the European Union—the 20th economy in the G20—and the euro area are based on individual country estimates for France, Germany, Italy, and Spain.

gradual increase in capital growth from current rates as output and investment recover from the crisis. In emerging market economies, potential growth is expected to decline further, from an average of about 6.5 percent during 2008–14 to 5.2 percent during 2015–20. The decline is the result of population aging, structural constraints affecting capital growth, and lower total factor productivity growth as these economies get closer to the technological frontier.

Reduced prospects for potential growth in the medium term have important implications for policy. In advanced economies, lower potential growth will make it more difficult to reduce high public and private debt ratios. It is also likely to be associated with low equilibrium real interest rates, meaning that monetary policy in advanced economies may again be confronted with the problem of the zero lower bound if adverse growth shocks materialize. In emerging market economies, lower potential growth will make it more challenging to rebuild fiscal buffers.

This chapter's findings suggest that increasing potential output will need to be a policy priority in major advanced and emerging market economies. The reforms needed to achieve this objective vary across countries. In advanced economies, continued demand support is needed to offset the effects of protracted weak demand on investment and capital growth as well as on structural unemployment. In addition, policies and reforms that can increase supply should be adopted, such as product market reforms and higher spending on research and development, education, infrastructure, and policies to improve labor supply incentives. In emerging market economies, higher infrastructure spending is needed to remove critical bottlenecks, and structural reforms must be directed at business conditions, product markets, and education.

Potential Output: A Primer

Potential output is defined as the level of output consistent with stable inflation (no inflationary or deflationary pressure). In the short term, actual output will deviate temporarily from potential as shocks hit the economy. These deviations reflect the slow adjustment in wages and prices to shocks, which means that the reversion of output to its potential level is gradual. This slow adjustment due to "sticky" wages and prices is a key tenet of the New Keynesian macroeconomic framework used in this chapter.

The short-term divergence of actual from potential output is referred to as the output gap, or economic slack, and is an important concept for policymakers seeking to stabilize an economy. For example, output below potential (a negative output gap) implies that there is underemployment (excess supply) of capital and labor, which would prompt a looser macroeconomic policy stance, all else equal.

The *economic* definition of potential output differs from the widely used concept of trend output, because it relies on an explicit framework based on economic theory. Trend output, in contrast, is derived from simple statistical data filtering using various forms of moving averages or deterministic trends. This is equivalent to smoothing actual GDP over time, based on the implicit assumption that an economy is, on average, in a state of full capacity, without incorporating information from variables such as inflation or unemployment. Central banks and other policy institutions typically rely on the economic definition of potential output because the underlying economic framework allows policymakers to gauge the short-term trade-offs between output, inflation, and slack in the labor market.

The economic definition also differs from the concept of "sustainable" output, which seeks to capture macroeconomic stability more broadly. More specifically, output can be at potential (that is, without generating inflationary or deflationary pressure) but still not be sustainable. As discussed in more detail in Box 3.1, the reason is the possible presence of domestic or external macroeconomic imbalances (such as excessive credit growth).[3] These imbalances may subsequently lead to a sharp decline in potential output once they are corrected. However, assessing these imbalances in real time has proven to be difficult.

The definition of potential output used in this chapter is implemented empirically using multivariate filtering techniques (Blagrave and others 2015). These techniques feature a simple model that incorporates information on the relationship between cyclical unemployment—defined as the deviation of the unemployment rate from the structural unemployment rate or, more specifically, the nonaccelerating inflation rate of unemployment (NAIRU)—and inflation

[3]The concept of sustainable output is related to external sustainability, especially in the context of small open economies. For example, rapid credit growth can be fueled by capital inflows and current account deficits. The policy norms specified in the context of the IMF External Balance Assessment reflect some of these considerations (IMF 2013).

(Phillips curve) on one hand and between cyclical unemployment and the output gap (Okun's law) on the other. These relationships are given by the following equations:

$$\pi_t = \pi_t^e + \delta u_t + \varepsilon_t^\pi, \tag{3.1}$$

$$u_t = \tau y_t + \varepsilon_t^u, \tag{3.2}$$

in which π_t is inflation, y_t is the output gap, u_t is cyclical unemployment, π_t^e is inflation expectations, and ε_t^π and ε_t^u are shock, or disturbance, terms. The parameters in these equations (δ, τ)—or equivalently the strength of the aforementioned economic relationships—are estimated separately for each country, and together with data on actual output growth, inflation, and unemployment they provide an economic basis for identifying potential output and the NAIRU, which are unobserved.[4] In addition, the analysis uses Consensus Economics forecasts for both growth and inflation to help pin down the model's expectations for these variables: for example, if consensus expectations are for higher growth, the model-consistent expectation for growth would also tend to be higher, all else equal (see Annex 3.2 for complete details on the multivariate filtering framework).

Two situations help illustrate how the multivariate filtering framework uses the information from economic data to estimate potential. First, if at a point in time, actual inflation is below inflation expectations and unemployment is above the estimated equilibrium rate, the framework will identify a situation of excess supply (a negative output gap), all else equal. Second, consider a more complicated situation in which inflation rises sharply in one year but with no corresponding decrease in unemployment: these conflicting signals suggest a shock to inflation rather than excess demand (a positive output gap). In the second case, the multivariate filtering framework will assign a lower positive output gap than would otherwise be the case, especially if the rise in inflation in a given year unwinds in the following year—which is not uncommon following a sharp change in commodity prices or an increase in the value-added-tax rate.

In sum, the multivariate filtering framework specified in this chapter strikes a balance between statistical filters, which are easily applicable to a wide range of countries but are atheoretical, and structural models of potential output, which offer greater theoretical rigor but are difficult to construct and apply broadly.

As a caveat, it should be noted that potential output is not directly observable. Therefore, the estimates are subject to statistical and model uncertainty. The latter implies that the estimates tend to vary depending on the underlying methodology. In practice, however, the different methodologies deliver qualitatively similar results regarding the trajectory of potential output in advanced and emerging market economies, which is the focus of this chapter (see Annex 3.2).

With the estimates of potential output and the NAIRU in hand, the analysis proceeds to investigate the drivers of potential growth using a growth accounting framework. This framework describes how the economy's potential output is determined by the basic factor inputs (capital, labor) and productivity (total factor productivity). Specifically, the growth accounting framework is based on a standard Cobb-Douglas production function:

$$\bar{Y}_t = \bar{A}_t K_t^\alpha \bar{L}_t^{1-\alpha}, \tag{3.3}$$

in which $\bar{Y}_t$ is potential output, K_t is the stock of productive capital, $\bar{L}_t$ is potential employment, $\bar{A}_t$ is potential total factor productivity—which includes human capital—and is measured as a residual, and α is the share of capital in potential output.[5] Potential employment is then decomposed into the NAIRU, the working-age population, and the trend labor force participation rate:

$$\bar{L}_t = (1 - \bar{U}_t)\ W_t \overline{LFPR}_t, \tag{3.4}$$

in which $\bar{U}_t$ is the NAIRU as estimated in the multivariate filter, W_t is the working-age population, and $\overline{LFPR}_t$ is the trend labor force participation rate. The decomposition of potential employment also shows how demographic factors affect potential growth. Two variables play a key role in this regard: working-age population and trend labor force participation rates. The former is a function of the same variables as population growth more broadly. For example, declines in fertility rates slow future working-age population

[4]Although the estimated parameters are not time varying, recent evidence suggests that a great deal of the flattening of the Phillips curve relationship, which links inflation to cyclical unemployment (the parameter δ in equation 3.1), likely occurred before 1995, suggesting that the estimated parameters in this analysis should be broadly stable over the estimation period 1996–2014 (Chapter 3 in the April 2013 *World Economic Outlook*).

[5]The measure of productive capital is consistent with the approach of estimating capital services (that is, excluding housing). See Beffy and others 2006 for a detailed discussion.

The residual is likely also to include utilization of the inputs of production (labor and capital)—such as hours worked and capacity utilization, labor quality (that is, human capital accumulation), and possible measurement errors in the inputs of production.

growth. The second demographic dimension is the age composition of the working-age population, which affects the aggregate participation rate, since the propensity to participate in the labor force starts declining steeply beyond a particular age threshold, typically in the early 50s. An increased share of older people in the population therefore lowers the average participation rate and thereby potential employment.[6]

Trend labor force participation rates are estimated using cohort-based models of participation. The cohort model allows for the estimation of trend labor force participation for each age-gender group, accounting for observables as well as age-gender-specific and birth-year-specific unobservable determinants of labor supply. For example, the labor force participation decision of youths typically depends on school enrollment rates, while that of prime-age women depends on educational attainment, marital status, and fertility rates. Older workers' labor force participation typically increases with higher life expectancy but decreases with the generosity of social security systems. Across all ages, particularly among women, participation is strongly influenced by cultural and institutional factors that evolve slowly and can shift the lifetime participation profile of different cohorts. For each country, group-specific trend participation rates are obtained based on these determinants, after the cyclical effects are purged. These estimates are then combined with data on the demographic distribution to compute the aggregate trend labor force participation rate (see Annex 3.3 for details).

Looking Back: How Did Potential Growth Evolve before the Crisis?

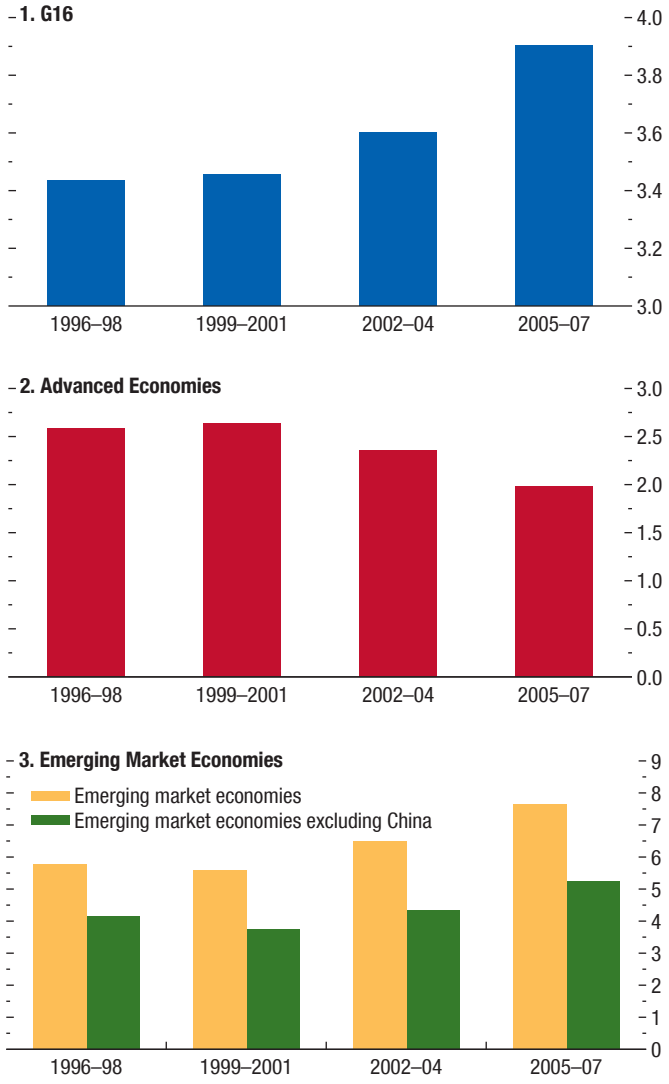
From the early 2000s until the global financial crisis, world potential growth was rising, but this masked a divergence across economies. Potential growth was actually declining in advanced economies, while it was increasing in emerging market economies (Figure 3.3). These patterns held for most countries within each group (Figure 3.4).[7] The following analysis shows that in both country groups the changes in potential growth were attributable mostly to changes in total factor productivity growth. Given the marked differences in the direction of changes and the underlying drivers, the results are presented separately for the two groups of economies.

[6]Demographic factors may also affect productivity (see, for example, Feyrer 2007) and investment (see, for example, Higgins 1998).

[7]A notable exception is Russia, where potential growth declined during 2001–07, from about 6.0 percent to about 5.1 percent.

Figure 3.3. Precrisis Potential Output Growth Evolution
(Percent)

From the late 1990s until the global financial crisis, world potential growth was rising, but this masked a divergence across economies. Potential growth was actually declining in advanced economies, while it was increasing in emerging market economies.



Source: IMF staff estimates.
Note: Economy groups are defined in Annex 3.1.

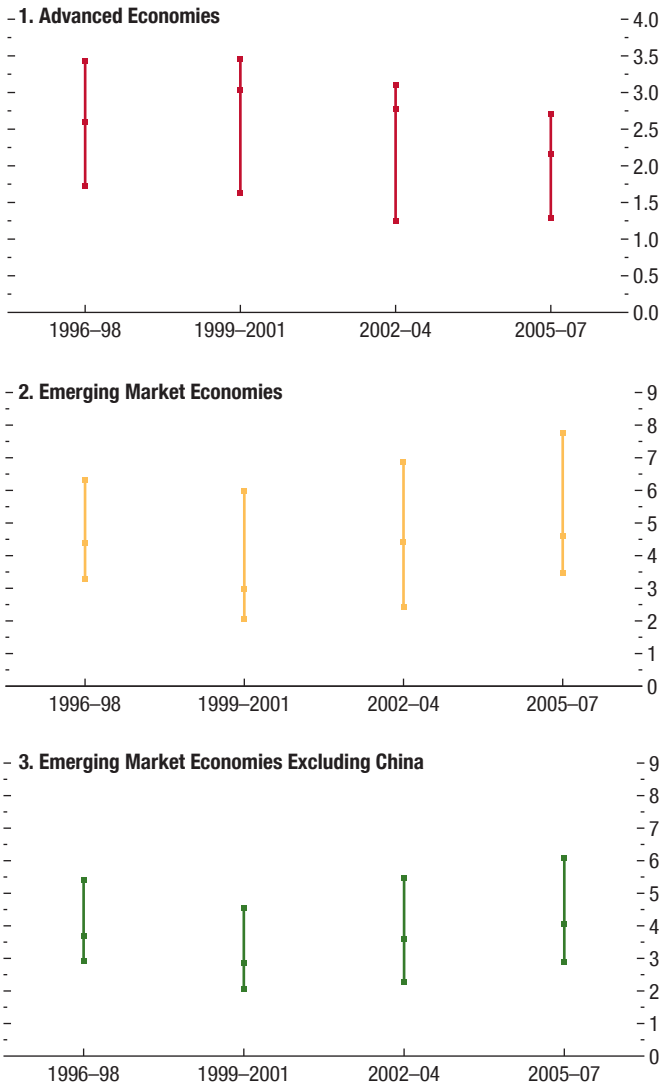
Advanced Economies

In advanced economies, potential growth declined during the period, from about 2.4 percent to about 1.9 percent (Figure 3.5, panel 1). A drop in total factor productivity growth from about 0.9 percent to about 0.5 percent accounted for most of the decline. Poten-

Figure 3.4. Variation in Potential Output Growth across Countries

(Percent)

The patterns of potential output growth held for most countries within each group.

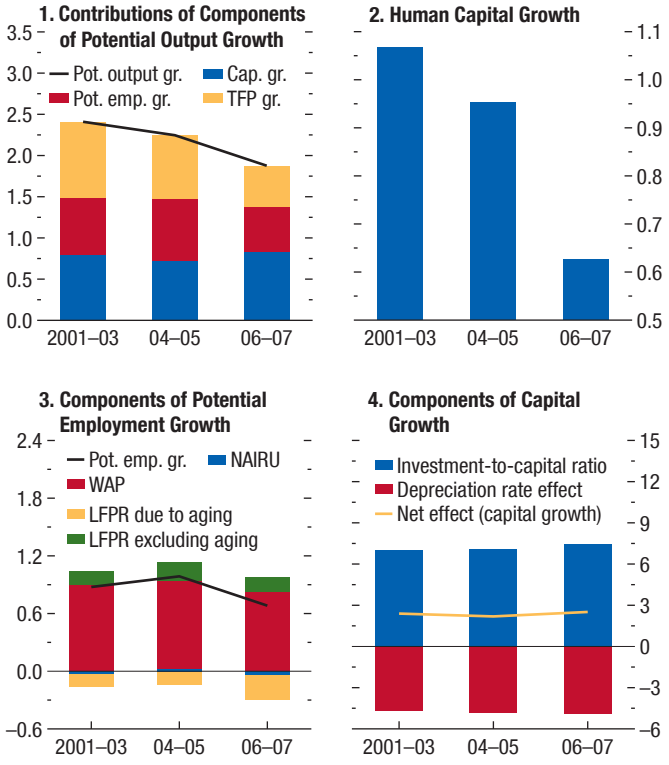


Source: IMF staff estimates.
Note: The upper and lower ends of each line show the top and bottom quartiles; the marker within the line shows the median within the group over the corresponding period. Economy groups are defined in Annex 3.1.

Figure 3.5. Determinants of Potential Output Growth in Advanced Economies

(Percent)

In advanced economies, potential growth declined in 2001–07 because of lower total factor productivity growth, resulting in part from a decline in human capital growth. Potential employment growth fell only slightly as a result of demographic factors. Growth in the capital stock remained stable.



Sources: Barro and Lee 2010; and IMF staff estimates.
Note: Human capital is measured as the percentage of people in the population over 15 years old who have secondary education or higher. Advanced economies are defined in Annex 3.1. Cap. gr. = capital growth; LFPR = labor force participation rate; NAIRU = nonaccelerating inflation rate of unemployment; pot. emp. gr. = potential employment growth; pot. output gr. = potential output growth; TFP gr. = total factor productivity growth (including human capital growth); WAP = working-age population.

tial employment growth fell only slightly, while capital growth remained broadly stable.

Total Factor Productivity Growth

Several developments may explain the decline in total factor productivity growth. First, in the United States, whose technological development is commonly regarded as representing the world frontier, the growth in total factor productivity started to decline in 2003. This decline seems to reflect the waning of the exceptional growth effects of information and communications technology as a general purpose technology observed in the late 1990s to early 2000s (Fernald 2014a, 2014b).[8] In particular, industry-level data suggest that the slowdown in U.S. total factor

[8]The reduced dynamism of the U.S. economy—as measured by rates of firm entry and job creation and destruction—may have also contributed to the observed decline (Decker and others 2013).

productivity growth occurred mainly in sectors that produce or intensively use information and communications technology. The decline in U.S. total factor productivity growth may, in turn, have spilled over to other advanced economies (Box 3.2). Second, total factor productivity growth in many advanced economies declined as a result of a shift of resources away from sectors with high productivity (such as manufacturing and information and communications technology) toward those with low productivity (such as personal services, construction, and nonmarket services) (Box 3.3; Dabla-Norris and others, forthcoming).

In addition, human capital growth—which is a component of total factor productivity growth as used in this chapter—declined during 2001–07, from about 1.1 percent to about 0.6 percent (Figure 3.5, panel 2).[9] This decline partly reflects a reduction in the marginal return to additional education as educational attainment in these economies increases (Johansson and others 2013; Riosmena and others 2008).[10]

Potential Employment Growth

Potential employment growth fell slightly during 2001–07, from about 0.9 percent to about 0.6 percent (Figure 3.5, panel 3). The cause was demographic factors, which reduced the growth rate of the working-age population and the trend labor force participation rate.[11]

On average, the growth in the working-age population (ages 15 and older) declined slightly during the period: the effect of smaller young cohorts (because of reduced fertility in most advanced economies) was partly offset by the maturing of postwar baby boom cohorts. In some European countries, including Italy and Spain, increased immigration spurred working-age population growth. In Japan and Korea, working-age population growth has been on a steep downward trend because of the absence of immigration and declining birth rates since the 1980s.

Another outcome of this demographic transition is the increasing average age of the population. People older than the prime working age (that is, older than 54) have a lower propensity to participate in the labor force. Therefore, population aging has been lowering trend participation rates, which on average has lowered employment growth by about 0.2 percentage point a year. At the same time, higher rates of female participation in the labor force in most advanced economies increased the average labor force participation rate by roughly the same amount as aging reduced it, leading to only a modest decline in overall potential employment growth. Two notable cases in which potential employment growth has been slowing more markedly are the United States—where the rate of female participation has flattened—and Japan, where aging pressures have been too strong to be offset by the modest rise in the rate of female participation.

Capital Growth

Growth in the capital stock remained stable during the period (Figure 3.5, panel 1) as the modest increase in the investment-to-capital ratio was offset by the increase in capital depreciation (Figure 3.5, panel 4).[12]

Emerging Market Economies

In emerging market economies, potential growth increased from about 6.1 percent to about 7.4 percent during 2001–07 (Figure 3.6, panel 1). While this exceptional growth was partly driven by China's strong performance, potential growth also increased substantially in other emerging market economies during this period, from about 3.7 percent to about 5.2 percent (Figure 3.3, panel 3).

The acceleration in total factor productivity explains the bulk of the increase in potential growth in emerging market economies during the period. In addition, a sustained increase in investment-to-capital ratios drove the increase in capital accumulation growth. In contrast, potential employment growth declined because of demographic factors.

Total Factor Productivity Growth

Total factor productivity growth increased from about 3.2 percent to 4.2 percent in the period (Figure 3.6,

[9]Human capital is measured by the formal level of schooling obtained, given limited data availability of measures of educational quality, including skills acquired—such as the PISA (Programme for International Study Assessment)—for some emerging market economies analyzed in the chapter. Specifically, human capital accumulation is measured as the percentage of secondary and tertiary schooling in a population (Barro and Lee 2010). Using other indicators of human capital accumulation, such as the number of years of schooling, produces a similar pattern.

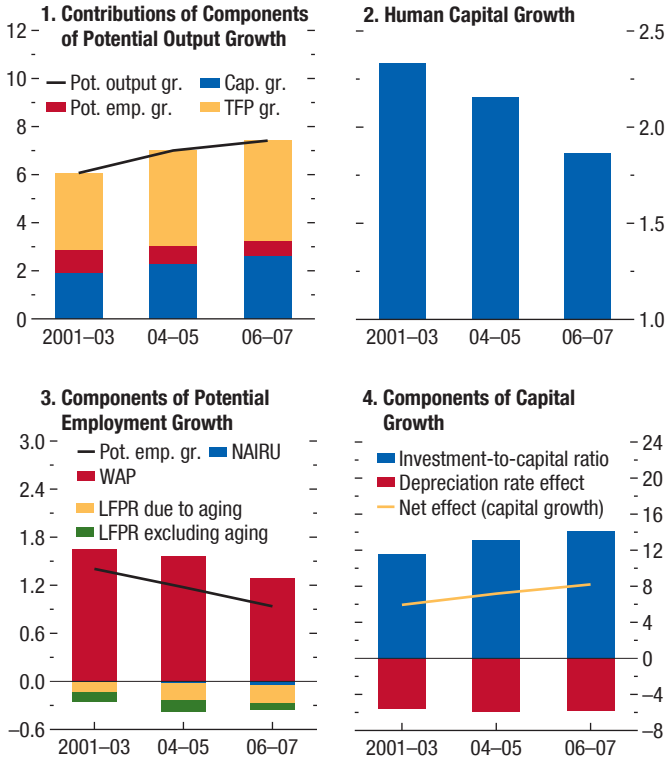
[10]This measure of human capital is, in practice, bounded, with the maximum given by the entire population having tertiary schooling. This implies a limit to human capital growth in the long term.

[11]See Annex Figure 3.3.1 for the evolution of demographic profiles in advanced economies.

[12]The investment-to-output ratio followed a similar pattern.

Figure 3.6. Determinants of Potential Output Growth in Emerging Market Economies
(Percent)

In emerging market economies, potential growth increased in 2001–07 on the back of strong total factor productivity growth—despite a marked decline in human capital growth—and capital growth. In contrast, demographic factors contributed to the decline in potential employment growth.



Sources: Barro and Lee 2010; and IMF staff estimates.
Note: Human capital is measured as the percentage of people in the population over 15 years old who have secondary education or higher. Emerging market economies are defined in Annex 3.1. Cap. gr. = capital growth; LFPR = labor force participation rate; NAIRU = nonaccelerating inflation rate of unemployment; pot. emp. gr. = potential employment growth; pot. output gr. = potential output growth; TFP gr. = total factor productivity growth (including human capital growth); WAP = working-age population.

panel 1). Possible explanations for this increase include (1) an expansion of global and regional value chains, which stimulates technology and knowledge transfers (Dabla-Norris and others 2013); (2) shifts of resources to higher-productivity sectors, particularly in China, India, Mexico, and Turkey (McMillan and Rodrik 2011); (3) greater diversification, which tends to concentrate exports in sectors characterized by technology spillovers and upgrading of product quality (Papageorgiou and Spatafora 2012; Henn, Papageorgiou, and Spatafora 2014); and (4) productivity gains associated with structural reforms (Cubeddu and others 2014).

Human capital growth declined from about 2.3 percent to about 1.9 percent in the period (Figure 3.6, panel 2), with the notable exception of Turkey, where it increased. As for advanced economies, this decline partly reflects a lower marginal return to additional education as attainment increases.

Potential Employment Growth

Demographic factors contributed to a decline in potential employment growth, from about 1.5 percent to about 1.0 percent during the period (Figure 3.6, panel 3).[13]

Decreases in fertility (generally associated with higher incomes) markedly reduced the growth rate of the working-age population during the period, though from much higher levels than in advanced economies.[14] The growth slowdown was sharpest in China, where the rate declined by half, from about 2 percent to 1 percent during the five years starting in 2003. In other emerging market economies, particularly Mexico, working-age population growth was stable at about 2 percent. In addition, participation rates of young and prime-age workers in China, India, and Turkey have been trending downward, reflecting wealth effects and increased pursuit of education.

Rising life expectancy and falling fertility also led to an overall aging of the working-age population during the period, which in turn exerted downward pressure on average participation rates. These forces, which were strongest in China and Russia, lowered potential employment growth during 2001–07 by 0.2 percentage point a year on average.

Capital Growth

Capital growth increased, from about 5.9 percent to about 8.2 percent, during 2001–07 (Figure 3.6, panel 4), contributing about 0.7 percentage point to the increase in potential growth (Figure 3.6, panel 1). This acceleration in capital accumulation was driven by the strong increase in the investment-to-capital ratio during the period—from about 11.6 percent to about 14.1 percent (Figure 3.6, panel 4). The ratio was boosted by strong growth in the terms of trade and more favorable

[13]See Annex Figure 3.3.1 for the evolution of demographic profiles in emerging market economies.

[14]Various theories have been put forward in the demographic and growth literature about the factors driving the demographic transition of falling fertility associated with higher income. One causal channel that has received empirical support is the reduction in child and infant mortality. See Kalemli-Ozcan 2002 for a review of the literature.

financing conditions, including lower interest rates in advanced economies (Cubeddu and others 2014).

How Did Potential Growth Evolve during the Crisis?

The previous section shows that potential output growth in advanced economies was slowing even before the global financial crisis, whereas it was rising in emerging market economies. Shortly after the crisis hit in September 2008, economic activity collapsed, and more than six years after the crisis, growth is still weaker than was expected before the crisis. The protracted weakness in economic activity suggests that it partly relates to weaker potential output, not just cyclical factors. A key question is whether persistent lower growth reflects mostly temporary effects from crisis-related changes in the level of potential output or whether this crisis, unlike earlier ones, has also triggered a decline in potential growth. This section examines this question theoretically and empirically.

How Can Financial Crises Affect Potential Growth? A Theoretical Framework

Financial crises may permanently reduce the level of potential output through a number of channels: investment in productive capital, potential employment, total factor productivity, and sectoral reallocation of resources. Declines in the level of potential output will also temporarily reduce potential growth, but it is harder to make the case on theoretical grounds that financial crises permanently reduce potential growth, as the following discussion illustrates.

- *Investment in productive capital:* Financial crises can lower potential output through their negative effects on investment in productive capital. As discussed in Chapter 4, the collapse in economic activity during the global financial crisis can explain much of the decline in investment, and financial factors are an important transmission channel. For example, as the supply of credit becomes more limited, firms may face less advantageous financing terms and tighter lending standards for an extended period (Claessens and Kose 2013).[15] Moreover, financial crises weaken firms' incentives to invest because risks and uncertainty about expected returns tend to increase (Pindyck 1991; Pindyck and Solimano 1993). Financial crises may permanently reduce the level of potential output and have long-lasting effects on potential growth if investment-to-capital ratios remain depressed for an extended period.[16] As output and investment recover from crises, capital will return to its equilibrium growth path, but more gradually since it is a slow-moving variable.[17]
- *Structural unemployment:* Severe financial crises, which tend to be followed by long and deep recessions, may lead to a permanent decline in the level of potential output by increasing structural unemployment or the NAIRU as a result of hysteresis effects (Blanchard and Summers 1986; Ball 2009). This is particularly the case for economies with rigid labor market institutions (Blanchard and Wolfers 2000; Bassanini and Duval 2006; Bernal-Verdugo, Furceri, and Guillaume 2013). Increases in the NAIRU will lead to a temporary decline in the growth rate of potential employment and thus potential output, but such growth effects will vanish in the medium term as the NAIRU stabilizes.
- *Labor force participation rates:* Financial crises may also reduce the level of potential output by leading to a persistent or even a permanent reduction in participation rates. High unemployment rates may discourage workers from searching for jobs (discouraged-worker effect) and force them to exit the labor force (Elmeskov and Pichelman 1993). This is particularly the case for older workers and in countries where social transfer programs provide early retirement incentives (Nickell and Van Ours 2000; Autor and Duggan 2003; Coile and Levine 2007, 2009). Again, while this channel can lead to

[15]Financial crises differ from other types of recessions in that they are often associated with "creditless recoveries" (Claessens and Terrones 2012; Claessens and Kose 2013).

[16]Capital stock growth is equal to the ratio of investment to the previous year's capital minus the depreciation rate:

$$\Delta K_t/K_{t-1} = I_t/K_{t-1} - \delta_t,$$

in which K is the stock of capital, I the level of investment, and δ denotes capital depreciation. Moreover, the ratio of investment to the previous year's capital can be further decomposed as

$$I_t/K_{t-1} = (1 + g) \times I_{t-1}/K_{t-1},$$

in which g is the growth rate of investment. This identity shows that as investment growth picks up, capital growth will increase, but more gradually, since its evolution depends also on the lagged investment-to-capital ratio (I_{t-1}/K_{t-1}).

[17]In balanced growth, the capital-to-output ratio is constant. After a shock, the ratio will eventually return to its equilibrium growth path because of the economy's mean reversion tendencies. Hall (2014) argues that the recovery from the shortfall in U.S. capital may take place only gradually over a decade or more.

temporarily lower potential output growth, it will ultimately have only level effects.

- *Sectoral reallocation:* Financial crises may also increase the level of structural unemployment through sectoral reallocation, to the extent that job separations are associated with substantial reallocation costs (Loungani and Rogerson 1989; Figura and Wascher 2010; Reifschneider, Wascher, and Wilcox 2013). Sectoral reallocation may also affect the level of potential output by reducing productivity levels if the displaced capital is highly specific to the affected sector (Ramey and Shapiro 2001). However, sectoral reallocation has an uncertain effect on aggregate productivity because labor may reallocate from high- to low-productivity sectors and vice versa.[18] Possible damage to productivity could persist and could reduce potential growth for an extended period given sufficiently long-lasting reallocation.
- *Total factor productivity:* Financial crises can have conflicting effects on total factor productivity, and the net effect is impossible to specify in advance. On one hand, financial crises may lower total factor productivity by reducing investment in innovation through research and development, which is highly procyclical. On the other hand, such crises may also tend to raise total factor productivity to the extent that they give firms a stronger incentive to improve their efficiency and by leading to "creative destruction" or Schumpeterian growth (Aghion and Howitt 2006).

The specific effect of financial crises on the human capital component of total factor productivity (as used in this chapter) is also ambiguous. On one hand, human capital accumulation can be countercyclical because, during downturns, firms have more of an incentive to reorganize and retrain (Aghion and Saint-Paul 1998b) and because individuals may spend more time learning given the lower returns to working (Aghion and Saint-Paul 1998a; Blackburn and Galindev 2003). On the other hand, human capital accumulation may decrease during recessions because of reduced "learning by doing" (Martin and Rogers 1997, 2000).

In sum, while possible adverse effects of financial crises may permanently reduce the level of total factor productivity and therefore lead to temporary declines in its growth rate, they are unlikely to have long-term effects on growth (Hall 2014).

Potential Growth in the Aftermath of the Global Financial Crisis

This section examines the evolution of potential growth in the aftermath of the global financial crisis in advanced and emerging market economies and assesses whether the theoretical considerations regarding the transmission channels are borne out in the data.

The analysis presented in the section shows that potential growth has declined in both advanced and emerging market economies in the aftermath of the crisis.[19] This decline was sharpest immediately after the crisis (2008–10), but potential growth had not yet recovered to precrisis rates as of 2014. This suggests the possibility of persistent effects on growth, which distinguishes the global financial crisis from other financial crises: previous work examining earlier crises has not found that these episodes affect the *growth rate* of potential output (Cerra and Saxena 2008; October 2009 *World Economic Outlook*, Chapter 4; Furceri and Mourougane 2012). However, the results of the analysis also highlight that some of the decline in potential growth should not be attributed to the crisis. In advanced economies, there are continued effects from demographic trends. In emerging market economies, the factors responsible for this decline are more difficult to identify and could include developments not related to the crisis, such as convergence of total factor productivity to the technological frontier and reduced growth in input utilization—such as hours worked and capacity utilization—and in the stock of human capital.

Advanced Economies

In advanced economies, potential growth fell from slightly less than 2 percent in the precrisis period (2006–07) to about 1½ percent during 2013–14. The decline was larger in euro area economies (about ½ percentage point) than in the United States and in other advanced economies (about ⅓ percentage point).

[18]Data availability limitations preclude an examination of this channel for the global financial crisis, but Box 3.4 shows that it has played a significant role in explaining the adverse effect of past financial crises on overall productivity.

[19]See Annex 3.4 for an econometric analysis of the possible effects of the crisis on the levels and the growth rates of potential output in advanced and emerging market economies.

For advanced economies as a whole, the decline in potential growth can be attributed to an important extent to the effect of the global financial crisis on investment (see Chapter 4) and thus on capital growth (Figure 3.7, panels 1–4). In particular, capital growth declined by about 0.8 percentage point in the aftermath of the crisis, contributing to a reduction in potential growth of about ¼ percentage point during the same period. This effect is larger for euro area countries (0.4 percentage point)—possibly because of tighter financial conditions—than for the United States (about ¼ percentage point) and other advanced economies (0.15 percentage point).

Potential employment growth also declined, from about 0.8 percent to about 0.4 percent over this period, contributing to a reduction in potential growth of about ¼ percentage point (Figure 3.7, panels 5–8). The decline in potential employment growth was larger in euro area economies (0.6 percentage point) than in the United States (0.3 percentage point) and other advanced economies (0.4 percentage point). However, it appears that this persistent decline in potential employment growth is not associated with scars from the crisis (namely, the change in the NAIRU and in labor force participation rates). Specifically, the temporary effects on growth from crisis-related changes in the NAIRU and labor force participation rates had worn off as of 2014. Instead, the persistent decline is attributable to demographic factors that negatively affected the growth of the working-age population and labor participation rates.

Similarly, the short-term effects of the crisis on total factor productivity growth observed during 2008–09 have already completely unwound.[20] In 2014, total factor productivity growth is estimated to have returned to the rates observed immediately before the crisis.

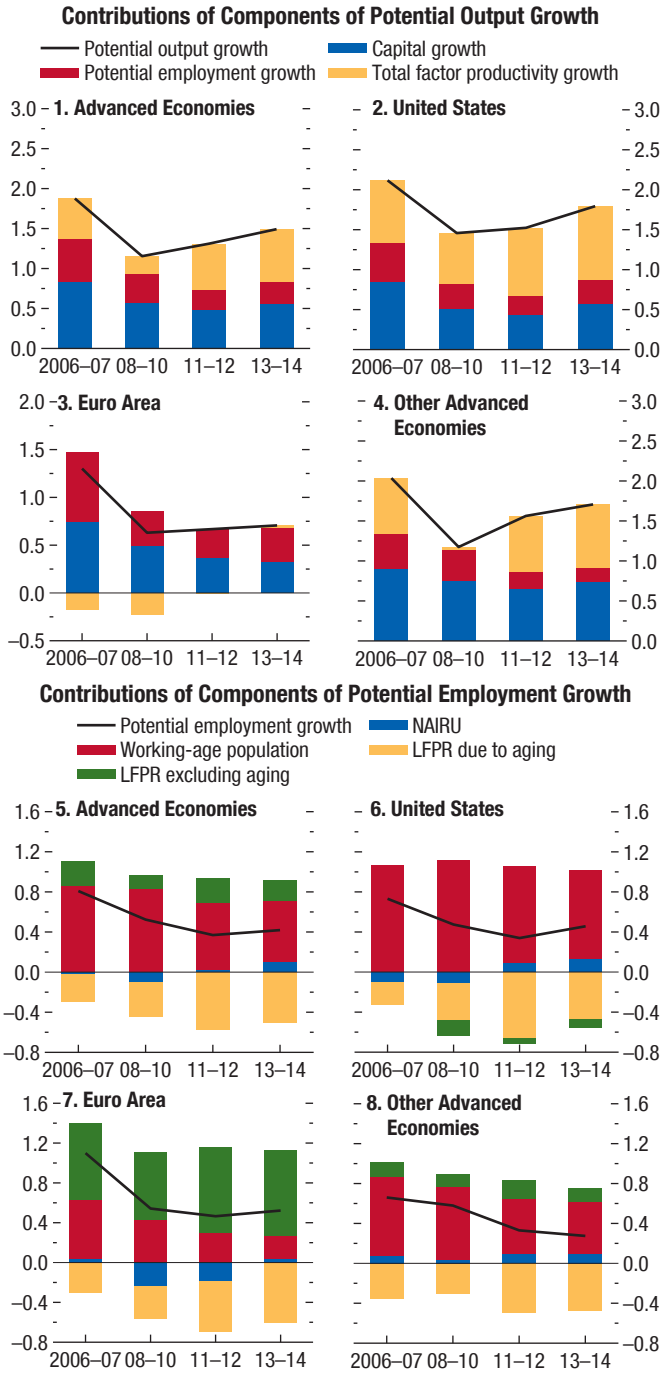
Emerging Market Economies

In emerging market economies, potential growth declined from about 7½ percent in the precrisis period (2006–07) to about 5½ percent during 2013–14 (Figure 3.8, panel 1). Although this decline was driven by the significant reduction in potential growth in China (about 3 percentage points) (Figure 3.8, panel 2), potential growth also declined substantially in other emerging market economies during this period,

[20]This result is consistent with previous evidence on the effect of the crisis on U.S. total factor productivity growth (Fernald 2014a, 2014b; Hall 2014).

Figure 3.7. Components of Potential Output Growth during the Global Financial Crisis in Advanced Economies
(Percent)

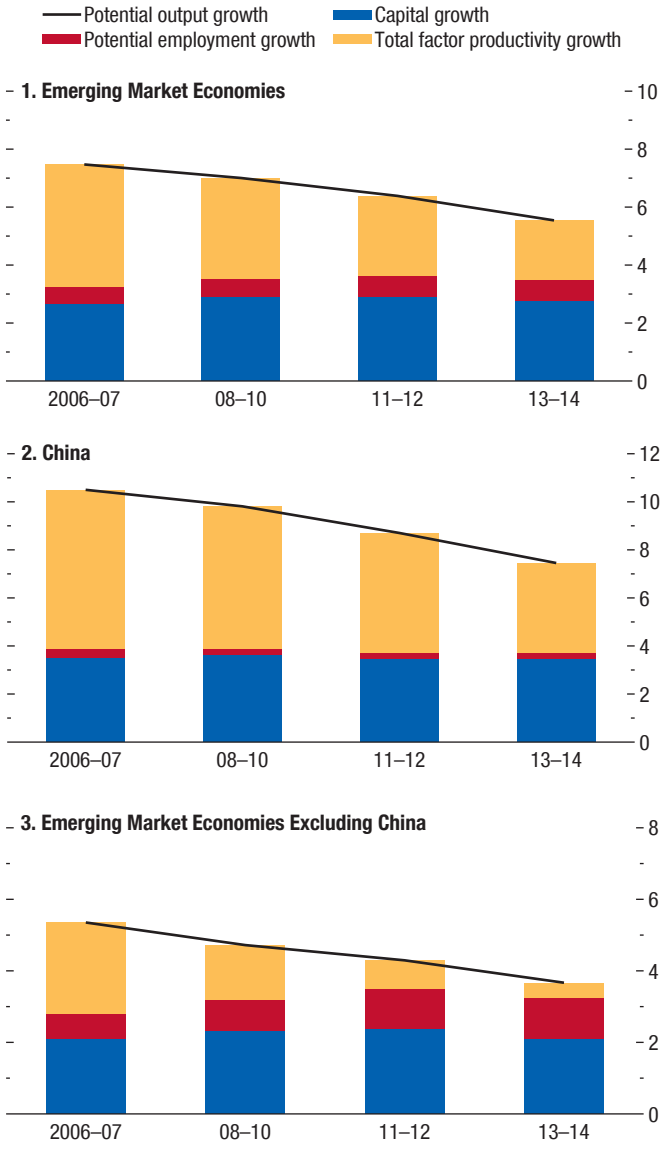
In advanced economies, the decline in potential growth during the global financial crisis is mainly attributable to the effects of the crisis on capital growth. Potential employment also declined during this period, although the decline is mainly explained by demographic factors. The effect of the global financial crisis on total factor productivity has completely unwound.



Source: IMF staff estimates.
Note: Economy groups are defined in Annex 3.1. LFPR = labor force participation rate; NAIRU = nonaccelerating inflation rate of unemployment.

Figure 3.8. Components of Potential Output Growth during the Global Financial Crisis in Emerging Market Economies
(Percent)

In emerging market economies, the decline of potential growth during the global financial crisis is mainly explained by a reduction in total factor productivity growth. Potential employment and capital growth were not affected by the crisis.



Source: IMF staff estimates.
Note: Economy groups are defined in Annex 3.1.

from about 5½ percent to 3½ percent (Figure 3.8, panel 3). For emerging market economies as a group, the decline in total factor productivity growth—from about 4¼ percent to about 2¼ percent during this period—accounted for the entire decline in potential growth (Figure 3.8, panel 1). In contrast, potential employment growth remained broadly stable, and capital growth was not affected by the crisis and actually increased temporarily—likely because of some countries' efforts to counter the effects of the crisis by adopting investment stimulus measures.

The fact that almost all of the decline in post-crisis potential output growth in emerging market economies results from a decline in total factor productivity growth—measured as a residual in the growth-accounting framework—does not fit easily with theoretical predictions. Although this decline may partly reflect the higher volatility in measured total factor productivity in emerging market economies—which in turn might reflect greater measurement errors (Cubeddu and others 2014)—other factors could be at work. These factors could include a gradual slowdown in convergence to the technological frontier after rapid catchup in the decade before the crisis, reduced growth in input utilization, and lower human capital growth.[21]

Where Are We Headed?

What is the likely trajectory of potential output in the medium term? To answer this question, this section considers prospects for the components of potential growth—labor, capital, and total factor productivity—in the medium term, which is defined here as the six-year period from 2015 to 2020. The scenario presented in the section builds on the previous analysis of the evolution of potential growth until now and extends it, based on projected demographic patterns and the experience from past financial crises.[22] This scenario should be considered as illustrative, given the considerable uncertainty surrounding many elements of the analysis, including possible errors in demographic projections, alongside the wide variations in the experience with previous crises.

[21]In emerging market economies, human capital growth declined by about 1 percentage point during the crisis (see Annex Figure 3.5.1).

[22]Demographic projections are based on estimates of fertility and mortality rates, and net migration flows. See the UN *World Population Prospects: The 2012 Revision* (http://esa.un.org/wpp/) for details.

Advanced Economies

The medium-term outlook for potential growth is constructed by considering the prospects for each of its components:

- Potential employment growth is expected to decline further compared with precrisis rates. This decline entirely reflects demographic factors, which negatively affect both the growth of the working-age population and trend labor force participation rates (Figure 3.9, panel 1). The negative growth effects from crisis-related changes in the levels of structural unemployment and labor force participation rates have already worn off, as discussed previously.

Working-age population growth is likely to decline significantly in most advanced economies, particularly Germany and Japan, where it will reach about –0.2 percent a year by 2020.[23] At the same time, rapid aging is expected to further decrease average trend labor force participation rates, offsetting the positive effect of continued population increases on overall labor supply. This decline is projected to be strongest in Canada, where aging alone should reduce the overall participation rate by more than 2 percentage points in the medium term. Overall, potential employment growth in advanced economies is expected to decline by about 0.2 percentage point compared with precrisis rates.

- Capital growth is likely to remain below precrisis rates through 2020.

As discussed in the theoretical framework, if investment-to-capital ratios remain below precrisis levels for an extended period, capital growth will return to its equilibrium growth path only very gradually. In other words, the contribution of capital growth to potential output may stay low for a long time. The key question, therefore, is what the experience from past financial crises suggests about the likely trajectory of the investment-to-capital ratio—which determines the rate of capital stock growth, given depreciation rates—in the medium term.[24]

The evidence from the aftermath of previous financial crises suggests that full reversal of the decline in the investment-to-capital ratio by 2020 is unlikely. Econometric estimates suggest that there are significant and long-lasting declines in the investment-to-capital

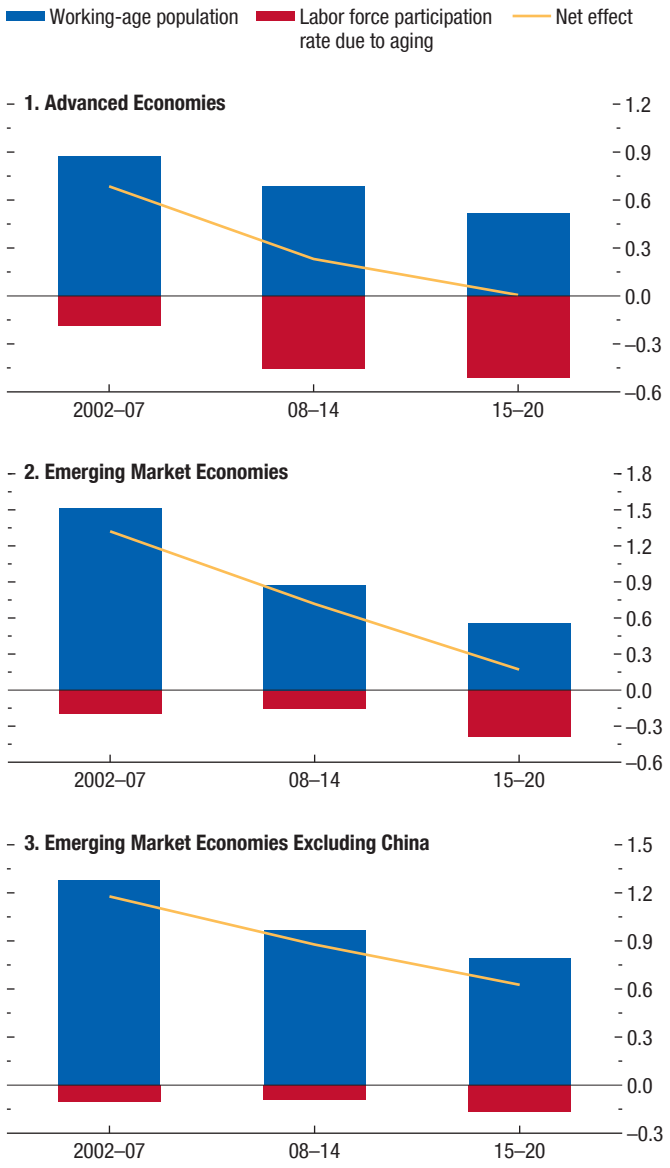
[23]In the case of Germany, this decline could be partly offset if recent exceptional net immigration flows persist and exceed those projected in the 2012 revision of the UN *World Population Prospects*.

[24]Capital stock growth is equal to the investment-to-capital ratio minus the depreciation rate.

Figure 3.9. Effect of Demographics on Employment Growth

(Percent)

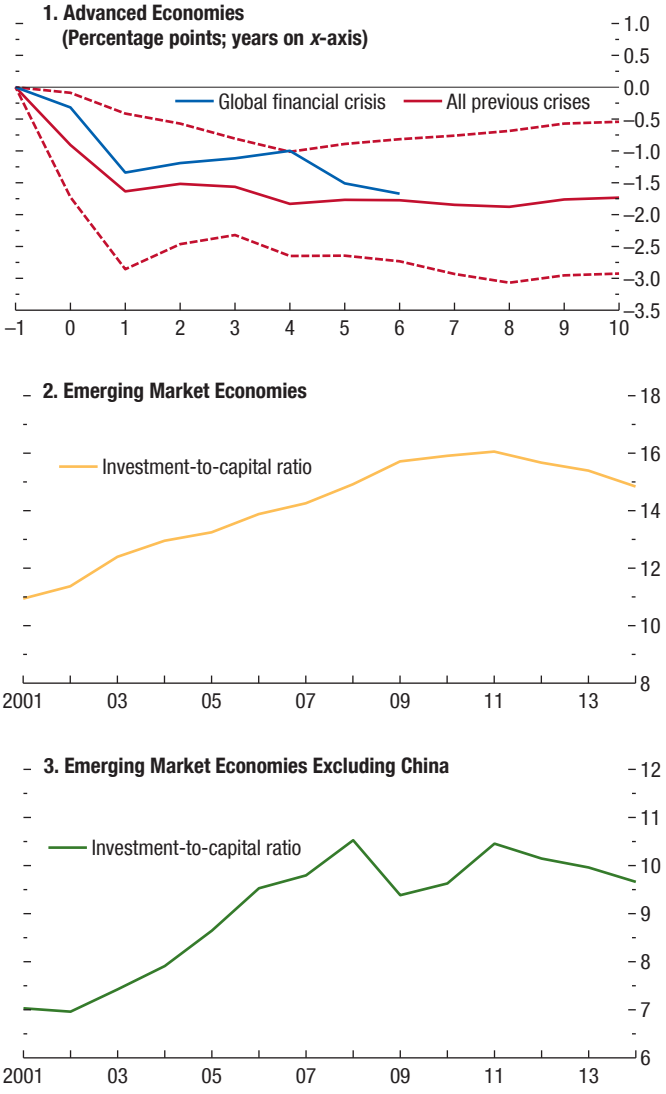
Potential employment growth is expected to decline further in both advanced and emerging market economies compared to precrisis rates. This is a result of demographic factors negatively affecting both the growth of the working-age population and trend labor force participation rates.



Source: IMF staff estimates.
Note: Economy groups are defined in Annex 3.1.

Figure 3.10. Investment-to-Capital Ratio
(Percent, unless noted otherwise)

In both advanced and emerging market economies, the investment-to-capital ratio is likely to remain below precrisis rates over the medium term.



Sources: Laeven and Valencia 2014; and IMF staff estimates.
Note: In panel 1, the blue line represents the effect of the global financial crisis, and red lines represent the effect of previous financial crises (based on Laeven and Valencia 2014), on the investment-to-capital ratio. Dashed red lines denote 90 percent confidence bands. Economy groups are defined in Annex 3.1.

ratio after financial crises (Figure 3.10, panel 1). Typically, the decline in this ratio is about 1.7 percentage points six years after the crisis. This estimated medium-term effect matches the estimated postcrisis decline in the investment-to-capital ratio in advanced economies up to 2014.[25] Part of the decline may also reflect firms' responses to lower labor force growth, which makes it possible to maintain the capital-per-worker ratio with less investment. If investment ratios in advanced economies remain low for as long as they have in previous financial crises, capital stock growth will remain below precrisis rates—at about 1¾ percent. This, in turn, will lower potential growth by about 0.2 percentage point compared with precrisis rates.

- The deceleration in total factor productivity levels observed before the crisis is likely to be lasting, implying that total factor productivity growth will return to rates seen immediately before the crisis, but not higher.

The findings of this chapter suggest that trend total factor productivity growth began declining before the crisis. Even though the effect of the crisis has faded, total factor productivity growth is unlikely to return rapidly to the exceptionally high rates observed in the early 2000s—although this possibility cannot be dismissed—especially in regard to the many European countries without sizable information and communications technology sectors (European Commission 2014).[26] In addition, human capital growth—a component of total factor productivity growth as used in the chapter—is also expected to slow down as the marginal return to additional education decreases (see Annex Figure 3.5.1, panel 1).

Emerging Market Economies

The prospects for evolution of the components of potential growth in emerging market economies are as follows:

- Potential employment growth is expected to decline further in the medium term. As in advanced economies, this reflects demographic factors' drag on both the growth of the working-age population and trend

[25]These results are in line with the permanent effect of financial crises on the investment-to-output ratio found in previous studies (Furceri and Mourougane 2012; April 2014 *World Economic Outlook,* Chapter 3).

[26]As illustrated by Byrne, Oliner, and Sichel (2013), views about the future pace of total factor productivity growth vary considerably. See Gordon 2012, Gordon 2014, and Mokyr 2014 for a debate about long-term perspectives on productivity in the United States.

labor force participation rates (Figure 3.9, panels 2 and 3).

Working-age population growth is likely to slow faster, most sharply in China, and remain negative in Russia. Aging is expected to accelerate, lowering trend labor force participation rates and, together with slower population growth, reducing potential employment growth from 0.5 percent to 0.1 percent a year in the medium term. Again, this effect should be strongest in China, but it should also be strong in Brazil, particularly if growth in female participation rates remains at levels observed in recent years. Overall, potential employment growth in emerging market economies is expected to decline further by about 0.6 percentage point in the medium term.

- Capital growth is expected to slow further from current rates, following a gradual decline in investment after the boom years of the 2000s (see Box 4.1).

Investment-to-capital ratios have already fallen by 1.2 percentage points since 2011, leading to a reduction in capital growth of about 0.15 percentage point for the same period (Figure 3.10, panels 2 and 3), and are likely to remain below precrisis rates. This is because of less favorable external financing conditions, softer or flat commodity prices, and infrastructure bottlenecks. In the case of China, the investment-to-capital ratio—and hence capital growth—may continue to decline because of a rebalancing of growth away from investment and toward consumption. In particular, if investment-to-capital ratios remain at the rates observed in 2014 in emerging markets excluding China, and gradually decline in China in the medium term as a result of rebalancing, capital growth will remain ½ percentage point below precrisis rates.

- Total factor productivity growth is expected to remain below its precrisis rates for the next five years.

Total factor productivity growth is likely to rise moderately in the medium term as some crisis-related factors wear off. However, it is assumed to regress toward its historical mean rate (Pritchett and Summers 2014) and remain below precrisis rates as these economies approach the technological frontier. Taking China as an example, if total factor productivity growth follows the typical convergence process, starting from the country's current level of income, it may decline in the medium term by about ¾ percentage point compared with its precrisis rates (Nabar and N'Diaye 2013).[27] Furthermore, the reduction in emerging market total factor productivity growth may be amplified by the reduction in total factor productivity growth in the United States observed since the mid-2000s through technological spillovers. Finally, as for advanced economies, human capital growth is also likely to decline gradually as educational attainment increases toward advanced economies' levels (see Annex Figure 3.5.1, panels 2–3).

[27]This decline may be partly mitigated if the shift away from investment-led growth leads to a more efficient allocation of resources.

Putting It All Together

These scenarios for the components imply that potential growth in advanced and emerging market economies is likely to remain below precrisis rates. In particular, in advanced economies, potential growth is expected to increase only slightly from current rates—from an average of about 1.3 percent during 2008–14 to about 1.6 percent during 2015–20. In emerging market economies, potential growth is likely to decline even further, from an average of about 6.5 percent during 2008–14 to about 5.2 percent during 2015–20. In China, the decline could be even larger because of the rebalancing of growth away from investment and toward consumption (Figure 3.11).[28]

These scenarios are subject to significant uncertainty. In some advanced economies, especially in the euro area and Japan, a protracted period of weak demand could further erode labor supply and investment and thus potential growth. In emerging market economies,

[28]These scenarios are based on the following assumptions:

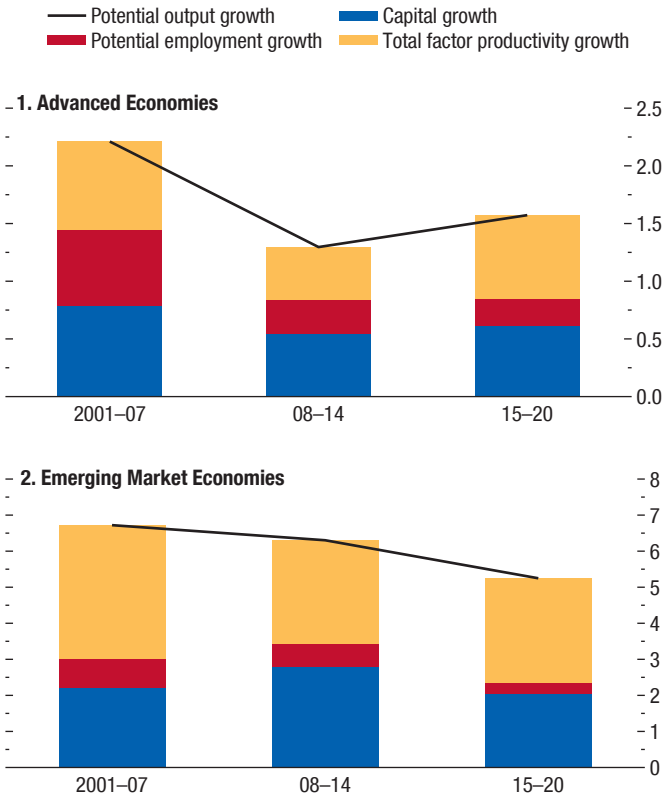
For *advanced economies:* (1) potential employment grows in line with demographic factors, adjusted for medium-term NAIRU estimates obtained using the multivariate filter, which suggest a decline in NAIRU of about 3.3 percentage points by 2020; (2) the investment-to-capital output ratio remains at 2014 rates in the medium term; and (3) total factor productivity growth remains at the precrisis (2003–07) average in the medium term.

For *China:* (1) potential employment grows in line with demographic factors, adjusted for medium-term NAIRU estimates obtained using the multivariate filter, which suggest a decline in the NAIRU of about 1.1 percentage points by 2020; (2) the investment-to-capital output ratio declines by about 1.5 percentage points by 2020 as a result of growth rebalancing, consistent with WEO projections; and (3) total factor productivity growth increases gradually from its 2014 value (by 0.2 percentage point by 2020) because of growth rebalancing—consistent with WEO projections—while remaining below its historical average.

For *other emerging market economies:* (1) potential employment growth is in line with demographic factors, adjusted for medium-term NAIRU estimates obtained using the multivariate filter, which suggest a decline in the NAIRU of about 4.8 percentage points by 2020; (2) the investment-to-capital output ratio remains at 2014 rates in the medium term; and (3) total factor productivity growth converges to historical (2001–14) averages in the medium term (2015–20).

Figure 3.11. Evolution of Potential Output Growth and Its Components
(Percent)

In advanced economies, potential output growth is expected to increase only slightly from current rates as some crisis-related factors wear off, but to remain below precrisis rates. In emerging market economies, potential output growth is expected to decline even further as a result of lower total factor productivity growth and potential employment growth.



Source: IMF staff estimates.
Note: Economy groups are defined in Annex 3.1.

a number of country-specific factors could influence potential growth. In particular, geopolitical risks could affect potential growth in Russia. In addition, potential growth prospects for commodity exporters such as Brazil and Russia depend on the evolution of commodity prices, as the latter is likely to affect investment and capital growth. In China, potential growth prospects will depend crucially on the growth-rebalancing process. And in both advanced and emerging market economies, substantial uncertainty remains about the evolution of total factor productivity growth in the medium term. Finally, these scenarios do not assume policy changes that could boost potential growth in the medium term.

Summary Findings and Policy Implications

From the early 2000s to 2007 (the year before the onset of the global financial crisis), potential output was accelerating strongly in emerging market economies but decelerating in advanced economies.

The crisis was associated with a reduction in potential growth for both groups of economies. The findings of this chapter suggest that potential growth declined in advanced and emerging market economies by ½ and 2 percentage points, respectively, following the crisis.

The chapter's analysis also suggests that in advanced economies, potential growth is likely to increase only slightly from current rates, but to remain below precrisis rates in the medium term. In particular, employment growth has declined and is likely to decline further because of demographic factors, and capital growth is likely to remain below precrisis rates even as output and investment recover from the crisis.

In emerging market economies, potential growth is likely to decline further, as potential employment growth is expected to slow. Because of less favorable external financing conditions and structural constraints, capital accumulation growth is likely to remain below precrisis rates in these economies, especially in China, where it may decline further as growth shifts toward consumption. And without policy changes, the growth of total factor productivity is not likely to return to its high precrisis rates in emerging market economies, given the expected further movement of these economies toward the technological frontier.

Reduced prospects for potential growth in the medium term have important implications for policy. In advanced economies, lower potential growth makes it more difficult to reduce still-high public and private debt. It is also likely to be associated with low equilibrium real interest rates, meaning that monetary policy in advanced economies may again be confronted with the problem of the zero lower bound if adverse growth shocks materialize. In emerging market economies, lower potential growth makes it more challenging to rebuild fiscal buffers. For all economies, a total factor productivity growth rate that remains below precrisis rates will slow the rise in living standards relative to the precrisis years.

These difficulties imply that raising potential output is a priority for policymakers. The reforms needed to achieve this objective vary across countries. In

advanced economies, there is a need for continued demand support to boost investment and thus capital growth (Chapter 4) and for adoption of policies and reforms that can permanently boost the level of potential output, as well as its growth rate in the medium term. These policies would involve product market reforms, greater support for research and development—including strengthening patent systems and adopting well-designed tax incentives and subsidies in countries where they are low—and more intensive use of high-skilled labor and information and communications technology capital inputs to tackle low productivity growth (Box 3.5; OECD 2010); infrastructure investment to boost physical capital (Chapter 3 in the October 2014 *World Economic Outlook*); and better designed tax and expenditure policies to boost labor force participation, particularly for women and older workers (IMF 2012).

In emerging market economies, the important structural reforms to improve productivity include removing infrastructure bottlenecks, improving business conditions and product markets, and hastening education reform. In particular, removing excessively restrictive regulatory barriers in product and labor markets, liberalizing foreign direct investment, and improving education quality and secondary and tertiary attainment can have large productivity payoffs in many emerging market economies (Dabla-Norris and others 2013). In addition, in some of these economies, there is scope to address distortions from high labor tax wedges and inefficient pension design (IMF 2012).

Annex 3.1. Data Sources and Country Groupings

Country Groupings

In Figures 3.1 and 3.2, "World" encompasses the 189 economies that form the statistical basis of the World Economic Outlook (WEO) database. "Advanced economies" comprises the 36 economies listed in Table B of the Statistical Appendix. "Emerging market economies" refers to the economies listed in Table E of the Statistical Appendix, excluding those noted there as low-income developing countries.[29]

For the rest of the figures, the members of the advanced and emerging market economy groupings in the chapter's analyses are shown in Annex Table 3.1.1. These include 10 advanced economies and 6 emerging market economies from the Group of Twenty (G20); these 16 economies accounted for about three-fourths of world GDP in 2014. Data limitations preclude the analysis for three G20 economies—Argentina, Indonesia, Saudi Arabia, and South Africa. Estimates for the European Union—the 20th economy in the G20—and the euro area are based on individual country estimates for France, Germany, Italy, and Spain.

Annex Table 3.1.1. Countries Included in the Analysis

Advanced Economies	
Australia	Japan
Canada	Korea
France	Spain
Germany	United Kingdom
Italy	United States
Emerging Market Economies	
Brazil	Mexico
China	Russia
India	Turkey

Data Sources

The primary data sources for the chapter are the WEO database and the Organisation for Economic Co-operation and Development (OECD) database. All data sources used in the analysis are listed in Annex Table 3.1.2.

Annex 3.2. Multivariate Filter Methodology

Baseline Approach

The estimates of potential output presented in this chapter are computed using a small macroeconomic model, referred to as a multivariate filter. The structure of the model is as follows:[30]

The output gap is defined as the deviation of actual (log) real output from (log) potential output ($\bar{Y}$):

$$y = Y - \bar{Y}. \tag{A3.2.1}$$

The stochastic process for output (measured by real GDP) comprises three equations:

$$\bar{Y}_t = \bar{Y}_{t-1} + G_t + \varepsilon_t^{\bar{Y}}, \tag{A3.2.2}$$

$$G_t = \theta G^{SS} + (1 - \theta) G_{t-1} + \varepsilon_t^{G}, \tag{A3.2.3}$$

$$y_t = \phi y_{t-1} + \varepsilon_t^{y}. \tag{A3.2.4}$$

[29]See the Statistical Appendix for further information on the WEO's classification of countries into economy groups.

[30]Further details are available in Blagrave and others 2015.

Annex Table 3.1.2. Data Sources

Indicator	Source
Potential Output Growth and Its Components	
Potential output growth	IMF staff estimates using multivariate filter
Capital	OECD, Economic Outlook: Statistics and Projections database
Working-age population	UN, *World Population Prospects: The 2012 Revision*
Labor force participation	OECD, Labour Force Statistics database; and International Labour Organization, Key Indicators of the Labour Market database
Nonaccelerating inflation rate of unemployment	IMF staff estimates using multivariate filter
Indicators Used in the Potential Output Growth and Cohort Model Estimations	
Inflation expectations	Consensus Economics
Gross domestic product growth expectations (constant prices)	Consensus Economics
Life expectancy	UN, *World Population Prospects: The 2012 Revision*
Fertility	UN, *World Population Prospects: The 2012 Revision*
Years of schooling	Barro and Lee 2010
Investment	OECD, Economic Outlook: Statistics and Projections database
Depreciation rate	OECD, Economic Outlook: Statistics and Projections database
Others	
Gross domestic product (constant prices)	IMF, World Economic Outlook database
Inflation	IMF, World Economic Outlook database
Unemployment	IMF, World Economic Outlook database
Human capital accumulation	Barro and Lee 2010
Financial crises	Laeven and Valencia 2014

Note: OECD = Organisation for Economic Co-operation and Development; UN = United Nations.

The level of potential output ($\bar{Y}_t$) evolves according to potential growth (G_t) and a level-shock term ($\varepsilon_t^{\bar{Y}}$), which can be interpreted as supply-side shocks. Potential growth is also subject to shocks (ε_t^{G}), with their impact fading gradually according to the parameter θ (with lower values entailing a slower reversion to the steady-state growth rate following a shock). Finally, the output gap is also subject to shocks (ε_t^{y}), which are effectively demand shocks.

To help identify the three aforementioned output shock terms ($\varepsilon_t^{\bar{Y}}$, ε_t^{G}, and ε_t^{y}), a Phillips curve equation for inflation is added, which links the evolution of the output gap (an unobservable variable) to observable data on inflation. In this way, the filter's estimates of the output gap are, in part, determined by inflation outcomes:[31]

$$\pi_t = \lambda\pi_{t+1} + (1-\lambda)\pi_{t-1} + \beta y_t + \varepsilon_t^{\pi}. \qquad \text{(A3.2.5)}$$

In addition, equations describing the evolution of unemployment are included to provide further identifying information for the estimation of the aforementioned output shocks and output gap:

$$\bar{U}_t = \tau_4\bar{U}^{SS} + (1-\tau_4)\bar{U}_{t-1} + g\bar{U}_t + \varepsilon_t^{\bar{U}}, \qquad \text{(A3.2.6)}$$

$$g\bar{U}_t = (1-\tau_3)g\bar{U}_{t-1} + \varepsilon_t^{g\bar{U}}, \qquad \text{(A3.2.7)}$$

$$u_t = \tau_2 u_{t-1} + \tau_1 y_t + \varepsilon_t^{u}, \qquad \text{(A3.2.8)}$$

$$u_t = \bar{U}_t - U_t. \qquad \text{(A3.2.9)}$$

In these equations, $\bar{U}_t$ is the equilibrium value of the nonaccelerating inflation rate of unemployment (NAIRU), which is time varying and subject to shocks ($\varepsilon_t^{\bar{U}}$) and variation in the trend ($g\bar{U}_t$), which is itself also subject to shocks ($\varepsilon_t^{g\bar{U}}$)—this specification allows for persistent deviations of the NAIRU from its steady-state value. Most important, equation (A3.2.8) is an Okun's (1970) law relationship, in which the gap between actual unemployment (U_t) and its equilibrium process ($\bar{U}_t$) is a function of the amount of slack in the economy (y_t). As such, this equation behaves in much the same way as equation (A3.2.5): it dictates that estimates of the output gap are, in part, determined by deviations of the unemployment rate from the NAIRU.

