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Recovery Strengthens, Remains Uneven

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(April 8, 2014)
Note 7 in Figure 1.3 on page 4 has been corrected to remove Colombia from the list of upward pressure countries.

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 January 31–February 28, 2014, 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 $104.17 a barrel in 2014 and $97.92 a barrel in 2015 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 0.4 percent in 2014 and 0.8 percent in 2015; that the three-month euro deposit rate will average 0.3 percent in 2014 and 0.4 percent in 2015; and that the six-month Japanese yen deposit rate will yield on average 0.2 percent in 2014 and 2015. 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 generally through March 24, 2014.

The following conventions are used throughout the WEO:

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

– between years or months (for example, 2013–14 or January–June) to indicate the years or months covered, including the beginning and ending years or months;

/ between years or months (for example, 2013/14) to indicate a fiscal or financial year.

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

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

For some countries, the figures for 2013 and earlier are based on estimates rather than actual outturns.

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 reference periods for each country.

Projections for Ukraine are excluded due to the ongoing crisis.

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.

Korea's real GDP series is based on the reference year 2005. This does not reflect the revised national accounts released on March 26, 2014, after the WEO was finalized for publication. These comprehensive revisions include implementing the 2008 System of National Accounts and updating the reference year to 2010. As a result of these revisions, real GDP growth in 2013 was revised up to 3 percent from 2.8 percent (which is the figure included in Tables 2.3 and A2).

On January 1, 2014, Latvia became the 18th country to join the euro area. Data for Latvia are not included in the euro area aggregates, because the database has not yet been converted to euros, but are included in data aggregated for advanced economies.

Starting with the April 2014 WEO, the Central and Eastern Europe and Emerging Europe regions have been renamed Emerging and Developing Europe. The Developing Asia region has been renamed Emerging and Developing Asia.

Cape Verde is now called Cabo Verde.

As in the October 2013 WEO, data for Syria are excluded for 2011 onward because of the uncertain political situation.

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*.

The WEO data and metadata provided are "as is" and "as available," and every effort is made to ensure, but not guarantee, their timeliness, accuracy, and completeness. When errors are discovered, there is a concerted effort to correct them as appropriate and feasible. Corrections and revisions made after publication are incorporated into the electronic editions available from the IMF eLibrary (www.elibrary.imf.org) and on the IMF website (www.imf.org). All substantive changes are listed in detail in the online tables of contents.

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World Economic Studies Division
Research Department
International Monetary Fund
700 19th Street, N.W.
Washington, DC 20431, U.S.A.
Fax: (202) 623-6343
Online Forum: www.imf.org/weoforum

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 Thomas Helbling, Division Chief, Research Department, and Jörg Decressin, Deputy Director, Research Department.

The primary contributors to this report are Abdul Abiad, Aseel Almansour, Aqib Aslam, Samya Beidas-Strom, John Bluedorn, Rupa Duttagupta, Davide Furceri, Andrea Pescatori, Marco E. Terrones, and Juan Yepez Albornoz.

Other contributors include Ali Alichi, Angana Banerji, Benjamin Beckers, Alberto Behar, Sami Ben Naceur, Patrick Blagrave, Kevin Clinton, Alexander Culiuc, Joshua Felman, Emilio Fernandez Corugedo, Roberto Garcia-Saltos, Roberto Guimarães-Filho, Keiko Honjo, Benjamin Hunt, Dora Iakova, Deniz Igan, Gregorio Impavido, Zoltan Jakab, Douglas Laxton, Lusine Lusinyan, Andre Meier, Pritha Mitra, Dirk Muir, Jean-Marc Natal, Marco Pani, Mahvash Qureshi, Jesmin Rahman, Marina Rousset, Damiano Sandri, John Simon, Serhat Solmaz, Shane Streifel, Yan Sun, Li Tang, Boqun Wang, and Shengzu Wang.

Gohar Abajyan, Gavin Asdorian, Shan Chen, Tingyun Chen, Angela Espiritu, Madelyn Estrada, Sinem Kilic Celik, Mitko Grigorov, Cleary A. Haines, Pavel Lukyantsau, Olivia Ma, Tim Mahedy, Anayo Osueke, Katherine Pan, Sidra Rehman, Daniel Rivera Greenwood, Carlos Rondon, Yang Yang, and Fan Zhang provided research assistance. Luis Cubeddu provided comments and suggestions. Mahnaz Hemmati, Toh Kuan, Emory Oakes, and Richard Watson provided technical support. Skeeter Mathurin and Anduriña Espinoza-Wasil were responsible for word processing. Linda Griffin Kean and Michael Harrup of the Communications Department edited the manuscript and coordinated production of the publication with assistance from Lucy Scott Morales and Sherrie Brown. The Core Data Management team from the IMF's IT department and external consultant Pavel Pimenov provided additional technical support.