The empirical implementation of the filter requires data on just three observable variables: real GDP growth, consumer price index inflation, and the unemployment rate. Annual data are used for these variables for the 16 countries considered. Parameter values and

[31]The degree to which inflation outcomes influence estimates of the output gap in a given country depends on the estimated strength of the relationship between the two (β) and the persistence of any deviation of inflation from target (since a short-lived deviation of inflation from target tends, all else equal, to be interpreted by the filter as an inflation shock rather than being associated with an output gap). Recent evidence (see Chapter 3 in the April 2013 WEO) suggests that there has been considerable flattening in the Phillips curve during the past several decades, but that much of this flattening took place before the start of the sample period, which begins in 1996.

the standard errors for the variances of shock terms for these equations are estimated using Bayesian estimation techniques.[32]

Data on growth and inflation expectations are added to the model's core structure, in part to help identify shocks during the sample period, but mainly to improve the accuracy of estimates at the end of the sample period:

$$\pi^{C}_{t+j} = \pi_{t+j} + \varepsilon^{\pi^{C}}_{t+j}, \quad j = 0, 1, \qquad \text{(A3.2.10)}$$

$$GROWTH^{C}_{t+j} = GROWTH_{t+j} + \varepsilon^{GROWTH^{C}}_{t+j}, \quad j = 0, \ldots, 5, \qquad \text{(A3.2.11)}$$

in which π^{C}_{t+j} and $GROWTH^{C}_{t+j}$ are Consensus Economics forecasts of inflation and GDP growth, respectively. The addition of these equations imparts some additional stability to the filter's model-consistent growth and inflation expectations estimates. In particular, the inclusion of the $\varepsilon^{\pi^{C}}_{t+j}$ and $\varepsilon^{GROWTH^{C}}_{t+j}$ terms allows Consensus Economics forecasts to influence, but not override, the model's own expectations process (which is dictated by the model's estimates of slack in the economy) when potential output is being estimated.

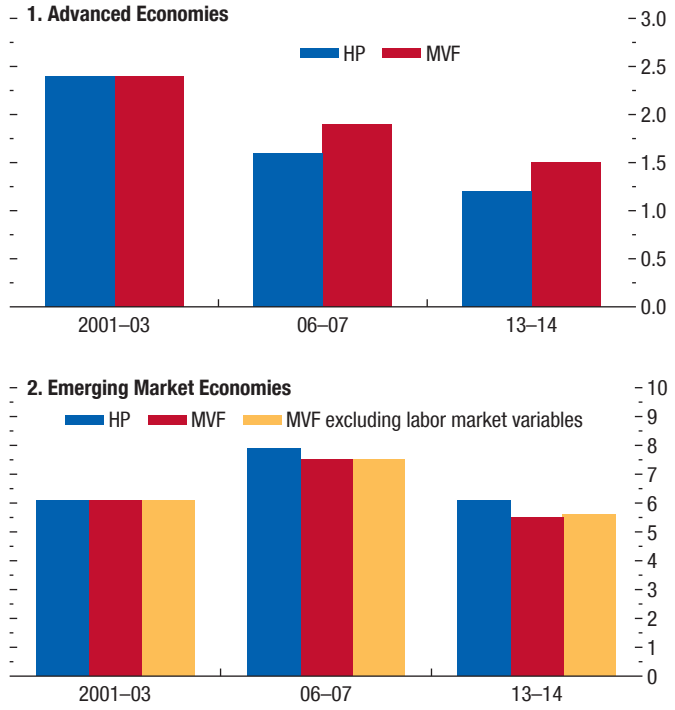
Alternative Approaches

Estimates of potential output are inherently uncertain—because this variable is not observable—and may vary across different estimation methodologies. To illustrate the possible sensitivity of estimates of potential output to different statistical techniques, this section compares the baseline results with those obtained using (1) the Hodrick-Prescott statistical filter, and (2) for emerging market economies, a modified version of the multivariate filter excluding the Okun's (1970) law relationship (that is, equations A3.2.6–A3.2.9). This second alternative approach seeks to reduce possible measurement errors stemming from limited unemployment data quality.

The results in Annex Figure 3.2.1 suggest that these alternative methodologies produce qualitatively similar findings to those presented in the chapter text. In particular, in advanced economies, the decline in potential growth started in the early 2000s and was worsened by the global financial crisis. In emerging market economies, in contrast, it began only after the crisis.

[32]See Hamilton 1994 for a general discussion of the Kalman filter, which is used to obtain estimates of the unobservable variables as part of the estimation process. Estimates for each country are available in Blagrave and others 2015.

Annex Figure 3.2.1. Potential Output Growth
(Percent)



Source: IMF staff estimates.
Note: Economy groups are defined in Annex 3.1. HP = Hodrick-Prescott filter with smoothing parameter equal to 6.25; MVF = multivariate filter.

Annex 3.3. Estimating Trend Labor Force Participation Rates

This annex describes the methodology used to estimate trend labor force participation rates for the 16 advanced and emerging market economies considered in the chapter (see Annex 3.1) from 1980 to 2013. The methodology relies on a cohort-based model—as, for example, in Aaronson and others 2014 and Balleer, Gomez-Salvador, and Turunen 2014—to decompose the aggregate participation rate into the participation rates of disaggregated age-gender groups and estimate their determinants.

Model

For each age group *a*, gender *g*, in year *t*, the time series of group-wise labor force participation rates

(in logs) is estimated according to the following specification:[33]

$$\log LFP_{a,g,t} = \alpha_{a,g} + \frac{1}{n_a} \sum_{b=1920}^{1988} \beta_{b,g} I_{a,t}(t - a = b) + \sum_{l=0}^{2} \gamma_{a,g}^{l} cycle_{t-l} + \lambda_{a,g} X_{a,g,t} + \varepsilon_{a,g,t}. \quad \text{(A3.3.1)}$$

This specification is estimated separately for each country. Group-specific labor force participation rates have four main categories of determinants:

- An *age-gender-specific intercept* captures the average labor force participation rate for each age group to reflect the life cycle (bell-shaped) pattern of labor supply: low for youth, increasing and flattening during prime age, and decreasing as retirement age approaches. This life cycle pattern can differ for men and women.
- Slowly evolving cultural and behavioral changes can shift the whole life cycle participation profile up or down, depending on the birth year of an entire cohort. Such *unobservable cohort effects* have been widely documented for women born during the baby boom years in the United States (for example, Aaronson and others 2014), and similar evolutions are taking place in many European and Asian countries. These cohort effects are captured by a fixed effect (I) for each birth year b (depending on data availability for a particular country; the analysis accounts for cohorts born between 1920 and 1988). To obtain the average cohort effect for a given age group, the cohort coefficient is divided by the number of cohorts included in an age group n_a.
- The *business cycle* can have a different effect on the participation decisions of different age-gender groups. For example, the labor supply of young people is often more sensitive to cyclical conditions than is that of mature prime-age workers. The coefficient γ captures the cyclical sensitivity of each group's labor force participation rate while allowing for a partially delayed response of participation rates to cyclical conditions, consistent with existing evidence (see, for example, Balakrishnan and others 2015). The cyclical position is proxied by the employment gap (that is, the deviation of current employment from its trend).
- The model includes *structural factors* that can have an impact on the trend labor force participation rate of particular age groups (vector X). For young people, the participation decision depends on education enrollment status. For women, the participation decision is positively related to educational attainment and, during early prime working age, negatively correlated with fertility and marriage status. For workers close to statutory retirement age, increasing life expectancy is expected to lead to higher participation rates.

Data and Estimation

For advanced economies, the sample consists of 11 age groups (with four-year intervals), separated by gender, from 1980 to 2013; hence there are 11 equations that are jointly estimated for each gender using cross-equation equality restrictions on the cohort coefficients. For emerging market economies, data availability is reduced by both age group granularity (only five age groups for each gender) and period coverage (1990–2013).

Not all cohorts are observed for the same number of years, and in fact, no cohort is observed for the whole life cycle. In particular, cohorts born after 1990 entered the labor force only during or after the global financial crisis, making it hard to distinguish the negative effect of the crisis (beyond the average cyclical impact) from any potential cohort-specific trends. To mitigate this end-point problem (and a similar starting-point problem for the oldest cohorts), no cohort effect is estimated beyond 1988 or before 1920. An alternative version of the model is also estimated that allows the cohort effect of those born after 1988 and before 1920 to equal the average of that for the adjacent five cohorts. The results are robust to this alternative specification.

The effects of the other structural determinants for women, young people, and workers older than 54 are explicitly estimated for advanced economies for which such data are available. It is well documented that the labor force participation rate for prime-age men in advanced economies has been trending down for the past several decades (see, for example, Aaronson and others 2014 and Balleer, Gomez-Salvador, and Turunen 2014), but there is no clear explanation regarding the factors behind this decline. This trend is captured by allowing for linear and quadratic deterministic trends in the labor force participation rate

[33]The model is estimated in logs to ensure that the level labor force participation rate is bounded between zero and one.

equation for prime-age men. For emerging market economies, because of data restrictions, the group trends are obtained by estimating a linear and quadratic trend separately for each group.

The analysis then evaluates each age-gender group's labor force participation rate at the predicted trend rate with a zero cyclical gap and then weights each group by its respective population share to obtain the aggregate trend rate in each year. For the medium-term projection, existing cohorts are allowed to transition through the age distribution according to the estimated cohort age profile, with the assumption that entering cohorts do not experience any systematic shifts in their lifetime participation profiles relative to the last estimated cohort. Future values for structural variables in X are obtained by using life expectancy, fertility, and population projections from the UN Population and Development Database (medium-fertility scenario), linearly extrapolating the educational attainment variables, and keeping all other deterministic trends flat at the last observed level.

Finally, these estimates are then combined with data on demographic distributions to compute the aggregate trend labor force participation rate (Annex Figure 3.3.1).

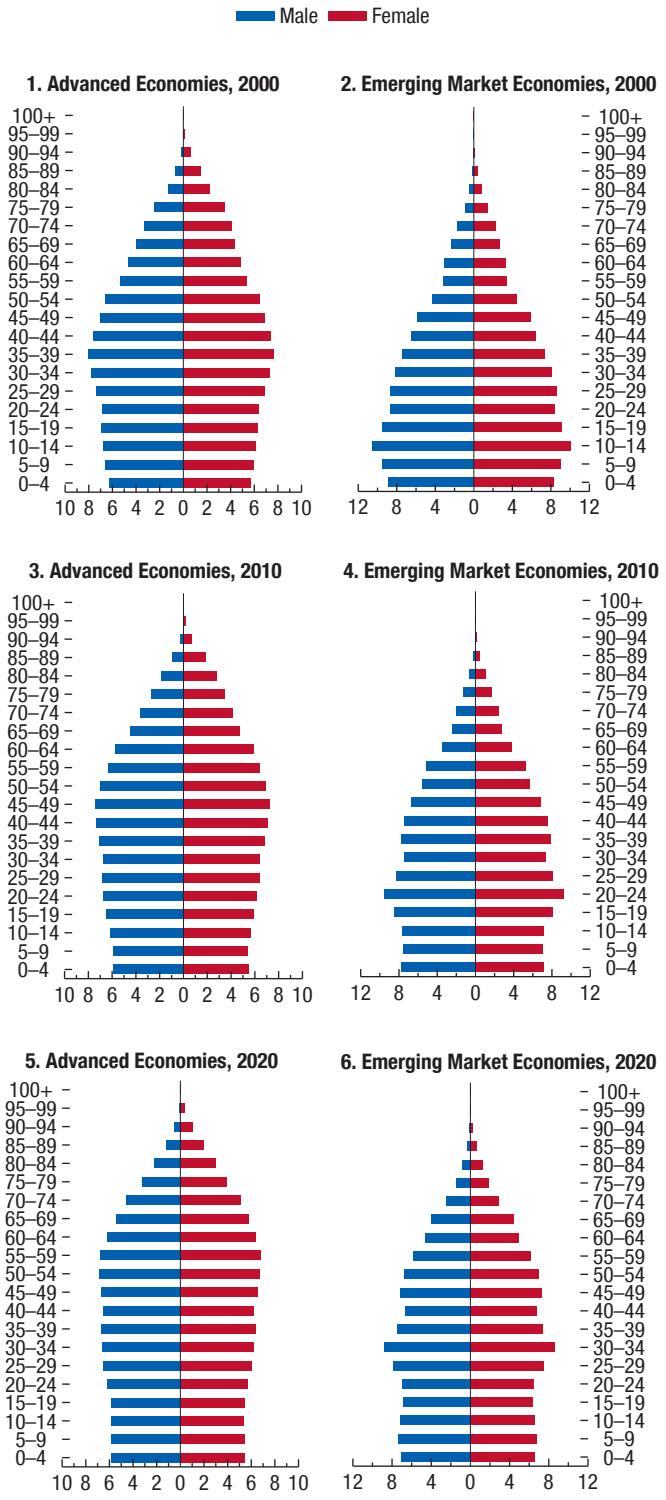
Annex 3.4. Potential Output in the Aftermath of the Global Financial Crisis

The analysis presented in the chapter text shows that potential growth has declined in both advanced and emerging market economies in the aftermath of the global financial crisis. The factors behind this decline are a reduction in capital growth and demographic trends in advanced economies and lower total factor productivity growth in emerging market economies. This annex tries to identify the effect of the crisis on the level and the growth rate of potential output using an econometric framework that controls for precrisis trends, common factors affecting the evolution of potential output in the aftermath of the crisis, and lagged potential output growth.[34]

The analysis follows the approach proposed by Jordà (2005) and expanded by Teulings and Zubanov (2014) by tracing out potential output's evolution in the aftermath of the crisis (identified with a dummy

[34]Although including lagged potential output helps control for various country-specific factors that influence potential output in the near term—since determinants affecting potential output are typically serially correlated—the methodology is not able to control for medium-term country-specific factors.

Annex Figure 3.3.1. Population Share Distributions by Age
(Percent)



Sources: United Nations, *World Population Prospects: The 2012 Revision*; and IMF staff calculations.
Note: Economy groups are defined in Annex 3.1.

that takes the value of 1 for 2008 and 0 otherwise). This approach has been advocated by Stock and Watson (2007) and Auerbach and Gorodnichenko (2013), among others, as a flexible alternative that does not impose dynamic restrictions embedded in vector autoregression (autoregressive distributed lag) specifications.

Specifically, the method consists of estimating separate regressions for potential output at different horizons. More formally, the following econometric specification is estimated:

$$y_{i,t+k} - y_{i,t-1} = \alpha_i^k + \gamma_t^k + \Sigma_{j=1}^{l} \delta_j^k \Delta y_{i,t-j} + \beta_k D_t + \Sigma_{j=1}^{l} \theta_j^k D_{t-j} + \Sigma_{j=0}^{k-1} \rho_j^k D_{t+k-j} + \varepsilon_{i,t+k}^k, \quad \text{(A3.4.1)}$$

in which the i subscripts index countries, the t subscripts index time, and k denotes the horizon (years after time t) being considered; y denotes the (log) level of potential output; D is a crisis dummy that takes the value of 1 for 2008 and 0 otherwise; and α_i and γ_t are country and time dummies, respectively.[35] As suggested by Teulings and Zubanov (2014), the specification includes the forward leads of the crisis dummy between time 0 and the end of the forecast horizon to correct the impulse response bias inherent in local projection methods. The effects of the crisis on potential output growth are estimated by expressing the left side of equation (A3.4.1) in first differences ($y_{i,t+k} - y_{i,t+k-1}$).

The model is estimated for each k. Impulse response functions are computed using the estimated coefficients β_k. The confidence bands associated with the estimated impulse response functions are obtained using the estimated standard deviations of the coefficients β_k. The lag length (l) for potential output and the crisis variable is determined to be equal to two years using standard selection criteria. Equation (A3.4.1) is estimated using heteroscedasticity- and autocorrelation-robust standard errors. A possible concern in the estimation of equation (A3.4.1) is reverse causality, because changes in potential output may affect the probability of occurrence of the global financial crisis. However, this empirical strategy partly addresses this concern by estimating changes in potential output in the aftermath of the crisis. Moreover, robustness checks for reverse causality confirm the validity of the results.[36]

Advanced Economies

The econometric estimates suggest that the global financial crisis was associated with a reduction in potential output in advanced economies of about 6½ percent, on average (Annex Figure 3.4.1, panel 1). The reduction in the euro area economies was about 7¾ percent, that in the United States about 7 percent, and that in the other advanced economies about 5½ percent, although these differences from the average are not statistically significant. These findings are consistent with those of previous studies on the global financial crisis (for example, Ball 2014). In addition, the results suggest that six years after the crisis, about 60 percent of the cumulative loss of actual output in advanced economies, on average, can be attributed to a decline in potential output—this share holds for most of the economies in the group—while the remaining part can be imputed to the cumulative loss in output gaps. In particular, by 2014, output gaps remain negative for most advanced economies.[37]

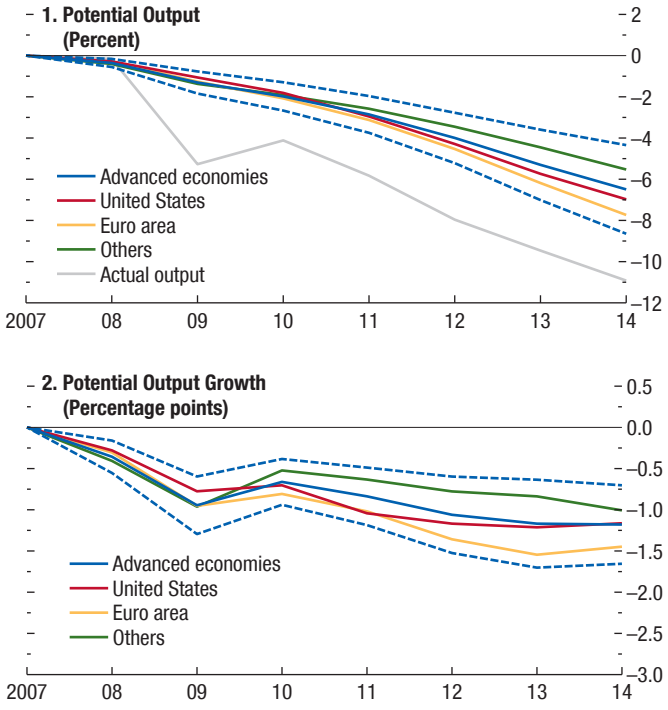
The persistent and increasing decline in the level of potential output also implies a reduction in its growth rate, of about 1.2 percentage points, on average (Annex Figure 3.4.1, panel 2). The differences in the loss of potential growth within the group mirror those for the level of potential output: for euro area economies, potential growth dropped by about 1.4 percentage points, that for the United States by about 1.2 percentage points, and that for the other advanced economies by about 1 percentage point, and again the differences are not statistically significant. These estimates are lower than those presented in the chapter text, as they capture the reduction in potential growth compared with precrisis averages rather than deviations from the 2006–07 period, when potential growth was already declining.

[35]The year dummy for 2008 is not included as a control.

[36]Empirical tests suggest that the probability of the occurrence of the global financial crisis is not affected by past evolution of potential output. Similar results are also obtained using a two-step generalized-method-of-moments system estimator.

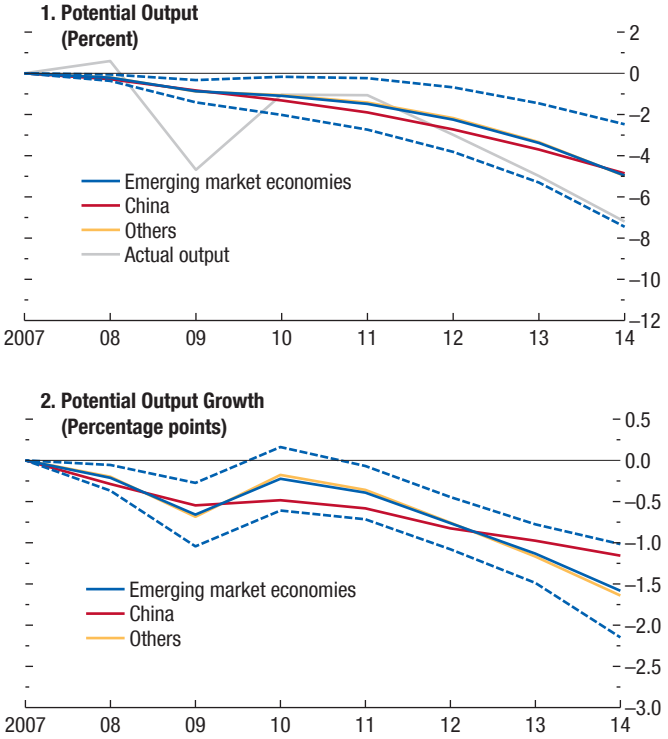
[37]The average output gap for the sample of advanced economies in 2014 is about –1.8 percent.

Annex Figure 3.4.1. Aftermath of the Global Financial Crisis in Advanced Economies



Source: IMF staff estimates.
Note: Dashed lines denote 90 percent confidence bands. Advanced economies are defined in Annex 3.1.

Annex Figure 3.4.2. Aftermath of the Global Financial Crisis in Emerging Market Economies



Source: IMF staff estimates.
Note: Dashed lines denote 90 percent confidence bands. Emerging market economies are defined in Annex 3.1.

Emerging Market Economies

Results suggest that the global financial crisis was associated with a reduction in potential output in emerging market economies of about 5 percent, on average (Annex Figure 3.4.2, panel 1). As was observed for advanced economies, the results also suggest that much (about 70 percent) of the cumulative loss of actual output across emerging market economies can be attributed to a decline in potential output, with only small differences among these economies, while the remaining part can be imputed to the cumulative loss in output gaps. In particular, by 2014, output gaps remain slightly negative for most emerging market economies.[38]

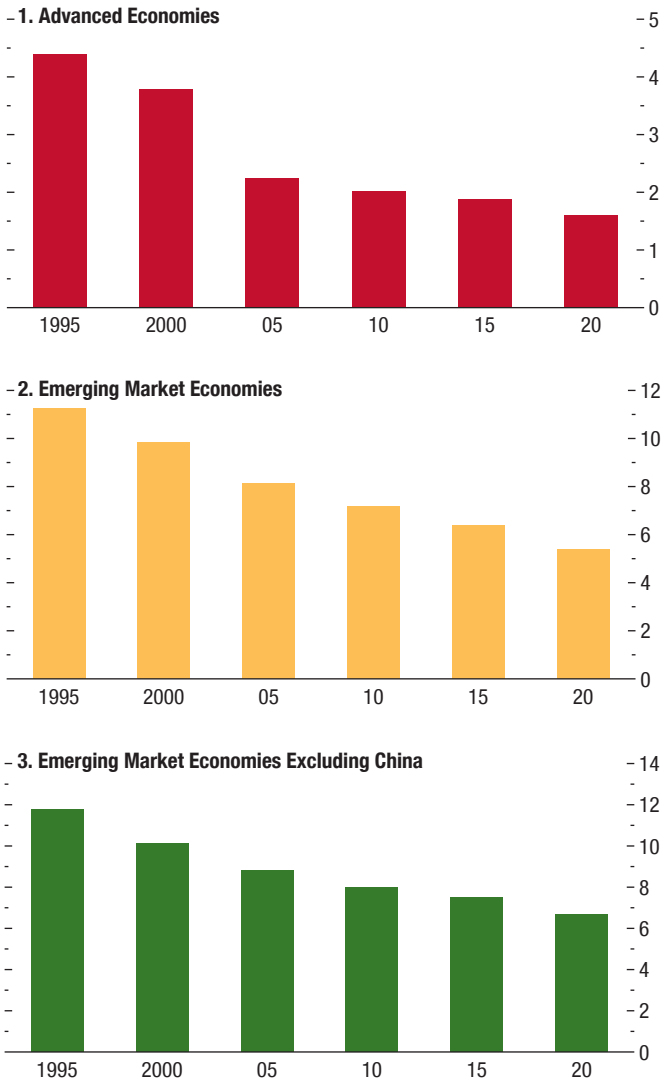
The crisis was also associated with a reduction in potential growth of about 1.6 percentage points (Annex Figure 3.4.2, panel 2), with a smaller decline for China (1.2 percentage points) than for other emerging market economies (1.6 percentage points). Although these results are similar to those presented in the chapter text, the econometric estimates presented here identify deviations from precrisis averages, whereas the analysis presented in the chapter is based on deviations of potential growth from the record-high growth rates in 2006 and 2007.

[38]The average output gap for the sample of emerging market economies is about –0.7 percent.

Annex 3.5. Human Capital Growth Projections

Human capital growth assumptions are based on the educational attainment projections using a cohort model by KC and others (2010). These projections are based on estimates of fertility and mortality rates and net migration flows, as well as education transition dynamics by five-year age groups. This last variable is projected on the assumption that the country's future educational attainment expands based on global historical trends.

Annex Figure 3.5.1. Human Capital Growth Projections
(Percent)



Sources: KC and others 2010; and IMF staff estimates.
Note: Human capital is measured as the percentage of people in the population over 15 years old who have secondary education or higher. Economy groups are defined in Annex 3.1.

Based on these assumptions, human capital growth is expected to decline in the medium term in both advanced and emerging market economies (Annex Figure 3.5.1). In particular, in advanced economies human capital growth is projected to decline by about ¼ percentage point by 2020. The projected decline is larger in emerging market economies, from about 6½ percent in 2015 to about 5½ percent in 2020.

Box 3.1. Steady As She Goes: Estimating Sustainable Output

Sustainable output is a theoretical benchmark intended to estimate an economy's position in the absence of imbalances. Defined in this way, it seeks to identify financial or other macroeconomic imbalances and thereby signal the risk of a future disorderly adjustment. Recent examples of such imbalances are the credit and house price booms experienced by some of Europe's crisis-hit economies. With the introduction of the euro, investor risk appetite rose and risk premiums fell, boosting credit, house prices, and growth. In hindsight it seems clear that GDP growth rates were above their sustainable levels and a correction was likely. The opposite held when the boom went bust during the Great Recession.

Assessing sustainable output is crucial for policymakers. From a fiscal sustainability point of view, a reliable estimate of sustainable fiscal positions that are not perturbed by large shocks such as financial booms and busts will help prevent debt bias. For example, if the revenue flows linked to a booming housing sector can be correctly identified in real time as temporary, government spending is less likely to be adjusted upward, and fiscal buffers can be built. In addition, a robust measure of sustainable output will also make it easier to assess the impact of structural reform on medium- and long-term growth. Policymakers aiming to avoid sudden ups and downs of the economy—and the accompanying periods of high unemployment—might draw on sustainable output as another indicator to signal the need for stabilization through fiscal or monetary policy.

In this context, a measure of sustainable output incorporating financial variables may be particularly useful in formulating macroprudential policy. For instance, if taking into account financial variables would lead policymakers to believe that credit and house price growth was associated with a higher degree of overheating than suggested by conventional measures based on consumer price inflation, monetary policy might not be the most effective instrument to address the boom. Although higher interest rates can help, they can also be harmful for the rest of the economy. In such a case, more stringent macroprudential policy measures might be even more useful and should, therefore, be launched first.[1]

A multivariate filter augmented with financial variables may help identify episodes of particularly high or low GDP growth that are unlikely to last. Whereas conventional measures rely solely on the relationship between output and prices, these approaches add financial (and other) variables—in the model used here, the deviations of credit, house prices, and inflation from their own longer-term trends. The approach lets the data speak. If wide swings in output tend to occur along with wide swings in credit (or another variable), the filter's estimates of sustainable output will ignore the former when determining the finance-neutral sustainable output. However, if credit provides little additional information, the model will produce results in line with conventional approaches.

For multivariate filter models augmented with financial variables to work and reduce the risk of misinterpreting permanent shifts as temporary, it is important to exclude credit expansions associated with sound economic fundamentals (for example, a higher level of credit growth due to financial deepening). The admittedly crude approach taken here is to restrict the information from financial variables to business cycle and higher frequencies.[2] Another challenge with such approaches is properly identifying episodes of unsustainable growth in real time. At the beginning of a credit expansion, it is extremely difficult for policymakers to diagnose whether the episode is associated with sound economic fundamentals or will develop into an unsustainable boom. In practice, while this methodology is capable of signaling possible risks of future disorderly adjustments, it is best used as a "fire alarm": when the finance-neutral gap deviates from a conventional output gap, policymakers should scrutinize the underlying reasons to reach a more conclusive diagnosis.

The results of analysis employing the multivariate filter augmented with financial variables suggest that conventional estimates may overestimate sustainable output during credit and housing booms and underestimate it during busts. For example, in the case of some euro area economies with high borrowing spreads during the 2010–11 sovereign debt crisis (notably Greece, Ireland, and Spain), the difference between actual and sustainable output when credit dynamics are taken into account—the finance-neutral output gap—tends to be higher (lower) than the output gap derived from the relationship of inflation and

The authors of this box are Helge Berger, Mico Mrkaic, Pau Rabanal, and Marzie Taheri Sanjani. The analysis presented here draws on Berger and others, forthcoming.

[1]See, for example, Benes, Kumhof, and Laxton 2014, which assesses vulnerabilities associated with excessive credit expansions and asset price bubbles and the consequences of various macroprudential policies. Quint and Rabanal (2014) study the role of country-specific macroprudential policies in a currency union.

[2]The approach is close to that of Borio, Disyatat, and Juselius (2013) but differs in its estimation approach and the treatment of longer-term trends. See Berger and others, forthcoming, for details.

Box 3.1 *(continued)*

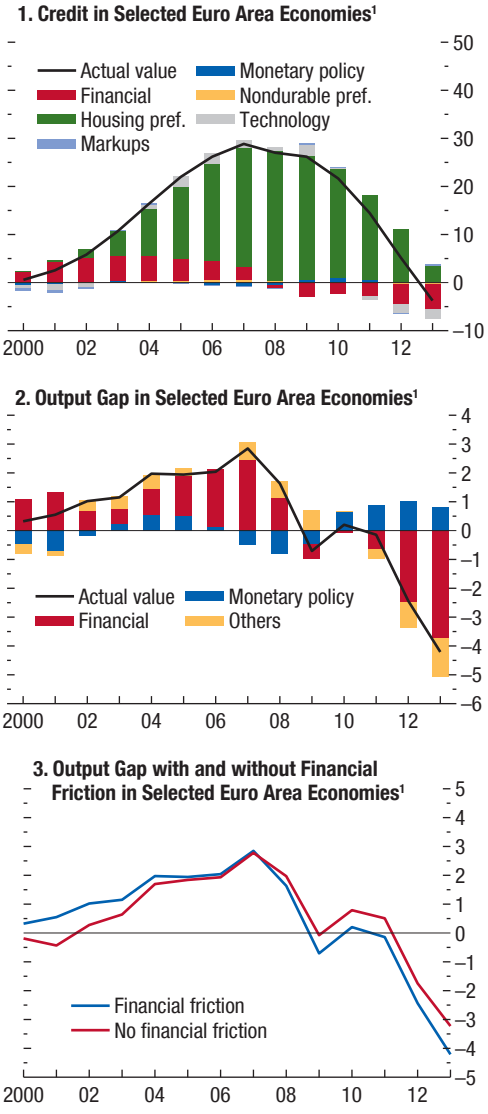
Figure 3.1.1. Output Gap in Selected Euro Area Economies:[1] Multivariate Filter Augmented with Financial Variables versus That with Inflation Only

(Percent)

Source: IMF staff estimates.
Note: CPI = consumer price index; MVF = multivariate filter.
[1]Euro area economies (Greece, Ireland, Italy, Portugal, Spain) with high borrowing spreads during the 2010–11 sovereign debt crisis.

Figure 3.1.2. Credit and Output Gaps Implied by the Dynamic Stochastic General Equilibrium Model

(Percent deviation from potential, unless noted otherwise)



Source: IMF staff estimates.
Note: Credit is in percent deviation from trend. In panel 2, "Others" includes nondurable preference, housing preference, technology, and markups. Pref. = preference.
[1]Euro area economies (Greece, Ireland, Italy, Portugal, Spain) with high borrowing spreads during the 2010–11 sovereign debt crisis.

output alone during episodes of high (low) credit growth (Figure 3.1.1).

A two-region dynamic stochastic general equilibrium model with financial frictions at the household level and housing can be used to further assess the findings of the augmented multivariate filter for the euro area.[3] The model incorporates an explicit role for leverage and credit risk. In this setting, it is possible to distinguish sustainable changes in output linked to a reduction in financial friction from credit-fueled growth. Seen through the lens of the model, the introduction of the euro led to a persistent decline in risk premiums, reduced financial friction, and lifted

[3]See Rabanal and Taheri Sanjani, forthcoming, for details. The work builds on Furlanetto, Gelain, and Taheri Sanjani 2014 and Quint and Rabanal 2014.

Box 3.1 *(continued)*

both GDP and sustainable output in the euro area economies with high borrowing spreads during the 2010–11 sovereign debt crisis (Figure 3.1.2). However, by the mid-2000s, a housing and credit boom had taken hold in some euro area economies with high borrowing spreads during the 2010–11 sovereign debt crisis (notably Greece, Ireland, and Spain) that let actual GDP rise significantly above sustainable output. The crisis reversed most of this expansion after 2007, leading to an increase in country and housing risk premiums, a credit bust, and a large output contraction.

Overall, the evidence discussed here suggests that financial variables can inform estimates of sustainable output—but more work is needed. The augmented multivariate filter approach lets the data speak but still requires numerous practical decisions that affect findings and deserve further scrutiny. Real-time identification of sustainable output also remains a challenge. Although dynamic stochastic general equilibrium models may help identify the drivers of sustainable and potential output in a coherent way, their underlying structural assumptions also affect the results. Finally, more work is needed to link augmented multivariate filter estimates of sustainable output more rigorously to the flexible-price concept of potential output used in dynamic stochastic general equilibrium models.

Box 3.2. U.S. Total Factor Productivity Spillovers

The growth in total factor productivity in the United States—whose technological development is commonly regarded as representing the world frontier—started to decline in 2003 as the exceptional growth effects of information and communications technology as a general-purpose technology observed in the late 1990s to the early 2000s began to wane (Fernald 2014a). Did the decline in U.S. total factor productivity spill over to other advanced economies? To answer this question, this box uses a novel approach to compute total factor productivity and takes an empirical look at spillovers from the United States to other advanced economies.

Measuring total factor productivity growth is challenging. Typical measures of such growth are commonly estimated using the so-called Solow residual, or the part of actual output growth that is not accounted for by growth in factor inputs such as labor and capital. Unfortunately, these residual-based measures tend to include unobserved input utilization, which is highly procyclical. As a result, spillover analysis based on the Solow residual measure is likely to capture business cycle comovements rather than true total factor productivity spillovers. In the analysis presented in this box, a refined measure of total factor productivity is constructed using the procedure proposed by Basu, Fernald, and Kimball (2006) and Fernald (2014a, 2014b) to control for unobserved utilization in capital and labor.[1] Adjusted total factor productivity series are constructed using industry-level data for an unbalanced panel of 16 advanced economies, for the period 1970–2007.[2]

In particular, the following production function is estimated for each industry i for each country:

$$dy_{i,t} = \gamma_i\, dx_{i,t} + \beta_j\, du_{i,t} + dtfp_{i,t}, \qquad (3.2.1)$$

in which dy is output growth; dx is growth in observed input, defined as a linear combination of growth in capital, labor, and material input; du is growth in unobserved inputs measured by hours worked; and $dtfp$ is total factor productivity growth.[3]

The aggregate total factor productivity measure is then computed as the difference between the aggregate Solow residual and the aggregate utilization measure:[4]

$$dtfp = dtfp_{\text{solow}} - du. \qquad (3.2.2)$$

As discussed in Basu, Fernald, and Kimball 2006, adjusted total factor productivity has three noteworthy features compared with the simple Solow residual: (1) there is limited contemporaneous comovement between output and adjusted total factor productivity growth, (2) hours worked is more negatively correlated with adjusted total factor productivity, and (3) the estimated factor utilization is negatively correlated with adjusted total factor productivity (Table 3.2.1).

Two econometric specifications are used to assess total factor productivity spillovers. The first establishes whether total factor productivity shocks in the United States materially affect total factor productivity in other advanced economies and is estimated as follows:

$$tfp_{i,t+k} - tfp_{i,t-1} = \alpha_i + \beta_k dtfp_{\text{US},t} + \delta(L)dtfp_{it} + \varepsilon_{it}, \qquad (3.2.3)$$

Table 3.2.1. Properties of Adjusted Total Factor Productivity Compared with Solow Residual, Advanced Economies, 1970–2007

	Solow Residual	Utilization-Adjusted TFP
Correlation with Output Growth	0.70	0.34
Correlation with Hours Worked	–0.07	–0.15
Correlation with Factor Utilization	0.13	–0.39

Source: IMF staff estimates.
Note: TFP = total factor productivity.

The authors of this box are Davide Furceri, Sinem Kilic Celik, and Annika Schnücker.

[1]Basu, Fernald, and Kimball (2006) show that unobserved input utilization (labor effort and workweek of capital) can be proxied by observed input utilization (hours per worker).

[2]The included countries are Australia, Austria, Canada, Denmark, Finland, France, Germany, Greece, Ireland, Italy, the Netherlands, Poland, Portugal, Spain, the United Kingdom, and the United States for an unbalanced period between 1970 and 2007. Data availability limitations preclude the analysis for recent years. The data sources are EU KLEMS and World KLEMS.

[3]Specifically, growth in observed input is computed as $dx_{i,t} = s_{Li}dl_i + s_{Ki}dk_i + s_{Mi}dm_i$, in which dl, dk, and dm are growth in employment, capital, and material input, respectively, and s_A is the ratio of payments to input A in total cost.

The industries are grouped into three main sectors: nondurable manufacturing, durable manufacturing, and nonmanufacturing.

[4]The aggregate Solow residual and input utilization are computed as $dtfp_{\text{solow}} = \sum_i \frac{w_i}{(1 - sm_i)}(dy_i - dx_i)$ and $du = \sum_i \frac{w_i}{(1 - sm_i)}\gamma_i dtfp_i$, in which w_i is the value-added share of each industry in aggregate output.

Box 3.2 *(continued)*

in which *tfp* is the log of adjusted total factor productivity, α_i are country fixed effects, and *dtfp* is the growth rate of adjusted total factor productivity. The coefficient β_k measures the spillover effect of a 1 percent change in the U.S. adjusted total factor productivity growth.

The second specification assesses the transmission channels of spillovers by allowing the response to vary with country-specific characteristics and the strength of trade linkages between each country and the United States and is estimated as follows:

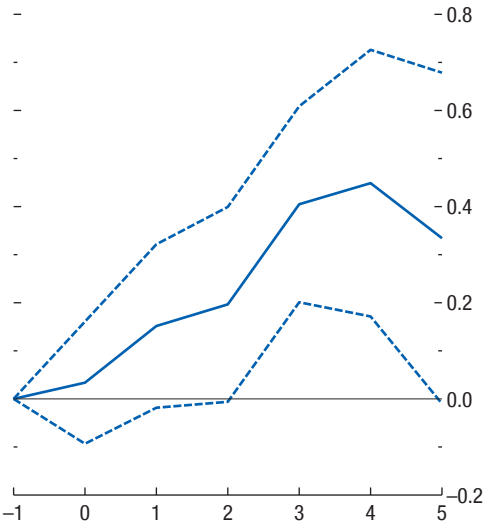
$$tfp_{i,t+k} - tfp_{i,t-1} = \alpha_i + \gamma_t + \beta_k\, dtfp_{\mathrm{US},t}\, \bar{X}_{i-\mathrm{US}} + \delta(L) dtfp_{it} + \varepsilon_{it}, \qquad (3.2.4)$$

in which γ_t are time fixed effects; $\bar{X}_{i-\mathrm{US}}$ are country-specific characteristics including the country's relative distance from the technological frontier—defined as the gap between its total factor productivity and that of the United States—and its trade and financial openness vis-à-vis the United States.[5]

The results suggest that changes in U.S. total factor productivity growth tend to spill over to other advanced economies. In particular, the econometric estimates imply that a 1 percent change in (shock to) U.S. total factor productivity growth leads to a 0.4 percentage point increase in total factor productivity growth in other advanced economies in the medium term (Figure 3.2.1), with the effect reaching a peak four years after the shock.[6]

The results also suggest that total factor productivity spillovers are larger in countries with higher foreign direct investment (FDI) inflows from the United States and in countries that are technologically more removed from the United States (Table 3.2.2).[7] In particular, the increase in total factor productivity growth in a country that is relatively strongly linked with the United States as measured by FDI flows (at the 75th percentile) is about 0.09–0.14 percentage point higher than in a country that has relatively low linkages (at the 25th percentile). The differential spillover effect on a country that is technologically more distant from the United States (at the 75th percentile) compared with a country that is less distant (at the 25th percentile) is about 0.13 percentage point. Other variables, such as trade openness, human capital accumulation, the stock of FDI, and research and development spending as a share of GDP, are found not to have statistically significant effects.

Figure 3.2.1. U.S. Total Factor Productivity Spillovers to Other Advanced Economies
(Percentage points; years on x-axis)



Source: IMF staff estimates.
Note: $t = 0$ is the year of the shock. Dashed lines denote 90 percent confidence intervals. Impulse response functions are estimated using local projection and bias correction following Teulings and Zubanov 2014 with an unbalanced sample between 1970 and 2007.

[5]These variables have been typically found in the literature to be key transmission channels (for example, Coe and Helpman 1995; Coe, Helpman, and Hoffmaister 2009; Rondeau and Pommier 2012).

[6]As a robustness check, and to disentangle the spillover effects from U.S. total factor productivity growth from those associated with global factors affecting world total factor productivity growth, the average world (excluding the United States) total factor productivity was included in the analysis. The results, not reported here, are qualitatively similar and not statistically different from those shown in Figure 3.2.1.

[7]Openness is measured by FDI (FDI inflows received by a country from the United States as a share of total FDI outflows from the United States) and distance from the technological frontier by its total factor productivity gap with respect to the United States ($(dtfp_{i,t} - dtfp_{\mathrm{US},t})/dtfp_{\mathrm{US},t}$).

Box 3.2 *(continued)*

Table 3.2.2. Transmission Channels

Linkages	(1)	(2)	(3)
FDI to the United States	0.02***		0.03***
	(3.18)		(3.29)
TFP Gap with Respect to the United States		0.01*	0.01***
		(1.92)	(4.04)
R^2	0.18	0.19	0.19
Number of Observations	365	365	365
FDI—Differential in TFP (percentage points)	0.09		0.14
TFP Gap—Differential in TFP (percentage points)		0.13	0.13

Source: IMF staff estimates.

Note: *t*-statistics are in parentheses. Standard errors are robust for heteroscedasticity and serial correlation within panels. All regressions include country and time fixed effects. The differential in TFP (in percentage points) measures the TFP effect of the shock in a country at the 75th percentile level of the variable examined compared with a country at the 25th percentile level. FDI = foreign direct investment; TFP = total factor productivity.

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

Box 3.3. Total Factor Productivity Growth in Advanced Economies: A Look into Sectoral Patterns

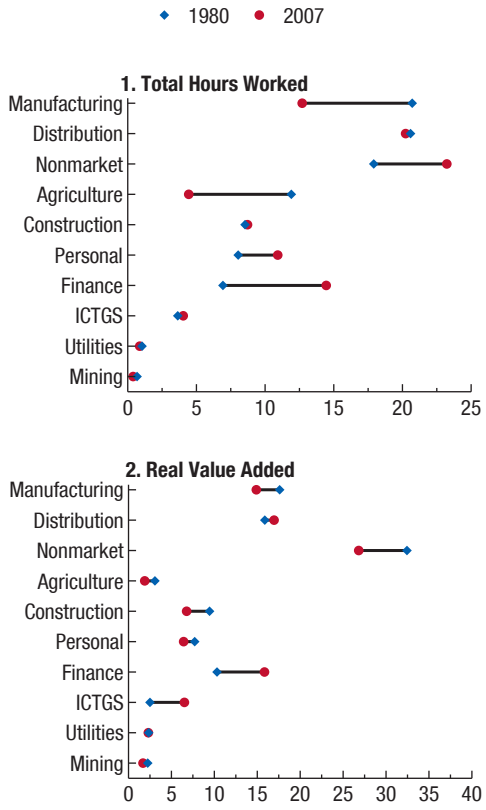
Patterns of total factor productivity growth at the aggregate (economy-wide) level can be indicative of structural changes, a falling pace of sector-specific innovation, and waning impact of past reforms. This box examines sectoral patterns of total factor productivity growth to assess the drivers of aggregate performance in the years leading up to the global financial crisis.

The three decades leading up to the crisis saw the continued reallocation of factors out of agriculture and manufacturing and into services: indeed, by 2007, more than 75 percent of employment (by hours worked) in advanced economies was in services (Figure 3.3.1). This trend reflected technological change within industries, changes in domestic demand, and international trade that drove a process of structural transformation in which labor, capital, and intermediate inputs were reallocated toward services (Herrendorf, Rogerson, and Valentinyi 2013). Labor shares fell in fast-growing sectors such as manufacturing and information and communications technology (ICT) goods and services and rose in slower-growing sectors such as finance, personal services (for example, hotels and restaurants), nonmarket services (for example, government administration, health, and education), and construction. This structural transformation also led to lower economy-wide total factor productivity growth: in many service sectors, productivity growth is much lower than in the rest of the economy because of limited scope for innovation and technical change (Baumol, Blackman, and Wolff 1985) (Figure 3.3.2, panels 1 and 2). Indeed, sectoral reallocation contributed to a decline in economy-wide total factor productivity from about 0.11 during the 1990–2007 period (Figure 3.3.2, panel 3).[1]

During the 1990s and early 2000s, the ICT goods and services sector was a particularly bright spot in an otherwise gloomy landscape of declining total factor productivity growth. Indeed, the explosion in total factor productivity growth in ICT-producing sectors in the United States spilled over into ICT-intensive sectors, fueling greater ICT capital deepening and a rise in total factor productivity in these sectors as well (Fernald 2014a, 2014b). However, by the early to mid-2000s, elevated total factor productivity growth in ICT production appeared to have run its course. Production and capital deepening in the sector declined markedly in the years leading up to the global financial crisis, and total factor productivity growth in ICT-intensive sectors followed suit, albeit with a slight lag (Figure 3.3.3). These dynamics may partly explain the

Figure 3.3.1. Employment and Value Added, 1980–2007

(Percent; PPP weighted)



Sources: EU KLEMS; World KLEMS; and IMF staff calculations.
Note: ICTGS = information and communications technology goods and services; PPP = purchasing power parity.

The authors of this box are Era Dabla-Norris and Kevin Wiseman. The analysis draws from Dabla-Norris and others, forthcoming.

[1]The contribution of sectoral reallocation to total factor productivity is estimated by disaggregating total factor productivity growth into *within* and *between* sectoral total factor productivity changes applying the methodology by McMillan and Rodrik (2011) using the following specification:

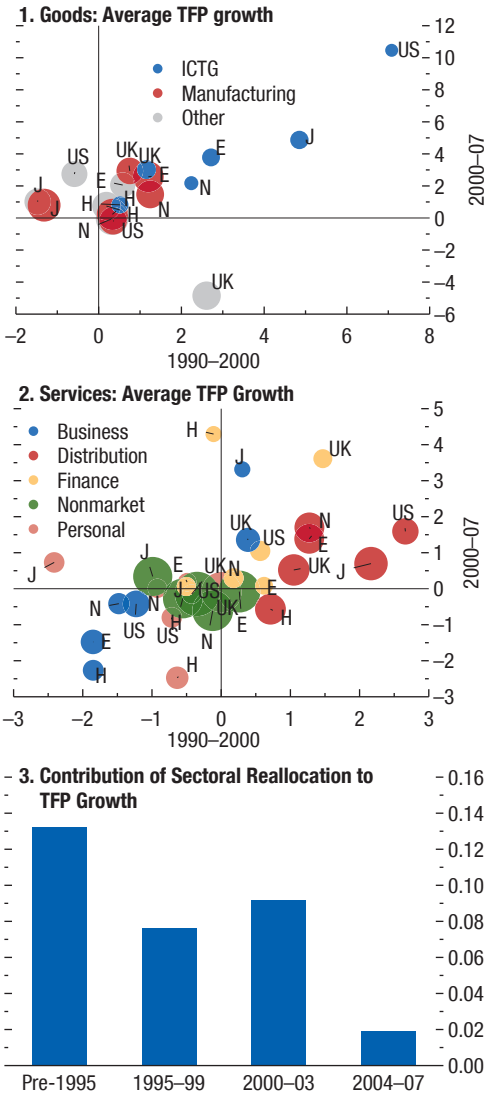
$$tfp_t - tfp_{t-1} = \Sigma_i \omega_{i,t-1}(tfp_{i,t} - tfp_{i,t-1}) + \Sigma_i\, tfp_{i,t}\,(\omega_{i,t} - \omega_{i,t-1}),$$

in which tfp and tfp_i refer to economy-wide and sectoral total factor productivity, respectively, and ω_i is the value-added share of sector i in aggregate output. The contribution of sectoral reallocation is then measured by *between* sectoral total factor productivity changes, which correspond to the second term in the equation.

Box 3.3 *(continued)*

Figure 3.3.2. Selected Country Groups: Total Factor Productivity Growth in Goods and Services Sectors

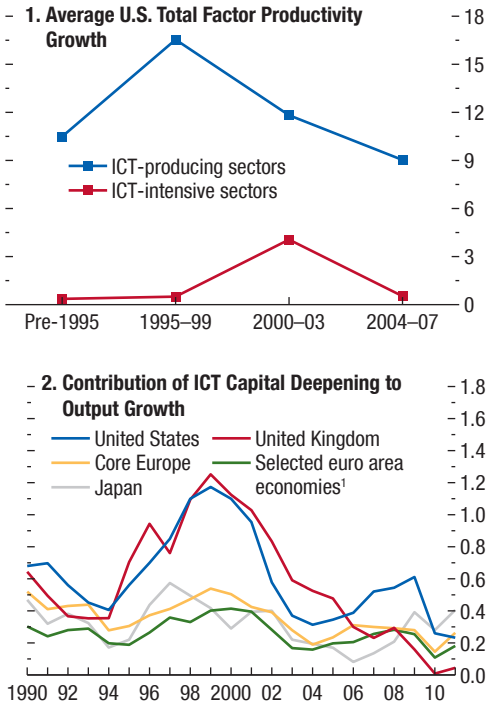
(Percent; PPP weighted)



Sources: EU KLEMS; World KLEMS; Organisation for Economic Co-operation and Development; and IMF staff calculations.
Note: Bubble size denotes sectoral share in value added. In panel 1, "Other" refers to the agricultural, utilities, construction, and mining sectors. E = core Europe; H = euro area economies (Greece, Ireland, Italy, Portugal, Spain) with high borrowing spreads during the 2010–11 sovereign debt crisis; ICTG = information and communications technology goods; J = Japan; N = natural resource producers; PPP = purchasing power parity; TFP = total factor productivity; UK = United Kingdom; US = United States.

Figure 3.3.3. Information and Communications Technology Productivity Growth and Spillovers

(Percent)



Sources: Corrado and others 2012; Fernald 2014a; Research Institute of Economy, Trade and Industry, Japan Industrial Productivity Database; and IMF staff calculations.
Note: ICT = information and communications technology.
[1]Euro area economies (Greece, Ireland, Italy, Portugal, Spain) with high borrowing spreads during the 2010–11 sovereign debt crisis.

estimated slowdown in U.S. total factor productivity growth in the years leading up to the crisis. In other advanced economies, ICT capital deepening played a smaller role, but the dynamics and timing were similar, with a comparable rise through the 1990s giving way to a subsequent slowdown.

Evidence from the distribution sector, which has seen the highest rate of total factor productivity growth within the services sectors, supports this view. Cumulative advances in ICT were diffused through the sector, with the rise of firms such as Walmart and Amazon (Lewis 2005) catalyzing high sectoral

Box 3.3 *(continued)*

productivity growth. Some commentators have noted that these advances had been largely exploited by the precrisis 2000s and that productivity growth in the distribution sector was slowing across advanced economies (Figure 3.3.2, panel 2). The losses in productivity growth were partially offset by gains in "euphoric" sectors such as finance in some economies; the postcrisis durability of these sectors remains to be seen.

Box 3.4. The Effects of Financial Crises on Labor Productivity: The Role of Sectoral Reallocation

Financial crises can affect economy-wide labor productivity in two ways: (1) through their impact on labor productivity within each economic sector and (2) by inducing sectoral reallocations of labor. The effect of financial crises through the second channel (sectoral reallocation) is ambiguous, because labor can be reallocated between various high- and low-productivity sectors, with an unclear net effect on aggregate labor productivity.

This box examines empirically the effect of financial crises on labor productivity, by estimating the role of each of these two transmission channels. Since data availability limitations do not allow an examination of these channels for the global financial crisis, the analysis presented here is based on past financial crises.

The approach used to decompose aggregate productivity into *within*- and *between*-sector productivity effects follows the methodology proposed by McMillan and Rodrik (2011):

$$y_{t+k} - y_{t-1} = \sum_{i=1}^{I} \omega_{i,t-1}(y_{i,t+k} - y_{i,t-1}) + \sum_{i=1}^{I} y_{i,t+k}(\omega_{i,t+k} - \omega_{i,t-1}), \qquad (3.4.1)$$

in which y_t and $y_{i,t}$ refer to economy-wide and sectoral labor productivity levels, respectively, and $\omega_{i,t}$ is the share of employment in sector i. The first term in the decomposition is the weighted sum of productivity growth within each sector, in which the weights are the employment share of each sector at time t. This term captures the *within* component of productivity growth. The second term is the part of labor productivity resulting from the reallocation of resources across different sectors and captures the *between* component of productivity growth.

The analysis follows the approach proposed by Jordà (2005) by tracing the evolution of productivity growth in the aftermath of a financial crisis. It controls for precrisis trends, common factors affecting the evolution of productivity growth in the aftermath of the crisis, and lagged productivity growth. In particular, the following econometric specification is estimated:

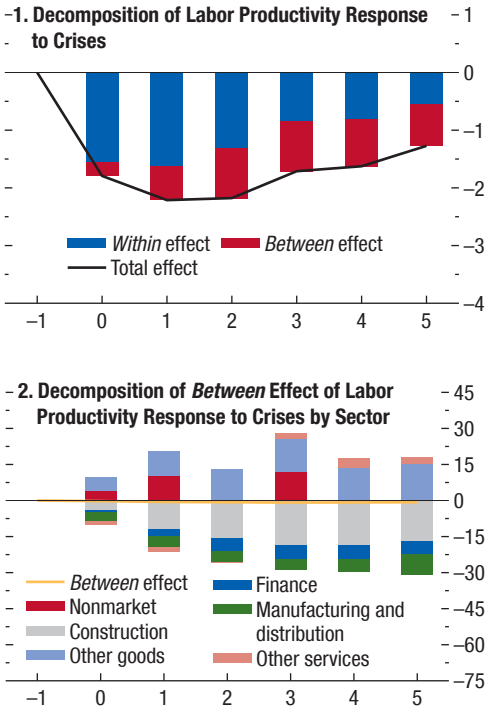
$$x_{i,t+k} - x_{i,t-1} = \alpha_c^k + \gamma_t^k + \sum_{j=1}^{2} \delta_j^k \Delta y_{t-j} + \beta_k D_t + \sum_{j=1}^{2} \theta_j^k D_{t-j} + \sum_{j=0}^{k-1} \rho_j^k D_{t+k-j} + \varepsilon_{i,t+k}^k, \qquad (3.4.2)$$

in which $x_{i,t}$ denotes either the *within* or *between* effect of sectoral productivity growth for sector i at time t; y is economy-wide productivity growth; D is a crisis dummy that takes a value of 1 for crisis years, as identified by Laeven and Valencia (2014); and α_c and γ_t are country and time fixed effects, respectively. The econometric specification also controls for lagged crisis effects and includes the bias correction suggested by Teulings and Zubanov (2014).

Equation (3.4.2) is estimated for eight sectors in 24 advanced economies during 1970–2007 for $k = 0, \ldots 5$. The econometric estimates imply that financial crises typically have a statistically significant negative effect on labor productivity (Figure 3.4.1, panel 1). Specifically, labor productivity is estimated to decline on impact by about 2 percent, on average, and remain about 1½ percent below its precrisis rate five years after the crisis. Sectoral reallocation (the *between*

Figure 3.4.1. Response of Labor Productivity to Crises

(Percent; years on x-axis)



Source: IMF staff estimates.
Note: $t = 0$ is the year of the shock.

The author of this box is Juan Yépez Albornoz.

Box 3.4 *(continued)*

effect) explains roughly half of the medium-term decline in labor productivity. This is because displaced labor in relatively high-productivity sectors—such as manufacturing and finance, and to a lesser extent construction—tends to move to low-productivity sectors—such as personal services and nonmarket services (Figure 3.4.1, panel 2).

These results are consistent with empirical evidence in previous studies (for example, Aaronson, Rissman, and Sullivan 2004) suggesting that finance and manufacturing tend to contract more than other sectors during downturns, while employment in nonmarket services tends to be more resilient to changes in economic activity (for example, Kopelman and Rosen 2014).

Box 3.5. The Effects of Structural Reforms on Total Factor Productivity

This box examines the impact of structural reforms on sectoral total factor productivity. It relies on the conceptual framework of "distance from the technological frontier" (Aghion and Howitt 2006, 2009; Acemoglu, Zilibotti, and Aghion 2006) to assess empirically the relative importance of a range of policy and structural factors across different industries and countries. According to this framework, the set of policies aimed at sustaining productivity growth in different industries and sectors can vary depending on the industry or sector's distance from the technological frontier.

Two econometric specifications are used to assess the effect of structural reforms on total factor productivity. The first establishes whether changes in structural indicators have a material impact on total factor productivity and whether the impact depends on the distance from the technological frontier. This specification controls for country- and industry-specific characteristics and common factors affecting total factor productivity, as well as for the total factor productivity *gap* with respect to the "global frontier"—defined as the highest level of total factor productivity in the particular industry in a given year.[1]

Because policy reforms and structural shocks can result in adjustment costs, particularly in a weak-demand environment, it is useful to assess their productivity impacts *over time*. Consequently, the second specification focuses on assessing the dynamic (short- and medium-term) impact of structural shocks—identified by episodes of large changes in structural indicators—on total factor productivity.[2] The analysis follows the approach proposed by Jordà (2005) by tracing the response of total factor productivity in the aftermath of these reforms. This is done by controlling for precrisis trends as well as for country- and industry-specific characteristics and common factors affecting the evolution of total factor productivity in the aftermath of the reforms.[3] For both specifications, the sample consists of industry-level annual data from EU KLEMS, covering 23 market industries in 11 advanced economies during 1970–2007.

This box examines how institutional and product and labor market regulations affect efficiency and convergence to the frontier,[4] which is important because more stringent regulations could curb total factor productivity growth by hindering efficient reallocation of resources across plants, firms, and industries. The regressions also include other industry-specific factors that drive expansion of the technological frontier and facilitate technology adoption, such as education (share of high-skilled labor in total labor), innovation (research and development [R&D] expenditure as a share of industry value added), and information and communications technology (ICT) use (ICT capital share of total capital), all from the EU KLEMS data set.

Econometric estimates obtained using the first specification suggest that lower product market regulation and more intense use of high-skilled labor and ICT capital

The authors of this box are Minsuk Kim and Aleksandra Zdzienicka. The analysis presented here draws on Dabla-Norris and others, forthcoming.

[1]In particular, the econometric specification is estimated as follows:

$$\Delta y_{ijt} = \beta_0 + \beta_1 \Delta y_{Ljt} + \beta_2 (y_{ijt-1} - y_{Ljt-1}) + \beta_k \Sigma_k X^k_{ijt-1} + \beta_l \Sigma_k X^l_{ijt-1} (y_{ijt-1} - y_{Ljt-1}) + \alpha_1 D_i + \alpha_2 D_j + \alpha_3 D_t + \varepsilon_{ijt},$$

in which subscripts i, j, and t denote country, industry, and year, respectively; subscript L denotes the country with the highest level of total factor productivity in industry j in a given year t (the global frontier); and Δy_{ijt} is total factor productivity growth, which is regressed on the following explanatory variables: (1) the total factor productivity growth in the global frontier (Δy_{Ljt}); (2) the total factor productivity level gap with respect to the global frontier, measured by ($y_{ijt-1} - y_{Ljt-1}$); (3) a set of policy and structural variables (X^k_{ijt-1}) and the interaction terms with the total factor productivity gap; and (4) country, industry, and year dummy variables. See Dabla-Norris and others, forthcoming, for details.

[2]See Dabla-Norris and others, forthcoming, for details. Moreover, the overall productivity gains are likely to depend on the magnitude of reforms and structural shocks.

[3]In particular, the econometric specification is estimated as follows:

$$tfp_{i,j,t+k} - tfp_{i,j,t} = \beta^k_0 + \beta^k_1 S_{i,j,t} + \beta^k_2 S_{i,j,t} tfpgap_{i,j,t} + \beta^k_3 tfpgap_{i,j,t} + \beta^k_4 \Delta tfp_{L,j,t} + \beta^{k\prime}_5 X_{it} + \alpha^k_1 D_i + \alpha^k_2 D_j + \alpha^k_3 D_t + \varepsilon_{i,j,t},$$

in which tfp_{ijt} is the log of real total factor productivity in country i, industry j, and year t and S_{ijt} denotes reform dummies; the log of real total factor productivity at frontier industry j and the technological gap with respect to the frontier are indicated by tfp_{Ljt} and $tfpgap_{ijt}$, respectively; D_i, D_j, and D_t are country, industry, and time dummies, respectively; X_{it} is a set of control variables, including recession and financial crisis dummies and GDP growth; and the estimated coefficients β_1 and β_2 capture the unconditional and conditional (given technological gaps) effects of reform at horizon k. See Dabla-Norris and others, forthcoming, for details.

[4]Both variables are taken from the Organisation for Economic Co-operation and Development (Regimpact indicator and employment protection legislation index).

Box 3.5 *(continued)*

Table 3.5.1. Impact of Product and Labor Market Frictions on Total Factor Productivity Growth

	All Industries		Manufacturing	ICT-Related[1]	Services
	(1)	(2)	(3)	(4)	(5)
Dependent variable: Annual TFP growth rate (Percent)					
TFP Growth Rate at the Frontier	0.053	0.052	0.115	0.025	0.013
	(0.014)***	(0.014)***	(0.031)***	(0.013)*	(0.011)
TFP Gap with Respect to the Frontier	–0.110	–0.099	–0.093	–0.053	–0.060
	(0.023)***	(0.027)***	(0.037)**	(0.029)*	(0.026)**
Product Market Regulation	0.717	0.945	0.892	–0.199	–1.315
	(0.460)	(0.516)*	(0.786)	(0.776)	(0.445)***
Labor Market Regulation	0.825	0.645	0.895	0.395	0.451
	(0.569)	(0.624)	(0.954)	(0.814)	(0.640)
Product Market Regulation X TFP Gap		0.006	–0.006	–0.010	–0.017
		(0.007)	(0.008)	(0.010)	(0.005)***
Labor Market Regulation X TFP Gap		–0.008	–0.007	–0.014	–0.012
		(0.008)	(0.012)	(0.011)	(0.011)
Product Market Regulation X Manufacturing Dummy	–0.638	–1.255			
	(0.424)	(0.536)**			
Product Market Regulation X Service Dummy	–0.537	–1.461			
	(0.192)***	(0.366)***			
Product Market Regulation X TFP Gap X Manufacturing Dummy		–0.014			
		(0.012)			
Product Market Regulation X TFP Gap X Service Dummy		–0.021			
		(0.007)***			
Number of Observations	4,646	4,646	2,424	1,616	1,414
Adjusted R^2	0.20	0.20	0.24	0.29	0.21

Source: IMF staff estimates.
Note: *p*-values are in parentheses. ICT = information and communications technology; TFP = total factor productivity.
[1] Industries that produce ICT goods intensively.
*$p < .10$; **$p < .05$; ***$p < .01$.

inputs, as well as higher spending on R&D activities, contribute positively and with statistical significance to total factor productivity (Tables 3.5.1 and 3.5.2). The effects vary across sectors and are typically larger the closer the sector is to the technological frontier. For example, product market deregulation has larger positive total productivity effects in the services sector, but high-skilled labor and R&D expenditure have the strongest effects in ICT-related sectors. To put these results in economic terms and provide a specific example, the estimates suggest that if Austria were to reduce its services sector regulations to bring them in line with those of the Netherlands, the average total factor productivity growth gain across all industries could amount to about 0.2 percentage point a year, and about 0.6 percentage point in the services sector. In contrast, labor market regulation is not found to have statistically significant effects on total factor productivity, possibly owing to difficulty in measuring the degree of labor market flexibility across countries. Finally, the results from the first specification present evidence of productivity-enhancing knowledge spillovers from the frontier (captured by the coefficient of total factor productivity growth at the frontier) and a catchup convergence effect in "follower" countries (measured by the coefficient on the total factor productivity gap).

The econometric estimates from the second specification confirm the results presented in Tables 3.5.1 and 3.5.2 and suggest that reforms are typically associated with higher total factor productivity in both the short and the medium term (Figure 3.5.1). Overall, the results suggest a cumulative medium-term increase in the average total factor productivity levels across all industries following the implementation of key reforms, with the effect depending on the particular reform.[5] The largest gains in total factor productiv-

[5]These increases represent 0.05 to 2 standard deviations of the average cumulative five-year change in the total factor productivity level in the sample.

Box 3.5 *(continued)*

Table 3.5.2. Impact of Information and Communications Technology, Human Capital, and Research and Development

	All Industries		Manufacturing	ICT-Related[1]	Services
	(1)	(2)	(3)	(4)	(5)
Dependent variable: Annual TFP growth rate (Percent)					
TFP Growth Rate at the Frontier	0.043	0.046	0.089	0.028	0.005
	(0.013)***	(0.013)***	(0.030)***	(0.016)*	(0.012)
TFP Gap with Respect to the Frontier	–0.008	–0.026	–0.043	–0.076	–0.038
	(0.005)	(0.007)***	(0.010)***	(0.016)***	(0.014)***
ICT Capital	0.024	0.023	0.146	0.000	–0.063
	(0.014)**	(0.022)	(0.053)***	(0.037)	(0.037)*
High-Skilled Labor	0.047	0.120	0.077	0.183	0.236
	(0.024)*	(0.028)***	(0.053)	(0.041)***	(0.057)***
R&D Expenditure	0.084	0.195	0.100	0.480	0.387
	(0.048)*	(0.056)***	(0.082)	(0.119)***	(0.731)
ICT Capital X TFP Gap		0.000	0.002	0.000	–0.002
		(0.000)	(0.001)**	(0.001)	(0.001)**
High-Skilled Labor X TFP Gap		0.002	0.002	0.003	0.003
		(0.001)***	(0.001)	(0.001)***	(0.001)***
R&D Expenditure X TFP Gap		0.002	0.001	0.006	0.013
		(0.001)	(0.001)	(0.002)***	(0.013)
Number of Observations	2,685	2,685	1,707	849	487
Adjusted R^2	0.11	0.11	0.15	0.21	0.24

Source: IMF staff estimates

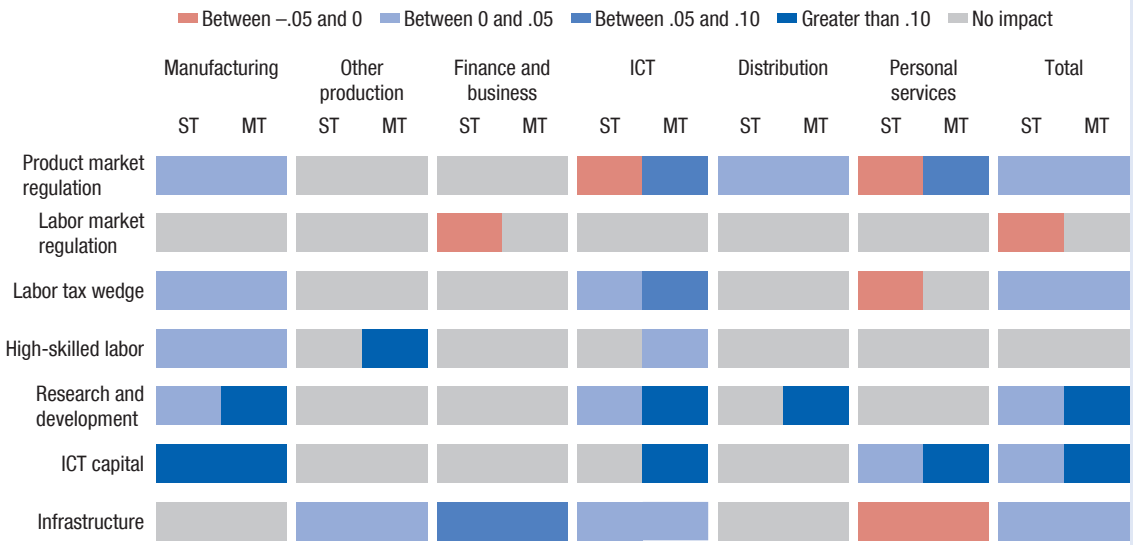
Note: *p*-values are in parentheses. ICT = information and communications technology; R&D = research and development; TFP = total factor productivity.

[1] Industries that produce ICT goods intensively.

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

Figure 3.5.1. Short- and Medium-Term Impact of Structural Reforms on Total Factor Productivity Growth

(Percent; average technological gap)



Source: IMF staff estimates.

Note: "Other production" includes agriculture; forestry; fishing; mining; quarrying; and electricity-, gas-, and water-related industries. ICT = information and communications technology; MT = medium term (five years); ST = short term (three years).

Box 3.5 *(continued)*

ity levels are associated with increasing R&D and ICT capital. The results also suggest that an increase in infrastructure capital has a positive impact on productivity over a longer horizon. This is a result of economies of scale, the existence of network externalities, and competition-enhancing mechanisms.

The effects vary across sectors and reforms. For example, total factor productivity gains associated with product market liberalization are highest in the ICT, personal services, and finance and business services sectors, but higher R&D spending and education reforms produce larger effects in the manufacturing and ICT sectors.

The impact of reforms also depends on initial (prereform) settings and business cycle conditions. For example, the effect of product market reforms is greater in highly regulated services sectors (Bourlès and others 2013) and during periods of expansion. Some differences, however, can be gleaned across industries, especially those in ICT and personal services, where productivity gains tend to be higher when initial levels of R&D and ICT capital use are low. Conversely, infrastructure shocks are associated with larger productivity gains during periods of economic downturn (see also Abiad, Furceri, and Topalova, forthcoming).

Finally, reforms can also have short-term negative impacts on total factor productivity (for example, the effect of product market deregulation on total factor productivity in ICT and personal services), possibly reflecting adjustment costs during the reform process (Blanchard and Giavazzi 2003).

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CHAPTER 4

PRIVATE INVESTMENT: WHAT'S THE HOLDUP?

Private fixed investment in advanced economies contracted sharply during the global financial crisis, and there has been little recovery since. Investment has generally slowed more gradually in the rest of the world. Although housing investment fell especially sharply during the crisis, business investment accounts for the bulk of the slump, and the overriding factor holding it back has been the overall weakness of economic activity. In some countries, other contributing factors include financial constraints and policy uncertainty. These findings suggest that addressing the general weakness in economic activity is crucial for restoring growth in private investment.

The disappointing performance of private fixed investment has featured prominently in the public policy debate in recent years.[1] As Chapter 3 suggests, the low level of private investment since the crisis has already contributed to the drop in potential output growth in numerous economies. In some countries, weak business investment has contrasted with the ebullience of stock markets, suggesting a possible disconnect between financial and economic risk taking, as discussed in the October 2014 *Global Financial Stability Report*. A number of proposals aimed at encouraging firms to increase capital spending have been made.[2]

However, there is little consensus as to what lies behind the weakness. Some view it as a symptom of the generally weak economic environment. For example, Chinn (2011) and Krugman (2011) suggest that U.S. private investment has, if anything, been stronger since the crisis began than might have been expected based on the weakness in economic activity. Others suggest that private investment has been weaker than can be explained by output, highlighting the role of special impediments. The European Investment Bank (2013) concludes that the most important immediate cause of low investment in Europe has been uncertainty. Buti and Mohl (2014) highlight the roles of reduced public investment, financial fragmentation, and heightened uncertainty in constraining private investment in the euro area. A study by the Organisation for Economic Co-operation and Development (Lewis and others 2014) finds that, although it has been a major factor, low output growth since the crisis cannot fully account for the investment weakness in some of the major advanced economies, including France, Germany, Japan, and the United States. How should policymakers interpret the weakness of private investment?

To contribute to the policy debate, and to put some of the findings of recent studies into global perspective, this chapter focuses on the following five questions:

- Is there a global slump in private investment? Which economies have seen the weakest private investment performance since the crisis?
- Is the sharp slump in advanced economy private investment due just to weakness in housing, or is it broader? How has the performance of residential investment compared with that of other categories of investment, and how do the findings vary across economies?
- How much of the slump in business investment reflects weakness in economic activity? In particular, how much of the slump in business investment compared with precrisis forecasts is explained by the weakness in output?
- Which businesses have cut back more on investment? What does this imply about which channels—beyond output—have been relevant in explaining weak investment?

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[1]"Fixed investment" refers to investment in physical assets, for example, equipment and structures (in contrast, for example, to investments in labor, ongoing operating expenses, materials, or financial assets), as well as intellectual property products (for example, expenditures for research and development and other rights providing long-lasting service to businesses). Throughout the chapter, "investment" refers specifically to fixed investment.

[2]These include, for example, the European Commission's proposal to establish the European Fund for Strategic Investments, which is based on risk sharing between the public and private sectors.

- Is there a disconnect between financial markets and firms' investment decisions? Have firms responded unusually weakly to stock market incentives?

To address these questions, the chapter reviews the recent evolution of private investment in both advanced and emerging market and developing economies. Focusing on advanced economies, where the weakness in private investment has been most striking, the chapter assesses how broad based the slump in investment has been by comparing residential and nonresidential investment. It then investigates how much of the weakness in private nonresidential investment can be explained by the weakness in output. To provide additional insights into what factors, beyond output, have held back investment, the chapter investigates which types of firms have cut back most on investment using a "difference-in-difference" empirical approach. Finally, the chapter assesses, using standard "Tobin's Q" models of investment, whether financial market valuations and profitability have become disconnected from firms' investment decisions.

The chapter's main findings are as follows:

- The sharp contraction in private investment during the crisis, and the subsequent weak recovery, have primarily been a phenomenon of the advanced economies. For these economies, private investment has declined by an average of 25 percent since the crisis compared with precrisis forecasts, and there has been little recovery. In contrast, private investment in emerging market and developing economies has gradually slowed in recent years, following a boom in the early to mid-2000s.
- The investment slump in the advanced economies has been broad based. Though the contraction has been sharpest in the private residential (housing) sector, nonresidential (business) investment—which is a much larger share of total investment—accounts for the bulk (more than two-thirds) of the slump.[3] There is little sign of recovery toward precrisis investment trends in either sector.
- The overall weakness in economic activity since the crisis appears to be the primary restraint on business investment in the advanced economies. In surveys, businesses often cite low demand as the dominant factor. Historical precedent indicates that business investment has deviated little, if at all, from what could be expected given the weakness in economic activity in recent years. Deviations from this pattern have typically been small in relation to the overall loss in investment—at most one-fifth of the total loss since the crisis—and not statistically significant. The analysis here employs a novel empirical strategy that addresses concerns regarding reverse causality running from investment to output, as well as more conventional "accelerator" models of investment. Although the proximate cause of lower firm investment appears to be weak economic activity, this itself is due to many factors. And it is worth acknowledging that, as explained in Chapter 3, a large share of the output loss compared with precrisis trends can now be seen as permanent.
- Beyond weak economic activity, there is some evidence that financial constraints and policy uncertainty play an independent role in retarding investment in some economies, including euro area economies with high borrowing spreads during the 2010–11 sovereign debt crisis. Additional evidence comes from the chapter's firm-level analysis. In particular, firms in sectors that rely more on external funds, such as pharmaceuticals, have seen a larger fall in investment than other firms since the crisis. This finding is consistent with the view that a weak financial system and weak firm balance sheets have constrained investment. Regarding the effect of uncertainty, firms whose stock prices typically respond more to measures of aggregate uncertainty have cut back more on investment in recent years, even after the role of weak sales is accounted for. This finding is consistent with the view that, given the irreversible and lumpy nature of investment projects, uncertainty has played a role in discouraging investment.
- Finally, regarding the apparent disconnect between buoyant stock market performance and relatively restrained investment growth in some economies, the chapter finds that this too is not unusual. In line with much existing research, it finds that the relationship between market valuations and business investment is positive but weak. Nevertheless, there is some evidence that stock market performance is a leading indicator of future investment, implying that if stock markets remain buoyant, business investment could pick up.

[3]Public investment constitutes less than 20 percent of total (private and public) investment in the advanced economies. Although public investment has also declined in a number of these economies in recent years (see Chapter 3 in the October 2014 *World Economic Outlook*), after initially rising on the back of fiscal stimulus, the contraction in total investment has been largely driven by private investment.

Is There a Global Slump in Private Investment?

The sharp contraction in private investment during and since the global financial crisis combined with the subsequent weak recovery is largely an advanced economy phenomenon (Figure 4.1). For advanced economies as a whole, private investment during 2008–14 declined by 25 percent compared with forecasts made in early 2007, before the onset of the crisis.[4] The weakness in investment is evident across almost all advanced economies, although some economies saw a limited contraction in private investment and a more rapid recovery, due, for example, to mining and energy booms, as in Australia, Canada, and Norway (Figure 4.2).

To check whether the results are driven by the impact of any immediate precrisis boom or faltering, the analysis is repeated based on deviations relative to forecasts made in 2004, three years before the start of the crisis. For advanced economies, the estimated slump is similar in almost all cases.[5] This slump also shows up when outturns are compared to long-term historical trends in private investment calculated over the period 1990–2004. It also emerges when ratios of private investment to GDP, which have declined relative to long-term historical averages in advanced economies, are considered.

Investment has slowed more gradually in the emerging market and developing economies as a whole than in the advanced economies, and from unusually high levels. The recent slowdown follows a period of rapid growth during the boom years of the mid-2000s. Private investment remains broadly in line with forecasts made in the early 2000s. However, relative to forecasts made at the height of the boom, as in 2007, there has been a slowdown. Contributing factors vary by region but include lower commodity prices, spillovers from weak demand abroad, and tighter domestic and external financial conditions (Box 4.1).

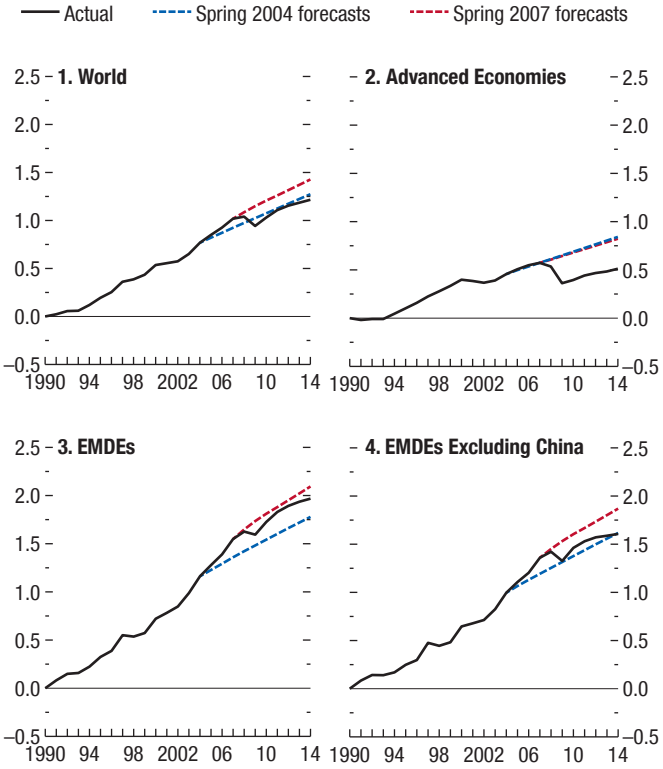
The striking underperformance of private investment in advanced economies provides a rationale for focusing on these economies for the remainder of the chapter.

[4]The forecasts for private investment used here come from Consensus Economics' *Consensus Forecasts*. When this source is not available, forecasts from the IMF's *World Economic Outlook* are used instead.

[5]For Iceland, the measured slump is substantially deeper based on a comparison with the 2007 forecast rather than the 2004 forecast, which reflects the rapid growth and upward revisions in growth forecasts in the boom years preceding the crisis.

Figure 4.1. Real Private Investment
(Log index, 1990 = 0)

Private fixed investment in advanced economies contracted sharply during the crisis, and there has been little recovery since. The investment slowdown in the rest of the world has generally been more gradual and from unusually high levels.



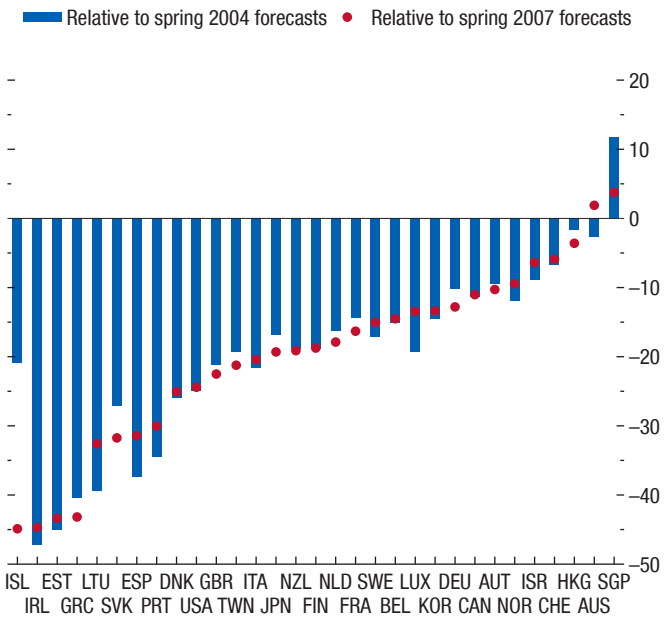
Sources: Consensus Economics; IMF, Fiscal Monitor database; and IMF staff estimates.
Note: The figure presents data, where available, for the country groups as defined in the WEO Statistical Appendix. EMDEs = emerging market and developing economies.

Is the Slump in Private Investment Due to Housing or Is It Broader?

The weakening of fixed investment in the advanced economies has been broad based, with both residential (housing) and nonresidential (business) investment showing little sign of recovery (Figure 4.3). Residential private investment has contracted most sharply, but it is business investment, given its much larger share in total investment, that accounts for the bulk (more than two-thirds) of the investment slump (Figures 4.4

Figure 4.2. Real Private Investment, 2008–14
(Average percent deviation from precrisis forecasts)

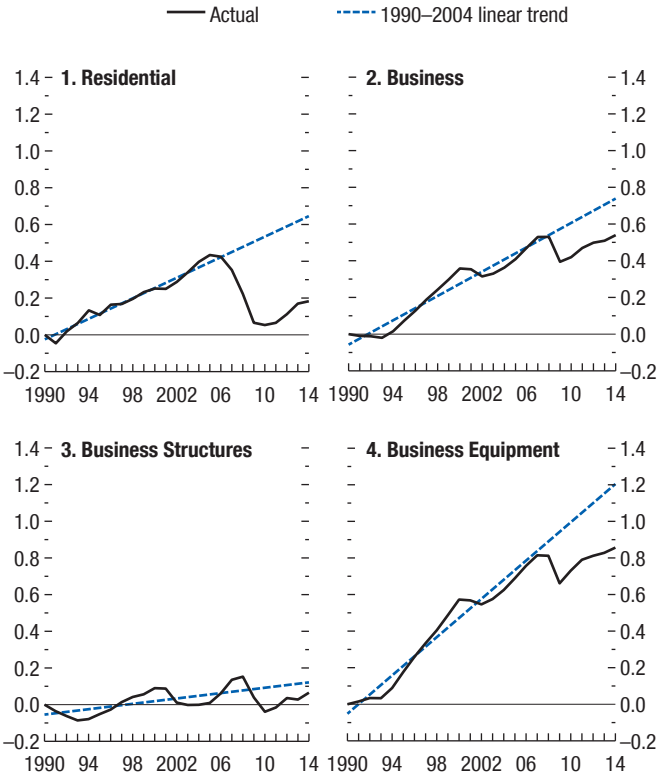
The weakness in investment is evident across most advanced economies, with few exceptions.



Sources: Consensus Economics; IMF, Fiscal Monitor database; and IMF staff estimates.
Note: Data labels in the figure use International Organization for Standardization (ISO) country codes.

Figure 4.3. Categories of Real Fixed Investment
(Log index, 1990 = 0)

The investment slump has been broad based, with both residential (housing) and nonresidential (business) investment showing little sign of recovery.



Sources: Haver Analytics; national authorities; and IMF staff calculations.
Note: The figure presents data for 28 advanced economies: Australia, Austria, Canada, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Israel, Italy, Japan, Korea, Latvia, Luxembourg, Malta, Netherlands, New Zealand, Norway, Portugal, Singapore, Slovak Republic, Slovenia, Spain, Sweden, United Kingdom, United States.

and 4.5).[6] Within business investment, both structures and equipment and software categories have contracted relative to precrisis trends.[7] This development is worrying, because business investment is considered to be a particularly productive contribution to the capital stock (Kopcke 1993) and thus essential for supporting the economy's future productive capacity and competitiveness. At the same time, despite the slump, the share of equipment investment in total private investment has been rising (Figure 4.5), in part reflecting its declining relative price and the rising rate of capital depreciation (Summers 2014).

Public investment has made a relatively small direct contribution, relative to private investment, to the recent slump in total investment (Figure 4.5). A 2009–10 uptick in public investment in the United States and elsewhere resulting from fiscal stimulus was only a brief interlude in a long and gradual decline that started decades before the crisis (Figure 4.5). As discussed in Chapter 3 in the October 2014 *World Economic Outlook*, declining public investment can also reduce economic activity and private investment. This constitutes an additional indirect effect of public investment on total investment that is not captured by the accounting decomposition in Figure 4.5.

How Much of the Slump in Business Investment Reflects Weak Economic Activity?

Devising policies to encourage a recovery in business investment requires a clear diagnosis of its weakness.

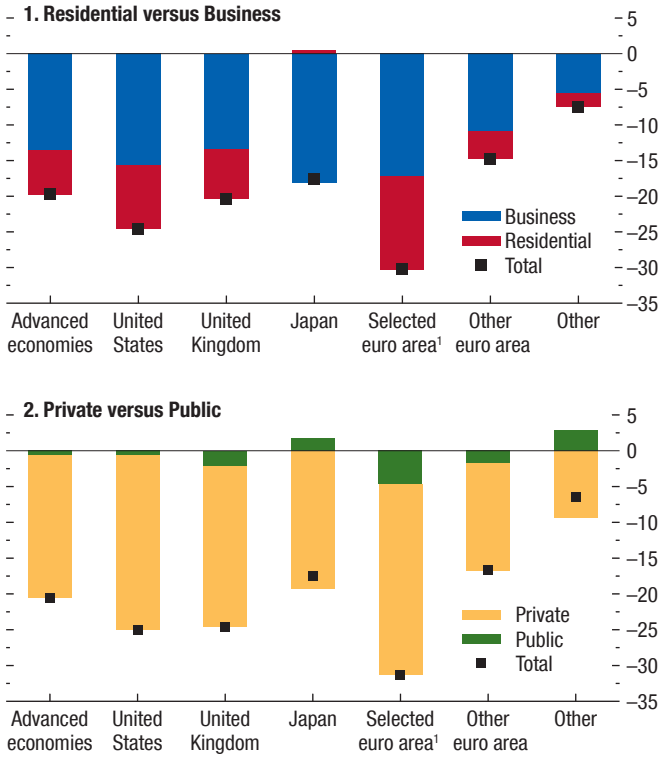
[6]Given the lack of separate forecasts for residential investment and different categories of nonresidential investment, the analysis compares the evolution of these categories of investment relative to precrisis linear trends estimated for 1990–2004.

[7]See Annex 4.1 for the methodology used to calculate these contributions.

Figure 4.4. Decomposition of the Investment Slump, 2008–14

(Average percent deviation from spring 2007 forecasts)

Residential investment fell especially sharply, but business investment accounts for the bulk of the slump, given its much larger share in total investment. The direct contribution of public investment to the recent slump was relatively small.



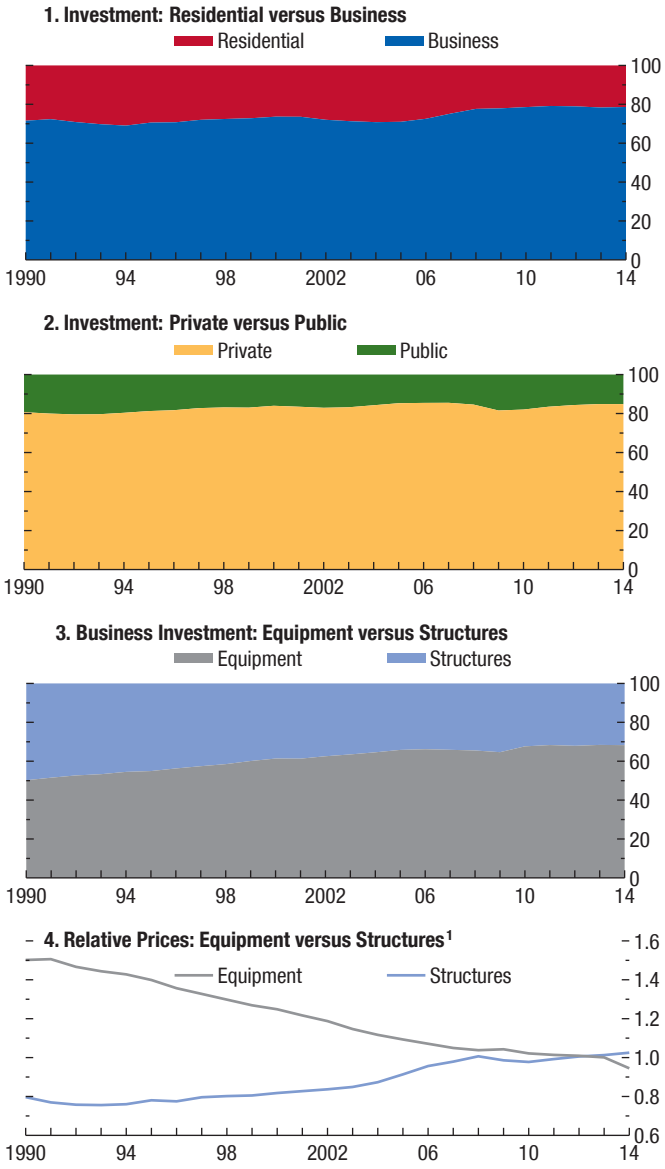
Sources: Consensus Economics; Haver Analytics; IMF, Fiscal Monitor database; national authorities; and IMF staff estimates.
Note: The figure presents data for 28 advanced economies: Australia, Austria, Canada, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Israel, Italy, Japan, Korea, Latvia, Luxembourg, Malta, Netherlands, New Zealand, Norway, Portugal, Singapore, Slovak Republic, Slovenia, Spain, Sweden, United Kingdom, United States.
[1]Euro area economies (Greece, Ireland, Italy, Portugal, Spain) with high borrowing spreads during the 2010–11 sovereign debt crisis.

Has investment been undermined primarily by the prevailing weak economic environment, or are special impediments at work? If weak investment is mainly a symptom of weak sales, calls for supporting aggregate demand, including through macroeconomic policies, could be justified. But if the weakness in investment is not well explained by the slow growth in economic activity and, instead, other obstacles are holding it back, those obstacles must be removed before investment can make a sustained recovery. The discussion of these questions here focuses on business investment—the largest component of private investment and that which accounts for most of the investment slump.

Figure 4.5. Shares and Relative Prices of Investment Categories

(Percent of total fixed investment, unless noted otherwise)

The share of equipment investment in total private investment has been rising, in part reflecting its declining relative price. An uptick in public investment in 2009–10 on the back of fiscal stimulus was only a brief interlude in a decline that started well before the crisis.



Sources: Haver Analytics; IMF, Fiscal Monitor database; national authorities; and IMF staff calculations.
Note: The figure presents data for 28 advanced economies: Australia, Austria, Canada, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Israel, Italy, Japan, Korea, Latvia, Luxembourg, Malta, Netherlands, New Zealand, Norway, Portugal, Singapore, Slovak Republic, Slovenia, Spain, Sweden, United Kingdom, United States.
[1]Relative price is calculated as the ratio of the investment category deflator to the overall GDP deflator.

How might weak economic activity cause business investment to decline? A standard implication of theoretical models is that firms reduce investment when opportunities for selling their products are limited. A weak current and prospective economic climate and, hence, low current and expected sales are thus likely to deter firms from investing in new capital. Weak product demand can also hamper investment through the "financial accelerator" channel, in which credit markets amplify and propagate both real and monetary shocks across the economy.[8] For instance, a drop in sales may damage a firm's financial position, constraining its ability to repay loans and borrow to finance further investment.

This section starts by assessing whether the recent comovement of investment and output has been unusual by historical standards. The next step is to quantify the influence of weak economic activity on the poor performance of investment. In both of these subsections, the analysis focuses on a panel of advanced economies. Finally, the section complements the broad cross-country assessment with country-specific estimates of the amount of business investment "explained" and "unexplained" by output.

Has the Comovement of Business Investment and Output Been Unusual since the Crisis?

Previous recessions have generated various patterns for the relative paths of investment and output. These patterns are natural antecedents for benchmarking the joint evolution of investment and output following the global financial crisis. There is a consensus that the fall in investment during and since the crisis has, in general, been much worse than in previous recessions. However, it is important to place this fall in the context of how output behaved.

To conduct an assessment of this, the chapter compares investment and output after historical recessions relative to their respective forecasts published in the spring issues of Consensus Economics' *Consensus Forecasts* and the IMF's *World Economic Outlook* in the year of each recession. This method of computing the contraction in investment is similar to that used in the previous section for quantifying the deviation in investment from its precrisis forecasts.[9] Based on the availability of data, including for the forecasts, the sample covers 27 advanced economies.

According to this analysis, investment contracted more severely following the global financial crisis than in historical recessions (Figure 4.6). For advanced economies as a whole, weighted by GDP, business investment declined by 20 percent relative to precrisis forecasts, on average, during the six years after the start of the global financial crisis. For those advanced economies that experienced banking crises, the decline was even larger, about 22 percent, whereas the drop for advanced economies that avoided banking crises was about 16 percent.[10] In contrast, the decline in investment during the six years following historical recessions averaged 10 percent.

However, the contraction in output was also much more severe than in historical recessions, implying a broadly normal comovement of investment and output. The relative response of investment was, overall, two to three times greater than that of output in previous recessions, and this relative response was similar in the current context (Figure 4.6).[11] If anything,

[8]The inverse relationship between the external finance premium—the difference between the cost to a borrower of raising funds externally and the opportunity cost of internal funds—and the financial position of the borrowing firm creates a channel through which otherwise short-lived economic shocks may have long-lasting effects. See Bernanke, Gertler, and Gilchrist 1996.

[9]The starting dates of recessions are identified according to the Harding and Pagan 2002 algorithm of output peaks and troughs, as computed by Claessens, Kose, and Terrones 2012. The latter work identifies the start of recessions with quarterly data. The present analysis, which uses annual data, takes the start of a recession to be the beginning of the year that includes the starting quarter of the recession. For example, a recession starting in the fourth quarter of 1990 is assumed here to start in 1990. Annex 4.1 provides the sources used to compile the chapter's data on investment.

[10]These two groups are based on the data set of banking crises of Laeven and Valencia 2012, according to which 19 advanced economies had a banking crisis between 2007 and the publication of that study: 13 of these are classified as having experienced a "systemic banking crisis" (Austria, Belgium, Denmark, Germany, Greece, Iceland, Ireland, Latvia, Luxembourg, Netherlands, Spain, United Kingdom, United States) and 6 as "borderline cases" (France, Italy, Portugal, Slovenia, Sweden, Switzerland). The study found that 13 advanced economies did not experience banking crises during that period: Australia, Canada, the Czech Republic, Estonia, Finland, Israel, Japan, Korea, Lithuania, New Zealand, Norway, Singapore, and the Slovak Republic.

[11]These results are robust to the method of measuring the contraction of investment and output after the crisis and after historical recessions. In particular, while the baseline result that investment contracts by two to three times as much as output is based on deviations from precrisis and prerecession forecasts, the result is similar when the deviations are computed relative to univariate (local projection method) forecasts. More generally, the finding that investment contracts by two to three times as much as output is consistent with research showing that investment varies relatively strongly in response to overall economic conditions. Relatedly, since investment is more volatile than output, a decline in the investment-to-GDP

investment dipped slightly less relative to the output contraction than in previous recessions.

At the same time, the endogenous nature of investment and output—that is, the simultaneous feedback from output to investment and then back to output—complicates the interpretation of these results. The findings on the relative movement of investment and output suggest that nothing unusual occurred. But to shed light on whether the weakness in investment was mainly a *symptom* of weak economic activity, an estimate that addresses the issue of reverse causality is needed.[12]

How Much Is Explained by Output? Insights Based on Instrumental Variables

This subsection investigates the extent to which weak economic activity has contributed to the decline in business investment using a simple but novel approach based on instrumental variables. The approach estimates the historical relationship between investment and output based on macroeconomic fluctuations not triggered by a contraction in business investment. The chapter focuses on changes in fiscal policy motivated primarily by the desire to reduce the budget deficit and not by a response to the current or prospective state of the economy.[13]

The results from this exercise are then used to predict the contraction in investment that would have been expected to occur after 2007 based on the observed contraction in output.[14] This predicted decline in investment after 2007 is then compared with the actual decline in investment to assess whether investment has been unusually weak given its historical relation with output—in other words, whether the actual decline exceeds the predicted decline. If the

ratio following the crisis does not necessarily suggest that investment has fallen by more than can be explained by output weakness.

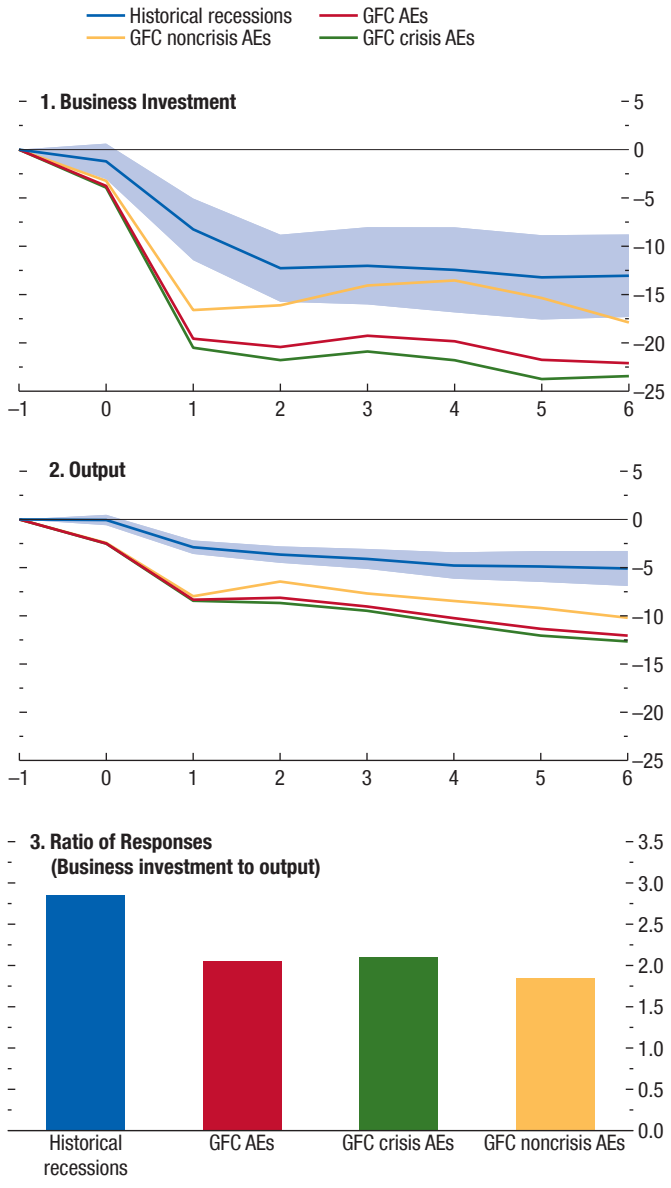
[12]It is worth clarifying that the finding that the recent comovement of investment and output in advanced economies has been broadly normal is not inconsistent with the observation, highlighted in Box 1.2 in the October 2014 *World Economic Outlook*, that negative errors in the forecast for investment account for more than half of the recent negative forecast errors for output growth. Owing to the generally high volatility of investment relative to output, investment also accounted for more than half of the negative errors in the growth forecast during the precrisis period.

[13]To assess the robustness of the results, the chapter also considers an alternative source of fluctuations not triggered by business investment: recessions associated with housing slumps (Annex 4.3).

[14]As before, the contraction in output is measured as the deviation of actual real GDP from the precrisis forecasts published in the spring 2007 issues of Consensus Economics' *Consensus Forecasts* and the IMF's *World Economic Outlook*.

Figure 4.6. Real Business Investment and Output Relative to Forecasts: Historical Recessions versus Global Financial Crisis
(Percent deviation from forecasts in the year of recession, unless noted otherwise; years on x-axis, unless noted otherwise)

Real business investment has contracted more severely following the global financial crisis than in historical recessions. But the contraction in output has also been more severe than after prior recessions. Overall, investment has dipped slightly less relative to the output contraction than in previous recessions.



Sources: Consensus Economics; Haver Analytics; national authorities; and IMF staff estimates.
Note: For historical recessions, $t = 0$ is the year of recession. Deviations from historical recessions (1990–2002) are relative to spring forecasts in the year of the recession. Recessions are as identified in Claessens, Kose, and Terrones 2012. For the global financial crisis (GFC), $t = 0$ is 2008. Deviations are relative to precrisis (spring 2007) forecasts. Shaded areas denote 90 percent confidence intervals. Panels 1 and 2 present data for the advanced economies (AEs) listed in Annex Table 4.1.1. GFC crisis and noncrisis advanced economies are as identified in Laeven and Valencia 2012.

contraction in output during that period was driven by a contraction in business investment, then the decline in investment should have been greater than predicted by the historical investment-output relationship based on output fluctuations *not* triggered by business investment.

The chapter estimates the historical investment-output relationship using fiscal policy changes aimed at reducing budget deficits for a sample period ending in 2006. The series of fiscal policy changes—policy-induced government spending reductions or tax increases—is "narrative" in nature. They come from Devries and others 2011, which examines contemporaneous policy documents for 17 Organisation for Economic Co-operation and Development economies to identify changes in fiscal policy motivated by a desire to reduce budget deficits rather than to counteract current and prospective economic conditions. As reported in Guajardo, Leigh, and Pescatori 2014, these narrative fiscal policy changes are found to be uncorrelated with the state of the economy. In the context of this chapter, it is reassuring that they are also uncorrelated with lagged business investment.[15] Such policy changes provide a source of output fluctuations not primarily triggered by a contraction in business investment and are thus appropriate for isolating the effect of output on investment.

The resulting estimated investment-output relationship implies that a 1 percent decline in output is associated with a 2.4 percent decline in investment.[16] This estimated relationship is then considered in conjunction with the actual deviation of output from its precrisis forecast since 2007 to provide an idea of how investment would have been expected to evolve after the crisis, given the change in output.

[15]A regression of the fiscal shocks on lagged business investment yields a slope coefficient near zero with a *p*-value of 32 percent.

[16]The estimation results are obtained via two-stage least-squares regression. The equation estimated is

$$\Delta \ln I_{i,t} = \alpha_i + \lambda_t + \beta\{\text{Instrumented } \Delta \ln Y_{i,t}\} + \rho \Delta \ln I_{i,t-1} + \varepsilon_{i,t},$$

in which i denotes the ith country, and t denotes the tth year; $\Delta \ln I_{i,t}$ is the change in (log) real business investment; and $\Delta \ln Y_{i,t}$ is the change in (log) real GDP. The equation controls for the lagged value of the investment term, given that investment projects can be spread over time, and includes a full set of country (α_i) and time (λ_t) fixed effects. As reported in Annex Table 4.3.1, the first-stage regression results indicate that the narrative fiscal shocks have explanatory power for real GDP growth (the *F*-statistic on the excluded instrument has a *p*-value below 0.01 percent [one one-hundredth of 1 percent] and is above 15). The second stage yields an estimate for β of 2.4 that is statistically significant at the 1 percent level. The predicted path of investment relative to forecast based on the path of output relative to forecast is defined as $\ln I_{i,t} - F_{i,2007} \ln I_{i,t} = \beta(\ln Y_{i,t} - F_{i,2007} \ln Y_{i,t})$, in which $F_{i,2007}$ denotes the spring 2007 forecast.

The analysis suggests that the bulk of the slump in business investment since the crisis reflects the weakness in economic activity (Figure 4.7). For advanced economies as a whole, the predicted fall in business investment since the crisis, which averages 21 percent, in GDP-weighted terms is close to the actual path of investment. The actual decline of investment, which averages 20 percent, falls well inside the 90 percent confidence interval of the prediction. Thus, little of the observed decline in investment remains unexplained after the expected effects of the output decline are taken into consideration. The finding of little unexplained weakness in investment also holds when advanced economies are divided into broad subgroups comprising those that experienced a banking crisis after 2007 and those that did not.

To check whether the results are driven by the impact of any immediate precrisis boom or faltering, the analysis is repeated based on deviations relative to forecasts made in 2004, three years before the start of the crisis. As reported in Annex 4.3, the results are similar, and they also hold up to additional robustness tests. In each case, there is little evidence, if any, of investment being weaker than would be expected.

Overall, these results are consistent with the view that the weakness in business investment in advanced economies is, on the whole, primarily a symptom of weak economic activity. However, although the proximate cause of lower firm investment since the crisis appears to be weak economic activity, this weakness itself is due to many factors, including financial factors.

Country-Specific Insights

The results reported thus far for groups of advanced economies could hide specific cases of unexplained weakness in business investment beyond what could be expected based on economic activity. This subsection therefore presents estimates of how much investment weakness can be explained by output dynamics based on investment models estimated at the individual-country level.

The analysis is based on the conventional accelerator model of investment, which is applied to a sample of 19 advanced economies. A key assumption is that firms adjust their capital stock gradually toward a level that is proportional to output. In addition, firms are assumed to invest to replace capital that depreciates over time. Based on these assumptions, the theory predicts that investment should respond positively to current and lagged changes in output and to the

lagged capital stock.[17] The empirical literature has found strong support for this model, as in Oliner, Rudebusch, and Sichel 1995 and Lee and Rabanal 2010 for the United States, and, more recently, in IMF 2014a and Barkbu and others 2015 for European economies.[18] Depending on data availability and the economy in question, the sample starts between the first quarter of 1990 and the second quarter of 2000 and ends in the third quarter of 2014.[19]

Overall, the country-specific results confirm the earlier finding of little unexplained weakness in investment in recent years. Figure 4.8 reports the actual and predicted values for business investment for France, Germany, Japan, and the United States.[20] The actual and predicted values for investment are close to one another, and departures from the predicted level are typically inside the model's 90 percent confidence interval.[21] The model thus appears to account well

[17]Jorgenson and Siebert (1968) provide a derivation of the accelerator model. Based on the theory underlying the model, the empirical specification typically estimated is as in Oliner, Rudebusch, and Sichel 1995:

$$I_t = \alpha + \Sigma_{i=0}^{N} \beta_i \Delta K^*_{t-i} + \delta K_{t-1},$$

in which I_t denotes real business investment and ΔK^*_t denotes the change in the desired capital stock, which, in turn, is assumed to be proportional to the change in output: $\Delta K^*_t = \zeta \Delta Y_t$. To alleviate reverse-causality concerns, a typical approach involves dropping the contemporaneous value of the change in output. The analysis here includes 12 lags of the changes in output ($N = 12$), also a conventional choice. It also follows the literature in normalizing the equation by the lagged capital stock, K_{t-1}, to address concerns of nonstationarity, and computing standard errors using the Newey-West procedure with a lag truncation parameter of 3, a conventional choice for samples of this size. The estimation results can be found in Annex Table 4.5.1.

[18]See IMF 2014b and IMF 2014c for further country-specific analysis of private investment in European economies.

[19]For a number of economies, available data for the business capital stock are limited, constraining the size of the sample. Given that constraint, the analysis is conducted on an "in-sample" basis, using the full sample ending in 2014. However, for the eight economies in the sample with data starting in 1990, thus covering at least two business cycles, the analysis is also repeated, for the purposes of robustness, on an "out-of-sample" basis, based on data ending in 2006 (Annex Figure 4.5.1 and Annex Table 4.5.2).

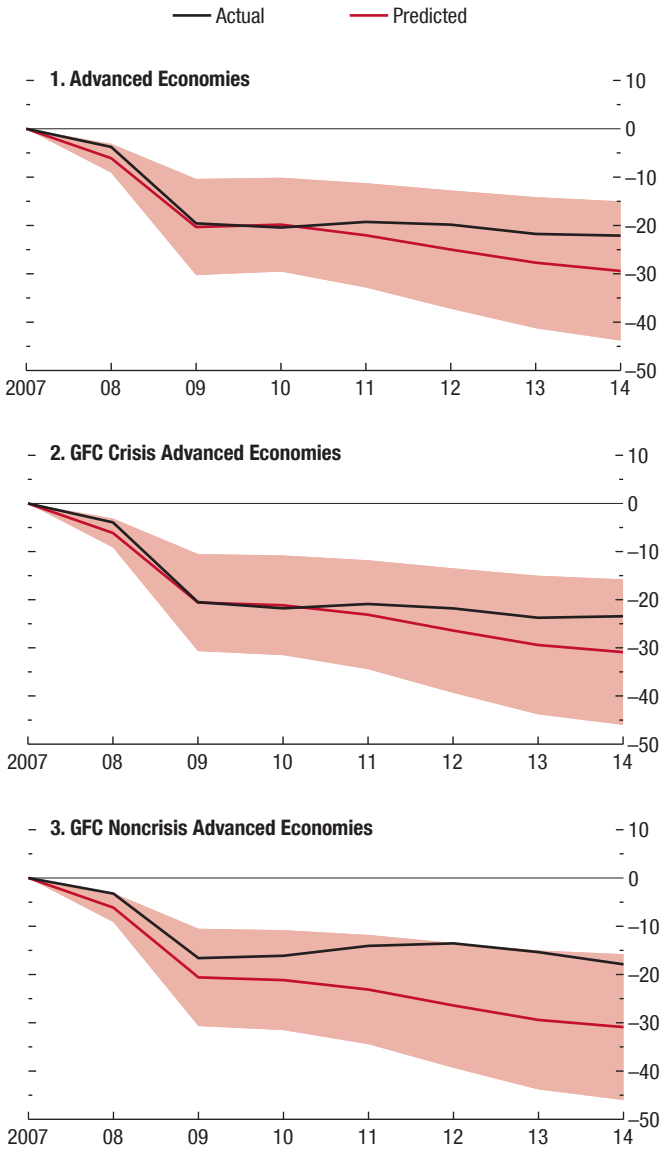
[20]The model yields predicted values for the investment rate (investment as a share of the previous period's capital stock). Figure 4.8 rescales the fitted values by the lagged capital stock to obtain predicted values for the level of investment. To put the residuals into perspective, the figure also reports the actual level of investment and the precrisis forecast, which comes from Consensus Economics' April 2007 *Consensus Forecasts* or, when this is unavailable, the April 2007 *World Economic Outlook*.

[21]As reported in Annex Figure 4.5.2, the result of a close fit between the actual and predicted values of business investment also holds when the baseline specification is augmented to include the user cost of capital.

Figure 4.7. Real Business Investment: Actual and Predicted Based on Economic Activity

(Percent deviation of investment from spring 2007 forecasts)

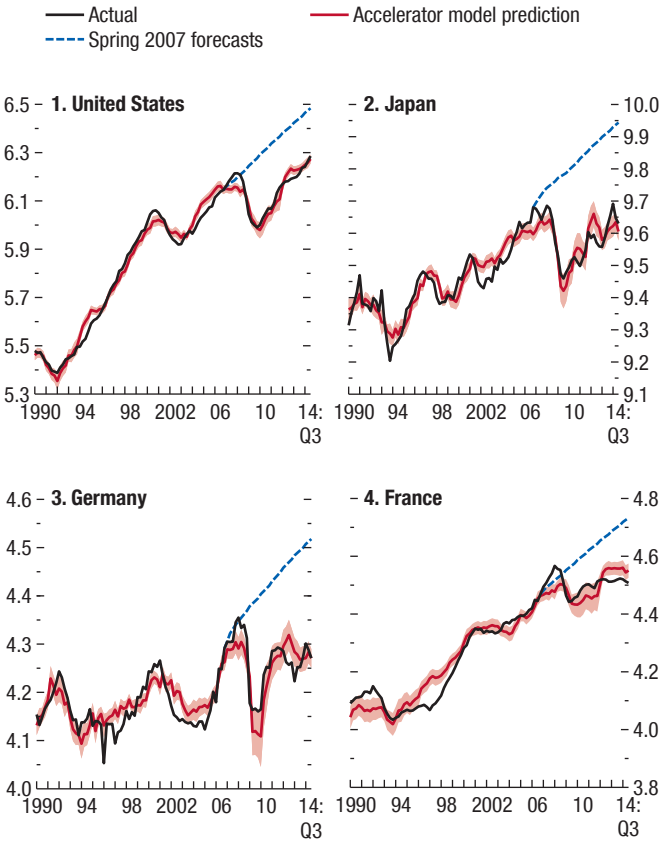
The bulk of the slump in business investment since the crisis reflects the weakness in economic activity. For broad groups of advanced economies, there is little unexplained investment.



Sources: Consensus Economics; Haver Analytics; national authorities; and IMF staff estimates.
Note: Prediction based on investment-output relationship estimates reported in Annex Table 4.3.1 and postcrisis decline in output relative to precrisis (spring 2007) forecasts. Shaded areas denote 90 percent confidence intervals. Global financial crisis (GFC) and noncrisis advanced economies are as identified in Laeven and Valencia 2012.

Figure 4.8. Accelerator Model: Real Business Investment
(Log index)

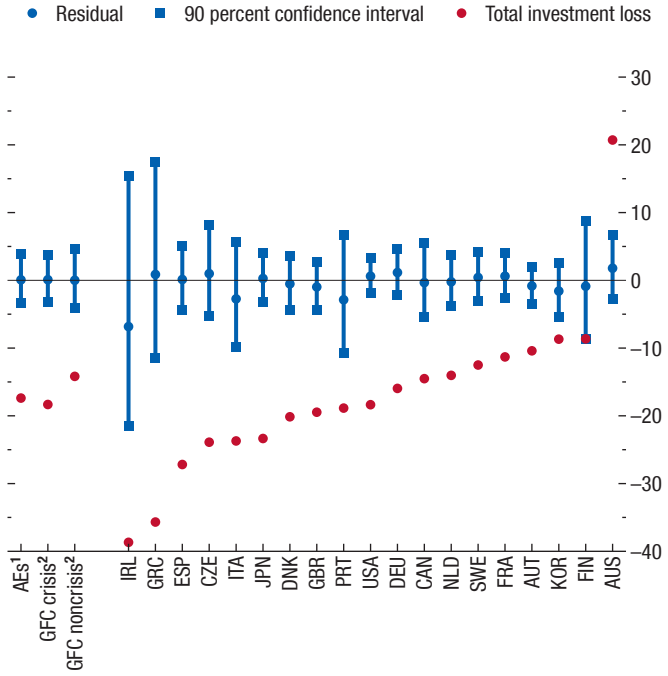
Actual business investment has been close to the level predicted by the accelerator model since the crisis.



Sources: Consensus Economics; Haver Analytics; national authorities; and IMF staff estimates.
Note: Accelerator model predictions for investment are obtained by multiplying the predicted value for the investment rate by the lagged capital stock. Shaded areas denote 90 percent confidence intervals, based on the Newey-West estimator.

Figure 4.9. Real Business Investment: Accelerator Model Residuals and Investment Losses Relative to Precrisis Forecasts, 2008–14
(Percent)

The model generally provides a close fit, with residuals typically not statistically distinguishable from zero and accounting for, at most, one-fifth of the total loss relative to forecasts for 2008–14 made prior to the global financial crisis.



Sources: Consensus Economics; Haver Analytics; national authorities; and IMF staff estimates.
Note: Total investment loss denotes average deviations of actual investment from precrisis (spring 2007) forecasts. Residuals denote average deviations of actual investment from accelerator model predictions. Data labels in the figure use International Organization for Standardization (ISO) country codes.
[1]19 advanced economies as reported in the figure.
[2]Global financial crisis (GFC) and noncrisis advanced economies are as identified in Laeven and Valencia 2012.

for the weakness of investment relative to precrisis forecasts, which are also indicated in Figure 4.8. The model also generally provides a close fit for the other economies in the sample, with residuals typically not statistically distinguishable from zero and accounting for, at most, one-fifth of the total loss in investment relative to precrisis forecasts for the 2008–14 period (Figure 4.9). Furthermore, these results are consistent with those presented in the previous subsection. Figure 4.9 provides GDP-weighted averages of these country-specific results for the advanced economies in the sample, and these results show little evidence of unexplained investment weakness.

At the same time, the analysis reveals a few cases of investment weakness during 2011–14 that are not explained by the model. In particular, for euro area economies with high borrowing spreads during the 2010–11 sovereign debt crisis, actual real investment falls 7 percent short of the level implied by the accelerator model, on average, during 2011–14, although the gap is not always statistically significant (Figure 4.10). To put these residuals into context, recall that the slump in investment relative to precrisis forecasts has averaged about 40 percent a year since the crisis. And during 2008–10, investment was above the predicted level

for these economies by about 4 percent, on average, although the deviation was not statistically significant.[22]

To investigate what may lie behind these cases of unexplained investment weakness, the analysis considers two factors that have been emphasized in the policy debate: financial constraints and policy uncertainty. Firms with financial constraints face difficulties expanding business investment because they lack funding resources to do so, regardless of their business perspectives. Here, financial constraints are measured as the percentage of respondents in the European Commission's Business and Consumer Surveys that identify such constraints as a factor limiting their business production.[23] Uncertainty about the economic outlook can discourage investment because of the lumpy and irreversible nature of investment projects. It is measured here by Baker, Bloom, and Davis's (2013) index of policy uncertainty, which is based on newspaper coverage of policy-related economic uncertainty.[24] When these variables are added directly to the estimated model, the analysis can reveal their independent influence—beyond their role via output—on investment.[25]

The results are consistent with the view that, for some economies, financial constraints and policy uncertainty have played a role beyond output in impeding investment in recent years. For euro area economies with high borrowing spreads during the 2010–11 sovereign debt crisis, adding these variables to the accelerator model reduces the degree of unexplained investment. Figure 4.10 shows the results of

[22]Investment across Greece, Ireland, Italy, Portugal, and Spain averaged some 1.1 percent of GDP less than the model's prediction during 2011–14 and some 0.6 percent of GDP more than the model's prediction during 2008–10.

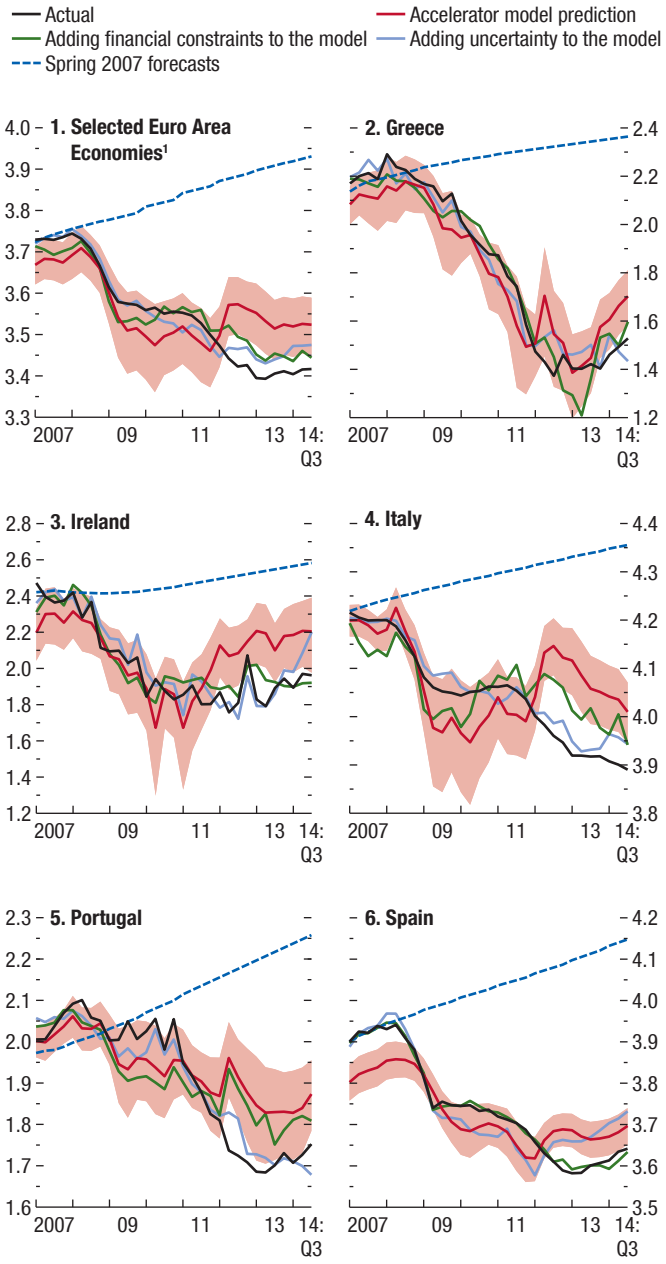
[23]These surveys ask respondents to identify what factors, if any, are limiting their production. Although survey-based variables have their limitations, the variable in principle reflects the role of both borrowing costs and quantitative restrictions on borrowing (credit rationing). To make it easier to interpret the regression results, the variable is normalized by subtracting the mean, for each economy, and dividing by the standard deviation. The index thus has a mean of 0 and a standard deviation of 1.

[24]As explained by Baker, Bloom, and Davis (2013), the index quantifies newspaper coverage of terms related to economic policy uncertainty (Annex 4.1). The index also incorporates information on the extent of disagreement among professional forecasters about the future path of policy-relevant macroeconomic variables such as inflation and government budget balances. It may thus reflect uncertainty about the overall economic outlook.

[25]The normal influence of both variables on investment through output would already be captured in the baseline model estimated previously.

Figure 4.10. Selected Euro Area Economies: Accelerator Model—Role of Financial Constraints and Policy Uncertainty
(Log index)

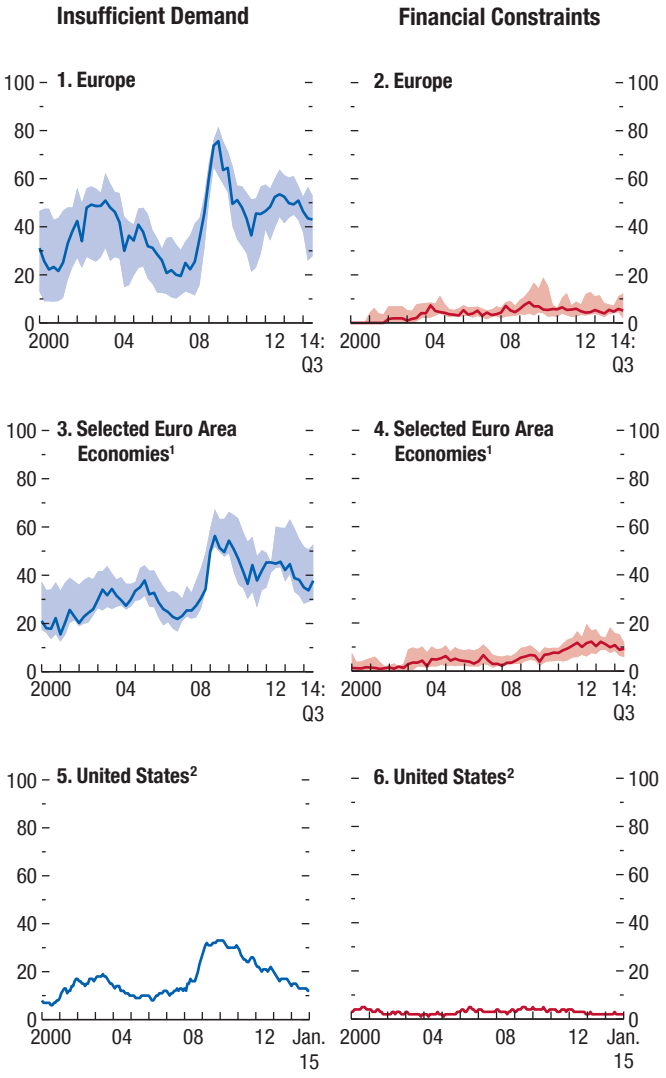
For some euro area economies, there are cases of unexplained investment weakness during 2011–14, with evidence of financial constraints and policy uncertainty playing a role beyond output in impeding investment. Earlier in the crisis, investment was above the level predicted for these economies.



Sources: Consensus Economics; Haver Analytics; national authorities; and IMF staff estimates.
Note: Fitted values for investment are obtained by multiplying fitted values for the investment rate by the lagged capital stock. Shaded areas denote 90 percent confidence intervals, based on the Newey-West estimator.
[1]Euro area economies (Greece, Ireland, Italy, Portugal, Spain) with high borrowing spreads during the 2010–11 sovereign debt crisis.

Figure 4.11. Firm Survey Responses: Factors Limiting Production
(Percent)

In surveys, businesses cite insufficient customer demand as the dominant factor.



Sources: European Commission, Business and Economic Surveys; National Federation of Independent Business, *Small Business Economic Trends*; and IMF staff calculations.
Note: Solid lines in the figure report the median percentage of survey respondents across countries in the group, indicating that demand and financial constraints, respectively, have been a factor limiting production; shaded areas show the dispersion across countries (25th and 75th percentiles of the sample).
[1]Euro area economies (Greece, Ireland, Italy, Portugal, Spain) with high borrowing spreads during the 2010–11 sovereign debt crisis.
[2]Percentage of small businesses surveyed by the National Federation of Independent Business reporting "poor sales" (blue line) or "financial and interest rate" (red line) as the single most important problem they are facing; three-month moving average.

adding these variables, one at a time, to the baseline model. The underlying regression coefficient estimates also typically have the expected negative sign and are statistically significant, although they are not always economically significant.[26] These mixed results reflect the inherent difficulty of disentangling the independent roles of these economy-wide variables, as well as the small number of observations for each country since the crisis for which the financial constraints and uncertainty data are available.

Overall, the results in this section indicate that the bulk of the slump in business investment since the crisis reflects the weakness in output and are consistent with the view that the weakness in investment is primarily a symptom of the weak economic environment. The results are also in line with surveys of firms, which often indicate that a lack of customer demand is the dominant factor constraining their production (Figure 4.11). There is also some suggestive evidence that financial constraints and policy uncertainty play a role in certain economies. However, identifying the effect of these factors is challenging based on macroeconomic data, particularly given the limited number of observations for each country since the crisis. Therefore, the next section turns to firm-level data for a clearer assessment of whether financial constraints and policy uncertainty have held back investment since the crisis.

Which Firms Have Cut Back More on Investment? The Roles of Financial Constraints and Policy Uncertainty

To provide additional insights into what factors, beyond aggregate economic activity, have held back investment since the crisis, this section investigates which types of firms have cut back most on investment in recent years. The focus is on the roles of financial constraints and policy uncertainty, for which the analysis in the previous section provides suggestive evidence. In particular, this section investigates whether reduced credit availability has caused lower firm investment, after the effect of sales and

[26]As reported in Annex Table 4.5.3, the coefficient estimates imply that a one standard deviation rise in the financial constraints variable is associated with a decline in the investment rate (investment as a share of the previous year's capital stock) by 0 to 1.1 percentage points of the capital stock. A one standard deviation rise in the policy uncertainty variable is associated with a decline in the investment rate by 0 to 0.4 percentage point of the capital stock. To put these estimates into context, note that the investment rate for Greece, Ireland, Italy, Portugal, and Spain averages 2.3 percent of the capital stock.

other factors on investment is allowed for. It also investigates whether periods of elevated uncertainty have played an independent role in reducing firm investment.

Using firm-level data has notable advantages. The large number of observations allows the analysis to control for a profusion of factors affecting investment, including through the use of fixed effects at the firm, industry-year, and country-year levels. This analysis uses annual data for 27,661 firms across 32 advanced economies for 2000–13 based on annual data from Thomson Reuters Worldscope.[27]

At the same time, the use of firm-level data comes with a number of caveats. Since the data in Thomson Reuters Worldscope cover publicly listed firms only, the results of the analysis do not necessarily apply to whole economies, including to unlisted small and medium-sized enterprises. In addition, the data on firm-level investment are based on total capital expenditure, both in the domestic economy and abroad. In this context, however, it is reassuring that the sum of investment by all firms in the data set is correlated with domestic business investment from the national accounts.[28] This suggests that the results obtained in this section for the listed firms in the sample are relevant for firms more generally.

The Role of Financial Constraints

To shed light on the role of constrained credit availability in holding back investment, this subsection investigates whether, in recent banking crises, firms in more financially dependent sectors have seen a larger drop in investment than those in other sectors.

The methodology is similar to the "difference-in-difference" approach of Dell'Ariccia, Detragiache, and Rajan (2008), who investigate the impact of previous banking crises (during 1980–2000) on firm production in both advanced and emerging market economies. The premise of this difference-in-difference approach is that if a reduction in credit availability plays a role in depressing investment when a banking crisis occurs, then industries that rely more on external funds would be expected to cut investment more than other sectors. It is worth acknowledging that, while this difference-in-difference approach is well suited to analyzing factors that explain differential performance across different firms following banking crises, it does not directly quantify economy-wide effects.

The analysis in this subsection covers the 2000–13 period, focusing on advanced economies, which means that the bulk of the banking crises in the sample are those that have occurred since 2007. Unlike in the research of Dell'Ariccia, Detragiache, and Rajan (2008), the focus here is on firm investment rather than firm production. Following the literature, a firm's dependence on external finance is measured by the fraction of its investment not financed through internal funds.[29] An example of a sector among those most dependent on external finance would be drugs and pharmaceuticals; one of the least dependent on external finance would be beverages.

The estimation results are consistent with the view that a contraction in credit availability in recent banking crises played a role in reducing business investment. In particular, as reported in Table 4.1, more

[27]Data are obtained from Thomson Reuters Worldscope on the balance sheets, cash flows, and income statements for all listed nonfinancial companies.

[28]On average, according to the firm-level data, investment by the firms in the data set amounts to 37 percent of total (economy-wide) business investment for the 2000–13 period. Reassuringly, however, as reported in Annex Table 4.2.1, total business investment and the sum of firm-level investment are correlated. In particular, a 1 percent rise in total business investment is associated with, on average, a 0.8 percent rise in the sum of firm-level investment. The finding of an almost one-for-one relationship between economy-wide business investment and firm-level investment holds for various sample splits, and after controlling for country and time fixed effects.

[29]The estimated equation has the firm's investment rate (capital expenditure as a share of the previous year's capital stock) as the dependent variable on the left side. On the right side, the explanatory variable of interest is the level of financial dependence interacted with a variable indicating whether the economy is experiencing a banking crisis. The equation estimated is

$$\frac{I_{ijk,t}}{K_{ijk,t-1}} = \beta \text{ Financial Dependence}_j \times \text{Banking Crisis}_{k,t} + \sum_l \gamma_l x_{ijk,t} + \alpha_i + \sum_{k,t} \lambda_{k,t} d_{k,t} + \sum_{j,t} \phi_{j,t} d_{j,t} + \varepsilon_{ijk,t},$$

in which i denotes the ith firm, j denotes the jth sector, and k denotes the kth country. The equation also controls for two key firm-level factors included in the x terms: the level of sales and Tobin's Q in the previous period. Following the literature, Tobin's Q is calculated using Thomson Reuters Worldscope data as the sum of the market value of equity and the book value of debt divided by the book value of assets. Finally, as already mentioned, the equation controls for firm fixed effects (α_i) and industry-year ($d_{j,t}$), and country-year ($d_{k,t}$) fixed effects. As in the pioneering work of Rajan and Zingales (1998), the analysis assumes that a firm's dependence on external finance is an intrinsic feature of its industrial sector. Annex 4.2 provides details on how the sector-level approximation of a firm's intrinsic dependence on external finance is computed. Standard errors are clustered at the three-digit-sector-country-year level. The results of the analysis are similar if the Banking Crisis dummy is lagged by one year and if the sample is limited to years from 2006 onward.

Table 4.1. Firm-Level Evidence: Financial Constraints Channel

	(1)	(2)	(3)
Dependent variable: Ratio of firm investment to lagged capital			
Bank Crisis × Financial Dependence	–0.024***	–0.023***	–0.026***
	(0.007)	(0.007)	(0.008)
Recession × Financial Dependence			0.008
			(0.006)
Sales-to-Lagged-Capital Ratio		0.008***	0.008***
		(0.000)	(0.000)
Lagged Tobin's Q		0.042***	0.042***
		(0.002)	(0.002)
Fixed Effects			
Firm	Y	Y	Y
Sector × Year	Y	Y	Y
Country × Year	Y	Y	Y
Number of Observations	161,073	160,239	160,239
R^2	0.03	0.13	0.13

Sources: Haver Analytics; national authorities; Thomson Reuters Worldscope; and IMF staff calculations.
Note: The table presents results from a panel regression with fixed effects at the firm, sector-year, and country-year levels. Bank crisis dates are as identified in Laeven and Valencia 2012. Recession dates are taken from Claessens, Kose, and Terrones 2012. Standard errors are in parentheses.
***$p < .01$.

financially dependent sectors invest significantly less than less-dependent sectors during banking crises. In banking crises, more financially dependent sectors (those in the top 25 percent of the external dependence distribution) see a fall in the investment rate—capital expenditure as a share of the previous year's capital stock—about 1.6 percentage points larger than that of less financially dependent sectors (those in the lowest 25 percent of the external dependence distribution).[30] This differential amounts to about 10 percent of the sample median investment rate of 16 percent.[31]

Figure 4.12 provides a simple illustration of this finding by reporting the evolution of investment for firms in the highest 25 percent and the lowest 25 percent of the external dependence distribution for all advanced economies since 2007. Given the lack of precrisis forecasts for investment in individual sectors, the results are reported as deviations from a univariate forecast of investment.[32] The figure suggests that by 2009, investment had dropped by 50 percent, relative to the forecast, among firms in more financially dependent sectors—about twice as much as for those in less financially dependent sectors. During 2009–10, the difference between the two groups of firms is statistically significant. In more recent years, however, the difference between the two groups declines, until by 2013 it is no longer apparent.

The effect of banking crises on firm investment discussed thus far could, in principle, reflect the normal response of firms' balance sheets to a recession rather than special impediments due to a weak financial sector. Many banking crises coincide with recessions, during which low sales result in weak firm balance sheets, which could induce firms that are more dependent on external finance to invest disproportionately less.

To distinguish the effect of such balance sheet effects owing to recession from the specific effect of banking crises, the analysis allows for separate differential effects during recessions and during banking crises.