The analysis has benefited from comments and suggestions by staff members from other IMF departments, as well as by Executive Directors following their discussion of the report on March 21, 2014. However, both projections and policy considerations are those of the IMF staff and should not be attributed to Executive Directors or to their national authorities.

FOREWORD

The dynamics that were emerging at the time of the October 2013 *World Economic Outlook* are becoming more visible:

The recovery then starting to take hold in advanced economies is becoming broader. Fiscal consolidation is slowing, and investors are less worried about debt sustainability. Banks are gradually becoming stronger. Although we are far short of a full recovery, the normalization of monetary policy—both conventional and unconventional—is now on the agenda.

These dynamics imply a changing environment for emerging market and developing economies. Stronger growth in advanced economies implies increased demand for their exports. The normalization of monetary policy, however, implies tighter financial conditions and a tougher financial environment. Investors will be less forgiving, and macroeconomic weaknesses will become more costly.

Acute risks have decreased, but risks have not disappeared. In the United States, the recovery seems solidly grounded. In Japan, Abenomics still needs to translate into stronger domestic private demand for the recovery to be sustained. Adjustment in the south of Europe cannot be taken for granted, especially if Euro wide inflation is low. As discussed in the April 2014 *Global Financial Stability Report,* financial reform is incomplete, and the financial system remains at risk. Geopolitical risks have arisen, although they have not yet had global macroeconomic repercussions.

Looking ahead, the focus must increasingly turn to the supply side:

Potential growth in many advanced economies is very low. This is bad on its own, but it also makes fiscal adjustment more difficult. In this context, measures to increase potential growth are becoming more important—from rethinking the shape of labor market institutions, to increasing competition and productivity in a number of nontradables sectors, to rethinking the size of the government, to examining the role of public investment.

Although the evidence is not yet clear, potential growth in many emerging market economies also appears to have decreased. In some countries, such as China, this may be in part a desirable byproduct of more balanced growth. In others, there is clearly scope for some structural reforms to improve the outcome.

Finally, as the effects of the financial crisis slowly diminish, another trend may come to dominate the scene, namely, increased income inequality. Though inequality has always been perceived to be a central issue, until recently it was not believed to have major implications for macroeconomic developments. This belief is increasingly called into question. How inequality affects both the macroeconomy and the design of macroeconomic policy will likely be increasingly important items on our agenda.

Olivier Blanchard
Economic Counsellor

EXECUTIVE SUMMARY

Global activity has broadly strengthened and is expected to improve further in 2014–15, with much of the impetus coming from advanced economies. Inflation in these economies, however, has undershot projections, reflecting still-large output gaps and recent commodity price declines. Activity in many emerging market economies has disappointed in a less favorable external financial environment, although they continue to contribute more than two-thirds of global growth. Their output growth is expected to be lifted by stronger exports to advanced economies. In this setting, downside risks identified in previous *World Economic Outlook* reports have diminished somewhat. There are three caveats: emerging market risks have increased, there are risks to activity from lower-than-expected inflation in advanced economies, and geopolitical risks have resurfaced. Overall, the balance of risks, while improved, remains on the downside.

The renewed increase in financial volatility in late January of this year highlights the challenges for emerging market economies posed by the changing external environment. The proximate cause seems to have been renewed market concern about emerging market fundamentals. Although market pressures were relatively broadly based, countries with higher inflation and wider current account deficits were generally more affected. Some of these weaknesses have been present for some time, but with prospects of improved returns in advanced economies, investor sentiment is now less favorable toward emerging market risks. In view of possible capital flow reversals, risks related to sizable external funding needs and disorderly currency depreciations are a concern. Some emerging market economies have tightened macroeconomic policies to shore up confidence and strengthen their commitment to policy objectives. Overall, financial conditions have tightened further in some emerging market economies compared with the October 2013 *World Economic Outlook*. The cost of capital has increased as a result, and this is expected to dampen investment and weigh on growth.