[30]As Table 4.1 reports, the coefficient on the interaction of financial dependence and banking crisis is estimated to be –0.02, which implies that increasing the level of financial dependence from the lowest 25 percent to the top 25 percent of the distribution—an increase of 0.8 unit in the index—reduces the investment rate by 1.6 percentage points (–0.02 × 0.8 × 100). The estimate is strongly statistically significant (at the 1 percent level) and robust to the inclusion of firm-level controls in the specification, in addition to the set of fixed effects already mentioned.

[31]These results may be influenced by "survivorship bias," which would bias the analysis against finding evidence of a role for financial constraints. In particular, firms that experienced the most severe financial constraints during the crisis and ceased operating are, by definition, excluded from the sample. Despite their exclusion, the analysis still finds significant effects of financial constraints, suggesting that the true effects of such constraints may be larger than reported here.

[32]In particular, the figure reports impulse responses based on Jordà's (2005) local projection method, as described in Annex 4.4. For the purposes of this illustration, the analysis does not control for county-year, sector-year, or firm fixed effects, or for any other sectoral features of firms, which might contribute to the impact of other channels through financial dependence.

When both effects are allowed for, the estimated effect of banking crises remains unchanged relative to the baseline estimate, suggesting that the results reflect disruptions in credit supply due to banking crises (Table 4.1).[33] Although this chapter does not further investigate the separate roles of weak firm balance sheets and impaired credit supply, a growing number of studies do so and suggest that both channels have been relevant.[34]

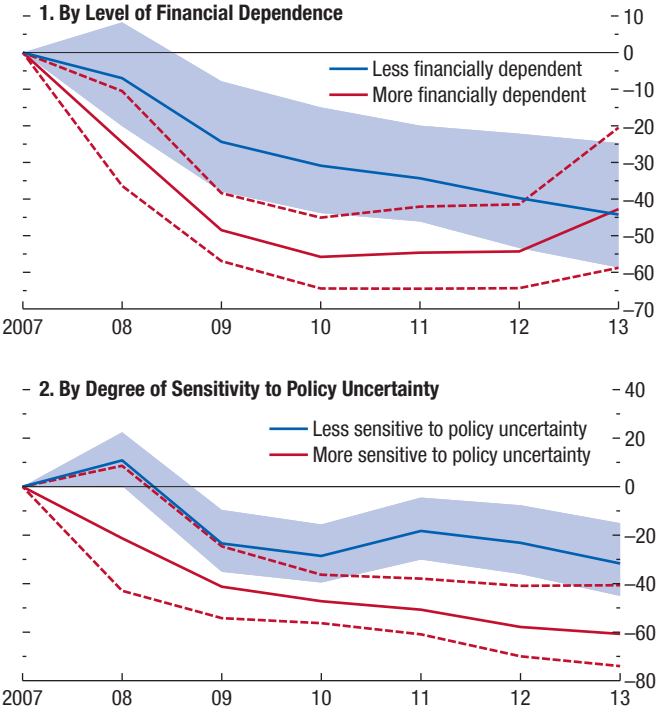
The Role of Policy Uncertainty

To shed light on the role of uncertainty in holding back investment, this subsection investigates whether investment in sectors that are more sensitive to uncertainty is lower during times of elevated economy-wide uncertainty.

The approach is analogous to the difference-in-difference approach adopted in the last subsection. The premise is that if the uncertainty channel is important in suppressing investment, this should be reflected in a relatively worse performance, during times of high economy-wide uncertainty, of those sectors more sensitive to uncertainty compared with those sectors that are less sensitive to uncertainty. A firm's sensitivity to economy-wide uncertainty is measured by the usual correlation of its stock return with economy-wide uncertainty, after the overall market return is controlled for.[35] Economy-wide uncertainty is, in turn, based on Baker, Bloom, and Davis's (2013) news-based measures of economic policy uncertainty, used in the analysis earlier in the chapter. Intuitively, sectors that emerge as the most sensitive to uncertainty include those that could plausibly be expected to have particularly lumpy and irreversible investment decisions, such

Figure 4.12. Firm Investment since the Crisis, by Firm Type
(Percent; impulse responses based on local projection method)

Firms in sectors that are more financially dependent cut investment more sharply than other firms, particularly early in the crisis. Firms in sectors that are more sensitive to policy uncertainty also reduced investment by more than other firms.



Sources: Thomson Reuters Worldscope; and IMF staff calculations.
Note: Less (more) financially dependent and less (more) sensitive firms are those in the lowest (highest) 25 percent of the external dependence and news-based sensitivity distributions, respectively, as described in the chapter. Shaded areas (less dependent/sensitive) and dashed lines (more dependent/sensitive) denote 90 percent confidence intervals. Sample includes all advanced economies except Cyprus, Latvia, Malta, and San Marino.

[33]Following Dell'Ariccia, Detragiache, and Rajan (2008), the chapter distinguishes between these two effects by adding an interaction term to the baseline equation estimated: Financial Dependence$_j$ × Recession$_{k,t}$. As reported in Table 4.1, the coefficient on this term is found to be statistically indistinguishable from zero, while the coefficient on the key variable of interest, Financial Dependence$_j$ × Banking Crisis$_{k,t}$, is unchanged and remains statistically significant.

[34]For example, Kalemli-Ozcan, Laeven, and Moreno (forthcoming) investigate the separate roles of weak corporate balance sheets, corporate debt overhang, and weak bank balance sheets in hindering investment in Europe in recent years using a firm-level data set on small and medium-sized enterprises in which each firm is matched to its bank. They find that all three of these factors have inhibited investment in small firms but that corporate debt overhang (defined by the long-term debt-to-earnings ratio) has been the most important.

[35]As before, the estimated equation has the firm's investment rate as the dependent variable on the left side. On the right side, the explanatory variable of interest is the level of uncertainty sensitivity interacted with the level of stock market volatility. The equation estimated is

$$\frac{I_{ijk,t}}{K_{ijk,t-1}} = \beta\ \text{Uncertainty Sensitivity}_j \times \text{Volatility}_{k,t} + \sum_l \gamma_l x_{ijk,t} + \alpha_i + \sum_{k,t} \lambda_{k,t} d_{k,t} + \sum_{j,t} \phi_{j,t} d_{j,t} + \varepsilon_{ijk,t},$$

in which the same set of additional controls is included as before. The level of aggregate stock market volatility in country k in year t (Volatility$_{k,t}$) is here measured as the standard deviation of weekly returns of the country-level stock market index. Stock market volatility moves closely with the economy-wide policy uncertainty index constructed by Baker, Bloom, and Davis (2013). The uncertainty sensitivity measure is at the sector level and is time invariant. It is estimated based on a precrisis sample spanning 2000–06.

Table 4.2. Firm-Level Evidence: Policy Uncertainty Channel

	(1)	(2)	(3)
Dependent variable: Ratio of firm investment to lagged capital			
Market Volatility × Policy Uncertainty Sensitivity	–0.010*	–0.028***	–0.017**
	(0.006)	(0.008)	(0.008)
Bank Crisis × Financial Dependence		–0.024***	–0.023**
		(0.007)	(0.007)
Sales-to-Lagged-Capital Ratio			0.008***
			(0.000)
Lagged Tobin's Q			0.042***
			(0.002)
Fixed Effects			
Firm	Y	Y	Y
Sector × Year	Y	Y	Y
Country × Year	Y	Y	Y
Number of Observations	202,211	160,476	159,645
R^2	0.03	0.03	0.13

Sources: Haver Analytics; national authorities; Thomson Reuters Worldscope; and IMF staff calculations.
Note: The table presents results from a panel regression with fixed effects at the firm, sector-year, and country-year levels. Market volatility is measured as the standard deviation of weekly returns of the country-level stock market index. Policy uncertainty sensitivity is based on Baker, Bloom, and Davis's (2013) news-based measures of economic policy uncertainty. Bank crisis dates are as identified in Laeven and Valencia 2012. Standard errors are in parentheses.
*$p < .10$; **$p < .05$; ***$p < .01$.

as, for example, concrete work; those least sensitive include, for example, veterinary services.[36]

The estimation results are broadly consistent with the view that a rise in economy-wide uncertainty causes firms to invest less. In particular, as reported in Table 4.2, sectors that are more sensitive to uncertainty experience a larger fall in investment relative to less sensitive sectors during times of high economy-wide uncertainty. The results are economically and statistically significant. They imply that, during spikes in economy-wide stock market volatility (in the top 10 percent of episodes, which generally corresponds to 2008–09 in the sample), investment in those sectors more sensitive to uncertainty (those in the top 25 percent of the distribution) falls by 1.3 percentage points more than investment in the less sensitive sectors (those in the lowest 25 percent). This differential amounts to about 8 percent of the median investment rate of 16 percentage points (1.3/16).[37]

Panel 2 of Figure 4.12 provides a simple illustration of this finding by reporting the evolution of investment for firms in the highest 25 percent and the lowest 25 percent of the uncertainty sensitivity distribution for all advanced economies since 2007.[38] It suggests that by 2011, investment had dropped by about 50 percent, relative to the forecast, in sectors more sensitive to uncertainty—more than twice as much as in less sensitive sectors. During 2011–12, the difference between the two groups of firms is statistically significant. After that, however, the difference between the two groups wanes.

Overall, the results based on firm-level data confirm that, beyond weak aggregate economic activity, there is some evidence that financial constraints and policy uncertainty have played independent roles in retarding investment.

[36]As is the case for the sector-specific financial dependence index used earlier, the estimation of sector-specific uncertainty sensitivity is computed for the United States and applied to other economies. In particular, the median firm-level coefficient for each sector obtained for the United States is applied to all other economies.

[37]As Table 4.2 reports, the coefficient on the interaction of news-based uncertainty sensitivity and realized stock market volatility is estimated to be –0.02. The estimate is strongly statistically significant (at the 1 percent level) and robust to the inclusion of additional firm-level controls in the specification, as well as the set of fixed effects already mentioned. The estimate implies that during spikes in economy-wide uncertainty to the top 10 percent of the distribution (a volatility above 4.46), firms that are in the more sensitive sectors (top 25 percent of the distribution) should have substantially less investment than those in the less sensitive sectors (in the lowest 25 percent of the distribution). In particular, moving from the lowest 25 percent of firms to the top 25 percent of firms, in terms of sensitivity, a difference of 0.14 units in the index, implies a reduction in the investment rate of 1.3 percentage points (–0.02 × 0.14 × 4.46 × 100).

[38]As before, the figure reports impulse responses based on the local projection method.

Have Firms' Investment Decisions Become Disconnected from Profitability and Financial Market Valuations?

Despite the steady recovery in stock markets since the crisis, investment has remained subdued. This apparent divergence between economic and financial risk taking has already been highlighted in the October 2014 *Global Financial Stability Report*. The question is whether business investment has somehow become detached from growing expectations of future profitability, as captured by the stronger performance of equity markets.

To address this question, this section uses the Tobin's Q model of investment. According to the theory underpinning this model, developed by Tobin (1969) and formalized by Mussa (1977) and Abel (1983), firms should invest in capital to the point at which the marginal product of capital equals its user cost. In other words, if the return from an extra unit of capital is greater than its cost, additional investment is warranted. This return-to-cost ratio has come to be known as "Tobin's Q" (or "marginal Q") and is typically approximated by the ratio of a firm's stock market valuation to the replacement cost of its capital (also known as "average Q").[39] Therefore, theory would predict a close relationship between stock markets and investment, assuming perfect substitutability between internal and external finance. To estimate this relationship, data from national authorities on capital expenditure and Tobin's Q at the economy-wide level are used.[40]

The weak relationship between investment rates and contemporaneous Tobin's Q is noticeable but not historically unusual. For four major advanced economies, Tobin's Q is found to have increased much more sharply in recent years than business investment (Figure 4.13). This is also borne out in the estimated relationship between the growth of investment and contemporaneous changes in Tobin's Q, which delivers a near-zero coefficient (Table 4.3). The relationship is weak whether the estimation sample is limited to the precrisis period (ending in 2006) or includes the years since the crisis. These findings are consistent with the broader literature, in which a weak connection between firm investment and stock market incentives is not unusual.[41]

At the same time, there is also some evidence that, historically, stock market performance is a leading indicator of future investment. In particular, the predicted growth rate of investment is closer to the actual once lagged values of Tobin's Q are included (Figure 4.14 and Table 4.3). The fit improves further when either current profits or cash flow are also included in the model. Overall, these results suggest that, despite the apparent disconnect between stock markets and investment, if stocks remain buoyant, investment could eventually pick up.

Policy Implications

The analysis in this chapter suggests that the main factor holding back business investment since the global financial crisis has been the overall weakness of economic activity. Firms have reacted to weak sales—both current and prospective—by reducing capital spending. Evidence from business surveys provides complementary support: firms often mention lack of customer demand as the dominant factor limiting their production. Beyond weak economic activity, other factors, including financial constraints and policy uncertainty, have also held back investment in some economies, particularly euro area economies with high borrowing spreads during the 2010–11 sovereign debt crisis. Confirmation of these additional factors at play comes from the chapter's analysis based on firm-level data.

What policies, then, could encourage a recovery in investment? The chapter's findings suggest that addressing the broader weakness in economic activity is crucial for supporting private investment. As explained in Chapter 3, a large share of the output loss since the crisis can now be seen as permanent, and policies are thus unlikely to return investment fully to its precrisis

[39]As shown by Hayashi (1982), marginal Q and average Q can be equal under certain conditions, including perfect competition, perfect capital markets, and a certain form of adjustment costs. Following the literature, the chapter constructs Tobin's Q as the ratio of nonfinancial corporations' equity liabilities to their total financial assets, using flow of funds data from national sources.

[40]Following the related literature (Blanchard, Rhee, and Summers 1993, for example), the equation, estimated on aggregate annual data for 2000–13, is as follows:

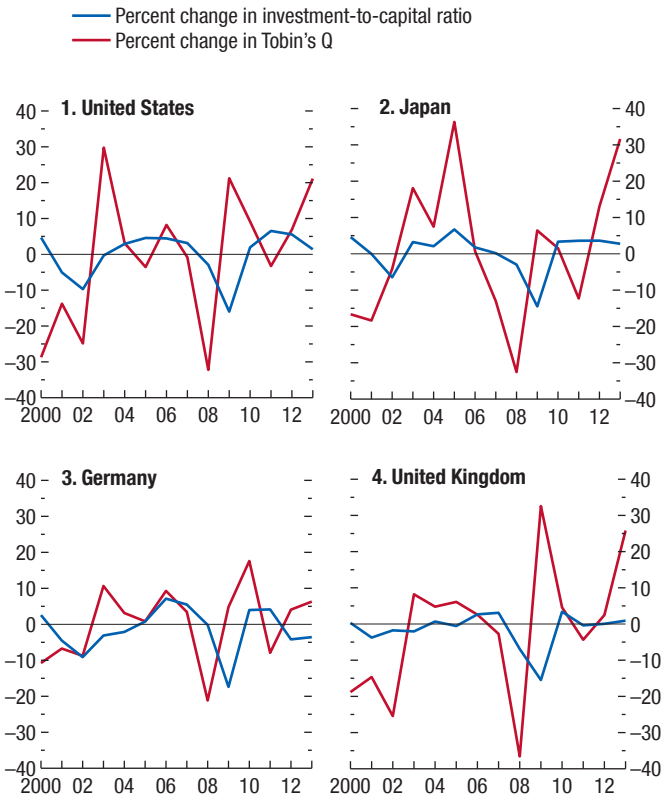
$$\Delta \ln \frac{I_{i,t}}{K_{i,t-1}} = \alpha_i + \lambda_t + \beta_0 \Delta \ln Q_{i,t} + \beta_1 \Delta \ln Q_{i,t-1} + \beta_2 \Delta \ln Q_{i,t-2} + \varepsilon_{i,t},$$

in which $Q_{i,t}$ denotes the aggregate Tobin's Q for country i in year t and α_i and λ_t denote country and year fixed effects, respectively. As reported in Table 4.3, the analysis is also repeated with additional controls (cash flow and profits).

[41]Given this weak relationship with Tobin's Q, a number of studies instead focus on the effect of current profits and cash flow on investment (see Fazzari, Hubbard, and Petersen 1988, for example).

Figure 4.13. Tobin's Q and Real Business-Investment-to-Capital Ratios

Investment has not moved in lockstep with Tobin's Q in recent years. But this is not historically unusual.

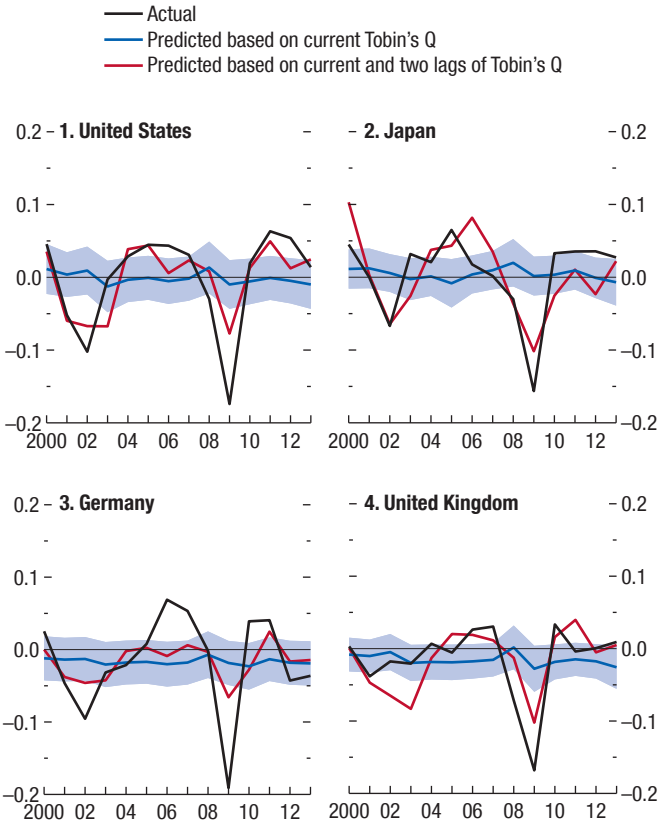


Sources: Haver Analytics; national authorities; and IMF staff calculations.

Figure 4.14. Investment: Actual and Predicted Based on Tobin's Q

(Percentage points)

Historically, Tobin's Q is only weakly related to investment in the current year. Tobin's Q has more explanatory power for predicting future investment.



Sources: Haver Analytics; national authorities; and IMF staff calculations.
Note: The figure reports the predicted and actual values for the change in the log of the investment-to-capital ratio. Shaded areas denote 90 percent confidence intervals.

trend. This does not imply, however, that there is no scope for using fiscal and monetary policies to help sustain the recovery and thus to encourage firms to invest. As discussed in Chapter 1, in many advanced economies, accommodative monetary policy also remains essential to prevent real interest rates from rising prematurely, given persistent and sizable economic slack as well as strong disinflation dynamics.

Moreover, there is a strong case for increased public infrastructure investment in advanced economies with clearly identified infrastructure needs and efficient public investment processes and for structural economic reforms more generally. In this context, additional public infrastructure investment may be warranted to spur demand in the short term, raise potential output in the medium term, and thus "crowd in" private investment (Chapter 3 in the October 2014 *World Economic Outlook*). There is also a broad need for structural reforms in many economies, including, for example, reforms to strengthen labor force participation and potential employment, given aging populations (Chapter 3). By increasing the outlook for potential output, such measures could encourage private investment. Finally, the evidence presented in this chapter of financial constraints holding back investment suggests a role for policies aimed at relieving crisis-related financial constraints, including through tackling debt overhang and cleaning up bank balance sheets to improve credit availability. Overall, a comprehensive policy effort to expand output would contribute to a sustained rise in private investment.

Table 4.3. Investment, Tobin's Q, Profits, and Cash

	Precrisis		Full Sample			
	(1)	(2)	(3)	(4)	(5)	(6)
Dependent variable: Growth rate of investment-to-capital ratio						
Growth Rate of Tobin's Q_t	0.026	0.024	–0.030	–0.004	–0.002	0.012
	(0.021)	(0.037)	(0.018)	(0.022)	(0.018)	(0.019)
Growth Rate of Tobin's Q_{t-1}		0.103***		0.211***	0.175**	0.194***
		(0.022)		(0.038)	(0.047)	(0.041)
Growth Rate of Tobin's Q_{t-2}		0.082**		0.110***	0.096**	0.103***
		(0.026)		(0.022)	(0.024)	(0.025)
Operating Profit Growth$_t$					0.030**	
					(0.010)	
Operating Profit Growth$_{t-1}$					0.028**	
					(0.009)	
Operating Profit Growth$_{t-2}$					0.005	
					(0.009)	
Cash Flow Growth$_t$						0.072***
						(0.014)
Cash Flow Growth$_{t-1}$						0.046*
						(0.017)
Cash Flow Growth$_{t-2}$						0.004
						(0.018)
Number of Observations	181	151	293	261	245	249
Adjusted R^2	–0.001	0.117	0.001	0.266	0.354	0.354

Sources: Haver Analytics; national authorities; and IMF staff calculations.
Note: The table presents results from a panel regression with country fixed effects; heteroscedasticity-robust standard errors are in parentheses. The sample comprises 17 advanced economies, 1990–2013. Precrisis sample ends in 2006.
*$p < .10$; **$p < .05$; ***$p < .01$.

Annex 4.1. Aggregate Data

Data Sources

The primary data sources for this chapter are the IMF's World Economic Outlook (WEO) database, the April 2014 *Fiscal Monitor*, Haver Analytics, and the Thomson Reuters Worldscope database.[42]

Investment and GDP

Data on nominal and real investment are collected primarily from national sources on an annual and quarterly basis. Residential investment, for the most part, is composed of investment in dwellings (housing). Nonresidential or "business" investment is defined as the sum of fixed investment in equipment, machinery, intellectual property products, and other buildings and structures. Public sector contributions to residential and nonresidential investment are excluded from these categories when data for these contributions are available. Where data for public sector contributions are unavailable, the evolution of private nonresidential investment and total nonresidential investment may diverge. GDP data come from the same national sources as investment data.

Capital Stock and User Cost of Capital

Capital stock series are collected for 19 advanced economies from national sources and, when these are not available, from the Penn World Table (Annex Table 4.1.1). Capital stock series for fixed assets corresponding to business investment are used when available. Linear interpolation is used to convert annual capital stock series to a quarterly frequency. The quarterly data are then linearly extrapolated using country-specific implied depreciation rates, which in turn are calculated based on the standard capital accumulation equation combined with existing capital stock and investment flow data. The user cost of capital is constructed as the sum of the country-specific real interest rate and depreciation rate multiplied by the relative price of investment goods to output. Real interest rates are defined as monetary financial institutions' lending rates for new business at all maturities

[42]The WEO list of 37 advanced economies is used as the basis for the analysis in this chapter. The maximum data range available spans 1960–2014, with data for 2014 being preliminary. Data limitations constrain the sample size in a number of cases, as noted in the chapter text.

Annex Table 4.1.1. Data Sources

Country	Business Investment	Capital Stock
Australia	Australian Bureau of Statistics/Haver Analytics	Penn World Table 8.0
Austria	Statistical Office of the European Communities/Haver Analytics	Eurostat
Belgium	Banque Nationale de Belgique/Haver Analytics	. . .
Canada	Statistics Canada/Haver Analytics	Statistics Canada/Haver Analytics
Czech Republic	Statistical Office of the European Communities/Haver Analytics	Eurostat
Denmark	Statistical Office of the European Communities/Haver Analytics	Eurostat
Estonia	Statistical Office of the European Communities/Haver Analytics	. . .
Finland	Statistical Office of the European Communities/Haver Analytics	Eurostat
France	Statistical Office of the European Communities/Haver Analytics	Eurostat
Germany	Statistisches Bundesamt/Haver Analytics	Statistisches Bundesamt/Haver Analytics
Greece	Hellenic Statistical Authority (ELSTAT)/Haver Analytics	Penn World Table 8.0
Iceland	Statistics Iceland/Haver Analytics	. . .
Israel	Central Bureau of Statistics/Haver Analytics	. . .
Italy	Istituto Nazionale di Statistica/Haver Analytics	Eurostat
Japan	Cabinet Office/Haver Analytics	RIETI, Japan Industrial Productivity Database
Korea	Bank of Korea/Haver Analytics	Bank of Korea
Latvia	Statistical Office of the European Communities/Haver Analytics	. . .
Luxembourg	Statistical Office of the European Communities/Haver Analytics	. . .
Malta	Statistical Office of the European Communities/Haver Analytics	. . .
Netherlands	Statistical Office of the European Communities/Haver Analytics	Eurostat
New Zealand	Statistics New Zealand/Haver Analytics	. . .
Norway	Statistics Norway/Haver Analytics	. . .
Portugal	Statistical Office of the European Communities/Haver Analytics	Penn World Table 8.0
Singapore	Department of Statistics/Haver Analytics	. . .
Slovak Republic	Statistical Office of the Slovak Republic	. . .
Slovenia	Statistical Office of the European Communities/Haver Analytics	. . .
Spain	Statistical Office of the European Communities/Haver Analytics	Valencian Institute of Economic Research
Sweden	Statistical Office of the European Communities/Haver Analytics	Eurostat
United Kingdom	Office of National Statistics/Haver Analytics	Office of National Statistics/Haver Analytics
United States	Bureau of Economic Analysis/Haver Analytics	Bureau of Economic Analysis/Haver Analytics

Source: IMF staff calculations.
Note: Business investment data are unavailable for Cyprus, Hong Kong SAR, Ireland, Lithuania, San Marino, Switzerland, and Taiwan Province of China. RIETI = Research Institute of Economy, Trade, and Industry.

(for euro area countries) and corporate bond yields (for Japan and the United States) minus the year-over-year change in the investment deflator. The relative price of investment goods is defined as the ratio of the investment deflator to the overall GDP deflator.

Firm Survey Responses: Factors Limiting Production

For European economies, survey responses are taken from the European Commission's Business and Consumer Surveys for the manufacturing sector, which shows the percentage of respondents citing each listed factor as a factor limiting production. The chapter's analysis uses the responses provided for two of the factors: "financial constraints" and "demand." The data are available for European economies at a quarterly frequency. For the United States, survey responses are taken from the National Federation of Independent Business survey of small businesses for the single most important problem they are facing. The chapter's analysis uses the responses provided for two factors: "poor sales" and "financial and interest rates."

Policy Uncertainty

The chapter uses Baker, Bloom, and Davis's (2013) news-based policy uncertainty index, which is available for major advanced economies at http://www.policyuncertainty.com. Among euro area economies, the index is available for France, Germany, Italy, and Spain. For other euro area economies, the euro area average is used as a proxy.

Precrisis Forecasts and Trends

Precrisis forecasts of private investment and its components shown in Figures 4.1 and 4.2 are based on the spring issues of Consensus Economics' *Consensus Forecasts* for the years of interest (2004 and 2007) or, where those data are unavailable, on the IMF's WEO

database. The linear precrisis trends in Figure 4.3 are constructed using data for 1990–2004.

Decomposing the Investment Slump

For the decomposition shown in Figure 4.4, data from Consensus Economics' *Consensus Forecasts* for spring 2007 are used for both total private investment and nonresidential (business) investment. The forecast for residential investment is computed as the difference between the forecast for total private investment and the forecast for nonresidential investment (panel 1). For the decomposition of total investment (including both public and private investment), the forecast for total investment comes from the spring 2007 WEO. The forecast for public investment is then computed as the difference between the WEO forecast for total investment and the Consensus Economics forecast for private investment already mentioned. The decomposition calculation involves multiplying the deviation of each component from its precrisis forecast by its share in total investment. For panel 1, the share in total private investment is used. For panel 2, the share in total investment (including both private and public investment) is used.

Annex 4.2. Firm-Level Data

Annual data from Thomson Reuters Worldscope on the balance sheets, cash flows, and income statements for all listed nonfinancial companies are used. The data cover 28 advanced economies. The sample period is 2000–13. The data are winsorized at the 1 percent level to reduce the influence of outliers.

Comparison of Firm-Level and Aggregate Data

To assess how the firm-level investment data compare with the economy-wide investment data, panel regressions of the annual growth rate of aggregate firm-level investment on the growth rate of economy-wide business investment from the national accounts are performed. The results suggest that a 1 percent change in economy-wide investment is associated with a change in aggregate firm-level investment of about 0.8 percent (Annex Table 4.2.1). The firm-level data thus appear to capture the key dynamics of the economy-wide business investment data.

Construction of Sector-Level Financial Dependence Index

The sector-level approximation of a firm's intrinsic dependence on external finance for fixed investment is constructed following the methodology first developed by Rajan and Zingales (1998). Specifically,

$$\text{Financial Dependence} = \frac{\text{Capital Expenditures} - \text{Cash Flow}}{\text{Capital Expenditure}}$$

For the purposes of this chapter, the index is constructed following the approach of Tong and Wei (2011) and Claessens, Tong, and Wei (2012). For each U.S. firm, the index is computed for the pre-

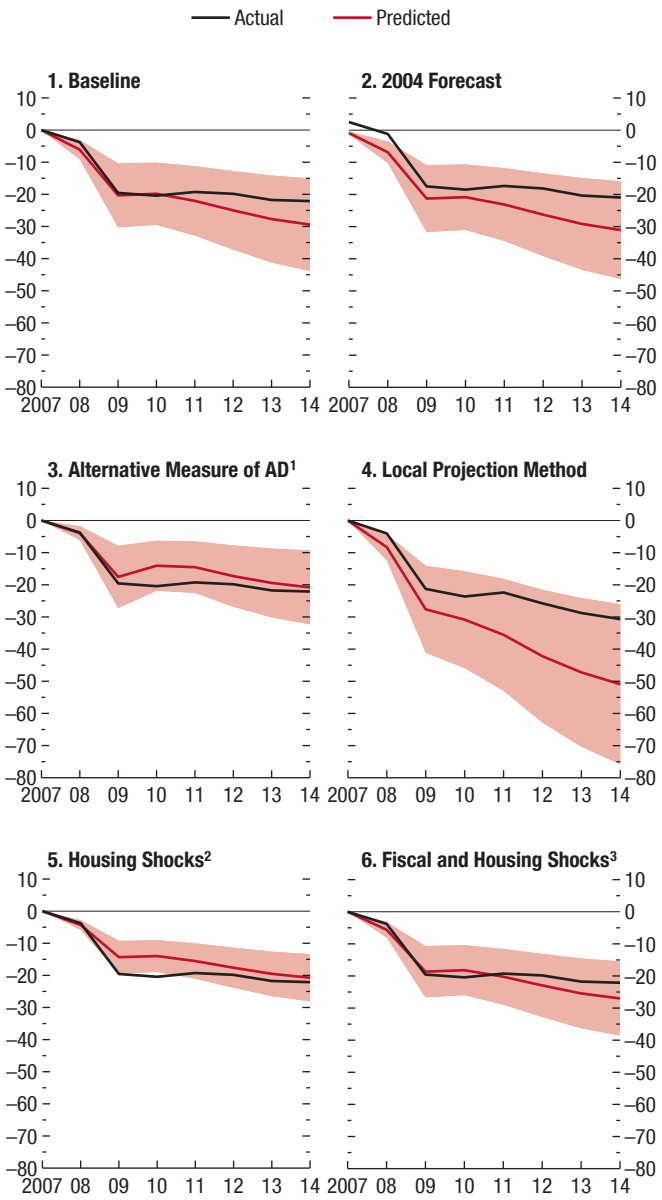
Annex Table 4.2.1. Aggregate Firm-Level Investment versus National Investment

Equation estimated:
Aggregate firm-level investment growth$_{i,t}$ = $\alpha_i + \lambda_t + \beta$\{National accounts business investment growth$_{i,t}$\} + $\varepsilon_{i,t}$

	Full Sample	Pre-2007	Post-2007
β	0.834***	0.904***	0.719**
	(0.161)	(0.237)	(0.238)
Number of Observations	482	315	167
Adjusted R^2	0.378	0.375	0.372

Sources: Haver Analytics; national authorities; Thomson Reuters Worldscope; and IMF staff calculations.
Note: The table presents results from a panel regression with country and time fixed effects; heteroscedasticity-robust standard errors are in parentheses. Extreme values are omitted.
**$p < .05$; ***$p < .01$.

Annex Figure 4.3.1. Actual versus Predicted Real Business Investment—Robustness



Sources: Haver Analytics; national authorities; and IMF staff estimates.
Note: Shaded areas denote 90 percent confidence intervals. Sample includes advanced economies listed in Annex Table 4.1.1.
[1]Based on the relationship between investment and an alternative measure of aggregate demand (AD), defined as the sum of domestic consumption and exports.
[2]Based on recessions associated with house price busts.
[3]Uses both fiscal policy shocks and recessions associated with house price busts.

crisis period (1990–2006) based on annual data from *Compustat USA Industrial Annual*. The sector-level value of the index for the United States is then obtained by calculating the median across all firms in the sector (at the Standard Industrial Classification [SIC] three-digit level). Whereas Rajan and Zingales (1998) cover only 40 (mainly two-digit SIC) sectors, the analysis here is expanded to cover 111 (three-digit SIC) sectors. Following Rajan and Zingales (1998), the analysis then assumes that the same intrinsic external financing dependence applies to the corresponding sector in all other economies, based on the argument that U.S. firms are the least likely to suffer from financing constraints during normal times and thus the U.S. value of the index for a particular sector likely represents a minimum value for same-sector firms in other economies.

Annex 4.3. Instrumental Variables Estimation

The subsection "How Much Is Explained by Output? Insights Based on Instrumental Variables" estimates the effects of economic activity on investment using a two-stage least-squares approach. The estimated equation is

$$\Delta \ln I_{i,t} = \alpha_i + \lambda_t + \beta\{\text{Instrumented } \Delta \ln Y_{i,t}\} + \rho\, \Delta \ln I_{i,t-1} + \varepsilon_{i,t}, \quad \text{(A4.3.1)}$$

in which i denotes the ith country and t denotes the tth year; $\Delta \ln I_{i,t}$ is the change in (log) real business investment; and $\Delta \ln Y_{i,t}$ is the change in (log) real GDP. The approach includes a full set of country fixed effects (α_i) to take account of differences among countries' normal growth rates. It also includes a full set of time fixed effects (λ_t) to take account of global shocks. As already mentioned, in the first stage, output growth, $\Delta \ln Y_{i,t}$, is regressed on the narrative series of fiscal policy changes of Devries and others (2011). In the second stage, these instrumented output growth rates are regressed on the growth in business investment.

The baseline estimate of β is 2.4, which implies that a 1 percent decline in output is associated with a 2.4 percent decline in investment (Annex Table 4.3.1). To obtain a predicted path of investment relative to forecast, this estimate is used together with the equation

$$\ln I_{i,t} - F_{i,2007} \ln I_{i,t} = \beta(\ln Y_{i,t} - F_{i,2007} \ln Y_{i,t}), \quad \text{(A4.3.2)}$$

in which $F_{i,2007}$ denotes the spring 2007 forecast and $\ln I_{i,t}$ and $\ln Y_{i,t}$ denote the log levels of business and

Annex Table 4.3.1. Investment-Output Relationship: Instrumental Variables Estimation

Growth_t Equation estimated:
Business Investment Growth_t $(\Delta \ln I_{i,t}) = \alpha_i + \lambda_t + \beta\{\text{Instrumented } \Delta \ln Y_{i,t}\} + \rho\ \Delta \ln I_{i,t-1} + \varepsilon_{i,t}$

	(1)	(2)	(3)	(4)
β	2.445***	2.633***	1.719***	2.243***
	(0.726)	(0.883)	(0.371)	(0.583)
ρ	0.128*	0.179***	0.108*	0.138**
	(0.066)	(0.062)	(0.064)	(0.064)
R^2	0.652	0.465	0.511	0.659
Number of Observations	356	356	604	356
First-Stage *F*-Statistic	15.916	18.461	6.843	11.899
p-Value	<0.0001	<0.0001	0.0090	<0.0001
Overidentification Restrictions *p*-Value	. . .	. . .	. . .	0.516
Definition of $Y_{i,t}$	GDP	C + X	GDP	GDP
Instruments for $\Delta \ln Y_{i,t}$	Fiscal shocks	Fiscal shocks	Housing shocks	Fiscal and housing shocks

Sources: Haver Analytics; national authorities; and IMF staff calculations.
Note: The table reports point estimates; heteroscedasticity-robust standard errors are in parentheses. Fiscal shocks denote changes in fiscal policy motivated primarily by the desire to reduce the budget deficit (Devries and others 2011). Housing shocks denote recessions associated with house price busts (Claessens, Kose, and Terrones 2012). C = consumption; X = exports.
*$p < .10$; **$p < .05$; ***$p < .01$.

real GDP, respectively, in year *t*. The 90 percent confidence interval for the prediction is computed using the standard error for β (±1.645 times the standard error).

The main result based on this approach is that the actual slump in business investment since the crisis is no weaker than expected given output, and the actual path of investment is inside the prediction's 90 percent confidence interval (Figure 4.7). This result holds up to repeating the analysis based on deviations of investment and output relative to forecasts made in the spring of 2004 rather than the spring of 2007. Replacing the deviations of investment and output from WEO and Consensus Economics forecasts with deviations from univariate trends estimated using the local projection method (Annex 4.4) also provides no evidence of a larger-than-explained decline in investment (Annex Figure 4.3.1).

A similar result also emerges when the analysis is repeated with output replaced in the estimated equation by a measure of aggregate demand that excludes investment. In particular, equation (A4.3.1) is reestimated with the term $\Delta \ln Y_{i,t}$ redefined as the change in the (log) sum of total consumption (private and government) and exports. As in the baseline, the first stage is strong (Annex Table 4.3.1). The *F*-statistic on the excluded instrument has a *p*-value below 0.01 percent (one one-hundredth of 1 percent) and is above 15, indicating that the narrative fiscal policy changes have explanatory power for domestic and foreign sales growth. The second stage yields an estimate for β of 2.6. When combined with the path of consumption and exports since 2007, relative to forecast, this estimate again yields a predicted fall in business investment that is close to the actual path of investment (Annex Figure 4.3.1).

Using Housing Price Busts As an Alternative Instrumental Variable

The analysis is also repeated with an alternative instrument based on recessions associated with housing price busts. These busts imply a sharp reduction in household wealth and, therefore, a contraction in household consumption and residential investment. Such developments could thus provide another source of output fluctuations not triggered by a contraction in business investment. The data on recessions and house price busts are taken from Claessens, Kose, and Terrones 2012. The overall results obtained using this approach, in terms of the estimate of β and the predicted path of investment, are similar to the baseline (Annex Table 4.3.1 and Annex Figure 4.3.1). However, the first stage is not as strong, with a *p*-value just less than 1 percent and an *F*-statistic less than 10. Using the housing bust recessions together with the fiscal policy changes—a set of two instruments—yields stronger first-stage results, and the implied predicted path of investment is similar to the baseline.

Annex 4.4. Local Projection Methods

Local projection methods are used to estimate the responses of output and investment following specific events. As in Chapter 3, the methodology used is the one first set out in Jordà 2005 and developed further in Teulings and Zubanov 2014. It is used in the chapter as a robustness check for the deviations of investment and output from precrisis WEO and Consensus Economics forecasts.

The method consists of estimating separate regressions for the variable of interest (investment or output) at different horizons using the following specification:

$$y_{i,t+h} = \alpha_i^h + \lambda_t^h + \beta_{i,1}^h S_{i,t} + \sum_{j=1}^{p} \beta_{i,2}^h S_{i,t-j} + \sum_{j=0}^{h-1} \beta_{i,3}^h S_{i,t+h-j} + \sum_{j=1}^{p} \beta_{i,4}^h y_{i,t-j} + \varepsilon_{i,t}^h, \quad \text{(A4.4.1)}$$

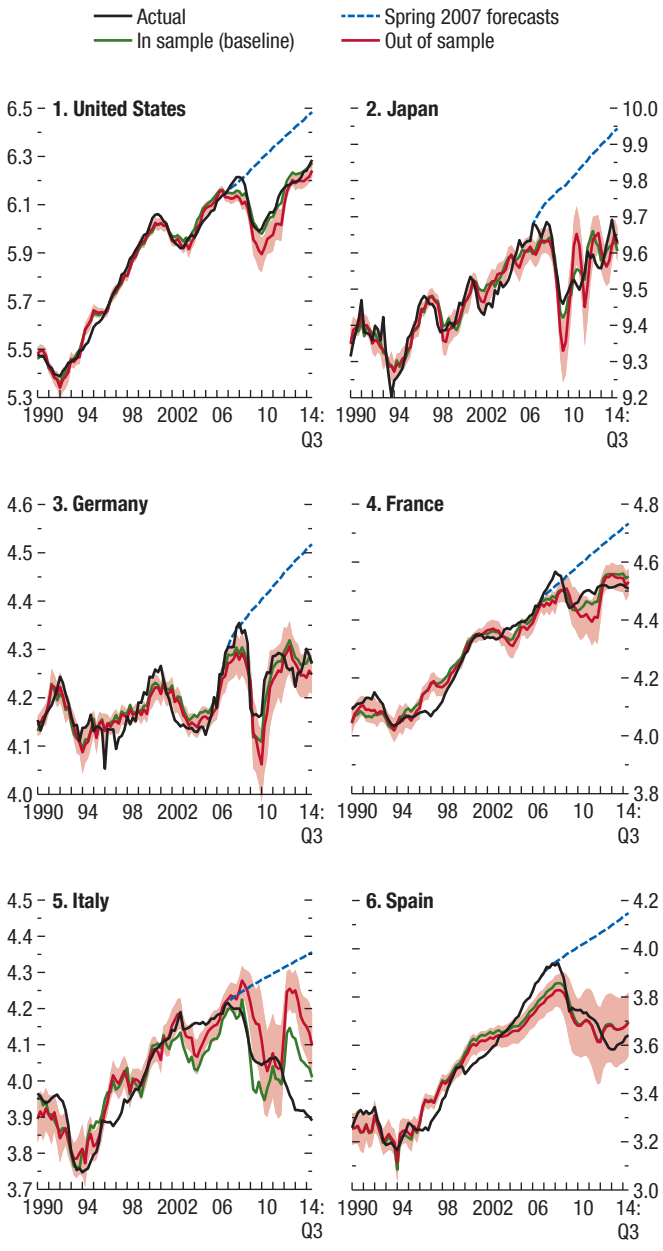
in which y denotes the growth rate of the variable of interest; i denotes countries; t denotes years; h denotes the horizon of the projection after time t; p denotes the number of lags included; and S is the event indicator dummy, which in this chapter indicates the start of the global financial crisis (Figure 4.12 and Annex Figure 4.3.1).

Annex 4.5. Accelerator Model Estimation Results

This annex reports the estimation results for the baseline and augmented versions of the accelerator model discussed in the chapter text (see Annex Figures 4.5.1 and 4.5.2 and Annex Tables 4.5.1, 4.5.2, and 4.5.3).

Annex Figure 4.5.1. Accelerator Model: In Sample versus Out of Sample

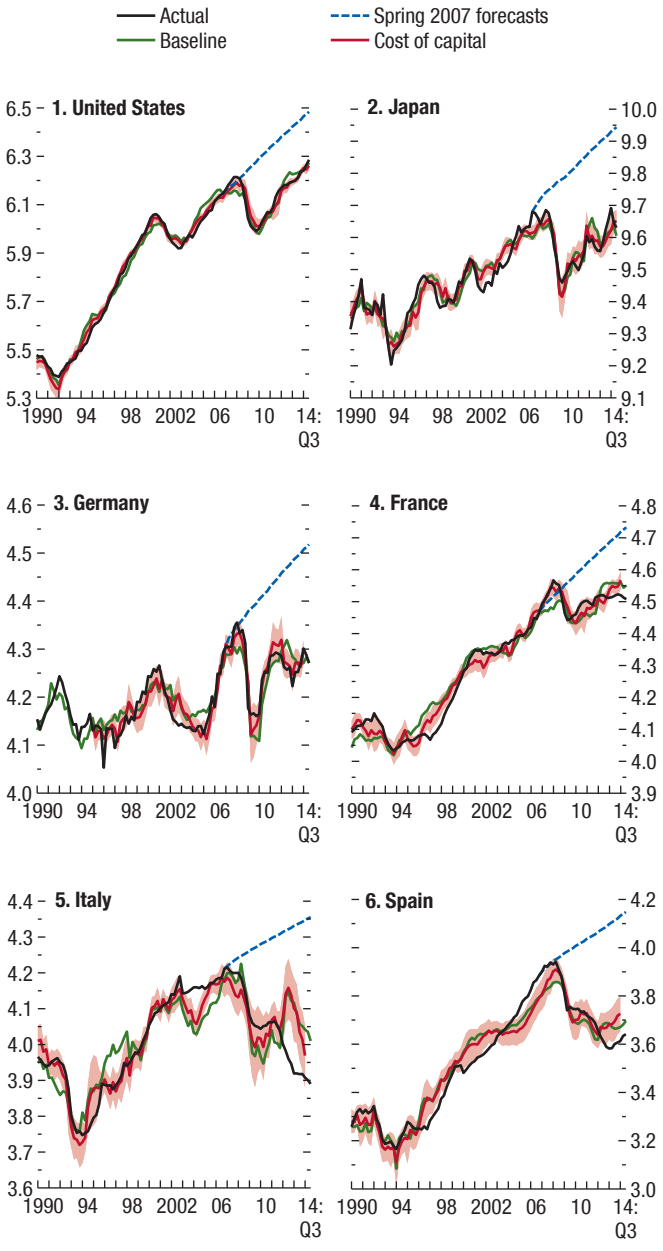
(Log index)



Sources: Consensus Economics; Haver Analytics; national authorities; and IMF staff estimates.
Note: Fitted values for investment are obtained by multiplying fitted values for the investment rate by the lagged capital stock. Shaded areas denote 90 percent confidence intervals, based on the Newey-West estimator.

Annex Figure 4.5.2. Accelerator Model: Controlling for the User Cost of Capital

(Log index)



Sources: Consensus Economics; Haver Analytics; national authorities; and IMF staff estimates.
Note: Fitted values for investment are obtained by multiplying fitted values for the investment rate by the lagged capital stock. Shaded areas denote 90 percent confidence intervals, based on the Newey-West estimator.

Annex Table 4.5.1. Baseline Accelerator Model

Equation estimated: $\frac{I_t}{K_{t-1}} = \frac{\alpha}{K_{t-1}} + \sum_{i=1}^{12} \beta_i \frac{\Delta Y_{t-i}}{K_{t-1}} + \delta + \varepsilon_t$

	α	δ	$\Sigma\beta$	Number of Observations	R^2
Australia	27.15***	0.03***	0.620	99	0.88
Austria	5.43***	0.01***	1.725***	62	0.82
Canada	–41.11***	0.03***	1.265***	99	0.83
Czech Republic	9.59	0.01***	3.431***	62	0.70
Denmark	–53.79***	0.02***	3.254***	82	0.60
Finland	–7.20***	0.03***	3.291***	86	0.73
France	–26.04***	0.03***	2.902***	99	0.51
Germany	40.55***	0.00***	1.679***	99	0.95
Greece	–0.01	0.02***	2.950***	66	0.82
Ireland	0.81	0.01*	4.932***	58	0.55
Italy	–1.35	0.01***	4.616***	99	0.64
Japan	1,494.51*	0.02***	2.084***	99	0.85
Korea	13,296.28***	0.01***	6.063***	99	0.92
Netherlands	–25.01***	0.03***	3.260***	99	0.82
Portugal	2.31	0.01***	4.765***	66	0.89
Spain	4.60***	0.02***	3.414***	99	0.78
Sweden	–77.94***	0.05***	3.212***	74	0.69
United Kingdom	11.47***	0.01***	1.969***	99	0.73
United States	–230.26***	0.03***	3.150***	99	0.91

Sources: Haver Analytics; national authorities; and IMF staff calculations.
*$p < .10$; ***$p < .01$; Newey-West estimator.

Annex Table 4.5.2. Accelerator Model: In-Sample versus Out-of-Sample Estimates

Equation estimated: $\frac{I_t}{K_{t-1}} = \frac{\alpha}{K_{t-1}} + \sum_{i=1}^{12} \beta_i \frac{\Delta Y_{t-i}}{K_{t-1}} + \delta + \varepsilon_t$

	Baseline			Precrisis Sample		
	$\Sigma\beta$	R^2	Number of Observations	$\Sigma\beta$	R^2	Number of Observations
France	2.902***	0.51	99	3.082***	0.576	68
Germany	1.679***	0.95	99	1.702***	0.952	68
Italy	4.616***	0.64	99	3.882***	0.464	68
Japan	2.084***	0.85	99	2.151***	0.873	68
Spain	3.414***	0.78	99	3.005***	0.497	68
United States	3.150***	0.91	99	3.833***	0.934	68

Sources: Haver Analytics; national authorities; and IMF staff calculations.
Note: The baseline model is estimated on a 1990:Q1–2014:Q2 sample. Out-of-sample estimation is based on a 1990:Q1–2006:Q4 sample.
***$p < .01$; Newey-West estimator.

Annex Table 4.5.3. Selected Euro Area Economies: Baseline and Augmented Accelerator Model—Equalized Sample

Equation estimated: $\frac{I_t}{K_{t-1}} = \frac{\alpha}{K_{t-1}} + \sum_{i=1}^{12} \beta_i \frac{\Delta Y_{t-i}}{K_{t-1}} + \sum_{i=1}^{12} \gamma_i x_{t-i} + \delta + \varepsilon_t$

	Baseline			Financial Constraints Added			
	Σβ	R^2	Number of Observations	Σβ	Σγ	R^2	Number of Observations
Greece	2.957***	0.80	59	1.455***	–0.136*	0.90	59
Ireland	4.932***	0.55	58	6.093***	–1.109***	0.81	58
Italy	2.776***	0.72	59	4.101***	–0.167**	0.72	59
Portugal	4.301***	0.87	59	5.489***	0.098	0.85	59
Spain	6.170***	0.91	59	2.898***	–0.373***	0.99	59
	Baseline			Uncertainty Added			
	Σβ	R^2	Number of Observations	Σβ	Σγ	R^2	Number of Observations
Greece	2.957***	0.80	59	1.402**	–0.391***	0.92	59
Ireland	4.932***	0.55	58	2.784***	–0.249***	0.80	58
Italy	2.776***	0.72	59	1.853**	–0.096	0.83	59
Portugal	4.301***	0.87	59	–0.585	–0.226***	0.95	59
Spain	6.170***	0.91	59	6.438***	0.0384	0.89	59

Sources: Haver Analytics; national authorities; and IMF staff calculations.

Note: The table presents results for euro area economies (Greece, Ireland, Italy, Portugal, Spain) with high borrowing spreads during the 2010–11 sovereign debt crisis. The same number of observations is used to estimate baseline and augmented model specifications. *x* denotes the additional variable added to the equation (either financial constraints or policy uncertainty). The baseline model is reestimated for an equalized sample, for which the additional variables are available. The policy uncertainty variable is available only for Italy and Spain; the average level of euro area policy uncertainty is used for Greece, Ireland, and Portugal.

*$p < .10$; **$p < .05$; ***$p < .01$; Newey-West estimator.

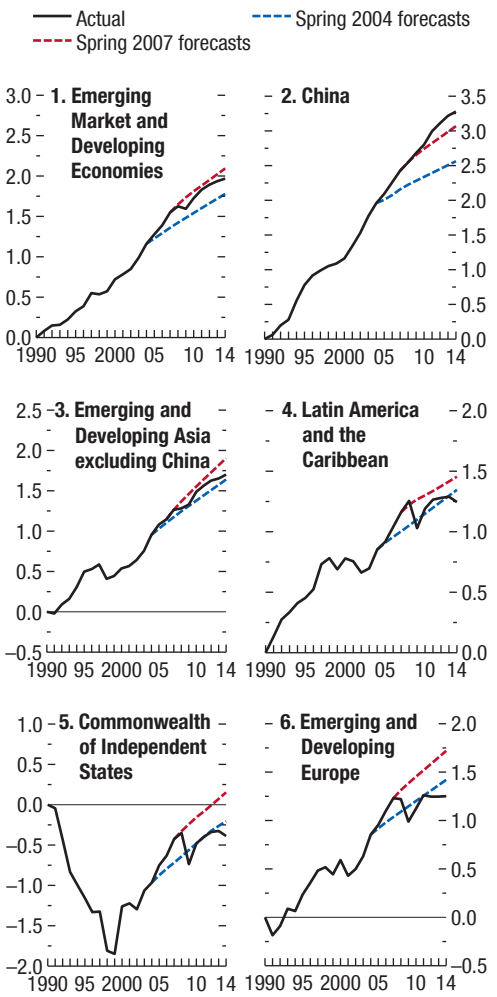
Box 4.1. After the Boom: Private Investment in Emerging Market and Developing Economies

Following brisk private investment growth in emerging market and developing economies during the boom years of the 2000s, most regions have experienced a slowdown in recent years. In many emerging market and developing economies, investment is back in line with forecasts made in the early 2000s but has disappointed relative to forecasts made at the height of the boom, such as in the spring of 2007 (Figure 4.1.1).[1]

A number of developments initially cushioned investment in emerging market and developing economies after the onset of the global financial crisis, and investment recovered rapidly. These developments included macroeconomic policy stimulus, which played a supportive role (as in China and a number of other Asian economies), and a strong improvement in the terms of trade and robust capital inflows, which also helped (particularly in Latin America and the Caribbean). But the rebound was short-lived, and a slowdown set in from 2011 onward, with significant investment growth disappointments across most emerging market regions during 2011–13 (Box 1.2 in the October 2014 *World Economic Outlook*).

Part of the investment slowdown since 2011 likely reflects the general weakness in economic activity. The investment slowdown has coincided with a reduction in overall output growth—both current and expected (Chapter 3)—and it is plausible that firms have responded to the associated weakening in sales by reducing investment. Nevertheless, unlike in advanced economies, the relative slowdown of investment compared with output has been unusually large by historical standards, which suggests that factors beyond output have been at work (Figure 4.1.2). In particular, during past episodes of unexpected weakness in output growth, private investment has generally fallen by less than twice as much as output. In contrast, the slowdown in private investment since 2011 has been some two to four times as large as that of output, depending on the region (Figure 4.1.2). This greater dip in investment relative to output suggests that the investment slowdown reflects more than weak output.

Figure 4.1.1. Real Private Fixed Investment
(Log index, 1990 = 0)



Sources: Consensus Economics; IMF, Fiscal Monitor database; and IMF staff estimates.
Note: The figure presents data, where available, for the country groups as defined in the WEO Statistical Appendix.

What factors beyond output lie behind the slowdown in investment since 2011, and how do they vary by region? The analysis in this box addresses this question by examining firm-level Thomson Reuters Worldscope data for 16,000 firms across 38 emerging markets for the period 1990–2013. It draws on the results reported in Magud and Sosa, forthcoming, and the April 2015 *Regional Economic Outlook: Western*

The authors of this box are Samya Beidas-Strom, Nicolas Magud, and Sebastian Sosa.

[1]Private investment as a share of the capital stock in emerging market and developing economies has also declined in recent years, although it remains above the levels of the early 2000s that preceded the boom (Figure 3.10).

Box 4.1 *(continued)*

Hemisphere. The empirical model is a variation of the traditional Tobin's Q investment model, augmented to include other variables identified in the literature as possible determinants of corporate investment.[2]

The analysis yields an illustrative decomposition of the 2011–13 change in the investment rate for major emerging market regions (Figure 4.1.3).[3] It is worth acknowledging that the panel regression approach used here does not fully disentangle causal channels through which these factors transmit to private investment. The main results are as follows:

- Lower commodity export prices (green bars in Figure 4.1.3)—measured as a country-specific

[2]The baseline equation estimated for each major emerging market region, while allowing for different coefficients by region, has the following basic specification:

$$\frac{I_{ic,t}}{K_{ic,t-1}} = \beta_0 + \beta_1 Q_{ic,t} + \beta_2 \frac{CF_{ic,t}}{K_{ic,t-1}} + \beta_3 Lev_{ic,t-1} + \beta_4 \frac{\Delta Debt_{ic,t}}{K_{ic,t-1}} + \beta_5 Int_{ic,t} + \beta_6 \Delta P^x_{c,t-1} + \beta_7 KI_{c,t} + \delta RECENT + \eta_h RECENT \times h_t + d_i + t + \varepsilon_{ic,t},$$

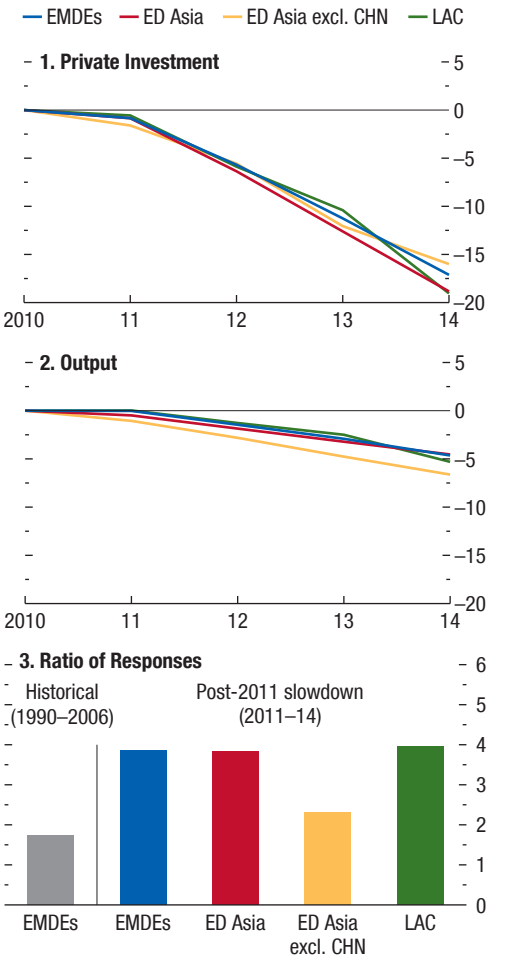
$$\text{for } h_t = \left\{ \frac{CF_{ic,t}}{K_{ic,t-1}}, Lev_{ic,t-1}, \frac{\Delta Debt_{ic,t}}{K_{ic,t-1}}, \Delta P^x_{c,t-1}, KI_{c,t} \right\}.$$

The subscripts i, c, and t denote firms, countries, and years, respectively. The specification controls for firm fixed effects and includes a trend (d_i and t, respectively). The results hold when replacing the trend with time fixed effects and adding country fixed effects. I denotes investment and K the stock of capital; Q represents Tobin's Q; CF denotes the firm's cash flow; Lev denotes leverage, measured as the ratio of total debt to total assets; $\Delta Debt$ stands for the change in total debt from the previous period; Int is a measure of the firm's cost of capital; ΔP^x denotes the change in the log of the economy-specific commodity export price index; KI denotes (net) economy-level capital inflows (measured by the financial account balance in percent of GDP); $RECENT$ stands for a dummy variable that takes a value of 1 for observations during 2011–13; and ε represents the error term. Estimation is conducted based on ordinary least squares, with standard errors clustered by country. The estimation results for the firm-specific variables (such as Tobin's Q and cash flow) are similar when country-year fixed effects are added to the equation in place of the economy-level variables. In addition, similar results hold if the regression is estimated using the Arellano-Bond generalized method of moments approach.

[3]The investment rate is defined as firm capital expenditure as a share of the previous year's capital stock. As reported in Magud and Sosa, forthcoming, the estimated interaction coefficients are of the expected sign, although not all are statistically significant. Only the coefficient estimates that are found to be statistically significant are used to decompose the change in the investment rate reported in Figure 4.1.3.

Figure 4.1.2. Private Investment and Output Forecast Errors: Historical versus Post-2011 Slowdown

(Percent deviation from spring 2011 forecasts, unless noted otherwise)



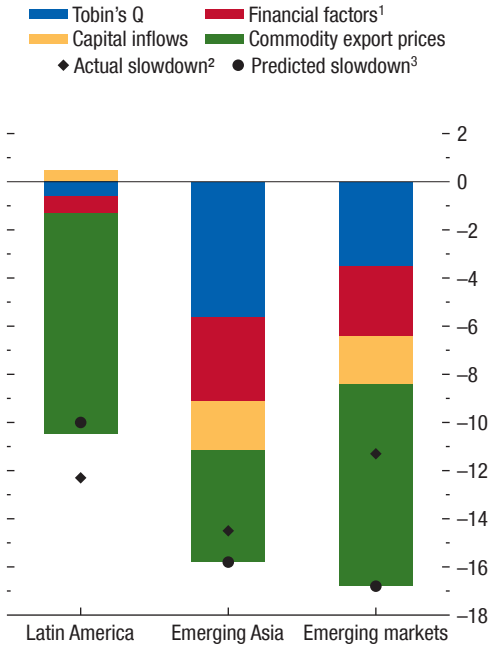
Sources: Consensus Economics; IMF, Fiscal Monitor database; and IMF staff estimates.

Note: The average forecast error of private investment is compared to that of real GDP in years in which actual output growth is below the forecast made early in the year (implying a negative forecast error). The forecast errors are defined as actual growth in year t minus the forecast made in the spring of year t. The forecasts come from Consensus Economics' *Consensus Forecasts* or, when these are unavailable, the *World Economic Outlook* (WEO). The sample consists of 128 emerging market and developing economies from 1990 to 2014. The figure presents data, where available, for the country groups as defined in the WEO Statistical Appendix. CHN = China; ED = emerging and developing; EMDEs = emerging market and developing economies; LAC = Latin America and the Caribbean.

Box 4.1 *(continued)*

Figure 4.1.3. Contributors to the Private Investment Slowdown since 2011

(Percent of 2011 level; for average firm in the sample)



Source: IMF staff calculations.
Note: The figure shows the relative contribution of each determinant of business investment to the 2011–13 change in the private-investment-to-capital ratio in percent of the 2011 level. The contributions are computed as the recent period's change in each factor multiplied by the sum of its corresponding estimated coefficient and the coefficient on its interaction with the recent dummy. Contributions are based on the specific regression corresponding to each emerging market subregion. The figure presents data for 38 emerging markets: emerging Asia = China, India, Indonesia, Korea, Malaysia, Philippines, Singapore, Taiwan Province of China, Thailand, Vietnam; Latin America = Argentina, Brazil, Chile, Colombia, Mexico, Peru, Venezuela; emerging markets include, in addition, Bulgaria, Croatia, Czech Republic, Egypt, Hungary, Israel, Jordan, Kazakhstan, Lithuania, Morocco, Pakistan, Poland, Romania, Russia, Serbia, Slovak Republic, Slovenia, South Africa, Sri Lanka, Turkey, Ukraine.
[1]Financial factors comprise cash flow, leverage, and "change in debt."
[2]Actual percentage change in private-investment-to-capital ratio between 2011 and 2013.
[3]Predicted percentage change in private-investment-to-capital ratio between 2011 and 2013.

export price index—emerge as the largest contributor to the slowdown, particularly for Latin America and the Caribbean. The substantial contribution of weaker commodity prices to the decline in private investment growth observed since 2011 is not surprising given the large share of commodities in this region's economies. Outside Latin America and the Caribbean, investment in other emerging markets has also been adversely affected by lower commodity prices, including, for example, in Indonesia, Russia, and South Africa. Since the regressions control for a period dummy covering 2011–13 (*RECENT*), this result does not simply reflect shifts in global growth.

- Weaker expectations of firms' future profitability have also played a key role, as reflected in the large contribution of Tobin's Q (blue bars), particularly for emerging market and developing Asia. This result is consistent with the view that a dimming outlook for potential output growth has sapped firm investment. As Chapter 3 explains, potential GDP growth has slowed considerably in emerging markets since 2011.
- Tighter financial conditions—both external and domestic—have also been associated with the investment slowdown. A number of economies have seen a decline in capital inflows (yellow bars) since 2012, and the firm-level analysis suggests that this explains a nonnegligible share of the investment slowdown.[4] The contribution of higher corporate leverage and lower internal cash flow (red bars) in explaining the slowdown is consistent with the view that, in an environment of tightening external financial conditions, domestic corporate financial weaknesses constrain investment more.[5] Here, additional analysis suggests that larger firms (measured by the size of assets or revenues) and those with a larger share of foreign ownership have faced, on average, less severe financial constraints. And the extent of the relaxation of borrowing constraints associated with capital

[4]For a further discussion of the role of capital flows, see Chapter 4 in the October 2013 *World Economic Outlook* and the IMF's 2014 *Spillover Report* (IMF 2014d).

[5]The domestic "financial factors" component groups the contributions of firm cash flow and leverage and the change in debt. For a further discussion of the role of leverage, see Chapter 2 in the April 2014 *Regional Economic Outlook: Asia and Pacific* and IMF 2015. The latter finds that about one-third of the decline in India's corporate-investment-to-GDP ratio since 2011–12 can be attributed to the buildup of corporate leverage.

Box 4.1 *(continued)*

inflows is stronger for firms in the nontradables sector (Magud and Sosa, forthcoming).[6]

The foregoing firm-level analysis, however, does not capture all the developments that have inhibited private investment in emerging market and developing economies. Indeed, a number of recent studies have highlighted more country-specific constraints to investment in some large emerging markets, including Brazil, India, Russia, and South Africa. IMF 2014e argues that weak competitiveness and low business confidence are factors that have held back private investment in Brazil. Anand and Tulin 2014 and IMF 2014f estimate that business and regulatory uncertainty has contributed about three-quarters of the most recent slump in India, delaying project approvals and implementation of infrastructure and other large-scale projects. IMF 2014g suggests that in Russia, a difficult business environment and, more recently, sanctions have increased the uncertainty of doing business, with a chilling effect on investment. Finally, IMF 2014h reports that in South Africa, in addition to the factors analyzed in this box, deep-seated structural and infrastructure bottlenecks, weak business confidence, and perceptions of political uncertainty have played an important role in inhibiting private investment.

What does this imply for private investment in emerging market and developing economies? Given the sustained weakness in commodity prices and tighter domestic and external financial conditions with lower capital inflows (see Chapter 1 and the Commodity Special Feature), a strong rebound in private investment seems unlikely in the near term.

[6]The latter result is also consistent with the indirect evidence in Tornell and Westermann 2005.

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STATISTICAL APPENDIX

The Statistical Appendix presents historical data as well as projections. It comprises six sections: Assumptions, What's New, Data and Conventions, Classification of Countries, Key Data Documentation, and Statistical Tables.

The assumptions underlying the estimates and projections for 2015–16 and the medium-term scenario for 2017–20 are summarized in the first section. The second section presents a brief description of the changes to the database and statistical tables since the October 2014 *World Economic Outlook* (WEO). The third section provides a general description of the data and the conventions used for calculating country group composites. The classification of countries in the various groups presented in the WEO is summarized in the fourth section. The fifth section provides information on methods and reporting standards for the member countries' national account and government finance indicators included in the report.

The last, and main, section comprises the statistical tables. (Statistical Appendix A is included here; Statistical Appendix B is available online.) Data in these tables have been compiled on the basis of information available through April 3, 2015. The figures for 2015 and beyond are shown with the same degree of precision as the historical figures solely for convenience; because they are projections, the same degree of accuracy is not to be inferred.

Assumptions

Real effective *exchange rates* for the advanced economies are assumed to remain constant at their average levels during the period February 6 to March 6, 2015. For 2015 and 2016, these assumptions imply average U.S. dollar/special drawing right (SDR) conversion rates of 1.411 and 1.415, U.S. dollar/euro conversion rates of 1.132 and 1.133, and yen/U.S. dollar conversion rates of 118.9 and 117.1, respectively.

It is assumed that the *price of oil* will average $58.14 a barrel in 2015 and $65.65 a barrel in 2016.

Established *policies* of national authorities are assumed to be maintained. The more specific policy assumptions underlying the projections for selected economies are described in Box A1.

With regard to *interest rates,* it is assumed that the London interbank offered rate (LIBOR) on six-month U.S. dollar deposits will average 0.7 percent in 2015 and 1.9 percent in 2016, that three-month euro deposits will average 0.0 percent in 2015 and 2016, and that six-month yen deposits will average 0.1 percent in 2015 and 0.2 percent in 2016.

With respect to *introduction of the euro,* on December 31, 1998, the Council of the European Union decided that, effective January 1, 1999, the irrevocably fixed conversion rates between the euro and currencies of the member countries adopting the euro are as follows:

1 euro	=	13.7603	Austrian schillings
	=	40.3399	Belgian francs
	=	0.585274	Cyprus pound[1]
	=	1.95583	Deutsche marks
	=	15.6466	Estonian krooni[2]
	=	5.94573	Finnish markkaa
	=	6.55957	French francs
	=	340.750	Greek drachmas[3]
	=	0.787564	Irish pound
	=	1,936.27	Italian lire
	=	0.702804	Latvian lat[4]
	=	3.45280	Lithuanian litas[5]
	=	40.3399	Luxembourg francs
	=	0.42930	Maltese lira[1]
	=	2.20371	Netherlands guilders
	=	200.482	Portuguese escudos
	=	30.1260	Slovak koruna[6]
	=	239.640	Slovenian tolars[7]
	=	166.386	Spanish pesetas

[1]Established on January 1, 2008.
[2]Established on January 1, 2011.
[3]Established on January 1, 2001.
[4]Established on January 1, 2014.
[5]Established on January 1, 2015.
[6]Established on January 1, 2009.
[7]Established on January 1, 2007.

See Box 5.4 in the October 1998 WEO for details on how the conversion rates were established.

What's New

- On January 1, 2015, Lithuania became the 19th country to join the euro area. Data for Lithuania are not included in the euro area aggregates because Eurostat has not fully released the consolidated data for the group, but the data are included in the advanced economies and subgroups aggregated by the WEO.
- As in the October 2014 WEO, data for Syria are excluded from 2011 onward because of the uncertain political situation.
- As in the October 2014 WEO, the consumer price projections for Argentina are excluded because of a structural break in the data. Please refer to note 6 in Table A7 for further details.
- Because of the ongoing IMF program with Pakistan, the series from which nominal exchange rate assumptions are calculated are not made public—the nominal exchange rate is a market-sensitive issue in Pakistan.
- The series from which the nominal exchange rate assumptions are calculated are not made public for Egypt because the nominal exchange rate is a market-sensitive issue in Egypt.
- Starting with the April 2015 WEO, the classification for official external financing among emerging market and developing economies classified as net debtors has been eliminated because of a lack of available data.

Data and Conventions

Data and projections for 189 economies form the statistical basis of the WEO database. The data are maintained jointly by the IMF's Research Department and regional departments, with the latter regularly updating country projections based on consistent global assumptions.

Although national statistical agencies are the ultimate providers of historical data and definitions, international organizations are also involved in statistical issues, with the objective of harmonizing methodologies for the compilation of national statistics, including analytical frameworks, concepts, definitions, classifications, and valuation procedures used in the production of economic statistics. The WEO database reflects information from both national source agencies and international organizations.

Most countries' macroeconomic data presented in the WEO conform broadly to the 1993 version of the *System of National Accounts* (SNA). The IMF's sector statistical standards—the *Balance of Payments Manual and International Investment Position Manual* (BPM6), the *Monetary and Financial Statistics Manual* (MFSM 2000), and the *Government Finance Statistics Manual 2001* (GFSM 2001)—have been or are being aligned with the SNA 2008.[1] These standards reflect the IMF's special interest in countries' external positions, financial sector stability, and public sector fiscal positions. The process of adapting country data to the new standards begins in earnest when the manuals are released. However, full concordance with the manuals is ultimately dependent on the provision by national statistical compilers of revised country data; hence, the WEO estimates are only partially adapted to these manuals. Nonetheless, for many countries the impact, on major balances and aggregates, of conversion to the updated standards will be small. Many other countries have partially adopted the latest standards and will continue implementation over a period of years.

Composite data for country groups in the WEO are either sums or weighted averages of data for individual countries. Unless noted otherwise, multiyear averages of growth rates are expressed as compound annual rates of change.[2] Arithmetically weighted averages are used for all data for the emerging market and developing economies group except data on inflation and money growth, for which geometric averages are used. The following conventions apply:

- Country group composites for exchange rates, interest rates, and growth rates of monetary aggregates are weighted by GDP converted to U.S. dollars at market exchange rates (averaged over the preceding three years) as a share of group GDP.
- Composites for other data relating to the domestic economy, whether growth rates or ratios, are weighted by GDP valued at purchasing power parity as a share of total world or group GDP.[3]

[1]Many other countries are implementing the SNA 2008 or ESA 2010 and began releasing national accounts data based on the new standard in 2014. A few countries use versions of the SNA older than 1993. A similar adoption pattern is expected for the BPM6. Please refer to Table G, which lists the statistical standards adhered to by each country.

[2]Averages for real GDP and its components, employment, GDP per capita, inflation, factor productivity, trade, and commodity prices are calculated based on the compound annual rate of change, except in the case of the unemployment rate, which is based on the simple arithmetic average.

[3]See Box A2 in the April 2004 WEO for a summary of the revised purchasing-power-parity-based weights and Annex IV in the May 1993 WEO. See also Anne-Marie Gulde and Marianne Schulze-Ghattas, "Purchasing Power Parity Based Weights for the *World Economic Outlook*," in *Staff Studies for the World Economic Outlook*

- Unless noted otherwise, composites for all sectors for the euro area are corrected for reporting discrepancies in intra-area transactions. Annual data are not adjusted for calendar-day effects. For data prior to 1999, data aggregations apply 1995 European currency unit exchange rates.
- Composites for fiscal data are sums of individual country data after conversion to U.S. dollars at the average market exchange rates in the years indicated.
- Composite unemployment rates and employment growth are weighted by labor force as a share of group labor force.
- Composites relating to external sector statistics are sums of individual country data after conversion to U.S. dollars at the average market exchange rates in the years indicated for balance of payments data and at end-of-year market exchange rates for debt denominated in currencies other than U.S. dollars.
- Composites of changes in foreign trade volumes and prices, however, are arithmetic averages of percent changes for individual countries weighted by the U.S. dollar value of exports or imports as a share of total world or group exports or imports (in the preceding year).
- Unless noted otherwise, group composites are computed if 90 percent or more of the share of group weights is represented.

Data refer to calendar years, except in the case of a few countries that use fiscal years. Please refer to Table F, which lists the economies with exceptional reporting periods for national accounts and government finance data for each country.

For some countries, the figures for 2014 and earlier are based on estimates rather than actual outturns. Please refer to Table G, which lists the latest actual outturns for the indicators in the national accounts, prices, government finance, and balance of payments indicators for each country.

Classification of Countries

Summary of the Country Classification

The country classification in the WEO divides the world into two major groups: advanced economies and emerging market and developing economies.[4] This classification is not based on strict criteria, economic or otherwise, and it has evolved over time. The objective is to facilitate analysis by providing a reasonably meaningful method of organizing data. Table A provides an overview of the country classification, showing the number of countries in each group by region and summarizing some key indicators of their relative size (GDP valued by purchasing power parity, total exports of goods and services, and population).

Some countries remain outside the country classification and therefore are not included in the analysis. Anguilla, Cuba, the Democratic People's Republic of Korea, and Montserrat are examples of countries that are not IMF members, and their economies therefore are not monitored by the IMF. Somalia is omitted from the emerging market and developing economies group composites because of data limitations.

General Features and Composition of Groups in the *World Economic Outlook* Classification

Advanced Economies

The 37 advanced economies are listed in Table B. The seven largest in terms of GDP based on market exchange rates—the United States, Japan, Germany, France, Italy, the United Kingdom, and Canada—constitute the subgroup of *major advanced economies* often referred to as the Group of Seven (G7). The members of the *euro area* are also distinguished as a subgroup. Composite data shown in the tables for the euro area cover the current members for all years, even though the membership has increased over time.

Table C lists the member countries of the European Union, not all of which are classified as advanced economies in the WEO.

Emerging Market and Developing Economies

The group of emerging market and developing economies (152) includes all those that are not classified as advanced economies.

The *regional breakdowns* of emerging market and developing economies are *Commonwealth of Independent States (CIS), emerging and developing Asia, emerg-*

(Washington: International Monetary Fund, December 1993), pp. 106–23.

[4]As used here, the terms "country" and "economy" do not always refer to a territorial entity that is a state as understood by international law and practice. Some territorial entities included here are not states, although their statistical data are maintained on a separate and independent basis.

ing and developing Europe (sometimes also referred to as "central and eastern Europe"), *Latin America and the Caribbean (LAC), Middle East, North Africa, Afghanistan, and Pakistan (MENAP),* and *sub-Saharan Africa (SSA).*

Emerging market and developing economies are also classified according to *analytical criteria.* The analytical criteria reflect the composition of export earnings and a distinction between net creditor and net debtor economies. The detailed composition of emerging market and developing economies in the regional and analytical groups is shown in Tables D and E.

The analytical criterion s*ource of export earnings* distinguishes between categories *fuel* (Standard International Trade Classification [SITC] 3) and *nonfuel* and then focuses on *nonfuel primary products* (SITCs 0, 1, 2, 4, and 68). Economies are categorized into one of these groups when their main source of export earnings exceeded 50 percent of total exports on average between 2009 and 2013.

The financial criteria focus on *net creditor economies, net debtor economies, heavily indebted poor countries* (HIPCs), and *low-income developing countries* (LIDCs). Economies are categorized as net debtors when their latest net international investment position, where available, was less than zero or their current account balance accumulations from 1972 (or earliest available data) to 2013 were negative. Net debtor economies are further differentiated on the basis of *experience with debt servicing*.[5]

The HIPC group comprises the countries that are or have been considered by the IMF and the World Bank for participation in their debt initiative known as the HIPC Initiative, which aims to reduce the external debt burdens of all the eligible HIPCs to a "sustainable" level in a reasonably short period of time.[6] Many of these countries have already benefited from debt relief and have graduated from the initiative.

The LIDCs are countries that were designated as eligible to use the IMF's concessional financing resources under the Poverty Reduction and Growth Trust (PRGT) in the 2013 PRGT eligibility review and had a level of per capita gross national income less than the PRGT income graduation threshold for non–small states (that is, twice the World Bank International Development Association operational threshold, or US$2,390 in 2011 as measured by the World Bank's Atlas method) and Zimbabwe.

[5] During 2009–13, 16 economies incurred external payments arrears or entered into official or commercial bank debt-rescheduling agreements. This group is referred to as *economies with arrears and/or rescheduling during 2009–13.*

[6] See David Andrews, Anthony R. Boote, Syed S. Rizavi, and Sukwinder Singh, *Debt Relief for Low-Income Countries: The Enhanced HIPC Initiative,* IMF Pamphlet Series 51 (Washington: International Monetary Fund, November 1999).

Table A. Classification by *World Economic Outlook* Groups and Their Shares in Aggregate GDP, Exports of Goods and Services, and Population, 2014[1]

(Percent of total for group or world)

	Number of Economies	GDP		Exports of Goods and Services		Population	
		Advanced Economies	World	Advanced Economies	World	Advanced Economies	World
Advanced Economies	**37**	**100.0**	**43.1**	**100.0**	**62.0**	**100.0**	**14.7**
United States		37.4	16.1	16.1	10.0	30.6	4.5
Euro Area[2]	18	28.1	12.1	40.8	25.3	31.8	4.7
Germany		8.0	3.4	12.1	7.5	7.8	1.1
France		5.5	2.4	5.8	3.6	6.1	0.9
Italy		4.6	2.0	4.3	2.7	5.7	0.8
Spain		3.4	1.5	3.1	1.9	4.5	0.7
Japan		10.2	4.4	5.9	3.7	12.2	1.8
United Kingdom		5.5	2.4	5.7	3.6	6.2	0.9
Canada		3.4	1.5	3.9	2.4	3.4	0.5
Other Advanced Economies	15	15.4	6.6	27.6	17.1	15.8	2.3
Memorandum							
Major Advanced Economies	7	74.7	32.2	53.8	33.4	72.0	10.6
		Emerging Market and Developing Economies	World	Emerging Market and Developing Economies	World	Emerging Market and Developing Economies	World
Emerging Market and Developing Economies	**152**	**100.0**	**56.9**	**100.0**	**38.0**	**100.0**	**85.3**
Regional Groups							
Commonwealth of Independent States[3]	12	8.2	4.7	9.4	3.6	4.7	4.0
Russia		5.8	3.3	6.3	2.4	2.4	2.0
Emerging and Developing Asia	29	51.9	29.5	45.4	17.2	57.2	48.8
China		28.7	16.3	27.8	10.5	22.6	19.3
India		12.0	6.8	5.4	2.1	20.8	17.7
Excluding China and India	27	11.2	6.4	12.2	4.6	13.8	11.8
Emerging and Developing Europe	12	5.8	3.3	8.9	3.4	2.8	2.4
Latin America and the Caribbean	32	15.2	8.7	13.7	5.2	9.9	8.5
Brazil		5.3	3.0	3.0	1.1	3.3	2.9
Mexico		3.5	2.0	4.7	1.8	2.0	1.7
Middle East, North Africa, Afghanistan, and Pakistan	22	13.4	7.6	17.4	6.6	10.5	9.0
Middle East and North Africa	20	11.9	6.8	17.1	6.5	7.0	5.9
Sub-Saharan Africa	45	5.4	3.1	5.2	2.0	14.8	12.6
Excluding Nigeria and South Africa	43	2.6	1.5	2.9	1.1	11.0	9.4
Analytical Groups[4]							
By Source of Export Earnings							
Fuel	29	20.8	11.8	27.8	10.5	12.4	10.6
Nonfuel	123	79.2	45.1	72.2	27.4	87.6	74.8
Of Which, Primary Products	28	4.9	2.8	4.6	1.7	7.6	6.5
By External Financing Source							
Net Debtor Economies	123	50.9	28.9	45.5	17.3	65.8	56.2
Net Debtor Economies by Debt-Servicing Experience							
Economies with Arrears and/or Rescheduling during 2009–13	16	2.5	1.4	1.5	0.6	4.9	4.1
Other Groups							
Heavily Indebted Poor Countries	38	2.4	1.4	1.9	0.7	11.1	9.5
Low-Income Developing Countries	59	7.4	4.2	6.2	2.4	22.4	19.1

[1]The GDP shares are based on the purchasing-power-parity valuation of economies' GDP. The number of economies comprising each group reflects those for which data are included in the group aggregates.

[2]Data for Lithuania are not included in the euro area aggregates because Eurostat has not fully released the consolidated data for the group.

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

[4]South Sudan is omitted from the net external position groups composite for lack of a fully developed database.

Table B. Advanced Economies by Subgroup

Major Currency Areas		
United States		
Euro Area		
Japan		
Euro Area[1]		
Austria	Germany	Malta
Belgium	Greece	Netherlands
Cyprus	Ireland	Portugal
Estonia	Italy	Slovak Republic
Finland	Latvia	Slovenia
France	Luxembourg	Spain
Major Advanced Economies		
Canada	Italy	United States
France	Japan	
Germany	United Kingdom	
Other Advanced Economies		
Australia	Israel	San Marino
Czech Republic	Korea	Singapore
Denmark	Lithuania	Sweden
Hong Kong SAR[2]	New Zealand	Switzerland
Iceland	Norway	Taiwan Province of China

[1]Data for Lithuania are not included in the euro area aggregates because Eurostat has not fully released the consolidated data for the group.
[2]On July 1, 1997, Hong Kong was returned to the People's Republic of China and became a Special Administrative Region of China.

Table C. European Union

Austria	Germany	Poland
Belgium	Greece	Portugal
Bulgaria	Hungary	Romania
Croatia	Ireland	Slovak Republic
Cyprus	Italy	Slovenia
Czech Republic	Latvia	Spain
Denmark	Lithuania	Sweden
Estonia	Luxembourg	United Kingdom
Finland	Malta	
France	Netherlands	

Table D. Emerging Market and Developing Economies by Region and Main Source of Export Earnings

	Fuel	Nonfuel Primary Products
Commonwealth of Independent States[1]		
	Azerbaijan	Uzbekistan
	Kazakhstan	
	Russia	
	Turkmenistan	
Emerging and Developing Asia		
	Brunei Darussalam	Mongolia
	Timor-Leste	Papua New Guinea
		Solomon Islands
		Tuvalu
Latin America and the Caribbean		
	Bolivia	Argentina
	Colombia	Chile
	Ecuador	Guyana
	Trinidad and Tobago	Paraguay
	Venezuela	Suriname
		Uruguay
Middle East, North Africa, Afghanistan, and Pakistan		
	Algeria	Afghanistan
	Bahrain	Mauritania
	Iran	Sudan
	Iraq	
	Kuwait	
	Libya	
	Oman	
	Qatar	
	Saudi Arabia	
	United Arab Emirates	
	Yemen	
Sub-Saharan Africa		
	Angola	Burkina Faso
	Chad	Burundi
	Republic of Congo	Côte d'Ivoire
	Equatorial Guinea	Democratic Republic of the Congo
	Gabon	Eritrea
	Nigeria	Guinea
	South Sudan	Guinea-Bissau
		Liberia
		Malawi
		Mali
		Niger
		Sierra Leone
		South Africa
		Zambia

[1]Turkmenistan, which is not a member of the Commonwealth of Independent States, is included in this group for reasons of geography and similarity in economic structure.

Table E. Emerging Market and Developing Economies by Region, Net External Position, and Status as Heavily Indebted Poor Countries and Low-Income Developing Countries

	Net External Position[1]	Heavily Indebted Poor Countries[2]	Low-Income Developing Countries
Commonwealth of Independent States[3]			
Armenia	*		
Azerbaijan	•		
Belarus	*		
Georgia	*		
Kazakhstan	*		
Kyrgyz Republic	*		*
Moldova	*		*
Russia	•		
Tajikistan	*		*
Turkmenistan	•		
Ukraine	*		
Uzbekistan	•		*
Emerging and Developing Asia			
Bangladesh	*		*
Bhutan	*		*
Brunei Darussalam	•		
Cambodia	*		*
China	•		
Fiji	*		
India	*		
Indonesia	*		
Kiribati	•		*
Lao P.D.R.	*		*
Malaysia	*		
Maldives	*		
Marshall Islands	*		
Micronesia	*		
Mongolia	*		*
Myanmar	*		*
Nepal	*		*
Palau	*		
Papua New Guinea	*		*
Philippines	*		
Samoa	*		
Solomon Islands	*		*
Sri Lanka	*		
Thailand	*		
Timor-Leste	•		
Tonga	*		
Tuvalu	*		
Vanuatu	*		
Vietnam	*		*
Emerging and Developing Europe			
Albania	*		
Bosnia and Herzegovina	*		
Bulgaria	*		
Croatia	*		
Hungary	*		
Kosovo	*		
FYR Macedonia	*		
Montenegro	*		
Poland	*		
Romania	*		
Serbia	*		
Turkey	*		
Latin America and the Caribbean			
Antigua and Barbuda	*		
Argentina	•		
The Bahamas	*		
Barbados	*		
Belize	*		
Bolivia	•	•	*
Brazil	*		
Chile	*		
Colombia	*		
Costa Rica	*		
Dominica	*		
Dominican Republic	*		
Ecuador	*		
El Salvador	*		
Grenada	*		
Guatemala	*		
Guyana	*	•	
Haiti	*	•	*
Honduras	*	•	*
Jamaica	*		
Mexico	*		
Nicaragua	*	•	*
Panama	*		
Paraguay	*		
Peru	*		
St. Kitts and Nevis	*		
St. Lucia	*		
St. Vincent and the Grenadines	*		
Suriname	*		
Trinidad and Tobago	•		
Uruguay	*		
Venezuela	•		

Table E. Emerging Market and Developing Economies by Region, Net External Position, and Status as Heavily Indebted Poor Countries and Low-Income Developing Countries *(continued)*

	Net External Position[1]	Heavily Indebted Poor Countries[2]	Low-Income Developing Countries
Middle East, North Africa, Afghanistan, and Pakistan			
Afghanistan	*	•	*
Algeria	•		
Bahrain	•		
Djibouti	*		*
Egypt	*		
Iran	•		
Iraq	•		
Jordan	*		
Kuwait	•		
Lebanon	*		
Libya	•		
Mauritania	*	•	*
Morocco	*		
Oman	•		
Pakistan	*		
Qatar	•		
Saudi Arabia	•		
Sudan	*	*	*
Syria	*		
Tunisia	*		
United Arab Emirates	•		
Yemen	*		*
Sub-Saharan Africa			
Angola	•		
Benin	*	•	*
Botswana	•		
Burkina Faso	*	•	*
Burundi	*	•	*
Cabo Verde	*		
Cameroon	*	•	*
Central African Republic	*	•	*
Chad	*	*	*
Comoros	*	•	*
Democratic Republic of the Congo	*	•	*
Republic of Congo	*	•	*
Côte d'Ivoire	*	•	*
Equatorial Guinea	*		
Eritrea	*	*	*
Ethiopia	*	•	*
Gabon	•		
The Gambia	*	•	*
Ghana	*	•	*
Guinea	*	•	*
Guinea-Bissau	*	•	*
Kenya	*		*
Lesotho	*		*
Liberia	*	•	*
Madagascar	*	•	*
Malawi	*	•	*
Mali	*	•	*
Mauritius	•		
Mozambique	*	•	*
Namibia	•		
Niger	*	•	*
Nigeria	•		*
Rwanda	*	•	*
São Tomé and Príncipe	*	•	*
Senegal	*	•	*
Seychelles	*		
Sierra Leone	*	•	*
South Africa	*		
South Sudan[4]	. . .		*
Swaziland	*		
Tanzania	*	•	*
Togo	*	•	*
Uganda	*	•	*
Zambia	*	•	*
Zimbabwe	*		*

[1]Dot (star) indicates that the country is a net creditor (net debtor).

[2]Dot instead of star indicates that the country has reached the completion point.

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

[4]South Sudan is omitted from the net external position group composite for lack of a fully developed database.

Table F. Economies with Exceptional Reporting Periods[1]

	National Accounts	Government Finance
The Bahamas		Jul/Jun
Bangladesh		Jul/Jun
Barbados		Apr/Mar
Belize		Apr/Mar
Bhutan	Jul/Jun	Jul/Jun
Botswana		Apr/Mar
Dominica		Jul/Jun
Egypt	Jul/Jun	Jul/Jun
Ethiopia	Jul/Jun	Jul/Jun
Haiti	Oct/Sep	Oct/Sep
Hong Kong SAR		Apr/Mar
India	Apr/Mar	Apr/Mar
Iran	Apr/Mar	Apr/Mar
Jamaica		Apr/Mar
Lao P.D.R.		Oct/Sep
Lesotho		Apr/Mar
Malawi		Jul/Jun
Marshall Islands	Oct/Sep	Oct/Sep
Micronesia	Oct/Sep	Oct/Sep
Myanmar	Apr/Mar	Apr/Mar
Namibia		Apr/Mar
Nepal	Aug/Jul	Aug/Jul
Pakistan	Jul/Jun	Jul/Jun
Palau	Oct/Sep	Oct/Sep
Qatar		Apr/Mar
Samoa	Jul/Jun	Jul/Jun
Singapore		Apr/Mar
St. Lucia		Apr/Mar
Swaziland		Apr/Mar
Thailand		Oct/Sep
Tonga		Jul/Jun
Trinidad and Tobago		Oct/Sep

[1]Unless noted otherwise, all data refer to calendar years.

Table G. Key Data Documentation

		National Accounts					Prices (CPI)	
Country	Currency	Historical Data Source[1]	Latest Actual Data	Base Year[2]	System of National Accounts	Use of Chain-Weighted Methodology[3]	Historical Data Source[1]	Latest Actual Data
Afghanistan	Afghan Afghani	NSO	2013	2002	SNA 1993		NSO	2014
Albania	Albanian lek	IMF staff	2012	1996	SNA 1993	From 1996	NSO	2013
Algeria	Algerian dinar	NSO	2013	2001	SNA 1993	From 2005	NSO	2014
Angola	Angolan kwanza	NSO	2012	2002	ESA 1995		CB	2014
Antigua and Barbuda	Eastern Caribbean dollar	CB	2013	2006[6]	SNA 1993		NSO	2014
Argentina	Argentine peso	MEP	2013	2004	SNA 2008		NSO	2013
Armenia	Armenian dram	NSO	2013	2005	SNA 1993		NSO	2014
Australia	Australian dollar	NSO	2014	2012/13	SNA 2008	From 1980	NSO	2013
Austria	Euro	NSO	2013	2010	ESA 2010	From 1995	NSO	2014
Azerbaijan	Azerbaijan manat	NSO	2013	2003	SNA 1993	From 1994	NSO	2013
The Bahamas	Bahamian dollar	NSO	2013	2006	SNA 1993		NSO	2013
Bahrain	Bahrain dinar	MoF	2014	2010	SNA 2008		NSO	2014
Bangladesh	Bangladesh taka	NSO	2013	2005	SNA 1993		NSO	2014
Barbados	Barbados dollar	NSO and CB	2013	1974[6]	SNA 1993		CB	2014
Belarus	Belarusian rubel	NSO	2013	2009	ESA 1995	From 2005	NSO	2014
Belgium	Euro	CB	2014	2012	ESA 2010	From 1995	CB	2014
Belize	Belize dollar	NSO	2013	2000	SNA 1993		NSO	2013
Benin	CFA franc	NSO	2012	2000	SNA 1993		NSO	2013
Bhutan	Bhutanese ngultrum	NSO	2011/12	2000[6]	Other		CB	2013
Bolivia	Bolivian boliviano	NSO	2013	1990	Other		NSO	2014
Bosnia and Herzegovina	Convertible marka	NSO	2012	2010	ESA 1995	From 2000	NSO	2013
Botswana	Botswana pula	NSO	2012	2006	SNA 1993		NSO	2013
Brazil	Brazilian real	NSO	2014	1995	SNA 2008		NSO	2014
Brunei Darussalam	Brunei dollar	NSO and PMO	2013	2000	SNA 1993		NSO and PMO	2013
Bulgaria	Bulgarian lev	NSO	2013	2010	ESA 2010	From 2010	NSO	2014
Burkina Faso	CFA franc	NSO and MEP	2012	1999	SNA 1993		NSO	2014
Burundi	Burundi franc	NSO	2011	2005	SNA 1993		NSO	2012
Cabo Verde	Cabo Verde escudo	NSO	2012	2007	SNA 1993	From 2011	NSO	2014
Cambodia	Cambodian riel	NSO	2013	2000	SNA 1993		NSO	2013
Cameroon	CFA franc	NSO	2013	1990	SNA 1993		NSO	2013
Canada	Canadian dollar	NSO	2014	2007	SNA 2008	From 1980	NSO	2014
Central African Republic	CFA franc	NSO	2012	2005	SNA 1993		NSO	2014
Chad	CFA franc	CB	2013	2005	Other		NSO	2013
Chile	Chilean peso	CB	2013	2008	SNA 2008	From 2003	NSO	2014
China	Chinese yuan	NSO	2013	1990[6]	SNA 2008		NSO	2014
Colombia	Colombian peso	NSO	2013	2005	Other	From 2000	NSO	2014
Comoros	Comorian franc	NSO	2013	2000	Other		NSO	2013
Democratic Republic of the Congo	Congo franc	NSO	2006	2005	SNA 1993		CB	2014
Republic of Congo	CFA franc	NSO	2013	1990	SNA 1993		NSO	2013
Costa Rica	Costa Rican colón	CB	2013	1991	SNA 1993		CB	2013

Table G. Key Data Documentation *(continued)*

	Government Finance					Balance of Payments		
Country	Historical Data Source[1]	Latest Actual Data	Statistics Manual in Use at Source	Subsectors Coverage[4]	Accounting Practice[5]	Historical Data Source[1]	Latest Actual Data	Statistics Manual in Use at Source
Afghanistan	MoF	2013	2001	CG	C	NSO	2013	BPM 5
Albania	IMF staff	2012	1986	CG,LG,SS	Other	CB	2012	BPM 5
Algeria	CB	2014	1986	CG	C	CB	2014	BPM 5
Angola	MoF	2013	2001	CG,LG	Other	CB	2013	BPM 5
Antigua and Barbuda	MoF	2013	2001	CG	C	CB	2013	BPM 5
Argentina	MEP	2013	1986	CG,SG,LG,SS	C	CB	2013	BPM 5
Armenia	MoF	2013	2001	CG	C	CB	2013	BPM 5
Australia	MoF	2013/14	2001	CG,SG,LG,TG	A	NSO	2013	BPM 6
Austria	NSO	2013	2001	CG,SG,LG,SS	A	CB	2013	BPM 6
Azerbaijan	MoF	2012	Other	CG	C	CB	2012	BPM 5
The Bahamas	MoF	2013/14	2001	CG	C	CB	2013	BPM 5
Bahrain	MoF	2014	1986	CG	C	CB	2013	BPM 5
Bangladesh	MoF	2013/14	Other	CG	C	CB	2013	BPM 4
Barbados	MoF	2013/14	1986	CG,SS,NFPC	C	CB	2013	BPM 5
Belarus	MoF	2013	2001	CG,LG,SS	C	CB	2013	BPM 6
Belgium	CB	2013	2001	CG,SG,LG,SS	A	CB	2014	BPM 6
Belize	MoF	2013/14	1986	CG,MPC	C	CB	2013	BPM 5
Benin	MoF	2013	2001	CG	C	CB	2012	BPM 5
Bhutan	MoF	2012/13	1986	CG	C	CB	2011/12	BPM 6
Bolivia	MoF	2013	2001	CG,LG,SS,MPC, NMPC,NFPC	C	CB	2013	BPM 5
Bosnia and Herzegovina	MoF	2013	2001	CG,SG,LG,SS	A	CB	2013	BPM 6
Botswana	MoF	2011/12	1986	CG	C	CB	2012	BPM 5
Brazil	MoF	2014	2001	CG,SG,LG,SS, MPC,NFPC	C	CB	2014	BPM 5
Brunei Darussalam	MoF	2014	Other	CG, BCG	C	MEP	2013	BPM 5
Bulgaria	MoF	2013	2001	CG,SG,LG,SS	C	CB	2013	BPM 6
Burkina Faso	MoF	2014	2001	CG	C	CB	2013	BPM 6
Burundi	MoF	2013	2001	CG	A	CB	2012	BPM 6
Cabo Verde	MoF	2013	2001	CG,SS	A	CB	2013	BPM 5
Cambodia	MoF	2013	2001	CG,LG	C	CB	2013	BPM 5
Cameroon	MoF	2013	2001	CG,NFPC	C	MoF	2013	BPM 5
Canada	NSO and OECD	2014	2001	CG,SG,LG,SS	A	NSO	2014	BPM 6
Central African Republic	MoF	2014	2001	CG	C	CB	2013	BPM 5
Chad	MoF	2012	1986	CG,NFPC	C	CB	2012	BPM 5
Chile	MoF	2013	2001	CG,LG	A	CB	2013	BPM 6
China	MoF	2014	2001	CG,SG,LG	C	SAFE	2014	BPM 6
Colombia	MoF	2012	2001	CG,SG,LG,SS	C/A	CB and NSO	2013	BPM 5
Comoros	MoF	2013	1986	CG	C/A	CB and IMF staff	2013	BPM 5
Democratic Republic of the Congo	MoF	2013	2001	CG,SG,LG	A	CB	2013	BPM 5
Republic of Congo	MoF	2013	2001	CG	A	CB	2008	BPM 5
Costa Rica	MoF and CB	2013	1986	CG,SS,NFPC	C	CB	2013	BPM 5

Table G. Key Data Documentation *(continued)*

		National Accounts					Prices (CPI)	
Country	Currency	Historical Data Source[1]	Latest Actual Data	Base Year[2]	System of National Accounts	Use of Chain-Weighted Methodology[3]	Historical Data Source[1]	Latest Actual Data
Côte d'Ivoire	CFA franc	NSO	2012	2009	SNA 1993		NSO	2014
Croatia	Croatian kuna	NSO	2014	2005	ESA 2010		NSO	2014
Cyprus	Euro	Eurostat	2014	2005	ESA 2010	From 1995	Eurostat	2014
Czech Republic	Czech koruna	NSO	2014	2005	ESA 2010	From 1995	NSO	2014
Denmark	Danish krone	NSO	2013	2010	ESA 2010	From 1980	NSO	2014
Djibouti	Djibouti franc	NSO	2014	1990	Other		NSO	2014
Dominica	Eastern Caribbean dollar	NSO	2013	2006	SNA 1993		NSO	2013
Dominican Republic	Dominican peso	CB	2013	2007	SNA 2008	From 2007	CB	2014
Ecuador	U.S. dollar	CB	2013	2007	SNA 1993		NSO and CB	2014
Egypt	Egyptian pound	MEP	2013/14	2011/12	SNA 1993		NSO	2013/14
El Salvador	U.S. dollar	CB	2013	1990	Other		NSO	2013
Equatorial Guinea	CFA franc	MEP and CB	2013	2006	SNA 1993		MEP	2013
Eritrea	Eritrean nakfa	IMF staff	2006	2000	SNA 1993		NSO	2009
Estonia	Euro	NSO	2013	2010	ESA 2010	From 1995	NSO	2014
Ethiopia	Ethiopian birr	NSO	2013/14	2010/11	SNA 1993		NSO	2013
Fiji	Fiji dollar	NSO	2013	2008[6]	SNA 1993/ 2008		NSO	2013
Finland	Euro	NSO	2014	2000	ESA 2010	From 1980	NSO and Eurostat	2014
France	Euro	NSO	2014	2010	ESA 2010	From 1980	NSO	2014
Gabon	CFA franc	MoF	2013	2001	SNA 1993		MoF	2013
The Gambia	Gambian dalasi	NSO	2012	2004	SNA 1993		NSO	2013
Georgia	Georgian lari	NSO	2013	2000	SNA 1993	From 1996	NSO	2014
Germany	Euro	NSO	2013	2010	ESA 2010	From 1991	NSO	2014
Ghana	Ghanaian cedi	NSO	2012	2006	SNA 1993		NSO	2013
Greece	Euro	NSO	2014	2010	ESA 2010	From 1995	NSO	2014
Grenada	Eastern Caribbean dollar	NSO	2013	2006	SNA 1993		NSO	2013
Guatemala	Guatemalan quetzal	CB	2013	2001	SNA 1993	From 2001	NSO	2013
Guinea	Guinean franc	NSO	2009	2003	SNA 1993		NSO	2014
Guinea-Bissau	CFA franc	NSO	2011	2005	SNA 1993		NSO	2011
Guyana	Guyana dollar	NSO	2012	2006[6]	SNA 1993		NSO	2012
Haiti	Haitian gourde	NSO	2012/13	1986/87	SNA 2008		NSO	2013
Honduras	Honduran lempira	CB	2013	2000	SNA 1993		CB	2013
Hong Kong SAR	Hong Kong dollar	NSO	2014	2012	SNA 2008	From 1980	NSO	2014
Hungary	Hungarian forint	NSO	2013	2005	ESA 1995	From 2005	NSO	2013
Iceland	Icelandic króna	NSO	2013	2005	ESA 2010	From 1990	NSO	2013
India	Indian rupee	NSO	2013/14	2011/12	SNA 1993		NSO	2013/14
Indonesia	Indonesian rupiah	NSO	2014	2010	SNA 2008		NSO	2014
Iran	Iranian rial	CB	2012/13	2004/05	SNA 1993		CB	2014
Iraq	Iraqi dinar	NSO	2014	2007	Other		NSO	2014
Ireland	Euro	NSO	2014	2012	ESA 2010	From 2012	NSO	2014

Table G. Key Data Documentation *(continued)*

	Government Finance					Balance of Payments		
Country	Historical Data Source[1]	Latest Actual Data	Statistics Manual in Use at Source	Subsectors Coverage[4]	Accounting Practice[5]	Historical Data Source[1]	Latest Actual Data	Statistics Manual in Use at Source
Côte d'Ivoire	MoF	2014	1986	CG	A	CB	2012	BPM 6
Croatia	MoF	2014	2001	CG,LG	C	CB	2013	BPM 6
Cyprus	Eurostat	2014	ESA 2010	CG,LG,SS	C	Eurostat	2014	BPM 5
Czech Republic	MoF	2013	2001	CG,LG,SS,BCG	A	NSO	2013	BPM 6
Denmark	NSO	2013	2001	CG,LG,SS	A	NSO	2014	BPM 6
Djibouti	MoF	2014	2001	CG	A	CB	2014	BPM 5
Dominica	MoF	2012/13	1986	CG	C	CB	2013	BPM 5
Dominican Republic	MoF	2014	2001	CG,SG,LG,SS	A	CB	2013	BPM 6
Ecuador	CB and MoF	2013	1986	CG,SG,LG,SS, NFPC	C	CB	2013	BPM 5
Egypt	MoF	2013/14	2001	CG,LG,SS,MPC	C	CB	2013/14	BPM 5
El Salvador	MoF	2013	1986	CG,LG,SS	C	CB	2013	BPM 6
Equatorial Guinea	MoF	2013	1986	CG	C	CB	2013	BPM 5
Eritrea	MoF	2008	2001	CG	C	CB	2008	BPM 5
Estonia	MoF	2013	1986/2001	CG,LG,SS	C	CB	2013	BPM 6
Ethiopia	MoF	2013/14	1986	CG,SG,LG,NFPC	C	CB	2013/14	BPM 5
Fiji	MoF	2013	2001	CG	C	CB	2013	BPM 6
Finland	MoF	2013	2001	CG,LG,SS	A	CB	2013	BPM 6
France	NSO	2013	2001	CG,LG,SS	A	CB	2014	BPM 6
Gabon	IMF staff	2013	2001	CG	A	CB	2006	BPM 5
The Gambia	MoF	2013	2001	CG	C	CB and IMF staff	2012	BPM 4
Georgia	MoF	2013	2001	CG,LG	C	NSO and CB	2013	BPM 5
Germany	NSO and Eurostat	2014	2001	CG,SG,LG,SS	A	CB	2013	BPM 6
Ghana	MoF	2013	2001	CG,SG,LG	C	CB	2012	BPM 5
Greece	MoF	2013	1986	CG,LG,SS	A	CB	2014	BPM 5
Grenada	MoF	2013	2001	CG	C	CB	2013	BPM 5
Guatemala	MoF	2013	1986	CG	C	CB	2013	BPM 5
Guinea	MoF	2014	2001	CG	Other	CB and MEP	2013	BPM 6
Guinea-Bissau	MoF	2011	2001	CG	A	CB	2011	BPM 6
Guyana	MoF	2012	2001	CG,SS	C	CB	2012	BPM 5
Haiti	MoF	2012/13	2001	CG	C	CB	2013	BPM 5
Honduras	MoF	2013	1986	CG,LG,SS,NFPC	A	CB	2013	BPM 5
Hong Kong SAR	NSO	2013/14	2001	CG	C	NSO	2013	BPM 6
Hungary	MEP and Eurostat	2013	2001	CG,LG,SS,NMPC	A	CB	2013	BPM 6
Iceland	NSO	2013	2001	CG,LG	A	CB	2013	BPM 6
India	MoF	2012/13	2001	CG,SG	A	CB	2013/14	BPM 5
Indonesia	MoF	2014	2001	CG,LG	C	CB	2014	BPM 6
Iran	MoF	2012/13	2001	CG	C	CB	2013	BPM 5
Iraq	MoF	2014	2001	CG	C	CB	2012	BPM 5
Ireland	MoF	2014	2001	CG,LG,SS	A	NSO	2014	BPM 6

Table G. Key Data Documentation *(continued)*

		National Accounts					Prices (CPI)	
Country	Currency	Historical Data Source[1]	Latest Actual Data	Base Year[2]	System of National Accounts	Use of Chain-Weighted Methodology[3]	Historical Data Source[1]	Latest Actual Data
Israel	New Israeli shekel	NSO	2014	2010	SNA 2008	From 1995	Haver Analytics	2014
Italy	Euro	NSO	2014	2010	ESA 2010	From 1980	NSO	2014
Jamaica	Jamaica dollar	NSO	2013	2007	SNA 1993		NSO	2014
Japan	Japanese yen	Cabinet Office	2014	2005	SNA 1993	From 1980	MIAC	2014
Jordan	Jordanian dinar	NSO	2013	1994	Other		NSO	2013
Kazakhstan	Kazakhstani tenge	NSO	2013	2007	Other	From 1994	CB	2013
Kenya	Kenya shilling	NSO	2014	2009	SNA 2008		NSO	2014
Kiribati	Australian dollar	NSO	2013	2006	Other		NSO	2014
Korea	Korean won	CB	2014	2010	SNA 2008	From 1980	MoF	2014
Kosovo	Euro	NSO	2013	2013	Other		NSO	2013
Kuwait	Kuwaiti dinar	MEP and NSO	2013	2010	SNA 1993		NSO and MEP	2014
Kyrgyz Republic	Kyrgyz som	NSO	2014	1995	SNA 1993		NSO	2014
Lao P.D.R.	Lao kip	NSO	2013	2002	SNA 1993		NSO	2013
Latvia	Euro	NSO	2013	2010	ESA 1995	From 1995	Eurostat	2013
Lebanon	Lebanese pound	NSO	2011	2000	SNA 2008	From 2010	NSO	2013
Lesotho	Lesotho loti	NSO	2012	2004	Other		NSO	2013
Liberia	U.S. dollar	CB	2011	1992	SNA 1993		CB	2013
Libya	Libyan dinar	MEP	2014	2003	SNA 1993		NSO	2014
Lithuania	Lithuanian litas	NSO	2013	2010	ESA 1995	From 2005	NSO	2013
Luxembourg	Euro	NSO	2013	2005	ESA 2010	From 1995	NSO	2014
FYR Macedonia	Macedonian denar	NSO	2013	2005	ESA 2010		NSO	2014
Madagascar	Malagasy ariary	NSO	2014	2000	Other		NSO	2014
Malawi	Malawi kwacha	NSO	2010	2007	SNA 2008		NSO	2014
Malaysia	Malaysian ringgit	NSO	2014	2005	SNA 2008		NSO	2014
Maldives	Maldivian rufiyaa	MoF and NSO	2013	2003[6]	SNA 1993		CB	2014
Mali	CFA franc	MoF	2011	1987	SNA 1993		MoF	2013
Malta	Euro	Eurostat	2013	2010	ESA 2010	From 2000	Eurostat	2013
Marshall Islands	U.S. dollar	NSO	2012/13	2003/04	Other		NSO	2013
Mauritania	Mauritanian ouguiya	NSO	2014	1998	SNA 1993		NSO	2014
Mauritius	Mauritian rupee	NSO	2013	2006	SNA 1993	From 1999	NSO	2013
Mexico	Mexican peso	NSO	2014	2008	SNA 1993		NSO	2014
Micronesia	U.S. dollar	NSO	2013	2004	Other		NSO	2013
Moldova	Moldovan leu	NSO	2013	1995	SNA 1993		NSO	2013
Mongolia	Mongolian togrog	NSO	2013	2010	SNA 1993		NSO	2014
Montenegro	Euro	NSO	2014	2006	ESA 1995		NSO	2014
Morocco	Moroccan dirham	NSO	2013	1998	SNA 1993	From 1998	NSO	2013
Mozambique	Mozambican metical	NSO	2013	2009	SNA 1993		NSO	2014
Myanmar	Myanmar kyat	MEP	2013/14	2010/11	Other		NSO	2014
Namibia	Namibia dollar	NSO	2011	2000	SNA 1993		NSO	2012
Nepal	Nepalese rupee	NSO	2013/14	2000/01	SNA 1993		CB	2013/14
Netherlands	Euro	NSO	2014	2010	ESA 2010	From 1980	NSO	2014
New Zealand	New Zealand dollar	NSO	2012/13	2009/10	Other	From 1987	NSO	2014
Nicaragua	Nicaraguan córdoba	IMF staff	2013	2006	SNA 1993	From 1994	CB	2014

Table G. Key Data Documentation *(continued)*

	Government Finance					Balance of Payments		
Country	Historical Data Source[1]	Latest Actual Data	Statistics Manual in Use at Source	Subsectors Coverage[4]	Accounting Practice[5]	Historical Data Source[1]	Latest Actual Data	Statistics Manual in Use at Source
Israel	MoF	2013	2001	CG,SS	A	Haver Analytics	2014	BPM 6
Italy	NSO	2013	2001	CG,SG,LG,SS	A	NSO	2013	BPM 6
Jamaica	MoF	2013/14	1986	CG	C	CB	2013	BPM 5
Japan	Cabinet Office	2013	2001	CG,LG,SS	A	CB	2014	BPM 6
Jordan	MoF	2013	2001	CG,NFPC	C	CB	2013	BPM 5
Kazakhstan	IMF staff	2013	2001	CG,LG	A	CB	2013	BPM 6
Kenya	MoF	2014	2001	CG	A	CB	2013	BPM 5
Kiribati	MoF	2013	1986	CG,LG	C	NSO	2012	BPM 5
Korea	MoF	2013	2001	CG	C	CB	2014	BPM 6
Kosovo	MoF	2013	Other	CG,LG	C	CB	2013	BPM 5
Kuwait	MoF	2013	1986	CG	C/A	CB	2013	BPM 5
Kyrgyz Republic	MoF	2014	Other	CG,LG,SS	C	MoF	2014	BPM 5
Lao P.D.R.	MoF	2012/13	2001	CG	C	CB	2013	BPM 5
Latvia	MoF	2013	Other	CG,LG,SS,NFPC	C	CB	2013	BPM 5
Lebanon	MoF	2013	1986	CG	C	CB and IMF staff	2012	BPM 5
Lesotho	MoF	2012/13	2001	CG,LG	C	CB	2012	BPM 6
Liberia	MoF	2012	2001	CG	A	CB	2013	BPM 5
Libya	MoF	2014	1986	CG,SG,LG	C	CB	2014	BPM 5
Lithuania	MoF	2013	2001	CG,LG,SS	A	CB	2013	BPM 6
Luxembourg	MoF	2013	2001	CG,LG,SS	A	NSO	2013	BPM 6
FYR Macedonia	MoF	2014	1986	CG,SG,SS	C	CB	2014	BPM 6
Madagascar	MoF	2013	1986	CG,LG	C	CB	2014	BPM 5
Malawi	MoF	2014/15	1986	CG	C	NSO	2013	BPM 5
Malaysia	MoF	2013	1986	CG,SG,LG	C	NSO	2014	BPM 6
Maldives	MoF and Treasury	2012	1986	CG	C	CB	2013	BPM 5
Mali	MoF	2013	2001	CG	C/A	CB	2011	BPM 5
Malta	Eurostat	2013	2001	CG,SS	A	NSO	2013	BPM 6
Marshall Islands	MoF	2012/13	2001	CG,LG,SS	A	NSO	2013	Other
Mauritania	MoF	2014	1986	CG	C	CB	2013	BPM 5
Mauritius	MoF	2013	2001	CG,SG,LG,NFPC	C	CB	2013	BPM 5
Mexico	MoF	2014	2001	CG,SS,NFPC	C	CB	2014	BPM 5
Micronesia	MoF	2012/13	2001	CG,SG,LG,SS	Other	NSO	2013	Other
Moldova	MoF	2013	1986	CG,LG,SS	C	CB	2013	BPM 5
Mongolia	MoF	2013	2001	CG,SG,LG,SS	C	CB	2013	BPM 5
Montenegro	MoF	2014	1986	CG,LG,SS	C	CB	2014	BPM 5
Morocco	MEP	2014	2001	CG	A	FEO	2013	BPM 5
Mozambique	MoF	2013	2001	CG,SG	C/A	CB	2013	BPM 5
Myanmar	MoF	2013/14	2001	CG,NFPC	C/A	IMF staff	2013	Other
Namibia	MoF	2011/12	2001	CG	C	CB	2013	BPM 5
Nepal	MoF	2013/14	2001	CG	C	CB	2013/14	BPM 5
Netherlands	MoF	2014	2001	CG,LG,SS	A	CB	2014	BPM 6
New Zealand	MoF	2013/14	2001	CG	A	NSO	2013	BPM 6
Nicaragua	MoF	2014	1986	CG,LG,SS	C	IMF staff	2013	BPM 6

Table G. Key Data Documentation *(continued)*

		National Accounts					Prices (CPI)	
Country	Currency	Historical Data Source[1]	Latest Actual Data	Base Year[2]	System of National Accounts	Use of Chain-Weighted Methodology[3]	Historical Data Source[1]	Latest Actual Data
Niger	CFA franc	NSO	2013	2000	SNA 1993		NSO	2014
Nigeria	Nigerian naira	NSO	2014	2010	SNA 2008		NSO	2014
Norway	Norwegian krone	NSO	2014	2012	ESA 2010	From 1980	NSO	2014
Oman	Omani rial	NSO	2012	2010	SNA 1993		NSO	2014
Pakistan	Pakistan rupee	NSO	2013/14	2005/06	SNA 1968/ 1993		NSO	2013/14
Palau	U.S. dollar	MoF	2013	2005	Other		MoF	2013/14
Panama	U.S. dollar	NSO	2014	1996	SNA 1993		NSO	2014
Papua New Guinea	Papua New Guinea kina	NSO and MOF	2013	1998	SNA 1993		NSO	2013
Paraguay	Paraguayan guaraní	CB	2013	1994	SNA 1993		CB	2013
Peru	Peruvian nuevo sol	CB	2014	2007	SNA 1993		CB	2014
Philippines	Philippine peso	NSO	2014	2000	SNA 2008		NSO	2014
Poland	Polish zloty	NSO	2013	2010	ESA 2010	From 1995	NSO	2013
Portugal	Euro	NSO	2014	2011	ESA 2010	From 1980	NSO	2014
Qatar	Qatari riyal	NSO and MEP	2013	2004	SNA 1993		NSO	2014
Romania	Romanian leu	NSO and Eurostat	2014	2010	ESA 2010	From 2000	NSO	2014
Russia	Russian ruble	NSO	2013	2008	SNA 1993	From 1995	NSO	2014
Rwanda	Rwanda franc	MoF	2014	2011	SNA 1993		MoF	2014
Samoa	Samoa tala	NSO	2013/14	2009	SNA 1993		NSO	2013/14
San Marino	Euro	NSO	2013	2007	Other		NSO	2014
São Tomé and Príncipe	São Tomé and Príncipe dobra	NSO	2012	2000	SNA 1993		NSO	2014
Saudi Arabia	Saudi Arabian riyal	NSO and MEP	2014	2010	SNA 1993		NSO and MEP	2014
Senegal	CFA franc	NSO	2013	2000	SNA 1993		NSO	2011
Serbia	Serbian dinar	NSO	2014	2010	ESA 2010	From 2010	NSO	2014
Seychelles	Seychelles rupee	NSO	2012	2006	SNA 1993		NSO	2013
Sierra Leone	Sierra Leonean leone	NSO	2013	2006	SNA 1993	From 2010	NSO	2014
Singapore	Singapore dollar	NSO	2014	2010	SNA 1993	From 2010	NSO	2014
Slovak Republic	Euro	Eurostat	2014	2010	ESA 2010	From 1993	Eurostat	2014
Slovenia	Euro	NSO	2014	2000	ESA 2010	From 2000	NSO	2014
Solomon Islands	Solomon Islands dollar	CB	2013	2004	SNA 1993		NSO	2013
South Africa	South African rand	CB	2014	2010	SNA 1993		NSO	2014
South Sudan	South Sudanese pound	NSO	2014	2010	SNA 1993		NSO	2014
Spain	Euro	NSO	2014	2010	ESA 2010	From 1995	NSO	2014
Sri Lanka	Sri Lanka rupee	CB	2012	2002	SNA 1993		NSO	2014
St. Kitts and Nevis	Eastern Caribbean dollar	NSO	2013	2006[6]	SNA 1993		NSO	2013
St. Lucia	Eastern Caribbean dollar	NSO	2013	2006	SNA 1993		NSO	2013

Table G. Key Data Documentation *(continued)*

	Government Finance					Balance of Payments		
Country	Historical Data Source[1]	Latest Actual Data	Statistics Manual in Use at Source	Subsectors Coverage[4]	Accounting Practice[5]	Historical Data Source[1]	Latest Actual Data	Statistics Manual in Use at Source
Niger	MoF	2013	1986	CG	A	CB	2012	BPM 6
Nigeria	MoF	2013	2001	CG,SG,LG,NFPC	C	CB	2013	BPM 5
Norway	NSO and MoF	2014	2001	CG,SG,LG,SS	A	NSO	2014	BPM 6
Oman	MoF	2013	2001	CG	C	CB	2013	BPM 5
Pakistan	MoF	2013/14	1986	CG,SG,LG	C	CB	2013/14	BPM 5
Palau	MoF	2013	2001	CG	Other	MoF	2013	BPM 6
Panama	MEP	2013	1986	CG,SG,LG,SS, NFPC	C	NSO	2014	BPM 5
Papua New Guinea	MoF	2013	1986	CG	C	CB	2013	BPM 5
Paraguay	MoF	2013	2001	CG,LG	C	CB	2013	BPM 5
Peru	MoF	2014	1986	CG,SG,LG,SS	C	CB	2014	BPM 5
Philippines	MoF	2014	2001	CG,LG,SS	C	CB	2014	BPM 6
Poland	MoF	2013	2001	CG,LG,SS	A	CB	2013	BPM 6
Portugal	NSO	2013	2001	CG,LG,SS	A	CB	2014	BPM 6
Qatar	MoF	2013/14	1986	CG	C	CB and IMF staff	2013	BPM 5
Romania	MoF	2014	1986	CG,LG,SS	C	CB	2013	BPM 6
Russia	MoF	2013	2001	CG,SG,SS	C/A	CB	2014	BPM 6
Rwanda	MoF	2014	2001	CG,LG	C/A	CB	2014	BPM 5
Samoa	MoF	2013/14	2001	CG	A	CB	2012/13	BPM 6
San Marino	MoF	2013	Other	CG,SG,SS	Other	. . .	. . .	. . .
São Tomé and Príncipe	MoF and Customs	2014	2001	CG	C	CB	2014	BPM 5
Saudi Arabia	MoF	2014	1986	CG,SS	C	CB	2013	BPM 5
Senegal	MoF	2011	1986	CG	C	CB and IMF staff	2011	BPM 5
Serbia	MoF	2014	Other	CG,SG,LG,SS	C	CB	2014	BPM 6
Seychelles	MoF	2013	1986	CG,SS	C	CB	2013	BPM 6
Sierra Leone	MoF	2013	1986	CG	C	CB	2013	BPM 5
Singapore	MoF	2013/14	2001	CG	C	NSO	2014	BPM 6
Slovak Republic	Eurostat	2013	2001	CG,LG,SS	A	CB	2013	BPM 6
Slovenia	MoF	2014	1986	CG,SG,LG,SS	C	NSO	2014	BPM 6
Solomon Islands	MoF	2012	1986	CG	C	CB	2013	BPM 6
South Africa	MoF	2013/14	2001	CG,SG,SS	C	CB	2013	BPM 6
South Sudan	MoF	2014	Other	CG	C	Other	2014	BPM 5
Spain	MoF and Eurostat	2014	2001	CG,SG,LG,SS	A	CB	2013	BPM 6
Sri Lanka	MoF	2013	2001	CG,SG,LG,SS	C	CB	2012	BPM 5
St. Kitts and Nevis	MoF	2013	2001	CG	C	CB	2013	BPM 5
St. Lucia	MoF	2012/13	1986	CG	C	CB	2013	BPM 5

Table G. Key Data Documentation *(continued)*

		National Accounts					Prices (CPI)	
Country	Currency	Historical Data Source[1]	Latest Actual Data	Base Year[2]	System of National Accounts	Use of Chain-Weighted Methodology[3]	Historical Data Source[1]	Latest Actual Data
St. Vincent and the Grenadines	Eastern Caribbean dollar	NSO	2013	2006[6]	SNA 1993		NSO	2013
Sudan	Sudanese pound	NSO	2013	2007	Other		NSO	2013
Suriname	Surinamese dollar	NSO	2011	2007	SNA 1993		NSO	2013
Swaziland	Swaziland lilangeni	NSO	2010	2000	SNA 1993		NSO	2014
Sweden	Swedish krona	NSO	2014	2013	ESA 2010	From 1993	NSO	2014
Switzerland	Swiss franc	NSO	2014	2010	ESA 2010	From 1980	NSO	2014
Syria	Syrian pound	NSO	2010	2000	SNA 1993		NSO	2011
Taiwan Province of China	New Taiwan dollar	NSO	2014	2011	SNA 2008		NSO	2014
Tajikistan	Tajik somoni	NSO	2013	1995	SNA 1993		NSO	2013
Tanzania	Tanzania shilling	NSO	2012	2007	SNA 1993		NSO	2013
Thailand	Thai baht	NESDB	2014	1988	SNA 1993		MoC	2014
Timor-Leste	U.S. dollar	MoF	2012	2010[6]	Other		NSO	2013
Togo	CFA franc	NSO	2009	2000	SNA 1993		NSO	2013
Tonga	Tongan pa'anga	CB	2012	2010/11	SNA 1993		CB	2013
Trinidad and Tobago	Trinidad and Tobago dollar	NSO	2012	2000	SNA 1993		NSO	2013
Tunisia	Tunisian dinar	NSO	2014	2004	SNA 1993	From 2009	NSO	2014
Turkey	Turkish lira	NSO	2013	1998	SNA 1993/ ESA 1995		NSO	2014
Turkmenistan	New Turkmen manat	NSO	2013	2005	SNA 1993	From 2000	NSO	2013
Tuvalu	Australian dollar	PFTAC advisors	2012	2005	Other		NSO	2013
Uganda	Uganda shilling	NSO	2013	2009/10	SNA 1993		CB	2013/14
Ukraine	Ukrainian hryvnia	NSO	2014	2010	SNA 2008	From 2005	NSO	2014
United Arab Emirates	U.A.E. dirham	NSO	2013	2007	SNA 1993		NSO	2014
United Kingdom	Pound sterling	NSO	2014	2011	ESA 2010	From 1980	NSO	2014
United States	U.S. dollar	NSO	2014	2009	Other	From 1980	NSO	2014
Uruguay	Uruguayan peso	CB	2014	2005	SNA 1993		NSO	2014
Uzbekistan	Uzbek sum	NSO	2012	1995	SNA 1993		NSO	2012
Vanuatu	Vanuatu vatu	NSO	2013	2006	SNA 1993		NSO	2014
Venezuela	Venezuelan bolívar fuerte	CB	2013	1997	SNA 2008		CB	2013
Vietnam	Vietnamese dong	NSO	2013	2010	SNA 1993		NSO	2013
Yemen	Yemeni rial	IMF staff	2008	1990	SNA 1993		NSO and CB	2009
Zambia	Zambian kwacha	NSO	2013	2010	SNA 1993		NSO	2013
Zimbabwe	U.S. dollar	NSO	2012	2009	Other		NSO	2013

Table G. Key Data Documentation *(continued)*

Country	Government Finance					Balance of Payments		
	Historical Data Source[1]	Latest Actual Data	Statistics Manual in Use at Source	Subsectors Coverage[4]	Accounting Practice[5]	Historical Data Source[1]	Latest Actual Data	Statistics Manual in Use at Source
St. Vincent and the Grenadines	MoF	2013	1986	CG	C	CB	2013	BPM 5
Sudan	MoF	2013	2001	CG	A	CB	2013	BPM 5
Suriname	MoF	2013	1986	CG	C	CB	2013	BPM 5
Swaziland	MoF	2012/13	2001	CG	A	CB	2013	BPM 6
Sweden	MoF	2012	2001	CG,LG,SS	A	NSO	2014	BPM 6
Switzerland	MoF	2012	2001	CG,SG,LG,SS	A	CB	2013	BPM 6
Syria	MoF	2009	1986	CG	C	CB	2009	BPM 5
Taiwan Province of China	MoF	2013	1986	CG,LG,SS	A	CB	2014	BPM 6
Tajikistan	MoF	2013	1986	CG,LG,SS	C	CB	2013	BPM 5
Tanzania	MoF	2013	2001	CG,LG	C	CB	2011	BPM 5
Thailand	MoF	2013/14	2001	CG,BCG,LG,SS	A	CB	2014	BPM 6
Timor-Leste	MoF	2012	2001	CG	C	CB	2013	BPM 5
Togo	MoF	2013	2001	CG	C	CB	2012	BPM 5
Tonga	CB and MoF	2012	2001	CG	C	CB and NSO	2012	BPM 5
Trinidad and Tobago	MoF	2012/13	1986	CG,NFPC	C	CB and NSO	2012	BPM 5
Tunisia	MoF	2014	1986	CG	C	CB	2014	BPM 5
Turkey	MoF	2013	2001	CG,LG,SS	A	CB	2014	BPM 6
Turkmenistan	MoF	2013	1986	CG,LG	C	NSO and IMF staff	2012	BPM 5
Tuvalu	IMF staff	2013	Other	CG	C/A	IMF staff	2012	BPM 6
Uganda	MoF	2013	2001	CG	C	CB	2013	BPM 6
Ukraine	MoF	2014	2001	CG,SG,LG,SS	C	CB	2013	BPM 5
United Arab Emirates	MoF	2013	2001	CG,BCG,SG,SS	A	CB	2013	BPM 5
United Kingdom	NSO	2014	2001	CG,LG	A	NSO	2013	BPM 6
United States	BEA	2013	2001	CG,SG,LG	A	NSO	2014	BPM 6
Uruguay	MoF	2014	1986	CG,LG,SS,MPC, NFPC	A	CB	2014	BPM 6
Uzbekistan	MoF	2012	Other	CG,SG,LG,SS	C	MEP	2012	BPM 5
Vanuatu	MoF	2014	2001	CG	C	CB	2013	BPM 5
Venezuela	MoF	2010	2001	CG,LG,SS,NFPC	C	CB	2012	BPM 5
Vietnam	MoF	2013	2001	CG,SG,LG	C	CB	2013	BPM 5
Yemen	MoF	2013	2001	CG,LG	C	IMF staff	2009	BPM 5
Zambia	MoF	2013	1986	CG	C	CB	2013	BPM 6
Zimbabwe	MoF	2013	1986	CG	C	CB and MoF	2013	BPM 4

Note: BPM = *Balance of Payments Manual* (number following abbreviation signifies edition); CPI = consumer price index; ESA = European System of National Accounts; SNA = System of National Accounts.

[1]BEA = U.S. Bureau of Economic Analysis; CB = Central Bank; FEO = Foreign Exchange Office; IFS = IMF, *International Financial Statistics*; MEP = Ministry of Economy and/or Planning; MIAC = Ministry of Internal Affairs and Communications; MoC = Ministry of Commerce; MoF = Ministry of Finance; NESDB = National Economic and Social Development Board; NSO = National Statistics Office; OECD = Organisation for Economic Co-operation and Development; PFTAC = Pacific Financial Technical Assistance Centre; PMO = Prime Minister's Office; SAFE = State Administration of Foreign Exchange.

[2]National accounts base year is the period with which other periods are compared and the period for which prices appear in the denominators of the price relationships used to calculate the index.

[3]Use of chain-weighted methodology allows countries to measure GDP growth more accurately by reducing or eliminating the downward biases in volume series built on index numbers that average volume components using weights from a year in the moderately distant past.

[4]For some countries, the structures of government consist of a broader coverage than specified for the general government. Coverage: BCG = Budgetary Central Government; CG = Central Government; LG = Local Government; MPC = Monetary Public Corporation, including Central Bank; NFPC = Nonfinancial Public Corporations; NMPC = Nonmonetary Financial Public Corporations; SG = State Government; SS = Social Security Funds; TG = Territorial Governments.

[5]Accounting Standard: A = Accrual; C = Cash.

[6]Nominal GDP is not measured in the same way as real GDP.

Box A1. Economic Policy Assumptions Underlying the Projections for Selected Economies

Fiscal Policy Assumptions

The short-term fiscal policy assumptions used in the *World Economic Outlook* (WEO) are based on officially announced budgets, adjusted for differences between the national authorities and the IMF staff regarding macroeconomic assumptions and projected fiscal outturns. The medium-term fiscal projections incorporate policy measures that are judged likely to be implemented. For cases in which the IMF staff has insufficient information to assess the authorities' budget intentions and prospects for policy implementation, an unchanged structural primary balance is assumed unless indicated otherwise. Specific assumptions used in regard to some of the advanced economies follow. (See also Tables B5 to B9 in the online section of the Statistical Appendix for data on fiscal net lending/borrowing and structural balances.)[1]

Argentina: The fiscal forecast is based on the projections for GDP growth, exports, and imports and the nominal exchange rate.

Australia: Fiscal projections are based on Australian Bureau of Statistics data, the 2014–15 budget documents, and the 2014–15 Mid-year Economic and Fiscal Outlook.

Austria: Projections take into account only the tax-related measures for the financing of the recent income tax reform (although the yield from the anti–tax fraud measures is highly uncertain). For 2014, the creation of a defeasance structure for Hypo Alpe Adria is assumed to increase the general-government-debt-to-GDP ratio by 5½ percentage points and the deficit by 1.8 percentage points.

Belgium: Projections reflect the authorities' 2015 budget, adjusted for differences in the IMF staff's macroeconomic framework and assumptions about fiscal developments in the federal, regional, and local governments.

Brazil: For 2014, outturn estimates are based on the information available as of February 2015. Projections for 2015 take into account the 2015 budget approved by Congress in March 2015 and recent announcements made by the authorities; any measures still to be identified as of the end of March 2015 to meet the annual fiscal target are assumed to be on the expenditure side. In outer years, projections are consistent with the announced surplus objective.

Canada: Projections use the baseline forecasts in the Economic Action Plan 2014 (the fiscal year 2014/15 budget) and 2014 provincial budgets as available. The IMF staff makes adjustments to this forecast for differences in macroeconomic projections. The IMF staff forecast also incorporates the most recent data releases from Statistics Canada's Canadian System of National Economic Accounts, including federal, provincial, and territorial budgetary outturns through the end of the fourth quarter of 2014.

Chile: Projections are based on the authorities' budget projections, adjusted to reflect the IMF staff's projections for GDP and copper prices. Projections also include the official yield estimate of the tax reform submitted to Congress in April 2014.

China: The pace of fiscal consolidation is likely to be more gradual, reflecting reforms to strengthen social safety nets and the social security system announced as part of the Third Plenum reform agenda.

Denmark: Projections for 2014–15 are aligned with the latest official budget estimates and the underlying economic projections, adjusted where appropriate for the IMF staff's macroeconomic assumptions. For 2016–20, the projections incorporate key features of the medium-term fiscal plan as embodied in the authorities' 2014 Convergence Programme submitted to the European Union (EU).

France: Projections for 2015 reflect the budget law. For 2016–17, they are based on the multiyear budget, adjusted for differences in assumptions on macro and financial variables, and revenue projections. Historical fiscal data reflect the September 2014 revision by the statistical institute of the fiscal accounts and its May 2014 revision of the national accounts.

[1] The output gap is actual minus potential output, as a percentage of potential output. Structural balances are expressed as a percentage of potential output. The structural balance is the actual net lending/borrowing minus the effects of cyclical output from potential output, corrected for one-time and other factors, such as asset and commodity prices and output composition effects. Changes in the structural balance consequently include effects of temporary fiscal measures, the impact of fluctuations in interest rates and debt-service costs, and other noncyclical fluctuations in net lending/borrowing. The computations of structural balances are based on IMF staff estimates of potential GDP and revenue and expenditure elasticities. (See Annex I of the October 1993 WEO.) Net debt is calculated as gross debt minus financial assets corresponding to debt instruments. Estimates of the output gap and of the structural balance are subject to significant margins of uncertainty.

Box A1 *(continued)*

Germany: The IMF staff's projections for 2015 and beyond reflect the authorities' adopted core federal government budget plan, adjusted for the differences in the IMF staff's macroeconomic framework and assumptions about fiscal developments in state and local governments, the social insurance system, and special funds. The estimate of gross debt includes portfolios of impaired assets and noncore business transferred to institutions that are winding up, as well as other financial sector and EU support operations.

Greece: Fiscal projections for 2014 and the medium term are consistent with the policies needed to achieve the fiscal targets underlying the program supported by the Extended Fund Facility, as agreed under the fifth review of the program.

Hong Kong SAR: Projections are based on the authorities' medium-term fiscal projections on expenditures.

Hungary: Fiscal projections include IMF staff projections of the macroeconomic framework and of the impact of recent legislative measures, as well as fiscal policy plans announced in the 2014 budget.

India: Historical data are based on budgetary execution data. Projections are based on available information on the authorities' fiscal plans, with adjustments for IMF staff assumptions. Subnational data are incorporated with a lag of up to two years; general government data are thus finalized well after central government data. IMF and Indian presentations differ, particularly regarding divestment and license auction proceeds, net versus gross recording of revenues in certain minor categories, and some public sector lending.

Indonesia: IMF projections are based on moderate tax policy and administration reforms, fuel subsidy pricing reforms introduced in January 2015, and a gradual increase in social and capital spending over the medium term in line with fiscal space.

Ireland: Fiscal projections are based on the 2015 budget, adjusted for differences between the IMF staff's macroeconomic projections and those of the Irish authorities.

Italy: Fiscal projections incorporate the government's announced fiscal policy, as outlined in the 2015 Stability Law, adjusted for different growth outlooks and estimated impact of measures. Sovereign yields have fallen significantly since the 2015 Stability Law was passed, and the IMF staff has assumed that the savings from a lower interest bill will be used to pay down debt. Estimates of the cyclically adjusted balance include the expenditures to clear capital arrears in 2013, which are excluded from the structural balance. After 2014, the IMF staff projects convergence to a structural balance in line with Italy's fiscal rule, which implies corrective measures in some years, as yet unidentified.

Japan: The projections include fiscal measures already announced by the government, including consumption tax increases, earthquake reconstruction spending, and the stimulus package.

Korea: The medium-term forecast incorporates the government's announced medium-term consolidation path.

Mexico: Fiscal projections for 2014 are broadly in line with the approved budget; projections for 2014 onward assume compliance with rules established in the fiscal responsibility law.

Netherlands: Fiscal projections for the period 2015–20 are based on the authorities' Bureau for Economic Policy Analysis budget projections, after differences in macroeconomic assumptions are adjusted for. Historical data were revised following the June 2014 Central Bureau of Statistics release of revised macro data because of the adoption of the European System of National and Regional Accounts (ESA 2010) and the revisions of data sources.

New Zealand: Fiscal projections are based on the authorities' Half Year Economic and Fiscal Update 2014 and on IMF staff estimates.

Portugal: For 2014, the general government fiscal balance projection does not include one-off transactions arising from banking support and other operations related to government-owned enterprises, pending decisions on their statistical classification by the Instituto Nacional de Estatística (INE)/Eurostat. Projections for 2014–15 remain consistent with the authorities' EU budgetary commitments, subject to additional measures to be approved in the forthcoming 2015 budget; projections thereafter are based on IMF staff estimates, under the assumption of unchanged policies.

Russia: Projections for 2015–20 are based on the oil-price-based fiscal rule introduced in December 2012, with adjustments by the IMF staff.

Saudi Arabia: The authorities base their budget on a conservative assumption for oil prices, with adjustments to expenditure allocations considered in the event that revenues differ from budgeted amounts.

Box A1 *(continued)*

IMF staff projections of oil revenues are based on WEO baseline oil prices. On the expenditure side, wage bill estimates incorporate 13th-month pay awards every three years in accordance with the lunar calendar; projections assume that, to adjust to lower oil prices, capital spending falls as a percentage of GDP over the medium term as large-scale projects currently being implemented are completed.

Singapore: For fiscal years 2014/15 and 2015/16, projections are based on budget numbers. For the remainder of the projection period, the IMF staff assumes unchanged policies.

South Africa: Fiscal projections are based on the authorities' 2015 Budget Review.

Spain: For 2015 and beyond, fiscal projections are based on the measures specified in the Stability Programme Update 2014–17, the 2015 budget plan issued in October 2014, and the 2015 budget approved in December 2014.

Sweden: Fiscal projections take into account the authorities' projections based on the December 2014 forecasts. The impact of cyclical developments on the fiscal accounts is calculated using the Organisation for Economic Co-operation and Development's 2005 elasticity to take into account output and employment gaps.

Switzerland: The projections assume that fiscal policy is adjusted as necessary to keep fiscal balances in line with the requirements of Switzerland's fiscal rules.

Turkey: Fiscal projections assume that both current and capital spending will be in line with the authorities' 2013–15 Medium Term Programme based on current trends and policies.

United Kingdom: Fiscal projections are based on the U.K. Treasury's 2015 Budget, published in March 2015. However, on the revenue side, the authorities' projections are adjusted for differences between IMF staff forecasts of macroeconomic variables (such as GDP growth) and the forecasts of these variables assumed in the authorities' fiscal projections. On the expenditure side, given uncertainties pertaining to the May elections, a slightly slower pace of consolidation than that in the Budget is assumed for FY2016/17 and beyond, though fiscal projections are fully consistent with the fiscal mandates. In addition, IMF staff data exclude public sector banks and the effect of transferring assets from the Royal Mail Pension Plan to the public sector in April 2012. Real government consumption and investment are part of the real GDP path, which, according to the IMF staff, may or may not be the same as projected by the U.K. Office for Budget Responsibility.

United States: Fiscal projections are based on the January 2015 Congressional Budget Office baseline adjusted for the IMF staff's policy and macroeconomic assumptions. The baseline incorporates the key provisions of the Bipartisan Budget Act of 2013, including a partial rollback of the sequester spending cuts in fiscal years 2014 and 2015. The rollback is fully offset by savings elsewhere in the budget. In fiscal years 2016 through 2021, the IMF staff assumes that the sequester cuts will continue to be partially replaced, in proportions similar to those agreed upon under the Bipartisan Budget Act for fiscal years 2014 and 2015, with back-loaded measures generating savings in mandatory programs and additional revenues. Over the medium term, the IMF staff assumes that war drawdown will continue and Congress will continue to make regular adjustments to Medicare payments ("doc fix") and will extend certain traditional programs (such as the research and development tax credit). Fiscal projections are adjusted to reflect the IMF staff's forecasts of key macroeconomic and financial variables and different accounting treatment of financial sector support and of defined-benefit pension plans and are converted to a general government basis. Historical data start at 2001 for most series because data compiled according to the 2001 *Government Finance Statistics Manual* (GFSM 2001) may not be available for earlier years.

Monetary Policy Assumptions

Monetary policy assumptions are based on the established policy framework in each country. In most cases, this implies a nonaccommodative stance over the business cycle: official interest rates will increase when economic indicators suggest that inflation will rise above its acceptable rate or range; they will decrease when indicators suggest that inflation will not exceed the acceptable rate or range, that output growth is below its potential rate, and that the margin of slack in the economy is significant. On this basis, the London interbank offered rate (LIBOR) on six-month U.S. dollar deposits is assumed to average 0.7 percent in 2015 and 1.9 percent in 2016 (see

Box A1 *(continued)*

Table 1.1). The rate on three-month euro deposits is assumed to average 0.0 percent in 2015 and 2016. The interest rate on six-month Japanese yen deposits is assumed to average 0.1 percent in 2015 and 0.2 percent in 2016.

Australia: Monetary policy assumptions are in line with market expectations.

Brazil: Monetary policy assumptions are consistent with gradual convergence of inflation toward the middle of the target range over the relevant horizon.

Canada: Monetary policy assumptions are in line with market expectations.

China: Monetary policy will remain broadly unchanged from its current status, consistent with the authorities' announcement of maintaining stable economic growth.

Denmark: The monetary policy is to maintain the peg to the euro.

Euro area: Monetary policy assumptions for euro area member countries are in line with market expectations.

Hong Kong SAR: The IMF staff assumes that the currency board system remains intact.

India: The policy (interest) rate assumption is consistent with an inflation rate within the Reserve Bank of India's targeted band.

Indonesia: Monetary policy assumptions are in line with a reduction of inflation to within the central bank's targeted band by the end of 2015.

Japan: The current monetary policy conditions are maintained for the projection period, and no further tightening or loosening is assumed.

Korea: Monetary policy assumptions are in line with market expectations.

Mexico: Monetary assumptions are consistent with attaining the inflation target.

Russia: Monetary projections assume increasing exchange rate flexibility as part of the transition to the new full-fledged inflation-targeting regime, as indicated in recent statements by the Central Bank of Russia. Specifically, policy rates are assumed to remain at the current levels, gradually reducing the number of interventions in the foreign exchange markets.

Saudi Arabia: Monetary policy projections are based on the continuation of the exchange rate peg to the U.S. dollar.

Singapore: Broad money is projected to grow in line with the projected growth in nominal GDP.

South Africa: Monetary projections are consistent with South Africa's 3–6 percent inflation target range.

Sweden: Monetary projections are in line with Riksbank projections.

Switzerland: Monetary policy variables reflect historical data from the national authorities and the market.

Turkey: Broad money and the long-term bond yield are based on IMF staff projections. The short-term deposit rate is projected to evolve with a constant spread against the interest rate of a similar U.S. instrument.

United Kingdom: Projections assume no change in monetary policy or the level of asset purchases in 2015.

United States: Given the outlook for sluggish growth and inflation, the IMF staff expects the federal funds target to remain near zero until mid-2015, consistent with the Federal Open Market Committee's forward guidance and market expectations.

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Medium-Term Baseline Scenario

A15. Summary of World Medium-Term Baseline Scenario

Table A1. Summary of World Output[1]

(Annual percent change)

	Average									Projections		
	1997–2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2020
World	**4.0**	**5.7**	**3.1**	**0.0**	**5.4**	**4.2**	**3.4**	**3.4**	**3.4**	**3.5**	**3.8**	**4.0**
Advanced Economies	**2.8**	**2.8**	**0.2**	**–3.4**	**3.1**	**1.7**	**1.2**	**1.4**	**1.8**	**2.4**	**2.4**	**1.9**
United States	3.3	1.8	–0.3	–2.8	2.5	1.6	2.3	2.2	2.4	3.1	3.1	2.0
Euro Area[2]	2.3	3.0	0.5	–4.5	2.0	1.6	–0.8	–0.5	0.9	1.5	1.6	1.5
Japan	0.9	2.2	–1.0	–5.5	4.7	–0.5	1.8	1.6	–0.1	1.0	1.2	0.7
Other Advanced Economies[3]	3.7	4.1	1.2	–2.1	4.6	2.9	1.7	2.1	2.7	2.7	2.8	2.8
Emerging Market and Developing Economies	**5.5**	**8.7**	**5.8**	**3.1**	**7.4**	**6.2**	**5.2**	**5.0**	**4.6**	**4.3**	**4.7**	**5.3**
Regional Groups												
Commonwealth of Independent States[4]	5.5	9.0	5.3	–6.3	4.6	4.8	3.4	2.2	1.0	–2.6	0.3	2.4
Emerging and Developing Asia	7.0	11.2	7.3	7.5	9.6	7.7	6.8	7.0	6.8	6.6	6.4	6.6
Emerging and Developing Europe	4.1	5.5	3.1	–3.0	4.8	5.4	1.3	2.9	2.8	2.9	3.2	3.4
Latin America and the Caribbean	3.1	5.7	3.9	–1.3	6.1	4.9	3.1	2.9	1.3	0.9	2.0	3.0
Middle East, North Africa, Afghanistan, and Pakistan	5.1	6.3	5.2	2.2	4.8	4.4	4.8	2.4	2.6	2.9	3.8	4.1
Middle East and North Africa	5.2	6.4	5.2	2.3	5.1	4.5	4.9	2.3	2.4	2.7	3.7	4.0
Sub-Saharan Africa	4.9	7.6	6.0	4.0	6.7	5.0	4.2	5.2	5.0	4.5	5.1	5.4
Memorandum												
European Union	2.6	3.3	0.7	–4.3	2.0	1.8	–0.4	0.1	1.4	1.8	1.9	1.9
Analytical Groups												
By Source of Export Earnings												
Fuel	5.2	7.7	5.4	–0.9	5.0	5.0	4.7	2.6	2.3	0.7	2.3	3.3
Nonfuel	5.5	9.0	6.0	4.2	8.1	6.6	5.3	5.6	5.2	5.2	5.3	5.7
Of Which, Primary Products	3.8	6.7	3.8	1.0	6.6	5.7	3.1	4.1	2.4	2.4	2.8	3.3
By External Financing Source												
Net Debtor Economies	4.3	6.7	4.3	1.9	6.7	5.1	4.1	4.5	4.1	4.3	4.8	5.4
Net Debtor Economies by Debt-Servicing Experience												
Economies with Arrears and/or Rescheduling during 2009–13	5.4	6.4	6.2	3.8	4.5	2.3	2.8	3.4	3.2	4.0	4.6	5.1
Memorandum												
Median Growth Rate												
Advanced Economies	3.5	4.2	1.0	–3.8	2.3	2.1	0.9	1.4	2.1	2.5	2.3	2.2
Emerging Market and Developing Economies	4.4	6.1	5.0	1.7	4.5	4.5	4.0	3.9	3.5	3.5	3.9	4.0
Output per Capita												
Advanced Economies	2.1	2.0	–0.6	–4.0	2.5	1.2	0.7	0.8	1.3	1.9	1.9	1.5
Emerging Market and Developing Economies	4.1	7.2	4.3	1.9	6.2	5.1	3.9	3.8	3.5	3.1	3.6	4.2
World Growth Rate Based on Market Exchange	**3.1**	**3.9**	**1.5**	**–2.0**	**4.1**	**3.0**	**2.4**	**2.5**	**2.6**	**2.9**	**3.2**	**3.2**
Value of World Output (billions of U.S. dollars)												
At Market Exchange Rates	37,521	57,456	62,999	59,711	65,206	72,188	73,475	75,471	77,302	74,551	78,302	98,116
At Purchasing Power Parities	54,309	78,486	82,370	82,739	88,156	93,576	98,191	102,966	107,921	112,552	118,471	149,436

[1]Real GDP.
[2]Excludes Lithuania.
[3]Excludes the United States, euro area countries, and Japan but includes Lithuania.
[4]Georgia, Turkmenistan, and Ukraine, which are not members of the Commonwealth of Independent States, are included in this group for reasons of geography and similarity in economic structure.

Table A2. Advanced Economies: Real GDP and Total Domestic Demand[1]

(Annual percent change)

	Average									Projections			Fourth Quarter[2]	Projections	
	1997–2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2020	2014:Q4	2015:Q4	2016:Q4
Real GDP															
Advanced Economies	**2.8**	**2.8**	**0.2**	**–3.4**	**3.1**	**1.7**	**1.2**	**1.4**	**1.8**	**2.4**	**2.4**	**1.9**	**1.7**	**2.5**	**2.3**
United States	3.3	1.8	–0.3	–2.8	2.5	1.6	2.3	2.2	2.4	3.1	3.1	2.0	2.4	3.1	2.8
Euro Area[3]	2.3	3.0	0.5	–4.5	2.0	1.6	–0.8	–0.5	0.9	1.5	1.6	1.5	0.9	1.7	1.6
Germany	1.5	3.4	0.8	–5.6	3.9	3.7	0.6	0.2	1.6	1.6	1.7	1.3	1.5	1.7	1.7
France	2.4	2.4	0.2	–2.9	2.0	2.1	0.3	0.3	0.4	1.2	1.5	1.9	0.2	1.6	1.3
Italy	1.5	1.5	–1.0	–5.5	1.7	0.6	–2.8	–1.7	–0.4	0.5	1.1	1.0	–0.5	1.0	1.1
Spain	3.9	3.8	1.1	–3.6	0.0	–0.6	–2.1	–1.2	1.4	2.5	2.0	1.7	2.0	2.4	1.8
Netherlands	2.7	4.2	2.1	–3.3	1.1	1.7	–1.6	–0.7	0.9	1.6	1.6	1.8	1.4	1.1	1.7
Belgium	2.4	3.0	1.0	–2.6	2.5	1.6	0.1	0.3	1.0	1.3	1.5	1.6	1.0	1.6	1.6
Austria	2.5	3.6	1.5	–3.8	1.9	3.1	0.9	0.2	0.3	0.9	1.6	1.1	–0.2	1.6	1.5
Greece	4.1	3.5	–0.4	–4.4	–5.4	–8.9	–6.6	–3.9	0.8	2.5	3.7	2.6	1.3	4.0	3.5
Portugal	2.3	2.5	0.2	–3.0	1.9	–1.8	–4.0	–1.6	0.9	1.6	1.5	1.2	0.7	1.4	1.6
Ireland	6.9	4.9	–2.6	–6.4	–0.3	2.8	–0.3	0.2	4.8	3.9	3.3	2.5	4.1	2.1	1.6
Finland	3.8	5.2	0.7	–8.3	3.0	2.6	–1.4	–1.3	–0.1	0.8	1.4	1.8	–0.2	1.6	1.3
Slovak Republic	4.3	10.7	5.4	–5.3	4.8	2.7	1.6	1.4	2.4	2.9	3.3	3.0	2.4	3.3	3.3
Lithuania	6.4	11.1	2.6	–14.8	1.6	6.1	3.8	3.3	2.9	2.8	3.2	3.7	2.1	3.7	6.1
Slovenia	4.1	6.9	3.3	–7.8	1.2	0.6	–2.6	–1.0	2.6	2.1	1.9	1.8	2.0	1.3	6.5
Luxembourg	4.9	6.5	0.5	–5.3	5.1	2.6	–0.2	2.0	2.9	2.5	2.3	2.2	3.9	2.0	2.4
Latvia	7.6	9.8	–3.2	–14.2	–2.9	5.0	4.8	4.2	2.4	2.3	3.3	4.0	2.1	2.7	3.3
Estonia	7.4	7.9	–5.3	–14.7	2.5	8.3	4.7	1.6	2.1	2.5	3.4	3.4	3.0	5.1	3.4
Cyprus[4]	3.9	4.9	3.6	–2.0	1.4	0.3	–2.4	–5.4	–2.3	0.2	1.4	1.8	–2.0	. . .	. . .
Malta	. . .	4.0	3.3	–2.5	3.5	2.3	2.5	2.7	3.5	3.2	2.7	2.5	4.1	4.4	2.9
Japan	0.9	2.2	–1.0	–5.5	4.7	–0.5	1.8	1.6	–0.1	1.0	1.2	0.7	–0.7	2.4	0.5
United Kingdom	3.1	2.6	–0.3	–4.3	1.9	1.6	0.7	1.7	2.6	2.7	2.3	2.1	2.7	2.7	2.2
Korea	4.9	5.5	2.8	0.7	6.5	3.7	2.3	3.0	3.3	3.3	3.5	3.7	2.8	3.9	3.0
Canada	3.4	2.0	1.2	–2.7	3.4	3.0	1.9	2.0	2.5	2.2	2.0	1.9	2.6	1.8	2.0
Australia	3.6	4.5	2.7	1.6	2.3	2.7	3.6	2.1	2.7	2.8	3.2	2.8	2.5	3.6	2.7
Taiwan Province of China	4.9	6.5	0.7	–1.6	10.6	3.8	2.1	2.2	3.7	3.8	4.1	4.2	3.5	3.4	4.6
Switzerland	2.2	4.1	2.2	–2.1	2.9	1.9	1.1	1.9	2.0	0.8	1.2	1.9	2.0	0.1	1.7
Sweden	3.4	3.4	–0.6	–5.2	6.0	2.7	–0.3	1.3	2.1	2.7	2.8	2.3	2.6	2.2	3.1
Singapore	5.4	9.1	1.8	–0.6	15.2	6.2	3.4	4.4	2.9	3.0	3.0	3.2	2.2	3.2	2.7
Hong Kong SAR	3.7	6.5	2.1	–2.5	6.8	4.8	1.7	2.9	2.3	2.8	3.1	3.5	2.2	3.0	3.2
Norway	2.6	2.9	0.4	–1.6	0.6	1.0	2.7	0.7	2.2	1.0	1.5	2.0	3.0	–0.3	2.7
Czech Republic	3.1	5.5	2.7	–4.8	2.3	2.0	–0.8	–0.7	2.0	2.5	2.7	2.2	1.5	3.1	2.4
Israel	3.7	6.3	3.5	1.9	5.8	4.2	3.0	3.2	2.8	3.5	3.3	2.9	2.9	3.1	3.7
Denmark	2.3	0.8	–0.7	–5.1	1.6	1.2	–0.7	–0.5	1.0	1.6	2.0	2.2	1.3	1.5	2.3
New Zealand	3.4	3.4	–0.5	–1.4	1.6	1.8	2.4	2.2	3.2	2.9	2.7	2.3	3.5	2.3	3.2
Iceland	4.5	9.7	1.1	–5.1	–3.1	2.1	1.1	3.5	1.8	3.5	3.2	2.6	5.4	2.8	3.3
San Marino	. . .	7.1	1.7	–12.8	–4.6	–9.5	–7.5	–4.5	–1.0	1.0	1.1	1.3	. . .	. . .	. . .
Memorandum															
Major Advanced Economies	2.5	2.1	–0.2	–3.8	2.9	1.6	1.4	1.5	1.7	2.3	2.3	1.7	1.6	2.5	2.1
Real Total Domestic Demand															
Advanced Economies	**2.9**	**2.3**	**–0.3**	**–3.7**	**3.0**	**1.4**	**0.8**	**1.0**	**1.8**	**2.3**	**2.4**	**2.0**	**1.6**	**2.6**	**2.2**
United States	3.7	1.1	–1.3	–3.8	2.9	1.6	2.2	1.9	2.5	3.4	3.4	2.2	2.9	3.4	3.2
Euro Area[3]	2.3	2.8	0.4	–3.9	1.5	0.7	–2.3	–0.9	0.8	1.2	1.5	1.5	0.7	1.4	1.5
Germany	0.9	1.8	0.9	–3.2	2.9	3.1	–0.8	0.8	1.3	1.5	1.7	1.4	1.0	2.0	1.6
France	2.5	3.1	0.5	–2.5	2.1	2.0	–0.3	0.2	0.7	0.8	1.4	1.8	0.5	1.0	1.6
Italy	2.2	1.3	–1.2	–4.1	2.0	–0.6	–5.5	–2.5	–0.7	–0.2	0.7	1.0	–1.1	0.5	0.9
Spain	4.8	4.1	–0.4	–6.0	–0.5	–2.7	–4.2	–2.7	2.3	3.1	1.7	1.4	2.8	2.8	1.6
Japan	0.5	1.1	–1.3	–4.0	2.9	0.4	2.6	1.9	0.1	0.1	0.7	0.5	–1.6	2.2	–0.6
United Kingdom	3.4	2.5	–1.3	–4.4	2.5	0.3	1.4	1.8	2.9	2.7	2.4	2.2	2.1	3.0	2.1
Canada	3.6	3.4	2.8	–2.7	5.2	3.3	2.2	1.8	1.4	1.2	1.9	1.7	1.4	0.9	2.3
Other Advanced Economies[5]	3.3	5.0	1.7	–2.8	6.2	3.1	1.8	1.2	2.2	3.2	3.0	3.3	1.7	2.9	3.1
Memorandum															
Major Advanced Economies	2.7	1.6	–0.7	–3.7	2.9	1.5	1.2	1.4	1.7	2.2	2.4	1.8	1.5	2.6	2.1

[1]In this and other tables, when countries are not listed alphabetically, they are ordered on the basis of economic size.
[2]From the fourth quarter of the preceding year.
[3]Excludes Lithuania.
[4]Owing to the unusual macroeconomic uncertainty, quarterly real GDP projections are not available.
[5]Excludes the G7 (Canada, France, Germany, Italy, Japan, United Kingdom, United States) and euro area countries but includes Lithuania.

Table A3. Advanced Economies: Components of Real GDP

(Annual percent change)

	Averages										Projections	
	1997–2006	2007–16	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Private Consumer Expenditure												
Advanced Economies	**2.9**	**1.4**	**2.4**	**0.1**	**–1.1**	**1.9**	**1.4**	**1.0**	**1.4**	**1.7**	**2.5**	**2.6**
United States	3.8	1.8	2.2	–0.3	–1.6	1.9	2.3	1.8	2.4	2.5	3.5	3.2
Euro Area[1]	2.1	0.4	1.8	0.3	–1.0	0.8	0.2	–1.3	–0.7	1.0	1.7	1.5
Germany	1.0	1.0	0.0	0.4	0.2	0.5	2.3	0.6	0.9	1.2	2.0	1.5
France	2.5	0.9	2.5	0.4	0.2	1.8	0.5	–0.4	0.2	0.6	1.0	1.7
Italy	1.7	–0.5	1.2	–1.0	–1.6	1.3	0.0	–3.9	–2.9	0.3	1.2	1.1
Spain	3.9	0.0	3.3	–0.7	–3.6	0.3	–2.0	–2.9	–2.3	2.4	3.9	2.5
Japan	0.9	0.8	0.9	–0.9	–0.7	2.8	0.3	2.3	2.1	–1.2	0.6	2.0
United Kingdom	4.0	1.0	2.6	–0.5	–3.1	0.4	0.1	1.1	1.7	2.0	3.2	2.9
Canada	3.5	2.5	4.2	2.9	0.3	3.4	2.3	1.9	2.5	2.7	2.3	2.2
Other Advanced Economies[2]	3.5	2.4	4.6	1.2	–0.1	3.6	2.9	2.2	2.2	2.3	2.7	3.0
Memorandum												
Major Advanced Economies	2.8	1.3	1.9	–0.2	–1.2	1.8	1.5	1.2	1.7	1.6	2.5	2.6
Public Consumption												
Advanced Economies	**2.7**	**1.0**	**1.9**	**2.4**	**3.0**	**1.0**	**–0.6**	**0.4**	**0.1**	**0.8**	**0.8**	**0.4**
United States	2.1	0.4	1.4	2.5	3.7	0.1	–2.7	–0.6	–1.3	0.4	0.0	0.5
Euro Area[1]	1.8	1.0	2.1	2.5	2.4	0.8	–0.2	–0.1	0.3	0.7	0.7	0.5
Germany	0.8	1.5	1.5	3.4	3.0	1.3	0.7	1.2	0.7	1.1	1.0	1.0
France	1.3	1.5	1.8	1.1	2.4	1.3	1.0	1.7	2.0	1.9	1.3	0.4
Italy	2.8	–0.2	0.4	1.0	0.4	0.6	–1.8	–1.2	–0.3	–0.9	0.1	0.1
Spain	4.5	1.0	6.2	5.9	4.1	1.5	–0.3	–3.7	–2.9	0.1	0.3	–1.1
Japan	2.1	0.9	1.1	–0.1	2.3	1.9	1.2	1.7	1.9	0.3	0.4	–1.6
United Kingdom	2.8	0.8	1.2	2.0	1.2	0.0	0.0	2.3	–0.3	1.5	0.8	–0.7
Canada	2.1	1.8	2.8	4.6	3.3	2.7	0.8	1.2	0.4	0.3	1.0	1.2
Other Advanced Economies[2]	2.9	2.5	3.1	3.0	3.3	2.8	1.6	2.0	2.0	2.4	3.0	1.8
Memorandum												
Major Advanced Economies	2.0	0.7	1.4	2.1	2.9	0.7	–1.1	0.3	–0.2	0.6	0.4	0.2
Gross Fixed Capital Formation												
Advanced Economies	**3.3**	**0.5**	**2.4**	**–2.6**	**–11.1**	**1.9**	**2.9**	**1.8**	**1.1**	**2.7**	**3.3**	**3.9**
United States	4.6	0.8	–1.2	–4.8	–13.1	1.1	3.7	5.3	2.7	3.9	5.8	6.2
Euro Area[1]	3.1	–0.8	4.9	–0.6	–11.1	–0.4	1.6	–3.7	–2.5	1.0	1.5	2.4
Germany	0.9	1.3	4.4	0.5	–9.8	4.6	7.5	0.0	–0.5	3.4	1.4	2.2
France	3.5	0.0	5.5	0.8	–9.1	2.1	2.1	0.3	–1.0	–1.6	–0.2	2.0
Italy	3.0	–3.3	1.6	–3.1	–9.9	–0.5	–1.9	–9.3	–5.8	–3.3	–0.3	0.4
Spain	7.0	–3.1	4.4	–3.9	–16.9	–4.9	–6.3	–8.1	–3.8	3.4	4.5	3.1
Japan	–1.1	–0.7	0.3	–4.1	–10.6	–0.2	1.4	3.4	3.2	2.5	–1.3	–0.5
United Kingdom	2.3	1.1	5.3	–4.7	–14.4	5.9	2.3	0.7	3.4	6.8	3.2	4.3
Canada	5.9	1.4	3.2	1.6	–12.0	11.3	4.8	4.8	0.4	0.4	–0.7	1.7
Other Advanced Economies[2]	3.6	2.6	6.8	0.2	–5.1	6.4	4.0	2.5	2.2	1.7	3.8	3.8
Memorandum												
Major Advanced Economies	3.0	0.4	1.0	–3.3	–11.9	2.1	3.2	2.8	1.6	2.8	3.1	3.9

Table A3. Advanced Economies: Components of Real GDP *(continued)*

(Annual percent change)

	Averages										Projections	
	1997–2006	2007–16	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Final Domestic Demand												
Advanced Economies	**2.9**	**1.1**	**2.3**	**–0.1**	**–2.6**	**1.7**	**1.4**	**1.0**	**1.1**	**1.7**	**2.4**	**2.5**
United States	3.7	1.4	1.4	–0.9	–3.1	1.5	1.7	2.1	1.9	2.5	3.4	3.4
Euro Area[1]	2.2	0.3	2.6	0.5	–2.7	0.6	0.4	–1.6	–0.8	0.9	1.4	1.5
Germany	1.0	1.1	1.2	1.0	–1.4	1.5	3.0	0.6	0.6	1.7	1.7	1.5
France	2.4	0.8	3.0	0.7	–1.5	1.8	0.9	0.3	0.4	0.4	0.8	1.4
Italy	2.2	–1.0	1.1	–1.1	–3.0	0.8	–0.7	–4.4	–2.9	–0.6	0.7	0.8
Spain	4.8	–0.6	4.1	–0.5	–5.9	–0.7	–2.6	–4.2	–2.7	2.1	3.3	1.9
Japan	0.6	0.5	0.8	–1.6	–2.3	2.0	0.7	2.4	2.3	–0.1	0.2	0.8
United Kingdom	3.4	1.0	2.8	–0.7	–4.1	1.1	0.4	1.3	1.5	2.7	2.7	2.4
Canada	3.8	2.1	3.7	2.9	–1.9	5.0	2.5	2.5	1.5	1.7	1.3	1.9
Other Advanced Economies[2]	3.3	2.5	4.9	1.2	–0.7	4.3	2.9	2.1	2.1	2.1	3.2	3.0
Memorandum												
Major Advanced Economies	2.7	1.0	1.6	–0.5	–2.7	1.7	1.4	1.4	1.4	1.7	2.3	2.4
Stock Building[3]												
Advanced Economies	**0.0**	**0.0**	**0.0**	**–0.2**	**–1.2**	**1.3**	**0.1**	**–0.2**	**–0.1**	**0.1**	**0.0**	**0.0**
United States	0.0	0.0	–0.2	–0.5	–0.8	1.5	–0.1	0.2	0.1	0.1	0.0	0.0
Euro Area[1]	0.0	–0.1	0.2	–0.2	–1.2	0.9	0.3	–0.7	0.0	–0.1	–0.2	0.0
Germany	0.0	–0.1	0.6	–0.1	–1.7	1.3	0.1	–1.4	0.1	–0.4	–0.2	0.1
France	0.1	0.0	0.1	–0.2	–1.1	0.3	1.1	–0.6	–0.2	0.3	0.0	0.0
Italy	0.0	–0.1	0.2	–0.1	–1.2	1.3	0.2	–1.1	0.4	–0.1	–0.9	0.0
Spain	0.0	0.0	0.0	0.1	–0.2	0.2	0.0	–0.2	–0.1	0.2	–0.2	–0.2
Japan	0.0	0.0	0.3	0.2	–1.5	0.9	–0.2	0.2	–0.4	0.1	0.0	0.0
United Kingdom	0.0	0.1	–0.1	–0.5	–0.6	1.5	–0.2	0.1	0.3	0.2	0.1	0.0
Canada	0.1	0.0	–0.1	0.0	–0.8	0.2	0.8	–0.2	0.4	–0.2	–0.1	0.0
Other Advanced Economies[2]	0.0	0.0	0.1	0.4	–2.0	2.0	0.2	–0.3	–0.8	0.1	0.1	0.0
Memorandum												
Major Advanced Economies	0.0	0.0	0.0	–0.3	–1.0	1.2	0.0	–0.2	0.0	0.0	–0.1	0.0
Foreign Balance[3]												
Advanced Economies	**–0.1**	**0.2**	**0.4**	**0.5**	**0.3**	**0.1**	**0.3**	**0.4**	**0.3**	**0.1**	**0.0**	**0.0**
United States	–0.6	0.2	0.6	1.1	1.2	–0.5	0.0	0.0	0.2	–0.2	–0.4	–0.4
Euro Area[1]	0.1	0.4	0.3	0.1	–0.6	0.6	0.9	1.5	0.4	0.1	0.3	0.2
Germany	0.5	0.2	1.6	–0.1	–2.6	1.1	0.7	1.4	–0.5	0.4	0.2	0.1
France	–0.1	–0.1	–0.8	–0.3	–0.4	–0.1	0.0	0.7	0.1	–0.3	0.3	0.0
Italy	–0.4	0.5	0.2	0.2	–1.3	–0.3	1.2	2.8	0.7	0.3	0.7	0.4
Spain	–0.8	0.9	–0.6	1.6	2.8	0.5	2.1	2.2	1.4	–0.8	–0.6	0.4
Japan	0.4	0.1	1.0	0.2	–2.0	2.0	–0.8	–0.7	–0.2	0.3	0.5	0.4
United Kingdom	–0.5	0.0	–0.4	1.1	0.7	–0.9	1.4	–0.8	0.0	–0.5	–0.1	–0.1
Canada	–0.3	–0.4	–1.5	–1.9	0.0	–2.0	–0.4	–0.4	0.2	1.2	0.9	0.1
Other Advanced Economies[2]	0.6	0.5	0.7	0.3	1.6	–0.1	0.4	0.6	0.9	0.5	0.3	0.3
Memorandum												
Major Advanced Economies	–0.2	0.1	0.5	0.5	0.0	0.0	0.1	0.2	0.1	0.0	0.0	–0.1

[1]Excludes Lithuania.
[2]Excludes the G7 (Canada, France, Germany, Italy, Japan, United Kingdom, United States) and euro area countries but includes Lithuania.
[3]Changes expressed as percent of GDP in the preceding period.

Table A4. Emerging Market and Developing Economies: Real GDP

(Annual percent change)

	Average									Projections		
	1997–2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2020
Commonwealth of Independent States[1,2]	**5.5**	**9.0**	**5.3**	**–6.3**	**4.6**	**4.8**	**3.4**	**2.2**	**1.0**	**–2.6**	**0.3**	**2.4**
Russia	5.0	8.5	5.2	–7.8	4.5	4.3	3.4	1.3	0.6	–3.8	–1.1	1.5
Excluding Russia	6.6	10.4	5.6	–2.5	5.0	6.2	3.6	4.2	1.9	0.4	3.2	4.3
Armenia	9.4	13.7	6.9	–14.1	2.2	4.7	7.1	3.5	3.4	–1.0	0.0	3.5
Azerbaijan	12.5	25.0	10.8	9.3	5.0	0.1	2.2	5.8	2.8	0.6	2.5	3.3
Belarus	7.6	8.7	10.3	0.1	7.7	5.5	1.7	1.0	1.6	–2.3	–0.1	0.5
Georgia	6.4	12.6	2.6	–3.7	6.2	7.2	6.4	3.3	4.7	2.0	3.0	5.0
Kazakhstan	7.4	8.9	3.3	1.2	7.3	7.5	5.0	6.0	4.3	2.0	3.1	4.2
Kyrgyz Republic	4.3	8.5	7.6	2.9	–0.5	6.0	–0.9	10.5	3.6	1.7	3.4	5.3
Moldova	3.3	3.0	7.8	–6.0	7.1	6.8	–0.7	9.4	4.6	–1.0	3.0	4.0
Tajikistan	7.2	7.8	7.9	3.9	6.5	7.4	7.5	7.4	6.7	3.0	4.1	5.0
Turkmenistan	11.9	11.1	14.7	6.1	9.2	14.7	11.1	10.2	10.3	9.0	9.2	6.9
Ukraine[3]	4.6	8.2	2.2	–15.1	0.3	5.5	0.2	0.0	–6.8	–5.5	2.0	4.0
Uzbekistan	5.2	9.5	9.0	8.1	8.5	8.3	8.2	8.0	8.1	6.2	6.5	6.5
Emerging and Developing Asia	**7.0**	**11.2**	**7.3**	**7.5**	**9.6**	**7.7**	**6.8**	**7.0**	**6.8**	**6.6**	**6.4**	**6.6**
Bangladesh	5.6	6.5	5.5	5.3	6.0	6.5	6.3	6.1	6.1	6.3	6.8	6.7
Bhutan	7.0	12.6	10.8	5.7	9.3	10.1	6.5	5.0	6.4	7.6	8.2	6.9
Brunei Darussalam	1.9	0.2	–1.9	–1.8	2.6	3.4	0.9	–1.8	–0.7	–0.5	2.8	5.0
Cambodia	8.9	10.2	6.7	0.1	6.0	7.1	7.3	7.4	7.0	7.2	7.2	7.3
China	9.4	14.2	9.6	9.2	10.4	9.3	7.8	7.8	7.4	6.8	6.3	6.3
Fiji	2.2	–0.9	1.0	–1.4	3.0	2.7	1.8	4.6	4.1	3.3	3.0	3.0
India	6.6	9.8	3.9	8.5	10.3	6.6	5.1	6.9	7.2	7.5	7.5	7.8
Indonesia	2.5	6.3	7.4	4.7	6.4	6.2	6.0	5.6	5.0	5.2	5.5	6.0
Kiribati	1.9	2.2	–0.8	0.3	–0.9	–0.2	3.4	2.4	3.8	2.9	1.5	2.0
Lao P.D.R.	6.2	7.8	7.8	7.5	8.1	8.0	7.9	8.0	7.4	7.3	7.8	7.3
Malaysia	4.3	6.3	4.8	–1.5	7.4	5.2	5.6	4.7	6.0	4.8	4.9	5.0
Maldives	7.7	10.6	12.2	–3.6	7.1	6.5	1.3	4.7	5.0	5.0	3.9	5.0
Marshall Islands	. . .	3.8	–2.0	–1.7	6.1	0.0	4.7	3.0	0.5	1.7	2.2	1.6
Micronesia	0.5	–2.2	–2.5	1.0	3.2	1.8	0.1	–4.0	0.1	0.3	1.0	1.1
Mongolia	5.4	8.8	8.1	–2.3	20.9	17.3	12.3	11.6	7.8	4.4	4.2	9.2
Myanmar	. . .	12.0	3.6	5.1	5.3	5.9	7.3	8.3	7.7	8.3	8.5	7.5
Nepal	4.0	3.4	6.1	4.5	4.8	3.4	4.8	3.9	5.5	5.0	5.0	4.5
Palau	. . .	1.7	–5.5	–10.7	3.2	5.2	5.5	–0.2	8.0	2.2	2.7	2.0
Papua New Guinea	1.0	7.2	6.6	6.1	7.7	10.7	8.1	5.5	5.8	19.3	3.3	3.5
Philippines	4.0	6.6	4.2	1.1	7.6	3.7	6.8	7.2	6.1	6.7	6.3	6.0
Samoa	3.6	1.1	2.9	–6.4	–2.3	6.2	1.2	–1.1	1.9	2.8	1.4	2.0
Solomon Islands	0.3	6.4	7.1	–4.7	6.9	12.9	4.7	3.0	1.5	3.3	3.0	3.4
Sri Lanka	4.5	6.8	6.0	3.5	8.0	8.2	6.3	7.3	7.4	6.5	6.5	6.5
Thailand	2.7	5.0	2.5	–2.3	7.8	0.1	6.5	2.9	0.7	3.7	4.0	3.8
Timor-Leste[4]	. . .	11.4	14.2	13.0	9.4	14.7	7.8	5.4	6.6	6.8	6.9	7.0
Tonga	1.0	–1.1	1.8	2.6	3.1	1.3	–1.1	–0.3	2.3	2.7	2.4	0.7
Tuvalu	. . .	6.4	8.0	–4.4	–2.7	8.5	0.2	1.3	2.2	2.5	2.5	1.7
Vanuatu	2.5	5.2	6.5	3.3	1.6	1.2	1.8	2.0	2.9	–4.0	5.0	2.5
Vietnam	6.9	7.1	5.7	5.4	6.4	6.2	5.2	5.4	6.0	6.0	5.8	6.0
Emerging and Developing Europe	**4.1**	**5.5**	**3.1**	**–3.0**	**4.8**	**5.4**	**1.3**	**2.9**	**2.8**	**2.9**	**3.2**	**3.4**
Albania	5.1	5.9	7.5	3.4	3.7	2.5	1.6	1.4	2.1	3.0	4.0	4.5
Bosnia and Herzegovina	. . .	6.0	5.6	–2.7	0.8	1.0	–1.2	2.5	0.8	2.3	3.1	4.0
Bulgaria	3.8	6.9	5.8	–5.0	0.7	2.0	0.5	1.1	1.7	1.2	1.5	2.5
Croatia	3.8	5.2	2.1	–7.4	–1.7	–0.3	–2.2	–0.9	–0.4	0.5	1.0	2.0
Hungary	4.0	0.5	0.9	–6.6	0.8	1.8	–1.5	1.5	3.6	2.7	2.3	2.1
Kosovo	. . .	8.3	4.5	3.6	3.3	4.4	2.8	3.4	2.7	3.3	3.5	3.5
FYR Macedonia	2.7	6.5	5.5	–0.4	3.4	2.3	–0.5	2.7	3.8	3.8	3.9	4.0
Montenegro	. . .	10.7	6.9	–5.7	2.5	3.2	–2.5	3.3	1.1	4.7	3.5	3.3
Poland	4.2	7.2	3.9	2.6	3.7	4.8	1.8	1.7	3.3	3.5	3.5	3.6
Romania	2.7	6.9	8.5	–7.1	–0.8	1.1	0.6	3.4	2.9	2.7	2.9	3.5
Serbia	. . .	5.9	5.4	–3.1	0.6	1.4	–1.0	2.6	–1.8	–0.5	1.5	4.0
Turkey	4.3	4.7	0.7	–4.8	9.2	8.8	2.1	4.1	2.9	3.1	3.6	3.5

Table A4. Emerging Market and Developing Economies: Real GDP *(continued)*

(Annual percent change)

	Average									Projections		
	1997–2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2020
Latin America and the Caribbean	**3.1**	**5.7**	**3.9**	**–1.3**	**6.1**	**4.9**	**3.1**	**2.9**	**1.3**	**0.9**	**2.0**	**3.0**
Antigua and Barbuda	4.5	7.1	1.5	–10.7	–8.5	–1.9	3.6	1.8	2.4	1.9	2.3	2.7
Argentina[5]	2.6	8.0	3.1	0.1	9.5	8.4	0.8	2.9	0.5	–0.3	0.1	0.5
The Bahamas	3.8	1.4	–2.3	–4.2	1.5	1.1	1.0	0.7	1.3	2.3	2.8	1.5
Barbados	2.2	1.7	0.3	–4.1	0.3	0.8	0.0	0.0	–0.3	0.8	1.4	2.0
Belize	6.0	1.2	3.8	0.3	3.1	2.1	3.3	1.5	3.4	2.0	3.0	2.5
Bolivia	3.3	4.6	6.1	3.4	4.1	5.2	5.2	6.8	5.4	4.3	4.3	4.0
Brazil	2.7	6.0	5.0	–0.2	7.6	3.9	1.8	2.7	0.1	–1.0	1.0	2.5
Chile	4.1	5.2	3.2	–1.0	5.7	5.8	5.5	4.3	1.8	2.7	3.3	3.9
Colombia	2.7	6.9	3.5	1.7	4.0	6.6	4.0	4.9	4.6	3.4	3.7	4.3
Costa Rica	5.3	7.9	2.7	–1.0	5.0	4.5	5.2	3.4	3.5	3.8	4.4	4.3
Dominica	2.5	6.1	7.4	–1.1	1.1	–0.1	–1.4	–0.9	1.1	2.4	2.9	1.9
Dominican Republic	5.5	8.5	3.1	0.9	8.3	2.8	2.6	4.8	7.3	5.1	4.5	4.0
Ecuador	3.2	2.2	6.4	0.6	3.5	7.9	5.2	4.6	3.6	1.9	3.6	4.0
El Salvador	2.9	3.8	1.3	–3.1	1.4	2.2	1.9	1.7	2.0	2.5	2.5	2.0
Grenada	5.0	6.1	0.9	–6.6	–0.5	0.8	–1.2	2.4	1.5	1.5	2.0	2.5
Guatemala	3.5	6.3	3.3	0.5	2.9	4.2	3.0	3.7	4.0	4.0	3.9	3.8
Guyana	1.3	7.0	2.0	3.3	4.4	5.4	4.8	5.2	3.8	3.8	4.4	3.2
Haiti	0.8	3.3	0.8	3.1	–5.5	5.5	2.9	4.2	2.7	3.3	3.8	3.5
Honduras	4.1	6.2	4.2	–2.4	3.7	3.8	4.1	2.8	3.1	3.3	3.4	3.8
Jamaica	1.0	1.4	–0.8	–3.4	–1.5	1.4	–0.5	0.2	0.5	1.7	2.2	2.7
Mexico	3.3	3.1	1.4	–4.7	5.1	4.0	4.0	1.4	2.1	3.0	3.3	3.8
Nicaragua	3.9	5.3	2.9	–2.8	3.2	6.2	5.0	4.4	4.5	4.6	4.3	4.0
Panama	5.0	12.1	10.1	3.9	7.5	10.8	10.7	8.4	6.2	6.1	6.4	6.0
Paraguay	1.5	5.4	6.4	–4.0	13.1	4.3	–1.2	14.2	4.4	4.0	4.0	4.0
Peru	3.9	8.5	9.1	1.0	8.5	6.5	6.0	5.8	2.4	3.8	5.0	4.5
St. Kitts and Nevis	3.7	4.8	3.4	–3.8	–3.8	–1.9	–0.9	3.8	7.0	3.5	3.0	2.5
St. Lucia	2.2	–0.5	3.4	0.6	–0.2	1.3	0.6	–0.5	–1.1	1.8	1.4	2.2
St. Vincent and the Grenadines	4.3	3.0	–0.5	–2.0	–2.3	0.2	1.1	2.4	1.1	2.1	3.1	3.2
Suriname	3.9	5.1	4.1	3.0	4.2	5.3	4.8	4.1	2.9	2.7	3.8	4.2
Trinidad and Tobago	8.5	4.8	3.4	–4.4	–0.1	0.0	1.4	1.7	1.1	1.2	1.5	2.0
Uruguay	1.1	6.5	7.2	2.4	8.4	7.3	3.7	4.4	3.3	2.8	2.9	3.3
Venezuela	2.6	8.8	5.3	–3.2	–1.5	4.2	5.6	1.3	–4.0	–7.0	–4.0	0.0
Middle East, North Africa, Afghanistan, and Pakistan	**5.1**	**6.3**	**5.2**	**2.2**	**4.8**	**4.4**	**4.8**	**2.4**	**2.6**	**2.9**	**3.8**	**4.1**
Afghanistan	. . .	13.3	3.9	20.6	8.4	6.5	14.0	3.7	1.5	3.5	4.9	5.3
Algeria	4.1	3.4	2.4	1.6	3.6	2.8	3.3	2.8	4.1	2.6	3.9	3.6
Bahrain	5.2	8.3	6.2	2.5	4.3	2.1	3.4	5.3	4.7	2.7	2.4	2.9
Djibouti	2.2	5.1	5.8	5.0	3.5	4.5	4.8	5.0	6.0	6.5	7.0	6.0
Egypt	5.0	7.1	7.2	4.7	5.1	1.8	2.2	2.1	2.2	4.0	4.3	5.0
Iran	4.6	9.1	0.9	2.3	6.6	3.7	–6.6	–1.9	3.0	0.6	1.3	2.1
Iraq	. . .	1.9	8.2	3.4	6.4	7.5	13.9	6.6	–2.4	1.3	7.6	7.5
Jordan	5.4	8.2	7.2	5.5	2.3	2.6	2.7	2.8	3.1	3.8	4.5	4.5
Kuwait	5.7	6.0	2.5	–7.1	–2.4	9.6	6.6	1.5	1.3	1.7	1.8	3.2
Lebanon	3.2	9.4	9.1	10.3	8.0	0.9	2.8	2.5	2.0	2.5	2.5	4.0
Libya	3.5	6.4	2.7	–0.8	5.0	–62.1	104.5	–13.6	–24.0	4.6	17.7	3.0
Mauritania	4.7	2.8	1.1	–1.0	4.8	4.4	6.0	5.7	6.4	5.5	6.7	5.1
Morocco	4.0	2.7	5.6	4.8	3.6	5.0	2.7	4.4	2.9	4.4	5.0	5.4
Oman	2.5	4.5	8.2	6.1	4.8	4.1	5.8	4.7	2.9	4.6	3.1	1.3
Pakistan	4.5	5.5	5.0	0.4	2.6	3.6	3.8	3.7	4.1	4.3	4.7	5.0
Qatar	11.8	18.0	17.7	12.0	16.7	13.0	6.0	6.3	6.1	7.1	6.5	3.9
Saudi Arabia	3.9	6.0	8.4	1.8	4.8	10.0	5.4	2.7	3.6	3.0	2.7	3.3
Sudan[6]	15.8	8.5	3.0	4.7	3.0	–1.2	–3.5	3.7	3.4	3.3	3.9	5.1
Syria[7]	2.9	5.7	4.5	5.9	3.4	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Tunisia	4.9	6.3	4.5	3.1	2.6	–1.9	3.7	2.3	2.3	3.0	3.8	4.7
United Arab Emirates	6.2	3.2	3.2	–5.2	1.6	4.9	4.7	5.2	3.6	3.2	3.2	4.1
Yemen	4.5	3.3	3.6	3.9	7.7	–12.7	2.4	4.8	–0.2	–2.2	3.6	5.6

Table A4. Emerging Market and Developing Economies: Real GDP *(continued)*

(Annual percent change)

	Average									Projections		
	1997–2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2020
Sub-Saharan Africa	**4.9**	**7.6**	**6.0**	**4.0**	**6.7**	**5.0**	**4.2**	**5.2**	**5.0**	**4.5**	**5.1**	**5.4**
Angola	8.2	22.6	13.8	2.4	3.4	3.9	5.2	6.8	4.2	4.5	3.9	5.8
Benin	4.4	4.6	5.0	2.7	2.6	3.3	5.4	5.6	5.5	5.5	5.4	5.8
Botswana	6.2	8.7	3.9	–7.8	8.6	6.2	4.3	5.9	4.9	4.2	4.0	3.4
Burkina Faso	6.1	4.1	5.8	3.0	8.4	6.6	6.5	6.6	4.0	5.0	6.0	6.4
Burundi	2.3	3.4	4.9	3.8	5.1	4.2	4.0	4.5	4.7	4.8	5.0	5.5
Cabo Verde	7.4	9.2	6.7	–1.3	1.5	4.0	1.2	0.5	1.0	3.0	4.0	4.0
Cameroon	4.0	3.3	2.9	1.9	3.3	4.1	4.6	5.6	5.1	5.0	5.0	5.0
Central African Republic	2.0	4.6	2.1	1.7	3.0	3.3	4.1	–36.0	1.0	5.7	5.7	5.9
Chad	8.4	3.3	3.1	4.2	13.5	0.1	8.9	5.7	6.9	7.6	4.9	2.9
Comoros	2.4	0.5	1.0	1.8	2.1	2.2	3.0	3.5	3.3	3.5	4.0	4.0
Democratic Republic of the Congo	0.5	6.3	6.2	2.9	7.1	6.9	7.2	8.5	9.1	9.2	8.4	5.3
Republic of Congo	3.4	–1.6	5.6	7.5	8.7	3.4	3.8	3.3	6.0	5.2	7.5	2.3
Côte d'Ivoire	0.9	1.8	2.5	3.3	2.0	–4.4	10.7	8.7	7.5	7.7	7.8	5.9
Equatorial Guinea	31.7	13.1	12.3	–8.1	–1.3	5.0	3.2	–4.8	–3.1	–15.4	3.7	–7.2
Eritrea	0.8	1.4	–9.8	3.9	2.2	8.7	7.0	1.3	1.7	0.2	2.2	3.8
Ethiopia	5.3	11.8	11.2	10.0	10.6	11.4	8.7	9.8	10.3	8.6	8.5	7.5
Gabon	–0.1	6.3	1.7	–2.3	6.3	6.9	5.5	5.6	5.1	4.4	5.5	5.9
The Gambia	3.9	3.6	5.7	6.4	6.5	–4.3	5.6	4.8	–0.2	5.1	8.7	5.9
Ghana	5.1	4.5	9.3	5.8	7.9	14.0	8.0	7.3	4.2	3.5	6.4	4.3
Guinea	3.4	1.8	4.9	–0.3	1.9	3.9	3.8	2.3	0.4	–0.3	6.5	8.2
Guinea-Bissau	0.0	3.2	3.2	3.3	4.4	9.0	–2.2	0.3	2.5	4.5	4.0	4.0
Kenya	3.0	6.9	0.2	3.3	8.4	6.1	4.5	5.7	5.3	6.9	7.2	6.6
Lesotho	3.4	5.0	5.1	4.5	6.9	4.5	5.3	3.5	2.2	4.0	4.4	6.4
Liberia	. . .	12.7	6.0	5.1	6.1	7.4	8.2	8.7	0.5	–1.4	5.0	9.9
Madagascar	3.4	6.4	7.2	–4.7	0.3	1.5	3.0	2.4	3.0	5.0	5.0	5.0
Malawi	2.5	9.5	8.3	9.0	6.5	4.3	1.9	5.2	5.7	5.5	5.7	5.9
Mali	4.9	4.3	5.0	4.5	5.8	2.7	0.0	1.7	6.8	5.6	5.1	5.1
Mauritius	4.5	5.9	5.5	3.0	4.1	3.9	3.2	3.2	3.2	3.5	3.5	3.5
Mozambique	8.7	7.4	5.8	6.5	7.1	7.4	7.1	7.4	7.4	6.5	8.1	14.5
Namibia	4.7	5.4	2.6	0.3	6.0	5.1	5.2	5.1	5.3	5.6	6.5	5.3
Niger	4.4	3.2	9.6	–0.7	8.4	2.2	11.8	4.6	6.9	4.6	5.4	5.1
Nigeria	7.2	9.1	8.0	9.0	10.0	4.9	4.3	5.4	6.3	4.8	5.0	6.0
Rwanda	8.4	7.6	11.2	6.2	6.3	7.5	8.8	4.7	7.0	7.0	7.0	7.5
São Tomé and Príncipe	3.8	0.6	8.1	4.0	4.5	4.8	4.5	4.0	4.5	5.0	5.2	6.0
Senegal	4.4	4.9	3.7	2.4	4.2	1.7	3.4	3.5	4.5	4.6	5.1	7.0
Seychelles	2.8	10.4	–2.1	–1.1	5.9	7.9	6.0	6.6	2.9	3.5	3.8	3.5
Sierra Leone	4.0	8.0	5.3	3.2	5.4	6.0	15.2	20.1	6.0	–12.8	8.4	6.0
South Africa	3.4	5.4	3.2	–1.5	3.0	3.2	2.2	2.2	1.5	2.0	2.1	2.8
South Sudan	. . .	. . .	. . .	. . .	. . .	. . .	–46.8	24.2	5.5	3.4	20.7	3.1
Swaziland	2.5	3.5	2.4	1.2	1.9	–0.6	1.9	2.8	1.7	1.9	1.8	1.6
Tanzania	5.3	8.8	5.6	5.4	6.4	7.9	5.1	7.3	7.2	7.2	7.1	6.9
Togo	1.3	2.3	2.4	3.5	4.1	4.8	5.9	5.4	5.2	6.0	6.0	6.1
Uganda	6.8	8.1	10.4	8.1	7.7	6.8	2.6	3.9	4.9	5.4	5.6	6.3
Zambia	4.6	8.4	7.8	9.2	10.3	6.4	6.8	6.7	5.4	6.7	6.9	6.4
Zimbabwe[8]	. . .	–3.4	–16.6	7.5	11.4	11.9	10.6	4.5	3.2	2.8	2.7	3.7

[1]Data for some countries refer to real net material product (NMP) or are estimates based on NMP. The figures should be interpreted only as indicative of broad orders of magnitude because reliable, comparable data are not generally available. In particular, the growth of output of new private enterprises of the informal economy is not fully reflected in the recent figures.
[2]Georgia, Turkmenistan, and Ukraine, which are not members of the Commonwealth of Independent States, are included in this group for reasons of geography and similarity in economic structure.
[3]Data are based on the 2008 System of National Accounts. The revised national accounts data are available beginning in 2000 and exclude Crimea and Sevastopol from 2010 onward.
[4]In this table only, the data for Timor-Leste are based on non-oil GDP.
[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 December 15, 2014, the Executive Board recognized the implementation of the specified actions it had called for by end-September 2014 and the steps taken by the Argentine authorities to remedy the inaccurate provision of data. The Executive Board will review this issue again as per the calendar specified in December 2013 and in line with the procedures set forth in the Fund's legal framework.
[6]Data for 2011 exclude South Sudan after July 9. Data for 2012 and onward pertain to the current Sudan.
[7]Data for Syria are excluded for 2011 onward owing the uncertain political situation.
[8]The Zimbabwean dollar ceased circulating in early 2009. Data are based on IMF staff estimates of price and exchange rate developments in U.S. dollars. IMF staff estimates of U.S. dollar values may differ from authorities' estimates. Real GDP is in constant 2009 prices.

Table A5. Summary of Inflation

(Percent)

	Average									Projections		
	1997–2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2020
GDP Deflators												
Advanced Economies	**1.7**	**2.2**	**1.9**	**0.8**	**1.0**	**1.3**	**1.2**	**1.2**	**1.3**	**0.9**	**1.2**	**1.7**
United States	2.1	2.7	2.0	0.8	1.2	2.1	1.8	1.5	1.5	0.9	1.5	2.0
Euro Area[1]	1.7	2.4	2.0	1.0	0.7	1.1	1.3	1.3	0.9	1.0	0.9	1.5
Japan	–1.0	–0.9	–1.3	–0.5	–2.2	–1.9	–0.9	–0.5	1.7	1.6	0.5	0.8
Other Advanced Economies[2]	2.0	2.8	3.0	1.0	2.4	2.0	1.3	1.3	1.4	0.5	1.4	2.0
Consumer Prices												
Advanced Economies	**2.0**	**2.2**	**3.4**	**0.1**	**1.5**	**2.7**	**2.0**	**1.4**	**1.4**	**0.4**	**1.4**	**2.0**
United States	2.5	2.9	3.8	–0.3	1.6	3.1	2.1	1.5	1.6	0.1	1.5	2.3
Euro Area[1,3]	2.0	2.2	3.3	0.3	1.6	2.7	2.5	1.3	0.4	0.1	1.0	1.7
Japan	–0.1	0.1	1.4	–1.3	–0.7	–0.3	0.0	0.4	2.7	1.0	0.9	1.5
Other Advanced Economies[2]	1.9	2.1	3.9	1.4	2.4	3.4	2.1	1.7	1.5	0.8	1.8	2.3
Emerging Market and Developing Economies	**8.8**	**6.6**	**9.4**	**5.3**	**5.9**	**7.3**	**6.1**	**5.9**	**5.1**	**5.4**	**4.8**	**4.5**
Regional Groups												
Commonwealth of Independent States[4]	20.5	9.7	15.5	11.1	7.1	9.8	6.2	6.4	8.1	16.8	9.4	4.9
Emerging and Developing Asia	4.2	5.4	7.6	2.8	5.2	6.5	4.7	4.8	3.5	3.0	3.1	3.7
Emerging and Developing Europe	24.2	6.0	8.0	4.8	5.6	5.4	6.0	4.3	3.8	2.7	3.7	4.0
Latin America and the Caribbean[5]	. . .	5.5	8.1	6.1	6.2	6.8	6.1	7.1	. . .	. . .	. . .	. . .
Middle East, North Africa, Afghanistan, and Pakistan	5.5	10.2	11.7	7.1	6.5	9.2	9.8	9.1	6.7	6.1	6.2	5.6
Middle East and North Africa	5.5	10.5	11.7	6.0	6.2	8.7	9.7	9.3	6.5	6.2	6.4	5.7
Sub-Saharan Africa	11.3	5.4	13.0	9.8	8.2	9.5	9.4	6.5	6.3	6.6	7.0	5.7
Memorandum												
European Union	3.4	2.4	3.7	0.9	2.0	3.1	2.6	1.5	0.5	0.0	1.2	1.9
Analytical Groups												
By Source of Export Earnings												
Fuel	13.1	10.0	13.4	8.3	7.3	9.1	8.4	9.1	8.2	11.7	9.3	6.9
Nonfuel	7.5	5.6	8.2	4.4	5.5	6.8	5.5	5.1	4.3	3.8	3.7	3.9
Of Which, Primary Products[5]	. . .	7.6	10.7	6.7	7.0	8.1	8.6	8.4	. . .	. . .	. . .	. . .
By External Financing Source												
Net Debtor Economies	9.6	5.8	9.3	6.8	6.4	7.4	6.8	6.3	5.6	5.4	5.0	4.5
Net Debtor Economies by Debt-Servicing Experience												
Economies with Arrears and/or Rescheduling during 2009–13	9.8	9.1	11.8	13.2	10.3	10.6	9.8	8.5	10.4	8.9	8.3	5.3
Memorandum												
Median Inflation Rate												
Advanced Economies	2.1	2.2	4.0	0.8	1.8	3.3	2.6	1.3	0.7	0.2	1.5	2.0
Emerging Market and Developing Economies	5.1	6.1	10.2	4.1	4.3	5.5	4.9	4.0	3.2	3.0	3.4	3.7

[1]Excludes Lithuania.
[2]Excludes the United States, euro area countries, and Japan but includes Lithuania.
[3]Based on Eurostat's harmonized index of consumer prices.
[4]Georgia, Turkmenistan, and Ukraine, which are not members of the Commonwealth of Independent States, are included in this group for reasons of geography and similarity in economic structure.
[5]See note 5 to Table A7.

Table A6. Advanced Economies: Consumer Prices[1]

(Annual percent change)

	Average									Projections			End of Period[2]	Projections	
	1997–2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2020	2014	2015	2016
Advanced Economies	**2.0**	**2.2**	**3.4**	**0.1**	**1.5**	**2.7**	**2.0**	**1.4**	**1.4**	**0.4**	**1.4**	**2.0**	**0.8**	**0.7**	**1.7**
United States	2.5	2.9	3.8	–0.3	1.6	3.1	2.1	1.5	1.6	0.1	1.5	2.3	0.9	0.5	2.1
Euro Area[3,4]	2.0	2.2	3.3	0.3	1.6	2.7	2.5	1.3	0.4	0.1	1.0	1.7	–0.2	0.2	1.2
Germany	1.4	2.3	2.7	0.2	1.2	2.5	2.1	1.6	0.8	0.2	1.3	1.9	0.2	0.2	1.3
France	1.6	1.6	3.2	0.1	1.7	2.3	2.2	1.0	0.6	0.1	0.8	1.7	0.3	0.1	0.8
Italy	2.3	2.0	3.5	0.8	1.6	2.9	3.3	1.3	0.2	0.0	0.8	1.3	–0.1	0.0	1.2
Spain	2.9	2.8	4.1	–0.2	2.0	3.1	2.4	1.5	–0.2	–0.7	0.7	1.5	–1.0	0.4	0.4
Netherlands	2.4	1.6	2.2	1.0	0.9	2.5	2.8	2.6	0.3	–0.1	0.9	1.6	0.1	0.4	1.0
Belgium	1.8	1.8	4.5	0.0	2.3	3.4	2.6	1.2	0.5	0.1	0.9	1.7	–0.4	0.5	1.2
Austria	1.5	2.2	3.2	0.4	1.7	3.6	2.6	2.1	1.5	1.1	1.5	1.9	1.5	1.1	1.5
Greece	3.6	2.9	4.2	1.2	4.7	3.3	1.5	–1.0	–1.4	–0.3	0.3	1.8	–2.6	0.1	0.6
Portugal	2.8	2.4	2.7	–0.9	1.4	3.6	2.8	0.4	–0.2	0.6	1.3	1.7	–0.3	–1.6	5.9
Ireland	3.1	2.9	3.1	–1.7	–1.6	1.2	1.9	0.5	0.3	0.2	1.5	2.0	0.2	0.3	0.8
Finland	1.5	1.6	3.9	1.6	1.7	3.3	3.2	2.2	1.2	0.6	1.6	2.0	0.6	1.2	1.6
Slovak Republic	6.9	1.9	3.9	0.9	0.7	4.1	3.7	1.5	–0.1	0.0	1.4	2.0	–0.1	0.7	1.4
Lithuania	. . .	5.8	11.1	4.2	1.2	4.1	3.2	1.2	0.2	–0.3	2.0	2.3	–0.2	0.5	2.0
Slovenia	6.1	3.6	5.7	0.9	1.8	1.8	2.6	1.8	0.2	–0.4	0.7	1.7	0.2	–0.2	1.9
Luxembourg	2.4	2.7	4.1	0.0	2.8	3.7	2.9	1.7	0.7	0.5	1.6	2.2	–0.9	2.0	1.5
Latvia	4.4	10.1	15.3	3.3	–1.2	4.2	2.3	0.0	0.7	0.5	1.7	2.0	0.3	1.6	1.7
Estonia	4.9	6.7	10.6	0.2	2.7	5.1	4.2	3.2	0.5	0.4	1.7	2.2	0.0	0.8	2.1
Cyprus[3]	2.7	2.2	4.4	0.2	2.6	3.5	3.1	0.4	–0.3	–1.0	0.9	1.9	–1.0	–1.0	0.9
Malta	2.8	0.7	4.7	1.8	2.0	2.5	3.2	1.0	0.8	1.1	1.4	1.7	0.4	1.1	1.4
Japan	–0.1	0.1	1.4	–1.3	–0.7	–0.3	0.0	0.4	2.7	1.0	0.9	1.5	2.6	0.9	0.5
United Kingdom[3]	1.5	2.3	3.6	2.2	3.3	4.5	2.8	2.6	1.5	0.1	1.7	2.0	0.9	0.5	1.9
Korea	3.4	2.5	4.7	2.8	2.9	4.0	2.2	1.3	1.3	1.5	2.5	3.0	0.8	2.6	2.5
Canada	2.1	2.1	2.4	0.3	1.8	2.9	1.5	1.0	1.9	0.9	2.0	2.0	1.9	1.0	2.4
Australia	2.6	2.3	4.4	1.8	2.9	3.3	1.8	2.4	2.5	2.0	2.3	2.5	1.7	2.6	1.9
Taiwan Province of China	0.8	1.8	3.5	–0.9	1.0	1.4	1.9	0.8	1.2	0.7	1.3	2.0	0.6	1.3	1.4
Switzerland	0.8	0.7	2.4	–0.5	0.7	0.2	–0.7	–0.2	0.0	–1.2	–0.4	1.0	–0.3	–1.5	0.3
Sweden	1.0	2.2	3.4	–0.5	1.2	3.0	0.9	0.0	–0.2	0.2	1.1	2.2	–0.3	0.4	1.5
Singapore	0.7	2.1	6.6	0.6	2.8	5.2	4.6	2.4	1.0	0.0	1.7	1.8	0.0	0.8	2.1
Hong Kong SAR	–0.4	2.0	4.3	0.6	2.3	5.3	4.1	4.3	4.4	3.2	3.4	3.5	4.8	3.2	3.4
Norway	2.1	0.7	3.8	2.2	2.4	1.3	0.7	2.1	2.0	2.3	2.2	2.5	2.1	2.3	2.3
Czech Republic	3.9	2.9	6.3	1.0	1.5	1.9	3.3	1.4	0.4	–0.1	1.3	2.0	0.1	0.8	1.8
Israel	3.1	0.5	4.6	3.3	2.7	3.5	1.7	1.5	0.5	–0.2	2.1	2.0	–0.2	0.7	2.2
Denmark	2.1	1.7	3.4	1.3	2.3	2.8	2.4	0.8	0.6	0.8	1.6	2.0	0.3	0.8	1.6
New Zealand	2.1	2.4	4.0	2.1	2.3	4.0	1.1	1.1	1.2	0.8	2.1	2.0	0.8	1.6	1.8
Iceland	3.9	5.1	12.7	12.0	5.4	4.0	5.2	3.9	2.0	0.9	2.1	2.5	0.8	0.8	2.3
San Marino	. . .	2.5	4.1	2.4	2.6	2.0	2.8	1.3	1.1	0.4	0.9	1.4	1.1	0.4	0.9
Memorandum															
Major Advanced Economies	1.8	2.2	3.2	–0.1	1.4	2.6	1.9	1.3	1.5	0.3	1.3	2.0	1.0	0.5	1.7

[1]Movements in consumer prices are shown as annual averages.
[2]Monthly year-over-year changes and, for several countries, on a quarterly basis.
[3]Based on Eurostat's harmonized index of consumer prices.
[4]Excludes Lithuania.

Table A7. Emerging Market and Developing Economies: Consumer Prices[1]

(Annual percent change)

	Average									Projections			End of Period[2]	Projections	
	1997–2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2020	2014	2015	2016
Commonwealth of Independent States[3,4]	**20.5**	**9.7**	**15.5**	**11.1**	**7.1**	**9.8**	**6.2**	**6.4**	**8.1**	**16.8**	**9.4**	**4.9**	**11.4**	**12.3**	**8.0**
Russia	21.8	9.0	14.1	11.7	6.9	8.4	5.1	6.8	7.8	17.9	9.8	4.0	11.4	12.0	8.0
Excluding Russia	16.8	11.7	19.3	9.7	7.8	13.2	9.1	5.6	8.7	14.3	8.6	6.7	11.5	12.8	7.9
Armenia	4.1	4.6	9.0	3.5	7.3	7.7	2.5	5.8	3.1	6.4	4.0	4.0	4.6	5.4	4.0
Azerbaijan	2.6	16.6	20.8	1.6	5.7	7.9	1.0	2.4	1.4	7.9	6.2	4.0	–0.1	8.9	3.5
Belarus	61.8	8.4	14.8	13.0	7.7	53.2	59.2	18.3	18.1	22.1	17.4	16.5	16.2	22.0	18.1
Georgia	7.1	9.2	10.0	1.7	7.1	8.5	–0.9	–0.5	3.1	3.0	5.0	4.0	2.0	5.0	5.0
Kazakhstan	9.0	10.8	17.1	7.3	7.1	8.3	5.1	5.8	6.7	5.2	5.5	5.7	7.4	4.9	5.5
Kyrgyz Republic	11.0	10.2	24.5	6.8	7.8	16.6	2.8	6.6	7.5	10.7	8.6	2.5	10.5	10.1	7.8
Moldova	14.9	12.4	12.7	0.0	7.4	7.6	4.6	4.6	5.1	7.5	6.3	5.0	4.7	8.6	5.4
Tajikistan	26.4	13.2	20.4	6.4	6.5	12.4	5.8	5.0	6.1	12.8	6.3	6.0	7.4	11.7	6.5
Turkmenistan	16.6	6.3	14.5	–2.7	4.4	5.3	5.3	6.8	6.0	7.7	6.6	4.7	4.2	6.2	7.0
Ukraine[5]	12.4	12.8	25.2	15.9	9.4	8.0	0.6	–0.3	12.1	33.5	10.6	5.0	24.9	26.7	8.7
Uzbekistan	24.0	12.3	12.7	14.1	9.4	12.8	12.1	11.2	8.4	9.5	9.8	10.0	9.8	9.4	9.5
Emerging and Developing Asia	**4.2**	**5.4**	**7.6**	**2.8**	**5.2**	**6.5**	**4.7**	**4.8**	**3.5**	**3.0**	**3.1**	**3.7**	**3.3**	**2.8**	**3.1**
Bangladesh	5.3	9.1	8.9	4.9	9.4	11.5	6.2	7.5	7.0	6.4	6.4	5.9	6.1	6.4	6.5
Bhutan	5.3	5.2	6.3	7.1	4.8	8.6	10.1	8.7	7.7	6.3	6.1	5.6	9.6	8.4	7.6
Brunei Darussalam	0.3	1.0	2.1	1.0	0.2	0.1	0.1	0.4	–0.2	0.0	0.1	0.1	–0.2	0.0	0.1
Cambodia	4.1	7.7	25.0	–0.7	4.0	5.5	2.9	3.0	3.9	–0.3	2.5	3.2	1.0	1.2	2.9
China	0.9	4.8	5.9	–0.7	3.3	5.4	2.6	2.6	2.0	1.2	1.5	3.0	1.5	1.2	1.5
Fiji	2.9	4.8	7.7	3.7	3.7	7.3	3.4	2.9	0.5	1.5	3.0	2.9	0.1	3.0	3.0
India	5.4	5.9	9.2	10.6	9.5	9.4	10.2	10.0	6.0	6.1	5.7	5.0	6.0	5.8	5.9
Indonesia	14.0	6.7	9.8	5.0	5.1	5.3	4.0	6.4	6.4	6.8	5.8	4.8	8.4	4.6	4.8
Kiribati	1.7	3.6	13.7	9.8	–3.9	1.5	–3.0	–1.5	2.1	1.4	0.3	2.1	3.1	1.4	0.3
Lao P.D.R.	27.3	4.5	7.6	0.0	6.0	7.6	4.3	6.4	4.1	4.0	5.0	5.5	2.4	4.6	5.4
Malaysia	2.5	2.0	5.4	0.6	1.7	3.2	1.7	2.1	3.1	2.7	3.0	3.0	2.7	2.7	3.0
Maldives	1.9	6.8	12.0	4.5	6.1	11.3	10.9	4.0	2.5	0.3	2.1	4.0	1.2	0.4	2.8
Marshall Islands	. . .	2.6	14.7	0.5	1.8	5.4	4.3	1.9	1.1	–0.6	1.0	2.3	0.5	–0.6	1.0
Micronesia	1.9	3.6	6.6	7.7	3.7	4.3	6.3	2.1	0.7	–1.0	1.9	2.0	0.7	–1.0	1.9
Mongolia	9.9	8.2	26.8	6.3	10.2	7.7	15.0	8.6	12.9	9.2	7.6	6.5	10.7	8.0	7.4
Myanmar	. . .	30.9	11.5	2.2	8.2	2.8	2.8	5.7	5.9	8.4	7.6	5.1	7.5	9.3	5.9
Nepal	5.7	6.2	6.7	12.6	9.5	9.6	8.3	9.9	9.0	7.1	6.3	5.7	8.1	6.5	6.2
Palau	. . .	3.0	10.0	4.7	1.1	2.6	5.4	2.8	4.0	1.8	2.0	2.0	1.8	2.0	2.0
Papua New Guinea	8.9	0.9	10.8	6.9	5.1	4.4	4.5	5.0	5.3	4.8	5.0	5.0	6.3	4.8	5.0
Philippines	5.5	2.9	8.2	4.2	3.8	4.7	3.2	2.9	4.2	2.1	2.8	3.6	2.7	2.4	3.4
Samoa	4.5	4.7	6.3	14.6	–0.2	2.9	6.2	–0.2	–1.2	3.0	2.2	3.0	0.2	2.3	2.1
Solomon Islands	8.8	7.7	17.3	7.1	0.9	7.4	5.9	5.4	5.1	3.8	3.4	4.5	4.0	0.2	6.7
Sri Lanka	9.2	15.8	22.4	3.5	6.2	6.7	7.5	6.9	3.3	1.7	3.4	5.0	2.1	3.2	3.6
Thailand	3.1	2.2	5.5	–0.9	3.3	3.8	3.0	2.2	1.9	0.3	2.4	2.2	0.6	2.1	1.8
Timor-Leste	. . .	8.6	7.4	–0.2	5.2	13.2	10.9	9.5	2.5	1.8	3.3	4.0	1.0	2.7	3.8
Tonga	7.0	7.4	7.5	3.5	3.9	4.6	2.0	1.5	1.3	0.8	1.5	3.3	1.0	1.2	1.9
Tuvalu	. . .	2.3	10.4	–0.3	–1.9	0.5	1.4	2.0	3.3	3.1	3.0	2.6	3.3	3.1	3.0
Vanuatu	2.4	3.8	4.2	5.2	2.7	0.7	1.4	1.3	1.0	2.0	2.2	3.0	1.1	2.2	2.5
Vietnam	4.4	8.3	23.1	6.7	9.2	18.7	9.1	6.6	4.1	2.5	3.2	3.8	1.9	3.1	3.4
Emerging and Developing Europe	**24.2**	**6.0**	**8.0**	**4.8**	**5.6**	**5.4**	**6.0**	**4.3**	**3.8**	**2.7**	**3.7**	**4.0**	**3.1**	**3.6**	**3.6**
Albania	6.8	2.9	3.4	2.3	3.6	3.4	2.0	1.9	1.6	1.8	2.5	3.0	0.7	2.1	2.8
Bosnia and Herzegovina	. . .	1.5	7.4	–0.4	2.1	3.7	2.0	–0.1	–0.9	0.6	1.1	2.0	–0.5	1.2	1.7
Bulgaria	36.2	7.6	12.0	2.5	3.0	3.4	2.4	0.4	–1.6	–1.0	0.6	2.1	–2.0	0.3	0.9
Croatia	3.5	2.9	6.1	2.4	1.0	2.3	3.4	2.2	–0.2	–0.9	0.9	2.2	0.2	–0.6	1.2
Hungary	8.5	7.9	6.1	4.2	4.9	4.0	5.7	1.7	–0.3	0.0	2.3	3.0	–0.9	1.7	2.4
Kosovo	. . .	4.4	9.4	–2.4	3.5	7.3	2.5	1.8	0.4	0.3	1.4	1.8	–0.4	1.5	1.5
FYR Macedonia	2.0	2.8	7.2	–0.6	1.7	3.9	3.3	2.8	–0.1	0.1	1.3	2.0	–0.5	0.8	1.8
Montenegro	. . .	3.4	9.0	3.6	0.7	3.1	3.6	2.2	–0.7	0.5	1.0	1.5	–0.3	0.9	1.2
Poland	5.8	2.5	4.2	3.4	2.6	4.3	3.7	0.9	0.0	–0.8	1.2	2.5	–1.0	0.4	1.5
Romania	35.7	4.8	7.8	5.6	6.1	5.8	3.3	4.0	1.1	1.0	2.4	2.5	0.8	2.2	2.2
Serbia	26.7	6.0	12.4	8.1	6.1	11.1	7.3	7.7	2.1	2.7	4.0	4.0	1.8	4.2	4.0
Turkey	41.3	8.8	10.4	6.3	8.6	6.5	8.9	7.5	8.9	6.6	6.5	6.0	8.2	7.0	6.0

Table A7. Emerging Market and Developing Economies: Consumer Prices[1] *(continued)*

(Annual percent change)

	Average									Projections			End of Period[2]	Projections	
	1997–2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2020	2014	2015	2016
Latin America and the Caribbean[6]	. . .	**5.5**	**8.1**	**6.1**	**6.2**	**6.8**	**6.1**	**7.1**	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Antigua and Barbuda	1.7	1.4	5.3	–0.6	3.4	3.5	3.4	1.1	1.1	1.2	1.3	2.5	1.3	1.0	1.6
Argentina[6]	. . .	8.8	8.6	6.3	10.5	9.8	10.0	10.6	. . .	18.6	23.2	19.1	23.9	20.5	20.5
The Bahamas	1.7	2.5	4.7	1.9	1.3	3.2	2.0	0.4	1.2	2.3	1.6	1.4	0.2	2.3	1.6
Barbados	2.8	4.0	8.1	3.7	5.7	9.4	4.5	1.8	1.9	1.3	1.4	2.3	2.3	0.9	1.9
Belize	1.6	2.3	6.4	–1.1	0.9	1.7	1.2	0.5	0.9	0.5	1.9	2.0	–0.4	1.5	2.3
Bolivia	3.9	6.7	14.0	3.3	2.5	9.9	4.5	5.7	5.8	5.1	5.0	5.0	5.2	5.0	5.0
Brazil	6.9	3.6	5.7	4.9	5.0	6.6	5.4	6.2	6.3	7.8	5.9	4.5	6.4	8.0	5.4
Chile	3.5	4.4	8.7	1.5	1.4	3.3	3.0	1.9	4.4	3.0	3.0	3.0	4.6	2.9	3.0
Colombia	9.3	5.5	7.0	4.2	2.3	3.4	3.2	2.0	2.9	3.4	3.0	3.0	3.7	3.6	3.2
Costa Rica	11.3	9.4	13.4	7.8	5.7	4.9	4.5	5.2	3.2	4.6	4.0	4.0	5.1	4.0	4.0
Dominica	1.5	3.2	6.4	0.0	2.8	1.1	1.4	0.0	0.7	–0.8	1.1	2.1	–0.1	0.9	0.6
Dominican Republic	12.4	6.1	10.6	1.4	6.3	8.5	3.7	4.8	3.0	1.6	3.5	4.0	1.6	3.0	4.0
Ecuador	25.4	2.3	8.4	5.2	3.6	4.5	5.1	2.7	3.6	3.2	3.0	3.0	3.7	3.0	3.0
El Salvador	3.1	4.6	7.3	0.5	1.2	5.1	1.7	0.8	1.1	–0.8	1.7	2.0	0.5	0.6	1.7
Grenada	1.9	3.9	8.0	–0.3	3.4	3.0	2.4	0.0	–0.9	–1.5	1.8	1.9	–0.7	–1.0	2.3
Guatemala	7.1	6.8	11.4	1.9	3.9	6.2	3.8	4.3	3.4	3.0	3.0	4.0	2.9	3.0	3.4
Guyana	5.4	12.2	8.1	3.0	4.3	4.4	2.4	2.2	1.0	1.2	2.6	3.9	1.2	1.2	3.9
Haiti	15.9	9.0	14.4	3.4	4.1	7.4	6.8	6.8	3.9	6.4	5.3	5.0	5.3	6.1	5.0
Honduras	10.3	6.9	11.4	5.5	4.7	6.8	5.2	5.2	6.1	4.1	5.1	5.4	5.8	4.7	5.2
Jamaica	9.3	9.2	22.0	9.6	12.6	7.5	6.9	9.4	7.1	5.9	7.1	6.0	4.7	7.0	7.2
Mexico	8.9	4.0	5.1	5.3	4.2	3.4	4.1	3.8	4.0	3.2	3.0	3.0	4.1	3.1	3.0
Nicaragua	8.8	11.1	19.8	3.7	5.5	8.1	7.2	7.1	6.0	5.4	7.0	7.0	6.5	6.0	7.0
Panama	1.2	4.2	8.8	2.4	3.5	5.9	5.7	4.0	2.6	0.9	2.0	2.0	1.0	2.4	2.0
Paraguay	8.7	8.1	10.2	2.6	4.7	8.3	3.7	2.7	5.0	3.6	4.5	4.5	4.2	4.5	4.5
Peru	3.4	1.8	5.8	2.9	1.5	3.4	3.7	2.8	3.2	2.5	2.0	2.0	3.2	2.2	2.0
St. Kitts and Nevis	3.8	4.5	5.3	2.1	0.6	7.1	1.4	0.7	1.0	2.0	2.0	2.0	2.0	2.0	2.0
St. Lucia	2.5	2.8	5.5	–0.2	3.3	2.8	4.2	1.5	2.5	2.4	2.4	2.4	1.7	3.1	3.1
St. Vincent and the Grenadines	1.5	7.0	10.1	0.4	0.8	3.2	2.6	0.8	0.2	0.2	0.9	1.8	0.6	0.1	1.6
Suriname	26.7	6.6	14.9	–0.4	6.8	17.7	5.0	1.9	3.4	1.9	2.6	3.2	3.9	2.1	3.0
Trinidad and Tobago	4.8	7.9	12.0	7.6	10.5	5.1	9.3	5.2	7.0	7.3	5.7	4.0	8.5	6.0	5.3
Uruguay	9.8	8.1	7.9	7.1	6.7	8.1	8.1	8.6	8.9	7.9	7.5	6.4	8.3	7.4	7.3
Venezuela	23.8	18.7	30.4	27.1	28.2	26.1	21.1	40.6	62.2	96.8	83.7	75.3	68.5	94.9	78.4
Middle East, North Africa, Afghanistan, and Pakistan	**5.5**	**10.2**	**11.7**	**7.1**	**6.5**	**9.2**	**9.8**	**9.1**	**6.7**	**6.1**	**6.2**	**5.6**	**6.4**	**6.0**	**6.3**
Afghanistan	. . .	8.7	26.4	–6.8	2.2	11.8	6.4	7.4	4.6	3.7	5.5	5.0	1.4	5.0	5.0
Algeria	3.1	3.7	4.9	5.7	3.9	4.5	8.9	3.3	2.9	4.0	4.0	4.0	5.3	4.0	4.0
Bahrain	0.9	3.3	3.5	2.8	2.0	–0.4	2.8	3.3	2.5	2.1	1.5	1.7	2.5	1.5	1.5
Djibouti	2.0	5.0	12.0	1.7	4.0	5.1	3.7	2.4	2.9	3.0	3.5	3.0	2.8	3.0	3.0
Egypt	4.4	11.0	11.7	16.2	11.7	11.1	8.6	6.9	10.1	10.3	10.5	6.3	8.2	11.0	10.7
Iran	14.8	18.4	25.3	10.8	12.4	21.5	30.5	34.7	15.5	16.5	17.0	17.0	16.0	17.0	17.0
Iraq	. . .	30.8	2.7	–2.2	2.4	5.6	6.1	1.9	2.2	3.0	3.0	3.0	1.6	3.0	3.0
Jordan	2.6	4.7	14.0	–0.7	4.8	4.2	4.5	4.8	2.9	1.2	2.5	2.0	1.7	2.3	2.5
Kuwait	1.8	5.5	6.3	4.6	4.5	4.9	3.2	2.7	2.9	3.3	3.6	4.0	2.9	3.3	3.6
Lebanon	2.1	4.1	10.8	1.2	4.0	5.0	6.6	4.8	1.9	1.1	2.8	2.9	–0.7	3.0	2.5
Libya	–1.0	6.2	10.4	2.4	2.5	15.9	6.1	2.6	2.8	2.2	4.4	2.5	3.7	0.9	7.4
Mauritania	6.2	7.3	7.5	2.1	6.3	5.7	4.9	4.1	3.5	4.5	4.6	5.1	4.0	3.7	4.2
Morocco	1.7	2.0	3.9	1.0	1.0	0.9	1.3	1.9	0.4	1.5	2.0	2.0	1.6	1.5	2.0
Oman	0.4	5.9	12.6	3.5	3.3	4.0	2.9	1.2	1.0	1.0	2.6	2.7	1.0	1.0	2.6
Pakistan	6.0	7.8	10.8	17.6	10.1	13.7	11.0	7.4	8.6	4.7	4.5	5.0	8.2	4.0	5.0
Qatar	4.0	13.6	15.2	–4.9	–2.4	1.9	1.9	3.1	3.0	1.8	2.7	2.3	2.9	1.8	2.7
Saudi Arabia	–0.2	5.0	6.1	4.1	3.8	3.7	2.9	3.5	2.7	2.0	2.5	2.9	2.4	2.0	2.5
Sudan[7]	12.8	8.0	14.3	11.3	13.0	18.1	35.5	36.5	36.9	19.0	10.5	5.2	25.7	12.4	8.6
Syria[8]	2.3	4.7	15.2	2.8	4.4	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Tunisia	2.5	3.0	4.3	3.7	3.3	3.5	5.1	5.8	4.9	5.0	4.1	4.0	4.8	4.4	4.0
United Arab Emirates	3.8	11.1	12.3	1.6	0.9	0.9	0.7	1.1	2.3	2.1	2.3	3.0	2.2	2.2	2.3
Yemen	10.3	7.9	19.0	3.7	11.2	19.5	9.9	11.0	8.2	8.1	7.5	6.0	10.0	8.0	7.0

Table A7. Emerging Market and Developing Economies: Consumer Prices[1] *(continued)*

(Annual percent change)

	Average									Projections			End of Period[2]	Projections	
	1997–2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2020	2014	2015	2016
Sub-Saharan Africa	**11.3**	**5.4**	**13.0**	**9.8**	**8.2**	**9.5**	**9.4**	**6.5**	**6.3**	**6.6**	**7.0**	**5.7**	**6.1**	**7.4**	**6.6**
Angola	114.5	12.2	12.5	13.7	14.5	13.5	10.3	8.8	7.3	8.4	8.5	6.5	7.5	9.0	8.0
Benin	3.2	1.3	7.4	0.9	2.2	2.7	6.7	1.0	–1.0	0.7	2.0	2.6	0.3	1.1	2.3
Botswana	8.3	7.1	12.6	8.1	6.9	8.5	7.5	5.8	3.9	3.7	3.8	3.9	3.7	3.6	3.9
Burkina Faso	2.4	–0.2	10.7	0.9	–0.6	2.8	3.8	0.5	–0.3	0.7	1.8	2.0	–0.1	1.6	1.8
Burundi	10.9	8.4	24.4	10.6	6.5	9.6	18.2	7.9	4.4	5.0	5.3	5.1	3.8	7.9	5.8
Cabo Verde	2.5	4.4	6.8	1.0	2.1	4.5	2.5	1.5	–0.2	1.5	2.5	2.5	–0.4	2.0	2.5
Cameroon	2.7	1.1	5.3	3.0	1.3	2.9	2.4	2.1	1.9	2.0	2.1	2.2	2.6	2.0	2.1
Central African Republic	1.9	0.9	9.3	3.5	1.5	1.2	5.5	7.0	15.0	5.2	6.3	2.4	10.5	9.5	3.6
Chad	2.6	–7.4	8.3	10.1	–2.1	1.9	7.7	0.2	1.7	3.2	2.9	3.0	3.7	2.0	3.0
Comoros	3.3	4.5	4.8	4.8	3.9	2.2	5.9	1.6	2.8	2.5	2.5	2.5	2.8	1.8	2.5
Democratic Republic of the Congo	97.3	16.7	18.0	46.2	23.5	15.5	2.1	0.8	1.0	2.4	3.5	3.5	1.2	3.5	3.5
Republic of Congo	3.4	2.6	6.0	4.3	5.0	1.8	5.0	4.6	0.9	3.0	2.9	2.5	0.5	3.0	2.6
Côte d'Ivoire	3.0	1.9	6.3	1.0	1.4	4.9	1.3	2.6	0.4	1.2	1.5	2.0	0.9	0.9	1.8
Equatorial Guinea	5.4	2.8	4.7	5.7	5.3	4.8	3.4	3.2	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Eritrea	14.7	9.3	19.9	33.0	12.7	13.3	12.3	12.3	12.3	12.3	12.3	12.3	12.3	12.3	12.3
Ethiopia	4.5	17.2	44.4	8.5	8.1	33.2	24.1	8.1	7.4	6.8	8.2	8.5	7.1	8.1	8.5
Gabon	0.8	–1.0	5.3	1.9	1.4	1.3	2.7	0.5	4.5	2.5	2.5	2.5	1.7	2.5	2.5
The Gambia	5.9	5.4	4.5	4.6	5.0	4.8	4.6	5.2	6.3	6.2	5.2	5.0	7.0	5.3	5.0
Ghana	19.3	10.7	16.5	13.1	6.7	7.7	7.1	11.7	15.5	12.2	10.2	7.4	17.0	12.0	8.6
Guinea	11.6	22.9	18.4	4.7	15.5	21.4	15.2	11.9	9.7	9.1	9.6	7.1	9.1	9.7	9.5
Guinea-Bissau	6.3	4.6	10.4	–1.6	1.1	5.1	2.1	0.8	–1.0	1.3	2.3	2.5	–0.1	2.0	2.5
Kenya	7.0	4.3	15.1	10.6	4.3	14.0	9.4	5.7	6.9	5.1	5.0	5.0	6.0	5.2	5.0
Lesotho	7.2	9.2	10.7	5.9	3.4	6.0	5.6	5.0	3.9	4.0	4.6	5.0	2.6	4.3	5.0
Liberia	. . .	11.4	17.5	7.4	7.3	8.5	6.8	7.6	9.9	7.9	7.8	6.4	7.7	8.0	7.5
Madagascar	9.4	10.3	9.3	9.0	9.2	9.5	5.7	5.8	6.1	7.6	6.9	5.5	6.0	7.9	6.5
Malawi	19.6	8.0	8.7	8.4	7.4	7.6	21.3	28.3	23.8	17.3	10.0	7.3	24.2	12.0	8.0
Mali	1.5	1.5	9.1	2.2	1.3	3.1	5.3	–0.6	0.9	2.2	1.9	2.6	1.2	1.3	2.6
Mauritius	5.9	8.8	9.7	2.5	2.9	6.5	3.9	3.5	3.0	1.7	3.0	3.0	0.2	3.0	3.0
Mozambique	9.5	8.2	10.3	3.3	12.7	10.4	2.1	4.2	2.3	5.0	5.6	5.6	1.1	5.5	5.6
Namibia	7.4	6.5	9.1	9.5	4.9	5.0	6.7	5.6	5.3	5.1	5.8	6.0	4.6	5.6	6.0
Niger	2.1	0.1	11.3	4.3	–2.8	2.9	0.5	2.3	–0.9	1.4	1.8	1.8	–0.6	2.4	1.5
Nigeria	11.8	5.4	11.6	12.5	13.7	10.8	12.2	8.5	8.1	9.6	10.7	7.0	7.9	12.0	9.5
Rwanda	6.2	9.1	15.4	10.3	2.0	5.7	6.3	4.2	1.8	2.9	4.4	5.0	2.1	3.7	5.0
São Tomé and Príncipe	20.4	18.6	32.0	17.0	13.3	14.3	10.6	8.1	7.0	5.6	4.6	3.0	6.4	5.2	4.0
Senegal	1.4	5.9	6.3	–2.2	1.2	3.4	1.4	0.7	–0.5	1.5	1.4	1.4	1.4	1.5	1.4
Seychelles	2.8	–8.6	37.0	31.7	–2.4	2.6	7.1	4.3	1.4	4.0	3.2	3.0	0.5	5.0	3.1
Sierra Leone	11.9	11.6	14.8	9.2	17.8	18.5	13.8	9.8	8.3	13.1	11.8	5.4	10.0	14.0	10.0
South Africa	5.6	7.1	11.5	7.1	4.3	5.0	5.7	5.8	6.1	4.5	5.6	5.5	5.3	5.0	5.5
South Sudan	. . .	. . .	. . .	. . .	. . .	. . .	45.1	0.0	–0.7	29.0	5.0	5.0	5.0	5.0	5.0
Swaziland	6.4	8.1	12.7	7.4	4.5	6.1	8.9	5.6	5.8	4.6	5.4	5.2	6.2	4.5	5.4
Tanzania	7.1	7.0	10.3	12.1	7.2	12.7	16.0	7.9	6.1	4.2	4.5	4.5	4.8	4.5	4.5
Togo	2.3	0.9	8.7	3.7	1.4	3.6	2.6	1.8	0.1	1.9	2.1	2.5	0.5	2.2	2.3
Uganda	4.7	6.1	12.0	13.1	4.0	18.7	14.0	4.8	4.7	4.9	4.8	5.0	5.0	4.8	4.8
Zambia	21.1	10.7	12.4	13.4	8.5	8.7	6.6	7.0	7.9	7.7	6.5	5.0	8.2	7.0	6.0
Zimbabwe[9]	. . .	–72.7	157.0	6.2	3.0	3.5	3.7	1.6	–0.2	–1.0	0.0	1.9	–0.8	–0.5	0.5

[1]Movements in consumer prices are shown as annual averages.

[2]Monthly year-over-year changes and, for several countries, on a quarterly basis.

[3]For many countries, inflation for the earlier years is measured on the basis of a retail price index. Consumer price index (CPI) inflation data with broader and more up-to-date coverage are typically used for more recent years.

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

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

[6]Consumer price data from December 2013 onwards 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 April 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 end-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 December 15, 2014, the Executive Board recognized the implementation of the specified actions it had called for by end-September 2014 and the steps taken by the Argentine authorities to remedy the inaccurate provision of data. The Executive Board will review this issue again as per the calendar specified in December 2013 and in line with the procedures set forth in the Fund's legal framework.

[7]Data for 2011 exclude South Sudan after July 9. Data for 2012 and onward pertain to the current Sudan.

[8]Data for Syria are excluded for 2011 onward owing the uncertain political situation.

[9]The Zimbabwean dollar ceased circulating in early 2009. Data are based on IMF staff estimates of price and exchange rate developments in U.S. dollars. IMF staff estimates of U.S. dollar values may differ from authorities' estimates.

Table A8. Major Advanced Economies: General Government Fiscal Balances and Debt[1]

(Percent of GDP unless noted otherwise)

	Average							Projections		
	1997–2006	2009	2010	2011	2012	2013	2014	2015	2016	2020
Major Advanced Economies										
Net Lending/Borrowing	–3.6	–10.2	–8.9	–7.6	–6.8	–5.0	–4.6	–3.8	–3.3	–2.6
Output Gap[2]	0.8	–4.7	–2.9	–2.5	–2.3	–2.2	–1.9	–1.2	–0.5	–0.1
Structural Balance[2]	–4.0	–6.5	–7.5	–6.5	–5.4	–4.2	–3.7	–3.3	–2.9	–2.6
United States										
Net Lending/Borrowing[3]	–3.4	–13.5	–11.3	–9.9	–8.6	–5.8	–5.3	–4.2	–3.9	–3.9
Output Gap[2]	1.6	–5.1	–3.9	–3.6	–2.9	–2.5	–2.0	–1.0	–0.1	0.0
Structural Balance[2]	–3.9	–7.9	–9.7	–8.3	–6.8	–5.2	–4.4	–3.8	–3.8	–3.9
Net Debt	41.3	62.1	69.5	76.1	79.2	79.5	79.7	80.4	80.7	82.1
Gross Debt	60.2	86.0	94.8	99.1	102.4	103.4	104.8	105.1	104.9	104.3
Euro Area[4]										
Net Lending/Borrowing	–2.1	–6.2	–6.1	–4.1	–3.6	–2.9	–2.7	–2.3	–1.7	–0.3
Output Gap[2]	0.0	–2.9	–1.5	–0.6	–1.9	–2.9	–2.8	–2.3	–1.7	–0.2
Structural Balance[2]	–2.3	–4.5	–4.5	–3.6	–2.1	–1.0	–0.9	–0.8	–0.6	0.0
Net Debt	48.9	52.8	56.4	58.5	66.7	69.0	69.8	69.8	69.2	63.0
Gross Debt	68.7	78.4	83.9	86.5	91.1	93.4	94.0	93.5	92.4	84.2
Germany										
Net Lending/Borrowing	–2.5	–3.0	–4.0	–0.8	0.1	0.1	0.6	0.3	0.4	0.6
Output Gap[2]	–0.4	–3.9	–1.0	1.2	0.5	–0.6	–0.3	0.0	0.4	0.5
Structural Balance[2]	–2.2	–0.7	–2.2	–1.1	0.0	0.5	0.7	0.3	0.2	0.3
Net Debt	44.8	55.0	56.8	55.0	54.3	52.7	49.7	46.9	44.7	37.1
Gross Debt	61.3	72.4	80.3	77.6	79.0	76.9	73.1	69.5	66.6	56.9
France										
Net Lending/Borrowing	–2.6	–7.2	–6.8	–5.1	–4.9	–4.1	–4.2	–3.9	–3.5	–0.4
Output Gap[2]	1.1	–3.1	–2.1	–0.9	–1.5	–2.2	–2.8	–2.8	–2.5	–0.5
Structural Balance[2]	–3.4	–5.3	–5.5	–4.5	–3.7	–2.6	–2.3	–2.0	–1.7	0.0
Net Debt	53.1	70.1	73.7	76.4	81.5	84.7	87.4	89.3	90.4	84.4
Gross Debt	61.9	78.8	81.5	85.0	89.2	92.4	95.1	97.0	98.1	92.1
Italy										
Net Lending/Borrowing	–3.0	–5.3	–4.2	–3.5	–3.0	–2.9	–3.0	–2.6	–1.7	0.3
Output Gap[2]	–0.7	–3.1	–1.3	–0.6	–2.9	–4.3	–4.6	–4.2	–3.5	–1.1
Structural Balance[2,5]	–3.4	–4.2	–3.7	–3.8	–1.5	–0.3	–0.9	–0.3	0.2	0.9
Net Debt	90.1	94.2	96.3	98.4	103.0	107.5	110.4	111.8	111.1	102.3
Gross Debt	105.0	112.5	115.3	116.4	123.2	128.6	132.1	133.8	132.9	122.4
Japan										
Net Lending/Borrowing	–6.0	–10.4	–9.3	–9.8	–8.8	–8.5	–7.7	–6.2	–5.0	–4.4
Output Gap[2]	–1.0	–7.1	–3.1	–3.8	–2.5	–1.2	–1.7	–1.0	–0.2	0.0
Structural Balance[2]	–5.7	–7.4	–7.8	–8.3	–7.8	–8.2	–7.2	–6.0	–4.9	–4.4
Net Debt	65.3	106.2	113.1	127.3	129.1	122.9	127.3	129.6	131.9	138.7
Gross Debt[6]	155.0	210.2	216.0	229.8	236.8	242.6	246.4	246.1	247.0	251.6
United Kingdom										
Net Lending/Borrowing	–1.5	–10.8	–9.7	–7.6	–7.8	–5.7	–5.7	–4.8	–3.1	–0.3
Output Gap[2]	1.5	–2.2	–1.9	–2.5	–3.0	–2.8	–1.8	–0.9	–0.5	0.0
Structural Balance[2]	–2.6	–9.9	–8.1	–5.8	–5.6	–3.6	–4.2	–4.0	–2.6	–0.5
Net Debt	36.2	58.8	69.1	73.4	77.1	78.7	81.0	82.6	83.1	74.7
Gross Debt	40.6	65.8	76.4	81.8	85.8	87.3	89.5	91.1	91.7	83.2
Canada										
Net Lending/Borrowing	1.1	–4.5	–4.9	–3.7	–3.1	–2.8	–1.8	–1.7	–1.3	–0.2
Output Gap[2]	1.0	–3.6	–2.2	–1.2	–1.3	–1.2	–0.6	–0.3	–0.2	–0.1
Structural Balance[2]	0.6	–2.4	–3.7	–3.0	–2.4	–2.2	–1.7	–1.5	–1.2	–0.2
Net Debt	46.0	29.9	32.9	34.6	36.4	37.1	37.3	38.3	37.9	34.3
Gross Debt	81.3	83.0	84.6	85.3	87.9	87.7	86.5	87.0	85.0	78.7

Note: The methodology and specific assumptions for each country are discussed in Box A1. The country group composites for fiscal data are calculated as the sum of the U.S. dollar values for the relevant individual countries.

[1]Debt data refer to the end of the year and are not always comparable across countries. Gross and net debt levels reported by national statistical agencies for countries that have adopted the System of National Accounts (SNA) 2008 (Australia, Canada, Hong Kong SAR, United States) are adjusted to exclude unfunded pension liabilities of government employees' defined-benefit pension plans. Fiscal data for the aggregated Major Advanced Economies and the United States start in 2001, and the average for the aggregate and the United States is therefore for the period 2001–07.

[2]Percent of potential GDP.

[3]Figures reported by the national statistical agency are adjusted to exclude items related to the accrual-basis accounting of government employees' defined-benefit pension plans.

[4]Excludes Lithuania.

[5]Excludes one-time measures based on the authorities' data and, in the absence of the latter, receipts from the sale of assets.

[6]Includes equity shares; nonconsolidated basis.

Table A9. Summary of World Trade Volumes and Prices

(Annual percent change)

	Averages										Projections	
	1997–2006	2007–16	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Trade in Goods and Services												
World Trade[1]												
Volume	6.8	3.7	8.3	3.0	–10.6	12.6	6.8	2.8	3.5	3.4	3.7	4.7
Price Deflator												
In U.S. Dollars	1.5	1.0	7.6	11.4	–10.2	5.7	11.0	–1.6	–0.7	–1.6	–10.2	1.3
In SDRs	1.4	1.4	3.4	7.9	–8.0	6.8	7.3	1.5	0.1	–1.6	–3.3	1.0
Volume of Trade												
Exports												
Advanced Economies	6.1	3.0	7.5	2.2	–11.8	12.3	6.3	2.0	3.1	3.3	3.2	4.1
Emerging Market and Developing Economies	8.3	5.0	9.7	4.4	–7.7	13.6	7.4	4.4	4.6	3.4	5.3	5.7
Imports												
Advanced Economies	6.6	2.3	5.7	0.5	–12.2	11.7	5.5	0.9	2.1	3.3	3.3	4.3
Emerging Market and Developing Economies	8.1	6.3	15.6	9.1	–7.9	14.1	9.8	6.0	5.5	3.7	3.5	5.5
Terms of Trade												
Advanced Economies	–0.2	–0.1	0.1	–2.3	2.8	–0.9	–1.7	–0.6	0.7	0.3	1.0	–0.4
Emerging Market and Developing Economies	1.6	0.2	1.9	3.7	–5.3	2.0	3.6	0.7	–0.3	–0.6	–3.7	0.1
Trade in Goods												
World Trade[1]												
Volume	7.0	3.4	7.7	2.5	–12.0	14.3	6.9	2.5	3.1	3.0	3.5	4.7
Price Deflator												
In U.S. Dollars	1.4	1.0	7.8	12.4	–11.3	6.5	12.5	–1.6	–1.1	–2.1	–11.0	1.4
In SDRs	1.2	1.4	3.7	8.8	–9.1	7.6	8.7	1.4	–0.3	–2.1	–4.2	1.2
World Trade Prices in U.S. Dollars[2]												
Manufactures	0.3	0.9	5.4	6.3	–6.4	2.6	6.1	0.6	–1.4	–0.8	–3.3	0.5
Oil	12.2	0.2	10.7	36.4	–36.3	27.9	31.6	1.0	–0.9	–7.5	–39.6	12.9
Nonfuel Primary Commodities	2.2	1.1	13.9	7.9	–15.8	26.5	17.9	–10.0	–1.2	–4.0	–14.1	–1.0
Food	–0.1	2.4	14.8	24.5	–14.8	11.9	19.9	–2.4	1.1	–4.2	–15.8	–2.6
Beverages	0.2	4.0	13.8	23.3	1.6	14.1	16.6	–18.6	–11.9	20.7	–9.7	–0.5
Agricultural Raw Materials	–0.6	1.9	5.0	–0.7	–17.1	33.2	22.7	–12.7	1.6	1.9	–6.8	1.7
Metal	8.9	–1.4	17.4	–7.8	–19.2	48.2	13.5	–16.8	–4.3	–10.3	–16.6	–0.4
World Trade Prices in SDRs[2]												
Manufactures	0.1	1.3	1.3	3.0	–4.0	3.7	2.5	3.7	–0.7	–0.8	4.2	0.3
Oil	12.0	0.6	6.4	32.1	–34.8	29.3	27.2	4.1	–0.1	–7.5	–35.0	12.7
Nonfuel Primary Commodities	2.1	1.5	9.5	4.5	–13.7	27.9	13.9	–7.3	–0.4	–4.0	–7.5	–1.2
Food	–0.2	2.8	10.3	20.5	–12.7	13.1	15.8	0.6	1.9	–4.2	–9.4	–2.8
Beverages	0.1	4.4	9.4	19.4	4.1	15.4	12.7	–16.1	–11.2	20.8	–2.8	–0.7
Agricultural Raw Materials	–0.8	2.3	0.9	–3.8	–15.1	34.6	18.6	–10.0	2.4	1.9	0.4	1.5
Metal	8.8	–1.0	12.8	–10.7	–17.2	49.8	9.7	–14.3	–3.5	–10.3	–10.2	–0.6
World Trade Prices in Euros[2]												
Manufactures	0.4	1.9	–3.4	–1.0	–1.1	7.7	1.1	8.9	–4.6	–0.9	13.6	0.4
Oil	12.3	1.2	1.4	27.1	–32.7	34.3	25.5	9.3	–4.1	–7.6	–29.1	12.8
Nonfuel Primary Commodities	2.3	2.2	4.3	0.5	–11.0	32.8	12.4	–2.6	–4.3	–4.1	0.8	–1.1
Food	0.0	3.4	5.1	15.9	–9.9	17.4	14.3	5.6	–2.1	–4.3	–1.2	–2.7
Beverages	0.3	5.0	4.2	14.8	7.3	19.8	11.2	–11.9	–14.7	20.7	6.0	–0.6
Agricultural Raw Materials	–0.5	3.0	–3.8	–7.5	–12.5	39.8	17.0	–5.5	–1.6	1.8	9.4	1.6
Metal	9.1	–0.3	7.5	–14.1	–14.6	55.5	8.3	–10.0	–7.3	–10.3	–2.1	–0.5

Table A9. Summary of World Trade Volumes and Prices *(continued)*

(Annual percent change)

	Averages										Projections	
	1997–2006	2007–16	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Trade in Goods												
Volume of Trade												
Exports												
Advanced Economies	6.1	2.7	6.6	1.4	–13.7	14.8	6.2	1.4	2.6	2.9	3.1	4.0
Emerging Market and Developing Economies	8.6	4.9	9.2	3.9	–8.2	14.4	7.5	4.9	4.5	3.5	4.9	5.7
Fuel Exporters	5.1	2.3	4.6	3.5	–7.4	4.5	5.5	5.4	1.4	0.2	2.9	3.4
Nonfuel Exporters	10.0	5.9	11.3	4.1	–8.6	18.5	8.4	4.6	5.9	5.0	5.7	6.4
Imports												
Advanced Economies	6.8	2.0	5.1	0.1	–13.7	13.5	5.4	0.1	1.7	2.5	3.0	4.2
Emerging Market and Developing Economies	8.4	6.2	15.3	9.0	–9.3	14.9	10.4	6.0	4.9	3.6	3.7	5.4
Fuel Exporters	8.6	5.5	23.4	14.3	–12.0	7.2	8.9	10.5	5.7	2.0	–5.7	5.1
Nonfuel Exporters	8.4	6.3	13.4	7.6	–8.6	16.9	10.8	4.9	4.8	4.0	5.9	5.4
Price Deflators in SDRs												
Exports												
Advanced Economies	0.5	0.9	3.1	5.9	–6.4	4.2	6.2	0.4	0.5	–1.4	–3.1	0.6
Emerging Market and Developing Economies	4.0	2.4	6.0	14.9	–13.4	13.7	12.8	2.6	–0.9	–3.1	–6.8	2.0
Fuel Exporters	8.6	1.7	7.6	25.2	–25.5	23.3	23.6	3.4	–1.8	–6.2	–23.6	6.4
Nonfuel Exporters	2.1	2.5	5.2	10.1	–7.2	9.6	8.3	2.2	–0.5	–1.7	0.0	0.6
Imports												
Advanced Economies	0.7	1.1	3.0	8.2	–9.7	5.9	8.7	1.3	–0.3	–1.4	–4.1	1.0
Emerging Market and Developing Economies	2.2	2.0	4.1	9.8	–8.4	11.2	8.6	2.1	–0.8	–3.2	–2.9	1.5
Fuel Exporters	1.6	2.1	4.0	8.2	–5.9	8.4	7.4	2.0	–1.0	–2.2	1.0	0.4
Nonfuel Exporters	2.4	2.0	4.1	10.2	–9.1	11.9	8.9	2.1	–0.8	–3.5	–3.9	1.7
Terms of Trade												
Advanced Economies	–0.2	–0.2	0.1	–2.1	3.6	–1.6	–2.3	–0.9	0.8	0.1	1.0	–0.4
Emerging Market and Developing Economies	1.7	0.4	1.8	4.6	–5.5	2.2	3.8	0.5	–0.1	0.2	–4.0	0.5
Regional Groups												
Commonwealth of Independent States[3]	5.4	0.1	1.9	16.3	–17.9	13.2	11.5	0.7	–0.9	–2.7	–19.5	4.8
Emerging and Developing Asia	–1.5	0.5	0.4	–1.2	3.1	–6.1	–2.3	1.2	1.1	3.8	6.6	–1.0
Emerging and Developing Europe	–0.4	0.2	2.6	–0.6	3.0	–3.6	–2.1	–1.0	1.6	1.1	2.3	–1.5
Latin America and the Caribbean	2.5	0.4	3.1	4.8	–4.8	8.6	5.6	–1.0	–1.8	–2.4	–6.5	–0.7
Middle East, North Africa, Afghanistan, and Pakistan	6.1	–0.5	2.8	12.2	–17.9	9.8	14.2	0.2	–0.6	–3.7	–20.7	5.3
Middle East and North Africa	6.4	–0.5	2.8	12.9	–18.3	9.7	14.5	0.8	–0.7	–3.7	–21.2	5.1
Sub-Saharan Africa	. . .	0.0	4.8	9.1	–12.7	13.1	10.5	–1.5	–2.6	–4.2	–14.1	2.1
Analytical Groups												
By Source of Export Earnings												
Fuel Exporters	6.9	–0.4	3.5	15.7	–20.8	13.7	15.1	1.4	–0.8	–4.1	–24.3	6.0
Nonfuel Exporters	–0.2	0.5	1.1	–0.1	2.1	–2.1	–0.6	0.0	0.2	1.9	4.0	–1.1
Memorandum												
World Exports in Billions of U.S. Dollars												
Goods and Services	9,151	20,724	17,103	19,587	15,711	18,700	22,162	22,436	23,117	23,476	21,818	23,129
Goods	7,318	16,612	13,707	15,789	12,327	15,009	18,012	18,192	18,632	18,817	17,285	18,352
Average Oil Price[4]	12.2	0.2	10.7	36.4	–36.3	27.9	31.6	1.0	–0.9	–7.5	–39.6	12.9
In U.S. Dollars a Barrel	31.21	84.21	71.13	97.04	61.78	79.03	104.01	105.01	104.07	96.25	58.14	65.65
Export Unit Value of Manufactures[5]	0.3	0.9	5.4	6.3	–6.4	2.6	6.1	0.6	–1.4	–0.8	–3.3	0.5

[1]Average of annual percent change for world exports and imports.
[2]As represented, respectively, by the export unit value index for manufactures of the advanced economies and accounting for 83 percent of the advanced economies' trade (export of goods) weights; the average of U.K. Brent, Dubai Fateh, and West Texas Intermediate crude oil prices; and the average of world market prices for nonfuel primary commodities weighted by their 2002–04 shares in world commodity exports.
[3]Georgia, Turkmenistan, and Ukraine, which are not members of the Commonwealth of Independent States, are included in this group for reasons of geography and similarity in economic structure.
[4]Percent change of average of U.K. Brent, Dubai Fateh, and West Texas Intermediate crude oil prices.
[5]Percent change for manufactures exported by the advanced economies.

Table A10. Summary of Current Account Balances

(Billions of U.S. dollars)

	2007	2008	2009	2010	2011	2012	2013	2014	Projections 2015	2016	2020
Advanced Economies	**–354.7**	**–574.6**	**–85.7**	**–6.0**	**–63.5**	**–28.4**	**157.6**	**169.9**	**260.1**	**177.6**	**76.1**
United States	–718.6	–686.6	–380.8	–443.9	–459.3	–460.8	–400.3	–410.6	–410.2	–454.6	–592.3
Euro Area[1]	5.1	–233.2	–30.3	–3.7	–9.6	194.2	284.3	313.0	388.3	371.1	347.3
Germany	237.3	217.5	199.4	194.6	228.1	252.3	251.3	287.5	286.8	276.9	276.5
France	–25.9	–27.6	–22.5	–22.2	–29.6	–41.4	–40.2	–29.9	–2.7	–7.7	–7.7
Italy	–31.3	–68.1	–42.3	–73.9	–70.1	–8.9	20.5	38.9	48.4	47.0	12.4
Spain	–142.9	–152.0	–64.3	–56.2	–47.4	–3.8	20.0	1.6	3.3	4.8	16.6
Japan	212.1	142.6	145.3	217.6	126.5	58.7	33.6	24.3	81.6	85.2	114.2
United Kingdom	–81.3	–104.6	–64.8	–62.7	–43.4	–98.2	–119.9	–162.2	–135.6	–136.9	–122.8
Canada	11.4	1.8	–40.0	–56.7	–47.7	–60.0	–54.6	–39.4	–42.0	–39.1	–36.4
Other Advanced Economies[2]	181.4	155.8	199.5	267.9	248.3	261.9	338.4	330.9	313.8	285.9	288.2
Emerging Market and Developing Economies	**623.1**	**684.0**	**247.1**	**315.7**	**413.1**	**383.3**	**217.0**	**197.0**	**40.1**	**125.4**	**141.9**
Regional Groups											
Commonwealth of Independent States[3]	65.3	108.2	42.8	69.1	107.9	67.0	16.3	54.7	43.6	72.8	89.7
Russia	71.3	103.9	50.4	67.5	97.3	71.3	34.1	57.4	63.3	86.1	89.0
Excluding Russia	–6.0	4.3	–7.6	1.7	10.6	–4.2	–17.8	–2.7	–19.7	–13.2	0.7
Emerging and Developing Asia	395.8	425.7	274.6	234.7	99.2	122.2	142.5	195.3	338.1	340.9	370.0
China	353.2	420.6	243.3	237.8	136.1	215.4	182.8	209.8	356.3	380.2	484.1
India	–15.7	–27.9	–38.2	–48.1	–78.2	–88.2	–32.4	–29.5	–29.4	–39.8	–89.6
ASEAN-5[4]	53.3	31.1	65.8	45.3	49.9	8.0	2.0	25.8	23.7	14.6	–6.6
Emerging and Developing Europe	–124.7	–148.2	–53.5	–86.8	–119.5	–81.2	–72.5	–54.4	–42.4	–55.3	–90.6
Latin America and the Caribbean	5.8	–39.3	–30.4	–65.3	–82.1	–107.4	–163.7	–164.8	–167.3	–162.8	–180.5
Brazil	1.6	–28.2	–24.3	–47.3	–52.5	–54.2	–81.2	–91.3	–69.7	–66.3	–76.0
Mexico	–14.7	–20.2	–8.3	–4.9	–13.3	–15.9	–29.7	–26.5	–26.6	–28.1	–38.1
Middle East, North Africa, Afghanistan, and Pakistan	266.8	336.1	41.4	171.6	417.2	411.4	334.0	221.5	–60.9	–2.3	44.5
Sub-Saharan Africa	14.1	1.5	–27.9	–7.7	–9.7	–28.7	–39.7	–55.2	–71.1	–67.9	–91.2
South Africa	–16.1	–15.9	–8.1	–5.6	–9.0	–19.7	–21.1	–19.1	–14.8	–15.7	–17.1
Analytical Groups											
By Source of Export Earnings											
Fuel	420.3	581.8	135.7	311.2	624.9	591.8	450.9	332.0	–9.5	98.0	183.8
Nonfuel	202.8	102.2	111.3	4.5	–211.8	–208.5	–234.0	–135.0	49.6	27.4	–41.9
Of Which, Primary Products	–2.4	–21.2	–4.9	–10.3	–24.3	–57.1	–64.2	–47.9	–45.3	–51.6	–62.5
By External Financing Source											
Net Debtor Economies	–172.9	–323.7	–152.4	–243.2	–345.9	–434.6	–428.2	–362.4	–335.0	–374.5	–542.1
Net Debtor Economies by Debt-Servicing Experience											
Economies with Arrears and/or Rescheduling during 2009–13	–1.0	–2.8	–13.2	–13.1	–12.3	–25.7	–25.8	–19.3	–28.9	–33.7	–50.8
Memorandum											
World	**268.4**	**109.5**	**161.4**	**309.7**	**349.6**	**354.9**	**374.5**	**366.9**	**300.2**	**303.0**	**217.9**
European Union	–82.3	–234.0	–11.1	14.3	85.7	198.4	305.2	321.5	365.0	341.0	321.3
Low-Income Developing Countries	5.7	–10.5	–24.5	–17.6	–27.1	–39.4	–43.9	–47.4	–56.6	–56.5	–94.4
Middle East and North Africa	270.6	349.7	49.1	174.3	415.9	414.8	335.0	223.4	–58.0	1.5	54.3

Table A10. Summary of Current Account Balances *(continued)*

(Percent of GDP)

	2007	2008	2009	2010	2011	2012	2013	2014	Projections 2015	2016	2020
Advanced Economies	**–0.9**	**–1.3**	**–0.2**	**0.0**	**–0.1**	**–0.1**	**0.3**	**0.4**	**0.6**	**0.4**	**0.1**
United States	–5.0	–4.7	–2.6	–3.0	–3.0	–2.9	–2.4	–2.4	–2.3	–2.4	–2.6
Euro Area[1]	0.0	–1.7	–0.2	0.0	–0.1	1.5	2.2	2.3	3.3	3.1	2.5
Germany	6.9	5.8	5.8	5.7	6.1	7.1	6.7	7.5	8.4	7.9	6.7
France	–1.0	–0.9	–0.8	–0.8	–1.0	–1.5	–1.4	–1.1	–0.1	–0.3	–0.3
Italy	–1.4	–2.8	–1.9	–3.5	–3.1	–0.4	1.0	1.8	2.6	2.5	0.6
Spain	–9.6	–9.3	–4.3	–3.9	–3.2	–0.3	1.4	0.1	0.3	0.4	1.1
Japan	4.9	2.9	2.9	4.0	2.1	1.0	0.7	0.5	1.9	2.0	2.3
United Kingdom	–2.7	–3.7	–2.8	–2.6	–1.7	–3.7	–4.5	–5.5	–4.8	–4.6	–3.3
Canada	0.8	0.1	–2.9	–3.5	–2.7	–3.3	–3.0	–2.2	–2.6	–2.3	–1.8
Other Advanced Economies[2]	3.5	2.9	4.0	4.7	3.8	4.0	5.0	4.8	4.9	4.3	3.5
Emerging Market and Developing Economies	**3.8**	**3.5**	**1.3**	**1.4**	**1.6**	**1.4**	**0.7**	**0.7**	**0.1**	**0.4**	**0.3**
Regional Groups											
Commonwealth of Independent States[3]	3.8	5.0	2.6	3.4	4.3	2.5	0.6	2.2	2.5	3.7	3.1
Russia	5.5	6.3	4.1	4.4	5.1	3.5	1.6	3.1	5.4	6.3	4.3
Excluding Russia	–1.5	0.8	–1.8	0.3	1.8	–0.7	–2.5	–0.4	–3.5	–2.2	0.1
Emerging and Developing Asia	6.5	5.8	3.4	2.4	0.9	1.0	1.0	1.3	2.1	2.0	1.6
China	10.1	9.2	4.8	4.0	1.9	2.6	1.9	2.0	3.2	3.2	3.0
India	–1.3	–2.3	–2.8	–2.8	–4.2	–4.8	–1.7	–1.4	–1.3	–1.6	–2.5
ASEAN-5[4]	4.7	2.3	5.0	2.8	2.6	0.4	0.1	1.3	1.1	0.6	–0.2
Emerging and Developing Europe	–7.9	–8.0	–3.4	–5.1	–6.5	–4.6	–3.8	–2.9	–2.4	–3.0	–3.8
Latin America and the Caribbean	0.2	–0.9	–0.7	–1.3	–1.4	–1.8	–2.8	–2.8	–3.2	–3.0	–2.7
Brazil	0.1	–1.7	–1.5	–2.1	–2.0	–2.2	–3.4	–3.9	–3.7	–3.4	–3.2
Mexico	–1.4	–1.8	–0.9	–0.5	–1.1	–1.3	–2.4	–2.1	–2.2	–2.2	–2.3
Middle East, North Africa, Afghanistan, and Pakistan	12.6	12.8	1.8	6.2	13.0	12.3	9.8	6.4	–1.9	–0.1	1.0
Sub-Saharan Africa	1.5	0.1	–2.7	–0.6	–0.7	–1.9	–2.5	–3.3	–4.6	–4.1	–4.2
South Africa	–5.4	–5.5	–2.7	–1.5	–2.2	–5.0	–5.8	–5.4	–4.6	–4.7	–4.2
Analytical Groups											
By Source of Export Earnings											
Fuel	10.7	11.7	3.3	6.3	10.4	9.3	7.0	5.3	–0.2	1.8	2.4
Nonfuel	1.6	0.7	0.8	0.0	–1.0	–1.0	–1.0	–0.6	0.2	0.1	–0.1
Of Which, Primary Products	–0.2	–1.9	–0.4	–0.8	–1.5	–3.5	–3.8	–3.0	–2.8	–3.1	–3.1
By External Financing Source											
Net Debtor Economies	–2.0	–3.2	–1.6	–2.1	–2.7	–3.3	–3.2	–2.6	–2.5	–2.6	–2.9
Net Debtor Economies by Debt-Servicing Experience											
Economies with Arrears and/or Rescheduling during 2009–13	–0.3	–0.8	–3.4	–3.0	–2.5	–4.9	–4.7	–3.3	–4.6	–5.0	–5.4
Memorandum											
World	**0.5**	**0.2**	**0.3**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.4**	**0.4**	**0.2**
European Union	–0.5	–1.2	–0.1	0.1	0.5	1.1	1.7	1.7	2.2	2.0	1.6
Low-Income Developing Countries	0.6	–0.9	–2.2	–1.3	–1.8	–2.4	–2.5	–2.5	–2.9	–2.7	–3.3
Middle East and North Africa	13.8	14.3	2.2	6.8	14.0	13.4	10.7	7.0	–2.0	0.0	1.3

Table A10. Summary of Current Account Balances *(continued)*

(Percent of exports of goods and services)

	2007	2008	2009	2010	2011	2012	2013	2014	Projections 2015	2016	2020
Advanced Economies	**–3.1**	**–4.5**	**–0.8**	**–0.1**	**–0.5**	**–0.2**	**1.1**	**1.2**	**1.9**	**1.2**	**0.4**
United States	–43.5	–37.3	–24.1	–23.9	–21.6	–20.8	–17.6	–17.5	–17.6	–18.9	–20.7
Euro Area[1]	0.2	–7.7	–1.2	–0.1	–0.3	6.1	8.4	9.0	. . .	. . .	. . .
Germany	16.0	13.3	15.4	13.5	13.6	15.6	14.8	16.3	17.6	16.1	12.7
France	–3.7	–3.3	–3.4	–3.1	–3.6	–5.2	–4.8	–3.5	–0.3	–0.9	–0.7
Italy	–5.2	–10.5	–8.6	–13.8	–11.4	–1.5	3.3	6.2	8.7	8.1	1.8
Spain	–37.5	–36.5	–18.9	–15.3	–11.0	–0.9	4.6	0.4	0.8	1.1	2.9
Japan	26.4	16.0	21.7	25.1	13.6	6.4	4.1	2.8	10.2	10.2	11.8
United Kingdom	–10.7	–13.4	–10.3	–9.1	–5.4	–12.4	–14.9	–19.4	–17.1	–16.3	–11.3
Canada	2.3	0.3	–10.3	–12.1	–8.7	–10.8	–9.8	–7.0	–8.6	–7.5	–5.4
Other Advanced Economies[2]	6.4	4.8	7.5	8.2	6.4	6.7	8.4	8.2	8.4	7.3	6.0
Emerging Market and Developing Economies	**11.3**	**10.1**	**4.7**	**4.7**	**5.0**	**4.4**	**2.4**	**2.2**	**0.5**	**1.4**	**1.2**
Regional Groups											
Commonwealth of Independent States[3]	11.2	13.7	8.2	10.3	12.2	7.4	1.8	6.5	6.8	10.5	10.3
Russia	18.3	19.9	14.7	15.3	17.0	12.1	5.8	10.2	15.0	18.8	15.8
Excluding Russia	–3.1	1.6	–4.2	0.7	3.4	–1.3	–5.8	–1.0	–9.0	–5.6	0.2
Emerging and Developing Asia	18.1	16.6	12.4	8.2	2.9	3.3	3.7	4.8	8.2	7.7	6.2
China	28.1	28.2	19.3	14.4	6.8	9.8	7.7	8.5	14.1	14.0	13.4
India	–6.1	–9.5	–13.7	–12.6	–17.3	–19.5	–6.9	–6.1	–6.0	–7.4	–11.6
ASEAN-5[4]	8.7	4.4	10.9	6.0	5.5	0.8	0.2	2.7	2.4	1.4	–0.5
Emerging and Developing Europe	–23.3	–22.7	–10.2	–14.8	–17.2	–11.7	–9.7	–6.9	–5.5	–6.8	–8.7
Latin America and the Caribbean	0.7	–3.9	–3.9	–6.5	–6.7	–8.6	–13.1	–13.4	–15.0	–13.6	–11.3
Brazil	0.8	–12.4	–13.5	–20.4	–18.0	–19.4	–29.2	–34.7	–28.2	–25.2	–23.1
Mexico	–5.1	–6.5	–3.4	–1.6	–3.6	–4.1	–7.4	–6.3	–6.4	–6.2	–5.8
Middle East, North Africa, Afghanistan, and Pakistan	26.0	25.2	4.3	14.5	27.2	25.1	20.4	14.2	–4.9	–0.2	2.4
Sub-Saharan Africa	4.4	0.4	–9.4	–2.0	–2.0	–6.0	–8.3	–12.0	–18.2	–15.8	–16.5
South Africa	–17.3	–15.5	–9.8	–5.2	–7.1	–16.7	–18.6	–17.4	–13.9	–14.3	–13.1
Analytical Groups											
By Source of Export Earnings											
Fuel	25.8	26.9	9.2	16.7	25.0	22.4	17.2	13.4	–0.5	4.8	6.9
Nonfuel	5.2	2.2	2.9	0.1	–3.7	–3.5	–3.7	–2.1	0.8	0.4	–0.5
Of Which, Primary Products	–0.8	–6.0	–1.7	–2.7	–5.5	–13.6	–15.3	–11.8	–11.8	–12.8	–12.2
By External Financing Source											
Net Debtor Economies	–6.4	–10.2	–5.8	–7.5	–9.0	–11.1	–10.7	–8.9	–8.5	–8.8	–9.6
Net Debtor Economies by Debt-Servicing Experience											
Economies with Arrears and/or Rescheduling during 2009–13	–1.0	–2.3	–12.9	–11.3	–9.5	–21.1	–19.6	–14.7	–23.9	–26.0	–26.9
Memorandum											
World	**1.6**	**0.6**	**1.0**	**1.7**	**1.6**	**1.6**	**1.6**	**1.6**	**1.4**	**1.3**	**0.7**
European Union	–1.2	–3.2	–0.2	0.2	1.1	2.7	4.0	4.0	5.0	4.4	3.3
Low-Income Developing Countries	2.0	–2.9	–8.2	–4.6	–5.6	–7.9	–8.3	–8.6	–10.6	–9.6	–11.8
Middle East and North Africa	26.9	26.7	5.2	15.1	27.7	25.8	20.9	14.7	–4.8	0.1	3.0

[1]Excludes Lithuania.
[2]Excludes the United States, euro area countries, and Japan but includes Lithuania.
[3]Georgia, Turkmenistan, and Ukraine, which are not members of the Commonwealth of Independent States, are included in this group for reasons of geography and similarity in economic structure.
[4]Indonesia, Malaysia, Philippines, Thailand, Vietnam.

Table A11. Advanced Economies: Balance on Current Account

(Percent of GDP)

	2007	2008	2009	2010	2011	2012	2013	2014	Projections 2015	2016	2020
Advanced Economies	**–0.9**	**–1.3**	**–0.2**	**0.0**	**–0.1**	**–0.1**	**0.3**	**0.4**	**0.6**	**0.4**	**0.1**
United States	–5.0	–4.7	–2.6	–3.0	–3.0	–2.9	–2.4	–2.4	–2.3	–2.4	–2.6
Euro Area[1]	0.0	–1.7	–0.2	0.0	–0.1	1.5	2.2	2.3	3.3	3.1	2.5
Germany	6.9	5.8	5.8	5.7	6.1	7.1	6.7	7.5	8.4	7.9	6.7
France	–1.0	–0.9	–0.8	–0.8	–1.0	–1.5	–1.4	–1.1	–0.1	–0.3	–0.3
Italy	–1.4	–2.8	–1.9	–3.5	–3.1	–0.4	1.0	1.8	2.6	2.5	0.6
Spain	–9.6	–9.3	–4.3	–3.9	–3.2	–0.3	1.4	0.1	0.3	0.4	1.1
Netherlands	6.3	4.1	4.8	6.9	8.4	8.9	10.2	10.3	10.4	10.1	9.1
Belgium	4.3	–1.0	–1.1	1.8	–1.1	–0.7	–0.2	1.6	2.3	2.4	2.2
Austria	3.4	4.7	2.6	3.4	1.5	2.3	1.0	1.8	1.9	1.8	1.7
Greece	–14.0	–14.5	–10.9	–10.1	–9.9	–2.5	0.6	0.9	1.4	1.1	0.9
Portugal	–9.7	–12.1	–10.4	–10.1	–6.0	–2.1	1.4	0.6	1.4	1.0	0.1
Ireland	–5.4	–5.7	–3.0	0.6	0.8	1.6	4.4	6.2	4.9	4.8	4.8
Finland	5.2	3.1	2.7	2.4	–0.6	–1.2	–0.9	–0.6	–0.3	–0.3	0.0
Slovak Republic	–4.8	–6.5	–3.5	–4.7	–5.0	0.9	1.5	0.2	0.4	0.4	2.2
Lithuania	–14.9	–13.0	2.1	–0.3	–3.8	–1.2	1.6	–0.4	0.2	–0.8	–2.3
Slovenia	–4.2	–5.4	–0.6	–0.1	0.2	2.7	5.6	5.8	7.1	6.5	4.5
Luxembourg	10.1	7.4	7.6	7.0	5.8	5.7	4.9	5.2	4.7	4.6	4.2
Latvia	–20.8	–12.4	8.0	2.3	–2.8	–3.3	–2.3	–3.1	–2.2	–3.0	–2.4
Estonia	–15.0	–8.7	2.5	1.8	1.4	–2.5	–1.1	–0.1	–0.4	–0.7	–0.8
Cyprus	–10.8	–14.3	–9.8	–9.0	–3.1	–6.3	–1.7	–1.9	–1.9	–1.4	–1.1
Malta	–3.9	–4.9	–4.8	–5.9	5.0	3.6	3.2	2.7	3.1	3.1	3.4
Japan	4.9	2.9	2.9	4.0	2.1	1.0	0.7	0.5	1.9	2.0	2.3
United Kingdom	–2.7	–3.7	–2.8	–2.6	–1.7	–3.7	–4.5	–5.5	–4.8	–4.6	–3.3
Korea	1.1	0.3	3.7	2.6	1.6	4.2	6.2	6.3	7.1	5.2	3.6
Canada	0.8	0.1	–2.9	–3.5	–2.7	–3.3	–3.0	–2.2	–2.6	–2.3	–1.8
Australia	–6.7	–4.9	–4.6	–3.6	–2.9	–4.3	–3.3	–2.8	–4.0	–3.7	–3.4
Taiwan Province of China	8.6	6.6	10.9	8.9	8.2	9.9	10.8	12.3	12.4	11.7	9.9
Switzerland	10.0	2.2	7.1	14.0	6.8	9.9	10.7	7.0	5.8	5.5	5.3
Sweden	8.9	8.5	5.9	6.0	6.9	6.6	7.3	6.3	6.3	6.3	5.6
Singapore	26.0	14.4	16.8	23.7	22.0	17.2	17.9	19.1	20.7	18.8	14.5
Hong Kong SAR	13.0	15.0	9.9	7.0	5.6	1.6	1.5	1.6	2.0	2.2	3.1
Norway	12.2	15.7	10.6	10.9	12.4	12.4	10.0	8.5	7.6	7.0	4.8
Czech Republic	–4.3	–1.9	–2.4	–3.7	–2.1	–1.6	–0.5	0.6	1.6	0.9	–0.7
Israel	3.1	1.5	3.9	3.4	1.5	0.8	2.4	3.0	4.5	4.4	3.8
Denmark	1.4	2.7	3.3	5.7	5.7	5.6	7.2	6.3	6.1	5.5	4.4
New Zealand	–6.8	–7.7	–2.3	–2.3	–2.8	–4.0	–3.2	–3.5	–4.8	–5.2	–4.6
Iceland	–13.7	–22.8	–9.9	–6.4	–5.2	–4.2	5.5	4.7	6.1	4.7	2.4
San Marino	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Memorandum											
Major Advanced Economies	–1.3	–1.6	–0.7	–0.8	–0.9	–1.0	–0.9	–0.8	–0.5	–0.6	–0.8
Euro Area[2]	0.3	–0.6	0.4	0.6	0.8	2.1	2.7	3.2	3.9	3.6	3.0

[1]Excludes Lithuania; corrected for reporting discrepancies in intra-area transactions.
[2]Excludes Lithuania; calculated as the sum of the balances of individual euro area countries.

Table A12. Emerging Market and Developing Economies: Balance on Current Account

(Percent of GDP)

	2007	2008	2009	2010	2011	2012	2013	2014	Projections 2015	Projections 2016	Projections 2020
Commonwealth of Independent States[1]	**3.8**	**5.0**	**2.6**	**3.4**	**4.3**	**2.5**	**0.6**	**2.2**	**2.5**	**3.7**	**3.1**
Russia	5.5	6.3	4.1	4.4	5.1	3.5	1.6	3.1	5.4	6.3	4.3
Excluding Russia	–1.5	0.8	–1.8	0.3	1.8	–0.7	–2.5	–0.4	–3.5	–2.2	0.1
Armenia	–8.5	–15.0	–17.6	–14.2	–11.1	–11.1	–8.0	–9.2	–8.6	–8.6	–7.3
Azerbaijan	27.3	35.5	23.0	28.0	26.5	21.8	17.0	15.3	5.3	8.2	11.1
Belarus	–6.7	–8.2	–12.6	–15.0	–8.5	–2.9	–10.5	–6.1	–7.0	–4.2	–4.0
Georgia	–19.8	–22.0	–10.5	–10.2	–12.8	–11.7	–5.7	–9.6	–11.5	–12.0	–6.6
Kazakhstan	–8.0	4.7	–3.6	0.9	5.4	0.5	0.5	1.6	–4.1	–3.1	–0.4
Kyrgyz Republic	–6.0	–15.3	–2.2	–6.1	–9.6	–15.6	–15.0	–13.7	–17.0	–15.2	–8.8
Moldova	–15.2	–16.1	–8.2	–7.5	–11.0	–7.4	–5.0	–5.5	–4.5	–5.4	–4.2
Tajikistan	–8.6	–7.6	–5.9	–1.2	–4.8	–2.5	–2.9	–9.1	–7.1	–5.8	–3.4
Turkmenistan	15.5	16.5	–14.7	–10.6	2.0	0.0	–7.3	–5.9	–11.1	–6.7	3.1
Ukraine[2]	–3.5	–6.8	–1.4	–2.2	–6.3	–8.1	–9.2	–4.0	–1.4	–1.3	–2.3
Uzbekistan	7.3	8.7	2.2	6.2	5.8	1.2	–1.7	0.1	0.2	0.2	0.2
Emerging and Developing Asia	**6.5**	**5.8**	**3.4**	**2.4**	**0.9**	**1.0**	**1.0**	**1.3**	**2.1**	**2.0**	**1.6**
Bangladesh	0.7	1.2	2.4	0.4	–1.0	0.7	1.2	–0.1	–0.6	–0.4	–1.2
Bhutan	14.6	–2.2	–2.0	–10.3	–23.7	–17.6	–22.1	–21.9	–26.3	–24.6	–6.4
Brunei Darussalam	47.8	48.9	40.3	45.5	36.4	34.1	34.5	23.6	–9.8	–5.6	12.4
Cambodia	–1.9	–6.6	–6.9	–6.8	–10.2	–11.0	–12.2	–12.0	–10.0	–9.3	–5.3
China	10.1	9.2	4.8	4.0	1.9	2.6	1.9	2.0	3.2	3.2	3.0
Fiji	–10.4	–15.9	–4.2	–4.5	–5.3	–1.8	–20.7	–8.8	–8.0	–8.2	–8.1
India	–1.3	–2.3	–2.8	–2.8	–4.2	–4.8	–1.7	–1.4	–1.3	–1.6	–2.5
Indonesia	1.4	0.0	1.8	0.7	0.2	–2.7	–3.2	–3.0	–3.0	–2.9	–2.6
Kiribati	–18.3	–19.3	–22.5	–16.3	–31.0	–24.5	–21.8	4.1	–24.3	–26.5	–12.8
Lao P.D.R.	–13.6	–19.2	–22.2	–20.0	–17.3	–30.2	–28.9	–24.9	–20.1	–16.3	–14.9
Malaysia	15.4	17.1	15.5	10.9	11.6	5.8	4.0	4.6	2.1	1.4	1.4
Maldives	–15.2	–28.8	–10.4	–8.1	–18.1	–10.6	–6.5	–8.4	–4.6	–5.9	–4.6
Marshall Islands	–0.9	0.9	–14.9	–26.6	–5.3	–8.7	–13.4	–20.9	–1.3	–3.8	–10.0
Micronesia	–9.5	–16.6	–18.9	–15.1	–17.9	–12.6	–10.1	2.5	–0.7	–0.8	–3.4
Mongolia	5.4	–11.1	–7.7	–13.0	–26.5	–27.4	–25.4	–8.2	–11.1	–17.3	–5.7
Myanmar	–0.7	–4.2	–1.3	–1.2	–1.9	–4.3	–5.1	–7.2	–7.0	–5.9	–4.9
Nepal	–0.1	2.7	4.2	–2.4	–1.0	4.8	3.3	4.6	4.1	2.5	–1.9
Palau	–16.7	–16.8	–4.7	–7.2	–4.1	–5.0	–6.5	–10.3	–5.4	–8.4	–3.1
Papua New Guinea	3.9	8.5	–15.2	–21.5	–23.6	–53.6	–30.8	–12.1	10.2	7.1	4.3
Philippines	5.4	0.1	5.0	3.6	2.5	2.8	4.2	4.4	5.5	5.0	3.0
Samoa	–13.5	–5.5	–5.3	–6.8	–3.5	–7.8	0.4	–3.7	–6.8	–5.5	–4.5
Solomon Islands	–15.6	–18.2	–21.9	–33.3	–8.6	1.5	–4.5	–8.5	–8.4	–12.6	–8.0
Sri Lanka	–4.3	–9.5	–0.5	–2.2	–7.8	–6.7	–3.9	–3.7	–2.0	–2.6	–3.0
Thailand	6.3	0.8	8.3	3.1	2.6	–0.4	–0.6	3.8	4.4	2.4	0.7
Timor-Leste	39.4	46.0	38.9	39.8	41.1	47.8	44.8	26.1	11.2	10.9	–3.8
Tonga	–7.0	–7.3	–9.3	–7.4	–11.8	–15.6	–12.6	–8.9	–6.8	–5.8	–0.9
Tuvalu	–13.0	7.1	6.9	–11.9	–36.5	25.3	26.4	27.0	–39.0	–24.5	–4.9
Vanuatu	–7.3	–10.8	–7.9	–5.4	–8.1	–6.5	–3.3	–1.3	–14.4	–13.4	–8.2
Vietnam	–9.0	–11.0	–6.5	–3.8	0.2	6.0	5.6	5.4	4.8	4.9	0.3
Emerging and Developing Europe	**–7.9**	**–8.0**	**–3.4**	**–5.1**	**–6.5**	**–4.6**	**–3.8**	**–2.9**	**–2.4**	**–3.0**	**–3.8**
Albania	–10.6	–15.8	–15.9	–11.3	–13.2	–10.2	–10.7	–13.9	–15.7	–15.5	–8.1
Bosnia and Herzegovina	–9.4	–14.1	–6.6	–6.2	–9.6	–9.2	–5.9	–7.1	–9.0	–8.2	–5.3
Bulgaria	–24.3	–22.4	–8.6	–1.5	0.1	–1.1	2.3	0.0	0.2	–0.8	–2.0
Croatia	–7.1	–8.8	–5.1	–1.1	–0.8	–0.1	0.8	0.7	2.2	2.0	–0.9
Hungary	–7.1	–7.2	–0.8	0.3	0.8	1.9	4.1	4.2	4.8	4.1	1.2
Kosovo	–10.2	–16.2	–9.2	–11.7	–13.7	–7.5	–6.4	–7.1	–7.3	–8.0	–7.2
FYR Macedonia	–6.9	–12.7	–6.8	–2.0	–2.5	–2.9	–1.8	–1.3	–2.0	–3.3	–2.5
Montenegro	–39.5	–49.8	–27.9	–22.9	–17.7	–18.7	–14.6	–17.8	–20.6	–25.3	–17.2
Poland	–6.3	–6.6	–4.0	–5.5	–5.2	–3.5	–1.3	–1.2	–1.8	–2.4	–3.5
Romania	–13.5	–11.5	–4.5	–4.6	–4.6	–4.5	–0.8	–0.5	–1.1	–1.5	–3.6
Serbia	–17.2	–21.0	–6.2	–6.4	–8.6	–11.5	–6.1	–6.0	–4.7	–4.7	–3.7
Turkey	–5.8	–5.5	–2.0	–6.2	–9.7	–6.2	–7.9	–5.7	–4.2	–4.8	–5.0

Table A12. Emerging Market and Developing Economies: Balance on Current Account *(continued)*

(Percent of GDP)

									Projections		
	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2020
Latin America and the Caribbean	**0.2**	**–0.9**	**–0.7**	**–1.3**	**–1.4**	**–1.8**	**–2.8**	**–2.8**	**–3.2**	**–3.0**	**–2.7**
Antigua and Barbuda	–29.9	–26.7	–14.0	–14.7	–10.4	–14.6	–14.6	–14.5	–10.7	–12.4	–14.8
Argentina[3]	2.0	1.5	2.0	–0.4	–0.7	–0.2	–0.8	–0.9	–1.7	–1.8	–1.5
The Bahamas	–11.5	–10.6	–10.3	–10.1	–15.0	–18.3	–17.7	–21.6	–12.4	–8.2	–7.4
Barbados	–5.4	–10.6	–6.7	–5.8	–12.8	–9.3	–9.3	–9.1	–5.1	–5.9	–5.5
Belize	–4.0	–10.6	–4.9	–2.4	–1.1	–1.2	–4.4	–5.7	–4.5	–6.1	–7.0
Bolivia	11.4	11.9	4.3	3.9	0.3	8.3	3.3	0.7	–2.8	–4.2	–1.0
Brazil	0.1	–1.7	–1.5	–2.1	–2.0	–2.2	–3.4	–3.9	–3.7	–3.4	–3.2
Chile	4.1	–3.2	2.0	1.7	–1.2	–3.6	–3.7	–1.2	–1.2	–2.0	–2.4
Colombia	–3.0	–2.8	–2.2	–3.2	–3.1	–3.2	–3.4	–5.0	–5.8	–4.9	–3.6
Costa Rica	–6.3	–9.3	–2.0	–3.5	–5.4	–5.3	–5.0	–4.5	–3.6	–4.0	–4.9
Dominica	–20.3	–27.7	–22.3	–16.3	–13.4	–17.7	–13.1	–13.0	–13.1	–19.4	–12.8
Dominican Republic	–5.0	–9.4	–4.8	–7.4	–7.5	–6.6	–4.1	–3.1	–2.4	–3.0	–4.2
Ecuador	3.7	2.9	0.5	–2.3	–0.3	–0.2	–1.0	–0.8	–3.3	–3.0	–3.0
El Salvador	–6.1	–7.1	–1.5	–2.5	–4.8	–5.4	–6.5	–5.0	–4.3	–4.9	–5.9
Grenada	–29.7	–28.0	–22.2	–22.1	–21.8	–19.2	–27.0	–23.6	–17.4	–16.1	–16.3
Guatemala	–5.2	–3.6	0.7	–1.4	–3.4	–2.6	–2.5	–2.3	–1.6	–1.8	–2.5
Guyana	–9.5	–13.7	–9.1	–9.6	–13.1	–11.6	–13.3	–15.9	–16.4	–21.9	–10.7
Haiti	–1.5	–3.1	–1.9	–1.5	–4.3	–5.7	–6.7	–5.8	–3.0	–3.7	–3.5
Honduras	–9.1	–15.4	–3.8	–4.3	–8.0	–8.5	–9.5	–7.4	–6.5	–6.4	–5.0
Jamaica	–15.3	–17.7	–11.0	–8.0	–12.1	–10.7	–8.9	–6.4	–5.0	–4.6	–3.4
Mexico	–1.4	–1.8	–0.9	–0.5	–1.1	–1.3	–2.4	–2.1	–2.2	–2.2	–2.3
Nicaragua	–15.7	–17.0	–8.1	–8.1	–10.7	–9.8	–8.9	–6.2	–6.8	–7.5	–6.7
Panama	–8.0	–10.9	–0.7	–11.4	–15.9	–9.8	–12.2	–12.0	–10.4	–10.0	–5.9
Paraguay	5.7	1.0	3.0	–0.3	0.5	–0.9	2.2	0.1	–1.7	–2.2	–1.7
Peru	1.5	–4.3	–0.5	–2.4	–1.9	–2.7	–4.4	–4.1	–4.6	–4.3	–3.0
St. Kitts and Nevis	–17.4	–26.8	–25.7	–20.8	–15.9	–9.8	–6.7	–10.7	–16.2	–16.8	–15.1
St. Lucia	–30.0	–28.9	–11.6	–16.2	–18.7	–13.5	–12.8	–12.4	–13.4	–13.9	–15.0
St. Vincent and the Grenadines	–28.0	–33.1	–29.2	–30.6	–29.4	–27.5	–31.3	–29.4	–27.6	–25.4	–18.4
Suriname	11.1	9.2	2.9	14.9	5.8	3.4	–3.9	–7.3	–7.8	–6.9	–0.3
Trinidad and Tobago	23.9	30.5	8.5	19.8	11.9	3.4	6.7	8.3	5.2	4.4	3.9
Uruguay	–0.9	–5.7	–1.3	–1.9	–2.9	–5.4	–5.2	–4.7	–3.8	–4.1	–3.6
Venezuela	7.2	11.0	1.0	3.2	8.2	3.7	2.4	4.3	–4.7	–0.8	1.4
Middle East, North Africa, Afghanistan, and Pakistan	**12.6**	**12.8**	**1.8**	**6.2**	**13.0**	**12.3**	**9.8**	**6.4**	**–1.9**	**–0.1**	**1.0**
Afghanistan	36.8	2.7	13.1	8.3	6.4	6.3	7.5	5.7	3.1	0.5	–1.9
Algeria	22.7	20.1	0.3	7.5	9.9	5.9	0.4	–4.3	–15.7	–13.2	–7.0
Bahrain	13.4	8.8	2.4	3.0	11.2	7.2	7.8	5.3	–2.1	–0.7	–0.8
Djibouti	–21.4	–24.3	–9.3	0.6	–13.7	–20.3	–23.3	–27.4	–28.7	–23.2	–12.6
Egypt	2.1	0.5	–2.3	–2.0	–2.6	–3.9	–2.4	–0.8	–3.3	–4.3	–4.8
Iran	9.7	5.8	2.4	5.9	10.5	6.3	7.4	3.8	0.8	1.2	0.0
Iraq	0.9	15.9	–6.8	3.0	12.0	6.7	1.3	–3.5	–9.6	–3.6	2.5
Jordan	–16.8	–9.4	–5.2	–7.1	–10.2	–15.2	–10.3	–7.0	–7.6	–6.6	–4.7
Kuwait	36.8	40.9	26.7	31.8	42.7	45.2	39.6	35.3	15.7	19.3	14.7
Lebanon	–7.2	–11.1	–12.5	–20.7	–15.1	–24.3	–26.7	–24.9	–22.2	–21.7	–15.3
Libya	44.1	42.5	14.9	19.5	9.1	29.1	13.6	–30.1	–52.8	–30.9	–1.5
Mauritania	–14.6	–13.3	–13.4	–7.7	–6.0	–26.5	–24.8	–27.6	–14.6	–21.9	–24.6
Morocco	–0.1	–5.2	–5.4	–4.1	–8.0	–9.7	–7.6	–5.8	–3.4	–3.3	–2.9
Oman	6.0	8.5	–1.1	8.9	13.2	10.3	6.6	2.2	–15.0	–13.0	–9.3
Pakistan	–4.5	–8.1	–5.5	–2.2	0.1	–2.1	–1.1	–1.2	–1.3	–1.4	–2.5
Qatar	14.4	23.1	6.5	19.1	30.6	32.6	30.8	25.1	8.4	5.0	3.8
Saudi Arabia	22.5	25.5	4.9	12.7	23.7	22.4	17.8	14.1	–1.0	3.7	5.4
Sudan[4]	–6.0	–1.6	–9.6	–2.1	–0.4	–9.3	–8.6	–5.2	–4.2	–3.9	–3.2
Syria[5]	–0.2	–1.3	–2.9	–2.8	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Tunisia	–2.4	–3.8	–2.8	–4.8	–7.4	–8.2	–8.3	–8.9	–6.4	–5.2	–3.0
United Arab Emirates	12.5	7.1	3.1	2.5	14.7	18.5	16.1	12.1	5.3	7.2	6.6
Yemen	–7.0	–4.6	–10.1	–3.4	–3.0	–1.7	–3.1	–1.6	–2.2	–1.5	–1.2

Table A12. Emerging Market and Developing Economies: Balance on Current Account *(continued)*

(Percent of GDP)

									Projections		
	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2020
Sub-Saharan Africa	**1.5**	**0.1**	**–2.7**	**–0.6**	**–0.7**	**–1.9**	**–2.5**	**–3.3**	**–4.6**	**–4.1**	**–4.2**
Angola	17.5	8.5	–10.0	9.1	12.6	12.0	6.7	–0.8	–6.3	–4.2	–2.5
Benin	–10.2	–8.1	–8.9	–8.7	–7.8	–8.4	–15.9	–8.5	–11.6	–12.2	–8.7
Botswana	15.1	–1.1	–11.2	–6.0	–0.6	–3.5	10.4	17.1	18.2	16.6	16.0
Burkina Faso	–8.3	–11.5	–4.5	–2.0	–1.5	–4.5	–6.6	–6.1	–8.1	–8.5	–6.8
Burundi	–5.4	–1.0	1.7	–12.2	–13.6	–17.3	–18.4	–17.6	–13.3	–12.9	–12.2
Cabo Verde	–12.9	–13.7	–14.6	–12.4	–16.3	–11.4	–4.0	–9.1	–9.6	–10.6	–4.1
Cameroon	1.4	–1.2	–3.1	–2.8	–2.7	–3.6	–3.8	–4.2	–4.8	–4.8	–4.7
Central African Republic	–6.2	–9.9	–9.1	–10.2	–7.6	–4.6	–3.0	–6.2	–11.1	–9.1	–7.0
Chad	8.2	3.7	–9.2	–9.0	–5.6	–8.7	–9.0	–8.7	–10.5	–8.3	–3.5
Comoros	–10.1	–18.7	–15.4	–15.9	–22.1	–14.7	–14.6	–10.6	–14.1	–13.7	–11.6
Democratic Republic of the Congo	3.2	–0.8	–6.1	–10.6	–5.4	–6.2	–11.1	–9.6	–10.7	–9.5	–10.1
Republic of Congo	–6.5	–0.5	–14.1	7.5	4.7	–2.4	–4.8	–6.2	–11.3	–3.1	1.1
Côte d'Ivoire	–0.7	1.9	6.6	1.9	10.5	–1.2	–4.9	–3.3	–2.3	–1.7	–4.6
Equatorial Guinea	15.9	12.3	–8.0	–9.8	–0.6	–4.5	–12.1	–13.1	–32.5	–18.3	–7.6
Eritrea	–6.1	–5.5	–7.6	–5.6	0.6	2.3	0.3	–0.2	–1.6	–1.9	–3.6
Ethiopia	–4.2	–6.7	–6.7	–1.4	–2.5	–6.9	–6.0	–9.0	–6.6	–6.3	–6.1
Gabon	14.8	21.9	6.5	7.8	13.1	21.3	15.0	11.2	–2.3	0.9	–2.7
The Gambia	–8.3	–12.2	–12.5	–16.3	–12.3	–7.9	–10.7	–12.7	–11.7	–10.0	–8.7
Ghana	–8.7	–11.9	–5.4	–8.6	–9.0	–11.7	–11.7	–9.2	–7.0	–6.2	–4.3
Guinea	–10.8	–9.7	–7.9	–9.7	–18.8	–28.7	–21.4	–18.5	–16.7	–18.3	–37.7
Guinea-Bissau	–4.4	–3.3	–5.8	–8.3	–1.3	–8.7	–14.1	–10.0	–11.3	–14.6	–2.0
Kenya	–3.2	–5.5	–4.6	–5.9	–9.1	–8.4	–8.7	–9.2	–7.7	–7.4	–7.0
Lesotho	22.7	21.8	4.8	–7.9	–9.0	–2.7	–4.2	–6.6	–5.4	–23.3	–23.0
Liberia	–6.2	–46.7	–23.2	–32.0	–27.4	–21.4	–28.2	–31.9	–40.2	–27.8	–29.0
Madagascar	–12.7	–20.6	–21.2	–9.7	–6.9	–6.7	–5.6	–2.3	–3.2	–3.4	–3.9
Malawi	1.0	–9.7	–4.8	–1.3	–5.9	–3.5	–1.8	–5.1	–3.4	–2.7	–1.5
Mali	–8.1	–12.1	–7.3	–12.6	–6.1	–2.6	–5.2	–8.0	–5.6	–5.6	–6.4
Mauritius	–5.4	–10.1	–7.4	–10.3	–13.8	–7.3	–9.9	–7.2	–6.3	–6.2	–6.0
Mozambique	–9.5	–11.6	–11.0	–10.6	–23.1	–42.3	–40.0	–34.7	–41.1	–45.6	–41.0
Namibia	8.6	3.0	–1.5	–3.5	–3.0	–5.8	–4.1	–6.6	–9.9	–12.3	–10.7
Niger	–8.2	–12.0	–24.4	–19.8	–22.3	–15.3	–15.3	–18.0	–27.1	–24.7	–10.6
Nigeria	10.7	9.0	5.1	3.9	3.0	4.4	3.9	2.2	0.7	1.3	0.6
Rwanda	–2.3	–5.0	–7.1	–7.3	–7.5	–11.4	–7.1	–12.0	–10.5	–10.1	–9.9
São Tomé and Príncipe	–29.0	–33.1	–23.2	–21.7	–25.5	–21.3	–16.8	–20.8	–12.4	–12.0	–9.6
Senegal	–11.6	–14.1	–6.7	–4.4	–7.9	–10.8	–10.9	–10.3	–7.6	–7.3	–6.4
Seychelles	–18.8	–27.2	–22.4	–22.1	–28.3	–25.8	–15.2	–22.5	–19.3	–18.1	–14.8
Sierra Leone	–7.4	–9.0	–13.3	–22.7	–65.3	–22.0	–10.4	–7.6	–13.2	–8.6	–6.3
South Africa	–5.4	–5.5	–2.7	–1.5	–2.2	–5.0	–5.8	–5.4	–4.6	–4.7	–4.2
South Sudan	. . .	. . .	. . .	. . .	18.2	–22.4	–0.5	–0.7	–13.9	–8.3	–8.4
Swaziland	–2.1	–7.6	–13.0	–10.0	–8.2	3.8	6.3	0.9	0.4	–1.4	–3.3
Tanzania	–8.6	–7.8	–7.3	–6.9	–10.4	–11.6	–10.3	–10.2	–10.0	–9.5	–8.3
Togo	–8.6	–7.0	–5.6	–6.3	–8.0	–8.1	–7.2	–6.3	–5.0	–5.8	–8.0
Uganda	–4.6	–7.8	–6.2	–9.4	–10.4	–8.1	–6.4	–7.5	–8.8	–9.0	–8.9
Zambia	–5.4	–5.8	3.8	5.9	3.0	3.2	0.0	–0.2	0.3	0.9	0.4
Zimbabwe[6]	–5.4	–16.5	–47.1	–16.0	–30.9	–24.6	–25.4	–22.3	–21.6	–23.8	–23.5

[1]Georgia, Turkmenistan, and Ukraine, which are not members of the Commonwealth of Independent States, are included in this group for reasons of geography and similarity in economic structure.
[2]Starting in 2014 data exclude Crimea and Sevastopol.
[3]Calculations are based on Argentina's official GDP data. See note 5 to Table A4.
[4]Data for 2011 exclude South Sudan after July 9. Data for 2012 and onward pertain to the current Sudan.
[5]Data for Syria are excluded for 2011 onward owing the uncertain political situation.
[6]The Zimbabwean dollar ceased circulating in early 2009. Data are based on IMF staff estimates of price and exchange rate developments in U.S. dollars. IMF staff estimates of U.S. dollar values may differ from authorities' estimates.

Table A13. Summary of Financial Account Balances

(Billions of U.S. dollars)

	2007	2008	2009	2010	2011	2012	2013	2014	Projections 2015	Projections 2016
Advanced Economies										
Financial Account Balance	–308.3	–721.4	–17.7	–66.4	–217.7	–2.5	267.7	473.0	241.9	172.0
Direct Investment, Net	611.4	628.1	249.2	355.6	369.3	219.0	171.8	422.8	352.8	381.8
Portfolio Investment, Net	–1,003.8	–1,186.2	–342.3	–722.4	–898.1	–70.5	–208.5	209.7	–67.1	–147.5
Financial Derivatives, Net	95.9	352.6	–118.9	–84.5	–0.1	–70.2	28.0	–106.7	–35.1	–39.1
Other Investment, Net	–57.4	–516.1	–237.8	79.9	49.3	–305.6	166.6	–79.1	–73.4	–34.0
Change in Reserves	67.1	75.0	473.8	347.6	340.5	270.4	153.8	83.0	96.3	40.7
United States										
Financial Account Balance	–617.3	–730.6	–231.0	–437.0	–515.8	–423.5	–370.7	–141.6	–408.4	–451.9
Direct Investment, Net	192.9	19.0	159.9	95.2	183.0	157.8	113.3	260.1	210.8	229.0
Portfolio Investment, Net	–775.8	–808.0	18.5	–620.8	–226.3	–507.2	–1.1	–145.1	–265.7	–381.7
Financial Derivatives, Net	–6.2	32.9	–44.8	–14.1	–35.0	7.1	2.2	–53.5	–29.8	–51.7
Other Investment, Net	–28.2	20.6	–416.9	100.9	–453.4	–85.6	–482.0	–199.5	–323.8	–247.5
Change in Reserves	0.1	4.8	52.3	1.8	15.9	4.5	–3.1	–3.6	0.0	0.0
Euro Area[1]										
Financial Account Balance	682.0	555.2	688.7	687.6	773.2	688.9	598.4	462.3	. . .	. . .
Direct Investment, Net	331.6	545.6	303.2	305.6	354.3	261.4	36.4	91.2	. . .	. . .
Portfolio Investment, Net	–339.1	–537.6	–518.4	–269.1	–502.6	–258.4	20.2	153.1	. . .	. . .
Financial Derivatives, Net	232.9	276.4	117.1	123.2	151.2	121.8	43.9	57.7	. . .	. . .
Other Investment, Net	449.4	265.6	792.9	513.7	755.8	544.4	491.6	154.3	. . .	. . .
Change in Reserves	7.2	5.1	–6.2	14.1	14.5	19.6	6.4	5.9	. . .	. . .
Germany										
Financial Account Balance	296.7	249.2	211.3	148.9	224.1	274.3	326.9	287.5	286.8	276.9
Direct Investment, Net	89.8	67.1	43.0	60.6	20.0	65.4	29.7	40.9	36.2	37.2
Portfolio Investment, Net	–215.4	–44.5	119.2	154.1	–42.6	83.4	218.8	192.4	191.9	185.3
Financial Derivatives, Net	116.4	44.0	–7.5	17.6	37.1	32.8	24.1	21.2	21.2	20.4
Other Investment, Net	304.7	179.9	44.3	–85.5	205.7	91.0	53.2	33.0	37.5	33.9
Change in Reserves	1.2	2.7	12.4	2.1	3.9	1.7	1.2	0.0	0.0	0.0
France										
Financial Account Balance	–41.5	–45.9	–49.6	2.3	–72.3	–27.0	–18.8	–46.0	0.1	–4.9
Direct Investment, Net	68.2	66.0	70.3	34.3	19.4	18.1	–6.8	32.5	32.6	37.6
Portfolio Investment, Net	166.1	–37.8	–328.7	–155.0	–335.1	–34.1	–92.8	–14.7	–12.0	–54.9
Financial Derivatives, Net	–57.4	40.0	–15.5	–4.1	–19.4	–18.4	–22.3	–63.7	–21.3	11.1
Other Investment, Net	–219.0	–101.6	216.0	119.4	270.5	2.2	105.0	–1.2	–1.0	–1.0
Change in Reserves	0.7	–12.5	8.4	7.7	–7.7	5.2	–1.9	1.0	1.7	2.3
Italy										
Financial Account Balance	–40.0	–49.0	–56.1	–116.4	–97.5	–19.1	15.9	72.0	50.3	48.8
Direct Investment, Net	52.5	76.2	–0.3	21.3	17.1	6.8	5.8	6.6	3.7	2.3
Portfolio Investment, Net	–7.6	–110.7	–55.4	56.4	13.5	–33.3	–19.4	–10.7	–14.6	–5.6
Financial Derivatives, Net	3.8	–0.4	–6.9	6.6	–10.1	7.5	4.0	–4.0	0.0	0.0
Other Investment, Net	–90.7	–22.3	6.6	–202.1	–119.4	–1.9	23.5	81.1	61.2	52.2
Change in Reserves	2.1	8.2	–0.1	1.4	1.3	1.9	2.0	–1.0	0.0	0.0

Table A13. Summary of Financial Account Balances *(continued)*

(Billions of U.S. dollars)

	2007	2008	2009	2010	2011	2012	2013	2014	Projections 2015	Projections 2016
Spain										
Financial Account Balance	–137.5	–147.6	–70.8	–56.9	–41.4	0.3	53.9	35.9	8.5	10.0
Direct Investment, Net	72.9	–2.3	2.7	–1.9	12.8	–29.7	–15.9	4.3	2.1	1.7
Portfolio Investment, Net	–122.3	1.9	–69.6	–46.6	43.1	53.7	–59.8	–3.7	–6.1	–3.6
Financial Derivatives, Net	5.6	10.4	8.4	–11.4	2.9	–10.7	1.4	1.0	0.0	0.0
Other Investment, Net	–93.9	–158.6	–18.4	1.9	–114.1	–15.8	127.5	29.1	12.5	11.9
Change in Reserves	0.2	0.9	6.0	1.1	13.9	2.8	0.7	5.2	0.0	0.0
Japan										
Financial Account Balance	224.3	187.3	174.8	253.5	165.8	62.9	–16.7	52.0	78.4	82.0
Direct Investment, Net	51.7	89.1	61.2	72.5	117.8	119.2	132.4	108.8	95.2	101.5
Portfolio Investment, Net	–68.3	294.7	217.6	154.1	–155.5	38.5	–269.8	–42.4	3.1	9.6
Financial Derivatives, Net	–2.9	–24.9	–10.5	–11.9	–17.1	6.7	58.1	35.2	4.0	4.6
Other Investment, Net	207.3	–202.3	–120.9	–5.5	43.4	–63.6	23.9	–58.0	–32.9	–43.1
Change in Reserves	36.5	30.8	27.2	44.3	177.3	–37.9	38.7	8.5	9.0	9.5
United Kingdom										
Financial Account Balance	–71.2	–85.0	–49.2	–44.4	–23.6	–77.9	–102.4	–160.9	–134.4	–135.7
Direct Investment, Net	137.7	96.5	–70.3	–12.3	66.1	–30.5	–62.7	–48.9	–53.7	–50.1
Portfolio Investment, Net	–216.5	–458.0	–48.9	20.9	11.1	332.0	–49.1	146.6	44.3	91.4
Financial Derivatives, Net	54.0	225.5	–45.5	–39.4	4.9	–47.6	21.9	–13.2	4.6	–3.9
Other Investment, Net	–48.9	53.5	106.6	–23.0	–113.6	–343.8	–20.1	–255.8	–138.2	–182.4
Change in Reserves	2.4	–2.5	9.0	9.4	7.9	12.1	7.8	10.4	8.7	9.3
Canada										
Financial Account Balance	14.7	–2.6	–41.0	–55.0	–54.6	–59.2	–54.1	–33.2	–46.7	–40.2
Direct Investment, Net	–52.2	17.7	16.9	6.3	12.5	14.7	–20.0	–1.2	–6.5	–3.0
Portfolio Investment, Net	73.5	–40.8	–89.7	–96.1	–83.1	–48.4	–13.4	–3.1	–28.9	–27.8
Financial Derivatives, Net	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Other Investment, Net	–10.8	18.9	21.7	30.9	7.8	–27.2	–25.4	–34.1	–11.4	–9.4
Change in Reserves	4.3	1.6	10.2	3.9	8.1	1.7	4.7	5.3	0.0	0.0
Other Advanced Economies[2]										
Financial Account Balance	94.2	–20.3	102.3	237.6	194.1	215.4	324.5	280.2	284.9	258.9
Direct Investment, Net	9.9	17.0	16.9	96.9	–11.0	–20.6	6.6	–2.8	5.6	6.4
Portfolio Investment, Net	180.8	180.6	–108.2	–53.7	34.1	139.7	127.0	210.7	167.7	197.4
Financial Derivatives, Net	–0.6	–12.7	19.9	–17.8	41.3	–26.8	–25.9	–19.3	–7.1	–9.7
Other Investment, Net	–87.2	–172.9	–114.6	–19.8	91.4	–103.0	159.5	89.3	72.9	75.2
Change in Reserves	13.0	42.3	330.3	274.6	116.8	271.7	101.4	59.1	77.5	19.5
Emerging Market and Developing Economies										
Financial Account Balance	579.7	617.1	73.6	172.0	258.3	158.7	21.2	31.9	16.3	101.5
Direct Investment, Net	–439.3	–463.7	–330.8	–429.8	–517.6	–471.3	–476.7	–497.4	–442.2	–441.1
Portfolio Investment, Net	–24.1	136.0	–77.8	–233.1	–134.7	–242.2	–150.4	–104.8	–113.7	–134.7
Financial Derivatives, Net	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Other Investment, Net	–175.9	236.3	–43.7	–4.0	158.1	436.7	76.4	560.9	395.9	302.1
Change in Reserves	1,216.6	701.9	523.2	835.6	750.3	439.3	570.8	65.8	178.6	379.0

Table A13. Summary of Financial Account Balances *(continued)*

(Billions of U.S. dollars)

	2007	2008	2009	2010	2011	2012	2013	2014	Projections 2015	Projections 2016
Regional Groups										
Commonwealth of Independent States[3]										
Financial Account Balance	44.5	98.1	23.2	70.7	95.4	49.0	–5.6	19.1	46.8	75.7
Direct Investment, Net	–28.3	–49.4	–17.2	–9.4	–16.1	–27.8	–5.1	–27.5	–2.1	–2.5
Portfolio Investment, Net	3.8	35.8	–6.3	–14.4	17.9	3.5	–0.2	25.6	10.6	0.4
Financial Derivatives, Net	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Other Investment, Net	–98.8	137.2	36.4	40.6	68.5	45.6	24.7	159.7	101.2	66.1
Change in Reserves	167.8	–26.7	7.2	52.0	23.9	26.3	–25.5	–139.0	–62.6	12.4
Emerging and Developing Asia										
Financial Account Balance	412.4	448.4	212.4	140.8	59.2	1.9	33.4	105.9	326.6	332.5
Direct Investment, Net	–172.4	–151.9	–115.6	–223.0	–280.1	–222.1	–243.4	–260.7	–230.9	–201.1
Portfolio Investment, Net	–56.4	8.1	–68.8	–99.4	–56.8	–119.5	–70.8	–73.7	–46.7	–86.0
Financial Derivatives, Net	. . .	. . .	. . .	0.5	–0.4	–3.1	3.0	0.2	0.3	0.3
Other Investment, Net	22.0	114.3	–63.6	–103.5	–36.7	208.7	–105.5	267.0	220.5	187.8
Change in Reserves	619.0	476.4	462.4	566.5	434.3	135.0	450.7	172.6	383.7	431.1
Emerging and Developing Europe										
Financial Account Balance	–125.5	–160.6	–51.7	–91.1	–107.9	–64.7	–61.9	–42.6	–33.0	–48.0
Direct Investment, Net	–69.9	–63.7	–30.6	–29.4	–40.4	–27.2	–23.7	–25.4	–31.4	–35.5
Portfolio Investment, Net	6.1	14.4	–10.1	–44.5	–53.2	–70.2	–39.8	–27.7	–11.0	–12.3
Financial Derivatives, Net	1.4	2.5	0.9	0.5	1.5	–2.9	–1.4	4.7	–1.9	–3.8
Other Investment, Net	–98.7	–119.7	–41.5	–53.6	–30.4	7.6	–15.4	4.3	6.7	3.0
Change in Reserves	35.6	5.9	29.6	35.7	14.5	28.0	18.4	1.5	4.6	0.6
Latin America and the Caribbean										
Financial Account Balance	15.7	–37.4	–25.8	–86.5	–95.2	–132.3	–206.5	–178.7	–165.7	–161.8
Direct Investment, Net	–94.7	–101.1	–71.0	–88.0	–128.3	–134.7	–161.6	–134.1	–123.1	–134.9
Portfolio Investment, Net	–44.2	–7.2	–19.5	–104.8	–96.7	–85.6	–94.6	–95.4	–70.5	–62.6
Financial Derivatives, Net	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Other Investment, Net	24.6	28.0	9.1	14.7	16.9	28.7	43.6	12.0	43.4	35.9
Change in Reserves	129.1	41.5	54.7	90.5	110.5	59.4	5.5	35.6	–17.1	–1.7
Middle East, North Africa, Afghanistan, and Pakistan										
Financial Account Balance	223.9	271.6	–35.3	140.1	320.2	332.9	316.6	185.3	–89.1	–30.9
Direct Investment, Net	–52.1	–62.4	–66.1	–44.9	–21.4	–27.7	–19.3	–19.4	–21.9	–26.3
Portfolio Investment, Net	72.8	61.1	35.3	30.0	69.8	55.0	73.4	82.2	15.4	38.7
Financial Derivatives, Net	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Other Investment, Net	–34.0	85.5	18.0	63.1	126.2	134.6	140.2	122.5	43.6	26.6
Change in Reserves	237.2	187.3	–22.6	91.9	145.5	171.0	122.3	0.1	–126.2	–69.9
Sub-Saharan Africa										
Financial Account Balance	8.8	–2.9	–49.1	–2.1	–13.4	–27.9	–54.8	–57.1	–69.2	–66.1
Direct Investment, Net	–21.9	–35.4	–30.2	–35.2	–31.3	–31.9	–23.5	–30.3	–32.8	–40.7
Portfolio Investment, Net	–6.2	23.9	–8.4	0.0	–15.8	–25.4	–18.5	–15.8	–11.4	–13.0
Financial Derivatives, Net	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Other Investment, Net	9.0	–9.0	–2.2	34.6	13.6	11.6	–11.3	–4.7	–19.6	–17.4
Change in Reserves	27.9	17.6	–8.2	–1.0	21.7	19.6	–0.6	–5.0	–3.8	6.5

Table A13. Summary of Financial Account Balances *(continued)*

(Billions of U.S. dollars)

	2007	2008	2009	2010	2011	2012	2013	2014	Projections 2015	2016
Analytical Groups										
By Source of Export Earnings										
Fuel Exporters										
Financial Account Balance	342.3	465.3	8.7	256.4	497.8	481.0	358.7	238.9	–44.1	63.8
Direct Investment, Net	–53.7	–83.9	–62.6	–30.4	–29.5	–47.5	–12.0	–45.2	–18.7	–24.7
Portfolio Investment, Net	86.6	98.3	13.4	22.7	83.0	42.1	79.2	103.3	21.0	35.1
Financial Derivatives, Net	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Other Investment, Net	–84.8	277.5	104.5	148.8	245.9	232.7	192.4	323.9	187.7	136.3
Change in Reserves	394.2	172.2	–49.8	113.4	197.2	252.3	98.7	–143.4	–233.7	–82.1
Nonfuel Exporters										
Financial Account Balance	237.4	151.8	64.9	–84.4	–239.5	–322.3	–337.5	–207.0	60.4	37.7
Direct Investment, Net	–385.6	–379.8	–268.1	–399.5	–488.1	–423.8	–464.6	–452.2	–423.5	–416.4
Portfolio Investment, Net	–110.7	37.7	–91.2	–255.9	–217.7	–284.3	–229.6	–208.1	–134.7	–169.8
Financial Derivatives, Net	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Other Investment, Net	–91.0	–41.2	–148.3	–152.7	–87.9	204.0	–116.0	237.0	208.2	165.8
Change in Reserves	822.4	529.7	573.0	722.2	553.1	187.0	472.1	209.2	412.3	461.2
By External Financing Source										
Net Debtor Economies										
Financial Account Balance	–158.9	–308.7	–160.8	–266.3	–367.1	–467.4	–458.6	–365.1	–328.9	–368.9
Direct Investment, Net	–259.0	–279.7	–192.6	–196.2	–262.7	–257.6	–285.6	–268.1	–269.7	–297.6
Portfolio Investment, Net	–85.7	73.0	–66.9	–238.8	–181.7	–223.8	–162.5	–190.6	–151.9	–144.4
Financial Derivatives, Net	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Other Investment, Net	–164.7	–160.4	–70.6	–84.7	–96.1	–78.1	–69.6	0.5	–29.4	–50.6
Change in Reserves	347.8	53.2	169.8	251.9	172.5	97.0	58.3	85.8	123.8	126.6
Net Debtor Economies by Debt-Servicing Experience										
Economies with Arrears and/or Rescheduling during 2009–13										
Financial Account Balance	–3.4	–2.1	–9.1	0.0	–8.3	–31.9	–28.9	–17.9	–28.4	–33.5
Direct Investment, Net	–18.5	–20.4	–11.7	–14.4	–11.1	–15.0	–14.8	–12.9	–15.4	–18.1
Portfolio Investment, Net	–1.8	3.5	13.9	–3.7	4.6	6.9	–1.3	–1.2	–3.0	–4.6
Financial Derivatives, Net	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Other Investment, Net	8.8	6.9	–9.0	13.1	4.7	–7.2	–14.4	–6.4	–16.2	–16.5
Change in Reserves	8.1	7.9	–2.3	5.1	–6.5	–16.6	1.5	2.6	6.2	5.7
Memorandum										
World										
Financial Account Balance	271.4	–104.2	55.9	105.6	40.6	156.2	288.9	504.9	258.2	273.5

Note: The estimates in this table are based on individual countries' national accounts and balance of payments statistics. Country group composites are calculated as the sum of the U.S. dollar values for the relevant individual countries. Some group aggregates for the financial derivatives are not shown because of incomplete data. Projections for the euro area are not available because of data constraints.

[1]Excludes Lithuania.

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

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

Table A14. Summary of Net Lending and Borrowing

(Percent of GDP)

	Averages								Projections		
	1997–2006	2001–08	2009	2010	2011	2012	2013	2014	2015	2016	Average 2017–20
Advanced Economies											
Net Lending and Borrowing	–0.6	–0.9	–0.2	0.0	–0.1	0.0	0.4	0.4	0.6	0.4	0.2
Current Account Balance	–0.6	–0.9	–0.2	0.0	–0.1	–0.1	0.3	0.4	0.6	0.4	0.2
Savings	22.3	21.7	19.0	20.0	20.5	20.9	21.1	21.1	21.2	21.3	21.8
Investment	22.9	22.6	19.5	20.4	20.8	20.7	20.5	20.7	20.7	21.1	21.7
Capital Account Balance	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
United States											
Net Lending and Borrowing	–4.0	–4.8	–2.6	–3.0	–3.0	–2.8	–2.4	–2.4	–2.3	–2.4	–2.6
Current Account Balance	–4.0	–4.8	–2.6	–3.0	–3.0	–2.9	–2.4	–2.4	–2.3	–2.4	–2.6
Savings	19.3	17.8	14.4	15.1	15.7	17.5	18.1	17.9	18.1	18.6	19.2
Investment	22.6	22.2	17.5	18.4	18.5	19.2	19.3	19.8	20.4	21.0	21.8
Capital Account Balance	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Euro Area[1]											
Net Lending and Borrowing	. . .	0.1	–0.1	0.0	0.0	1.6	2.4	2.5	. . .	. . .	. . .
Current Account Balance	0.0	0.0	–0.2	0.0	–0.1	1.5	2.2	2.3	3.3	3.1	2.7
Savings	22.8	23.0	20.8	21.5	22.2	22.2	22.1	22.5	22.7	22.7	22.8
Investment	22.4	22.6	20.4	20.9	21.4	20.1	19.4	19.2	18.8	19.0	19.5
Capital Account Balance	. . .	0.1	0.1	0.1	0.1	0.1	0.2	0.2	. . .	. . .	. . .
Germany											
Net Lending and Borrowing	1.3	3.8	5.8	5.7	6.1	7.2	6.8	7.5	8.4	7.9	7.2
Current Account Balance	1.4	3.8	5.8	5.7	6.1	7.1	6.7	7.5	8.4	7.9	7.2
Savings	22.6	23.9	24.0	25.2	26.7	26.3	25.7	26.3	26.9	26.7	26.3
Investment	21.3	20.1	18.1	19.5	20.6	19.2	19.0	18.9	18.5	18.8	19.1
Capital Account Balance	0.0	0.0	–0.1	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0
France											
Net Lending and Borrowing	1.3	0.1	–0.7	–0.8	–1.0	–1.5	–1.3	–0.9	0.0	–0.2	–0.2
Current Account Balance	1.3	0.1	–0.8	–0.8	–1.0	–1.5	–1.4	–1.1	–0.1	–0.3	–0.3
Savings	22.8	22.6	20.5	21.1	22.2	21.2	20.6	20.9	21.3	21.2	21.8
Investment	21.5	22.5	21.3	21.9	23.2	22.7	22.0	22.0	21.4	21.5	22.1
Capital Account Balance	0.0	0.0	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1
Italy											
Net Lending and Borrowing	0.2	–1.0	–1.9	–3.5	–3.0	–0.2	1.0	2.0	2.7	2.6	1.4
Current Account Balance	0.1	–1.1	–1.9	–3.5	–3.1	–0.4	1.0	1.8	2.6	2.5	1.3
Savings	20.7	20.3	17.5	17.1	17.4	17.4	18.3	18.3	17.6	17.4	17.2
Investment	20.7	21.4	19.4	20.5	20.4	17.8	17.3	16.5	15.0	14.9	15.9
Capital Account Balance	0.1	0.1	0.0	0.0	0.1	0.2	0.0	0.2	0.1	0.1	0.1
Spain											
Net Lending and Borrowing	–3.4	–5.9	–4.0	–3.5	–2.8	0.2	2.1	0.5	0.7	0.8	1.2
Current Account Balance	–4.3	–6.6	–4.3	–3.9	–3.2	–0.3	1.4	0.1	0.3	0.4	0.8
Savings	22.4	22.4	20.3	19.6	18.7	19.9	20.4	19.6	19.8	20.0	20.4
Investment	26.9	29.0	24.6	23.5	21.9	20.2	19.0	19.5	19.5	19.6	19.6
Capital Account Balance	0.9	0.7	0.3	0.5	0.4	0.5	0.7	0.4	0.4	0.4	0.4
Japan											
Net Lending and Borrowing	2.9	3.3	2.8	3.9	2.1	1.0	0.5	0.5	1.9	1.9	2.1
Current Account Balance	3.0	3.4	2.9	4.0	2.1	1.0	0.7	0.5	1.9	2.0	2.2
Savings	27.1	26.3	22.6	23.8	22.3	21.9	21.8	22.4	23.1	22.7	22.7
Investment	24.1	22.8	19.7	19.8	20.2	20.9	21.1	21.8	21.1	20.7	20.5
Capital Account Balance	–0.2	–0.1	–0.1	–0.1	0.0	0.0	–0.2	0.0	–0.1	–0.1	–0.1
United Kingdom											
Net Lending and Borrowing	–1.7	–2.2	–2.7	–2.5	–1.6	–3.7	–4.4	–5.5	–4.7	–4.6	–3.6
Current Account Balance	–1.7	–2.2	–2.8	–2.6	–1.7	–3.7	–4.5	–5.5	–4.8	–4.6	–3.6
Savings	17.4	16.4	12.3	13.7	14.6	12.6	12.5	12.2	13.1	13.8	15.9
Investment	19.1	18.6	15.0	16.3	16.3	16.3	17.0	17.7	17.8	18.4	19.6
Capital Account Balance	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0

Table A14. Summary of Net Lending and Borrowing *(continued)*

(Percent of GDP)

	Averages								Projections		
	1997–2006	2001–08	2009	2010	2011	2012	2013	2014	2015	2016	Average 2017–20
Canada											
Net Lending and Borrowing	1.0	1.4	–3.0	–3.5	–2.7	–3.3	–3.0	–2.2	–2.6	–2.3	–2.1
Current Account Balance	1.0	1.4	–2.9	–3.5	–2.7	–3.3	–3.0	–2.2	–2.6	–2.3	–2.1
Savings	22.3	23.5	18.9	19.8	21.5	21.6	21.5	21.9	21.3	21.4	21.8
Investment	21.3	22.1	21.8	23.3	24.1	24.9	24.5	24.1	23.9	23.7	23.9
Capital Account Balance	0.0	0.0	–0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other Advanced Economies[2]											
Net Lending and Borrowing	3.5	3.8	4.0	4.7	3.9	4.0	5.1	4.8	4.9	4.3	3.8
Current Account Balance	3.5	3.9	4.0	4.7	3.8	4.0	5.0	4.8	4.9	4.3	3.8
Savings	28.7	29.1	28.2	29.8	30.0	30.0	30.1	30.2	30.3	30.1	30.0
Investment	25.9	25.9	24.6	25.9	26.6	26.4	25.3	25.3	25.2	25.6	26.1
Capital Account Balance	–0.1	–0.1	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0
Emerging Market and Developing Economies											
Net Lending and Borrowing	1.7	3.0	1.4	1.7	1.7	1.5	0.8	0.6	0.3	0.5	0.5
Current Account Balance	1.5	2.9	1.3	1.4	1.6	1.4	0.7	0.7	0.1	0.4	0.5
Savings	26.4	29.7	31.7	32.6	33.4	33.1	32.5	32.3	32.3	32.5	32.4
Investment	25.3	27.1	30.6	31.3	31.9	31.9	31.8	31.6	32.2	32.1	32.1
Capital Account Balance	0.2	0.1	0.1	0.3	0.1	0.1	0.1	0.0	0.1	0.1	0.1
Regional Groups											
Commonwealth of Independent States[3]											
Net Lending and Borrowing	6.1	5.8	1.9	3.9	4.3	2.3	0.6	0.5	2.5	3.7	3.5
Current Account Balance	6.3	6.7	2.6	3.4	4.3	2.5	0.6	2.2	2.5	3.7	3.5
Savings	26.8	29.4	22.0	26.3	29.0	26.6	23.3	23.4	23.1	24.3	24.5
Investment	20.6	22.8	19.2	22.7	24.6	24.1	22.6	21.0	20.3	20.4	21.1
Capital Account Balance	–0.4	–0.9	–0.7	0.4	0.0	–0.2	0.0	–1.6	0.0	0.0	0.0
Emerging and Developing Asia											
Net Lending and Borrowing	2.7	3.9	3.5	2.5	0.9	1.0	1.1	1.3	2.1	2.0	1.7
Current Account Balance	2.6	3.9	3.4	2.4	0.9	1.0	1.0	1.3	2.1	2.0	1.7
Savings	35.1	39.0	44.6	44.5	43.9	43.7	43.5	43.0	42.9	42.5	41.4
Investment	33.0	35.5	41.1	42.0	42.9	42.7	42.4	41.6	40.8	40.5	39.7
Capital Account Balance	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Emerging and Developing Europe											
Net Lending and Borrowing	–3.7	–4.9	–2.7	–4.4	–5.7	–3.6	–2.7	–1.6	–1.4	–2.2	–2.8
Current Account Balance	–3.9	–5.1	–3.4	–5.1	–6.5	–4.6	–3.8	–2.9	–2.4	–3.0	–3.6
Savings	17.9	17.1	16.0	15.9	16.7	16.5	16.6	17.3	17.0	16.9	17.0
Investment	21.6	22.1	19.4	21.0	23.1	21.0	20.4	20.1	19.3	19.8	20.5
Capital Account Balance	0.2	0.3	0.7	0.7	0.8	1.0	1.2	1.2	1.0	0.8	0.8
Latin America and the Caribbean											
Net Lending and Borrowing	–1.1	0.1	–0.7	–1.1	–1.4	–1.8	–2.8	–2.8	–3.2	–3.0	–2.7
Current Account Balance	–1.1	0.0	–0.7	–1.3	–1.4	–1.8	–2.8	–2.8	–3.2	–3.0	–2.7
Savings	18.7	20.6	19.6	20.4	20.7	19.8	18.8	18.2	17.0	17.2	17.9
Investment	19.9	20.6	20.4	21.7	22.1	21.7	21.6	21.1	20.1	20.1	20.7
Capital Account Balance	0.1	0.1	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Middle East, North Africa, Afghanistan, and Pakistan											
Net Lending and Borrowing	7.2	10.5	1.6	6.4	13.0	12.2	9.8	6.5	–1.7	0.0	1.3
Current Account Balance	6.9	10.2	1.8	6.2	13.0	12.3	9.8	6.4	–1.9	–0.1	1.3
Savings	29.9	35.1	31.2	34.4	38.6	37.2	35.1	31.7	25.0	27.1	28.4
Investment	23.9	25.8	31.2	29.1	26.1	25.7	25.0	25.4	27.1	27.3	27.4
Capital Account Balance	0.3	0.3	–0.1	0.1	0.0	–0.1	–0.1	0.1	0.2	0.1	0.1
Sub-Saharan Africa											
Net Lending and Borrowing	1.1	2.2	–1.9	1.2	–0.2	–1.5	–2.1	–3.0	–4.2	–3.8	–3.7
Current Account Balance	–0.2	0.8	–2.7	–0.6	–0.7	–1.9	–2.5	–3.3	–4.6	–4.1	–4.0
Savings	17.6	19.9	19.2	20.1	19.6	18.8	17.6	16.7	15.9	17.0	17.5
Investment	18.6	19.5	21.6	20.5	20.2	20.7	20.1	19.9	20.4	21.0	21.4
Capital Account Balance	1.3	1.4	0.8	1.8	0.5	0.4	0.4	0.3	0.3	0.4	0.3

Table A14. Summary of Net Lending and Borrowing *(continued)*

(Percent of GDP)

	Averages								Projections		
	1997–2006	2001–08	2009	2010	2011	2012	2013	2014	2015	2016	Average 2017–20
Analytical Groups											
By Source of Export Earnings											
Fuel Exporters											
Net Lending and Borrowing	7.9	10.1	3.0	6.6	10.4	9.2	6.9	4.6	–0.1	1.8	2.8
Current Account Balance	7.9	10.3	3.3	6.3	10.4	9.3	7.0	5.3	–0.2	1.8	2.8
Savings	29.8	33.8	28.5	31.4	34.9	33.5	30.7	28.4	24.2	25.9	26.7
Investment	22.8	24.3	26.0	25.6	24.9	24.6	23.5	23.2	24.1	24.0	24.0
Capital Account Balance	0.0	–0.2	–0.3	0.3	0.0	–0.1	0.0	–0.6	0.1	0.0	0.0
Nonfuel Exporters											
Net Lending and Borrowing	0.1	0.9	0.9	0.3	–0.9	–0.8	–0.9	–0.4	0.3	0.2	0.1
Current Account Balance	–0.1	0.7	0.8	0.0	–1.0	–1.0	–1.0	–0.6	0.2	0.1	–0.1
Savings	25.5	28.6	32.6	33.0	32.9	33.0	33.0	33.2	34.0	33.9	33.7
Investment	25.9	28.0	31.8	32.9	33.9	34.0	34.0	33.8	33.8	33.8	33.7
Capital Account Balance	0.2	0.2	0.2	0.3	0.2	0.1	0.1	0.2	0.1	0.1	0.1
By External Financing Source											
Net Debtor Economies											
Net Lending and Borrowing	–1.1	–1.0	–1.4	–1.7	–2.5	–3.1	–3.0	–2.4	–2.3	–2.5	–2.6
Current Account Balance	–1.4	–1.3	–1.6	–2.1	–2.7	–3.3	–3.2	–2.6	–2.5	–2.6	–2.8
Savings	20.4	21.9	22.4	23.2	23.3	22.1	21.5	21.3	21.7	22.1	22.7
Investment	22.1	23.4	23.9	25.2	25.8	25.4	24.6	23.9	24.2	24.7	25.5
Capital Account Balance	0.3	0.3	0.2	0.4	0.2	0.2	0.2	0.3	0.2	0.2	0.2
Net Debtor Economies by Debt-Servicing Experience											
Economies with Arrears and/or Rescheduling during 2009–13											
Net Lending and Borrowing	–0.6	0.0	–3.9	–0.9	–1.9	–5.2	–5.2	–3.4	–4.3	–4.8	–5.2
Current Account Balance	–1.1	–0.5	–3.4	–3.0	–2.5	–4.9	–4.7	–3.3	–4.6	–5.0	–5.3
Savings	17.2	19.2	16.9	18.4	17.4	15.0	14.3	15.0	13.8	13.7	13.8
Investment	19.4	19.9	20.4	21.1	19.9	20.0	19.0	18.3	18.4	18.7	19.3
Capital Account Balance	0.5	0.5	–0.5	2.1	0.7	–0.3	–0.5	–0.1	0.3	0.2	0.2
Memorandum											
World											
Net Lending and Borrowing	–0.1	0.1	0.3	0.6	0.6	0.5	0.6	0.5	0.5	0.5	0.4
Current Account Balance	–0.1	0.0	0.3	0.5	0.5	0.5	0.5	0.5	0.4	0.4	0.3
Savings	23.3	23.7	23.0	24.4	25.2	25.5	25.6	25.5	25.6	25.9	26.3
Investment	23.4	23.7	23.0	24.1	24.8	24.9	24.9	24.9	25.2	25.5	26.0
Capital Account Balance	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1

Note: The estimates in this table are based on individual countries' national accounts and balance of payments statistics. Country group composites are calculated as the sum of the U.S. dollar values for the relevant individual countries. This differs from the calculations in the April 2005 and earlier issues of the WEO, in which the composites were weighted by GDP valued at purchasing power parities as a share of total world GDP. The estimates of gross national savings and investment (or gross capital formation) are from individual countries' national accounts statistics. The estimates of the current account balance, the capital account balance, and the financial account balance (or net lending/net borrowing) are from the balance of payments statistics. The link between domestic transactions and transactions with the rest of the world can be expressed as accounting identities. Savings (*S*) minus investment (*I*) is equal to the current account balance (*CAB*) ($S - I = CAB$). Also, net lending/net borrowing (*NLB*) is the sum of the current account balance and the capital account balance (*KAB*) ($NLB = CAB + KAB$). In practice, these identities do not hold exactly; imbalances result from imperfections in source data and compilation as well as from asymmetries in group composition due to data availability.

[1]Excludes Lithuania.

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

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

Table A15. Summary of World Medium-Term Baseline Scenario

	Averages				Projections		Averages	
	1997–2006	2007–16	2013	2014	2015	2016	2013–16	2017–20
			Annual Percent Change					
World Real GDP	**4.0**	**3.6**	**3.4**	**3.4**	**3.5**	**3.8**	**3.5**	**3.9**
Advanced Economies	2.8	1.3	1.4	1.8	2.4	2.4	2.0	2.0
Emerging Market and Developing Economies	5.5	5.5	5.0	4.6	4.3	4.7	4.6	5.2
Memorandum								
Potential Output								
Major Advanced Economies	2.3	1.4	1.3	1.4	1.5	1.6	1.5	1.7
World Trade, Volume[1]	**6.8**	**3.7**	**3.5**	**3.4**	**3.7**	**4.7**	**3.8**	**5.1**
Imports								
Advanced Economies	6.6	2.3	2.1	3.3	3.3	4.3	3.2	4.6
Emerging Market and Developing Economies	8.1	6.3	5.5	3.7	3.5	5.5	4.5	6.2
Exports								
Advanced Economies	6.1	3.0	3.1	3.3	3.2	4.1	3.4	4.4
Emerging Market and Developing Economies	8.3	5.0	4.6	3.4	5.3	5.7	4.7	6.0
Terms of Trade								
Advanced Economies	–0.2	–0.1	0.7	0.3	1.0	–0.4	0.4	0.0
Emerging Market and Developing Economies	1.6	0.2	–0.3	–0.6	–3.7	0.1	–1.2	–0.2
World Prices in U.S. Dollars								
Manufactures	0.3	0.9	–1.4	–0.8	–3.3	0.5	–1.3	0.6
Oil	12.2	0.2	–0.9	–7.5	–39.6	12.9	–11.1	3.0
Nonfuel Primary Commodities	2.2	1.1	–1.2	–4.0	–14.1	–1.0	–5.2	–0.6
Consumer Prices								
Advanced Economies	2.0	1.6	1.4	1.4	0.4	1.4	1.1	2.0
Emerging Market and Developing Economies	8.8	6.2	5.9	5.1	5.4	4.8	5.3	4.5
Interest Rates			*Percent*					
Real Six-Month LIBOR[2]	2.0	–0.2	–1.1	–1.1	–0.5	0.3	–0.6	1.7
World Real Long-Term Interest Rate[3]	2.5	1.1	0.8	0.5	1.6	1.1	1.0	1.4
Current Account Balances			*Percent of GDP*					
Advanced Economies	–0.6	–0.1	0.3	0.4	0.6	0.4	0.4	0.2
Emerging Market and Developing Economies	1.5	1.5	0.7	0.7	0.1	0.4	0.5	0.5
Total External Debt								
Emerging Market and Developing Economies	34.2	25.7	25.4	25.8	27.5	27.2	26.5	26.2
Debt Service								
Emerging Market and Developing Economies	9.5	8.7	8.9	9.3	9.8	9.5	9.4	9.7

[1]Data refer to trade in goods and services.
[2]London interbank offered rate on U.S. dollar deposits minus percent change in U.S. GDP deflator.
[3]GDP-weighted average of 10-year (or nearest-maturity) government bond rates for Canada, France, Germany, Italy, Japan, the United Kingdom, and the United States.

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IMF EXECUTIVE BOARD DISCUSSION OF THE OUTLOOK, APRIL 2015

The following remarks were made by the Chair at the conclusion of the Executive Board's discussion of the World Economic Outlook, Global Financial Stability Report, *and* Fiscal Monitor *on April 3, 2015.*

Executive Directors noted that a moderate recovery continues in the global economy, with uneven prospects across countries and regions. Growth in emerging market economies is softening, reflecting an adjustment to weaker medium-term growth expectations, lower commodity prices and exports, and country-specific factors. The outlook for advanced economies shows some signs of improvement on the back of lower oil prices, continued support from accommodative monetary policy stances, and some moderation in the pace of fiscal adjustment. A number of Directors considered that global economic developments might turn out to be more positive than currently expected. A few other Directors emphasized the importance of decisive policy actions to counter the "new mediocre."

Directors noted that global growth should continue to increase gradually as crisis legacies fade and advanced economies benefit from accommodative macroeconomic policies. Emerging market economies are likely to slow further in 2015, but growth should pick up again in 2016 and beyond, as the current setbacks to activity begin to dissipate. Directors agreed that the near-term distribution of risks to global growth has become more balanced, although most noted that it remains tilted to the downside. The decline in oil prices could boost activity more than expected, but geopolitical tensions continue to pose threats, and risks of abrupt shifts in asset prices—including exchange rates—have increased. In some advanced economies, protracted below-target inflation or deflation could affect activity and public and private debt dynamics. A few Directors considered that this risk has diminished. A few others urged greater focus on global imbalances.

Despite the expected improvement in the outlook, Directors broadly agreed that short-term financial stability risks have increased. Oil- and commodity-exporting countries and firms generally face revenue losses and higher risks. Emerging market corporations that have borrowed heavily in U.S. dollars and are not sufficiently hedged are now faced with potential balance sheet pressures from the appreciating U.S. dollar. A retrenchment of overinvested industries and property price declines—especially in China—could spill over to emerging markets more broadly. In advanced economies, the low-interest-rate environment poses challenges for long-term investors, including weaker life insurance companies in Europe. High debt levels and nonperforming loans in the private sector continue to pose headwinds to growth and financial stability in some advanced economies. Recent declines in liquidity in some markets may amplify financial stability risks.

At the same time, Directors also noted important medium-term risks to the global recovery. In emerging market economies, tighter financial conditions or unaddressed supply-side constraints represent significant risks. Growth prospects in advanced economies are held down by aging populations, weak investment, and lackluster productivity growth while sustained weakness in demand could weigh on potential output.

To address these risks and challenges, Directors underscored that boosting actual and potential growth remains a policy priority. In emerging market economies, macroeconomic policy space to support growth remains limited, but lower oil prices will alleviate inflation pressures and could increase fiscal space in oil importers. In oil exporters, adjusting public spending in view of lower fiscal revenues is a priority, although countries with strong financial buffers may adjust more gradually. Better fiscal frameworks with clear medium-term objectives are needed in many countries to anchor fiscal policy and avoid a procyclical policy stance. Directors also emphasized that lower oil prices provide an

opportunity to reform inefficient energy subsidies and provide breathing room for more productive and equitable spending and growth-enhancing tax reforms.

Directors broadly concurred that continued accommodative monetary policy is essential in many advanced economies. To support credit markets, additional measures are needed to restore balance sheet health in the private sector, including in the euro area. At the same time, many Directors noted the limitations and risks of prolonged accommodative monetary policies and divergent monetary stances, and some underscored the need to better understand their implications for emerging market and developing countries. Fiscal policy could be used to support demand and contribute to global rebalancing, for example through infrastructure investment in some advanced economies, while countries constrained by high levels of public debt should pursue growth-friendly reforms affecting the composition of revenues and expenditures. Credible medium-term fiscal consolidation plans are still needed in a number of countries, especially in Japan and the United States.

Directors highlighted the importance of a sound international banking system, and noted that more progress on the implementation of regulatory standards and cross-border resolution is needed. Strengthening microprudential policies and building a macroprudential toolkit remains a priority in many emerging market and developing economies. In advanced economies, the oversight of certain parts of the nonbank financial sector needs to be strengthened, particularly the asset management industry, as well as the life insurance industry in Europe, with better microprudential supervision and stronger emphasis on systemic risk. A number of Directors noted progress in the international regulatory reform agenda and increased efforts to monitor financial risks and build resilience. They cautioned that additional regulation and oversight should be commensurate to the systemic risk posed and take into account both costs and benefits.

Directors emphasized the importance of exchange rate flexibility for emerging markets without currency pegs, while recognizing that measures may be necessary to limit excessive exchange rate volatility. Bolstering resilience to external shocks will also require stronger macroeconomic and macroprudential policy frameworks, and robust prudential regulation and supervision. In China, further progress to gradually shift the composition of demand toward domestic consumption and reduce reliance on credit and investment would help forestall medium-term risks of financial disruption or a sharp slowdown.

Directors called for further structural reforms to raise potential growth. In emerging market and developing economies, the main priorities are removing infrastructure bottlenecks, reforming labor and product markets, strengthening education, easing limits on trade and investment, improving business conditions, and enhancing government services delivery. In advanced economies, strengthening public infrastructure, increasing labor force participation, and enabling innovation and productivity-enhancing investment are key priorities. In the euro area, reforms need to tackle legacy debt overhang, barriers to product market entry, labor market regulations that hamper adjustment, and obstacles to investment activity. In Japan, there is scope to improve service sector productivity and support investment through corporate governance reform.

Directors also stressed that continued strong growth in low income developing countries calls for greater progress in diversification and structural transformation. Key requirements include boosting fiscal positions with stronger revenues and rationalized public spending, strengthening public financial management, achieving greater monetary policy independence, promoting financial deepening, and attracting capital flows. Infrastructure investment, anchored in well-designed debt management strategies, is essential to increase growth potential. Advanced and systemically important emerging economies should play a supportive role in maintaining an enabling external environment for low-income developing countries. 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.

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