Looking ahead, global growth is projected to strengthen from 3 percent in 2013 to 3.6 percent in 2014 and 3.9 percent in 2015, broadly unchanged from the October 2013 outlook. In advanced economies, growth is expected to increase to about 2¼ percent in 2014–15, an improvement of about 1 percentage point compared with 2013. Key drivers are a reduction in fiscal tightening, except in Japan, and still highly accommodative monetary conditions. Growth will be strongest in the United States at about 2¾ percent. Growth is projected to be positive but varied in the euro area: stronger in the core, but weaker in countries with high debt (both private and public) and financial fragmentation, which will both weigh on domestic demand. In emerging market and developing economies, growth is projected to pick up gradually from 4.7 percent in 2013 to about 5 percent in 2014 and 5¼ percent in 2015. Growth will be helped by stronger external demand from advanced economies, but tighter financial conditions will dampen domestic demand growth. In China, growth is projected to remain at about 7½ percent in 2014 as the authorities seek to rein in credit and advance reforms while ensuring a gradual transition to a more balanced and sustainable growth path.

The global recovery is still fragile despite improved prospects, and significant downside risks—both old and new—remain. Recently, some new geopolitical risks have emerged. On old risks, those related to *emerging market economies* have increased with the changing external environment. As highlighted in the April 2014 *Global Financial Stability Report*, unexpectedly rapid normalization of U.S. monetary policy or renewed bouts of high risk aversion on the part of investors could result in further financial turmoil. This would lead to difficult adjustments in some emerging market economies, with a risk of contagion and broad-based financial stress, and thus lower growth.

In *advanced economies*, risks to activity associated with very low inflation have come to the fore, especially in the euro area, where large output gaps have contributed to low inflation. With inflation likely to remain below target for some time, longer-term inflation expectations might drift down, leading to even lower inflation than is currently expected, or possibly

to deflation if other downside risks to activity materialize. The result would be higher real interest rates, an increase in private and public debt burdens, and weaker demand and output.

The strengthening of the recovery from the Great Recession in the advanced economies is a welcome development. But growth is not evenly robust across the globe, and more policy efforts are needed to fully restore confidence, ensure robust growth, and lower downside risks.

Policymakers in advanced economies need to avoid a premature withdrawal of monetary accommodation. In an environment of continued fiscal consolidation, still-large output gaps, and very low inflation, monetary policy should remain accommodative. In the euro area, more monetary easing, including unconventional measures, is necessary to sustain activity and help achieve the European Central Bank's price stability objective, thus lowering risks of even lower inflation or outright deflation. Sustained low inflation would not likely be conducive to a suitable recovery of economic growth. In Japan, implementation of the remaining two arrows of Abenomics—structural reform and plans for fiscal consolidation beyond 2015—is essential to achieve the inflation target and higher sustained growth. The need for credible medium-term fiscal plans, however, extends beyond Japan. The April 2014 *Fiscal Monitor* highlights that the combination of large public debt stocks and the absence of medium-term adjustment plans that include specific measures and strong entitlement reforms is the main factor behind important medium-term fiscal risks in advanced economies, including in the United States. In the euro area, repairing bank balance sheets in the context of a credible asset quality review and recapitalizing weak banks will be critical if confidence is to improve and credit is to revive. Also essential for achieving these goals is progress on completing the banking union—including an independent Single Resolution Mechanism with the capacity to undertake timely bank resolution and common backstops to sever the link between sovereigns and banks. More structural reforms are needed to lift investment and activity prospects.

Emerging market economies will have to weather turbulence and maintain high medium-term growth. The appropriate policy measures will differ across these economies. However, many of them have some policy priorities in common. First, policymakers should allow exchange rates to respond to changing fundamentals and facilitate external adjustment. Where international reserves are adequate, foreign exchange interventions can be used to smooth volatility and avoid financial disruption. Second, in economies in which inflation is still relatively high or the risks that recent currency depreciation could feed into underlying inflation are high, further monetary policy tightening may be necessary. If policy credibility is a problem, strengthening the transparency and consistency of policy frameworks may be necessary for tightening to be effective. Third, on the fiscal front, policymakers must lower budget deficits, although the urgency for action varies across economies. Early steps are required if public debt is already elevated and the associated refinancing needs are a source of vulnerability. Fourth, many economies need a new round of structural reforms that include investment in public infrastructure, removal of barriers to entry in product and services markets, and in China, rebalancing growth away from investment toward consumption.

Low-income countries will need to avoid a buildup of external and public debt. Many of these countries have succeeded in maintaining strong growth, partly reflecting better macroeconomic policies, but their external environment has also been changing. Foreign direct investment has started to moderate with declining commodity prices, and commodity-related budget revenues and foreign exchange earnings are at risk. Timely policy adjustments will be important to avoid a buildup in external debt and public debt.

CHAPTER 1

RECENT DEVELOPMENTS AND PROSPECTS

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

The Demand and Activity Perspective

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

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

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

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

(Percent change unless noted otherwise)

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

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

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

[2]Excludes Latvia.

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

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

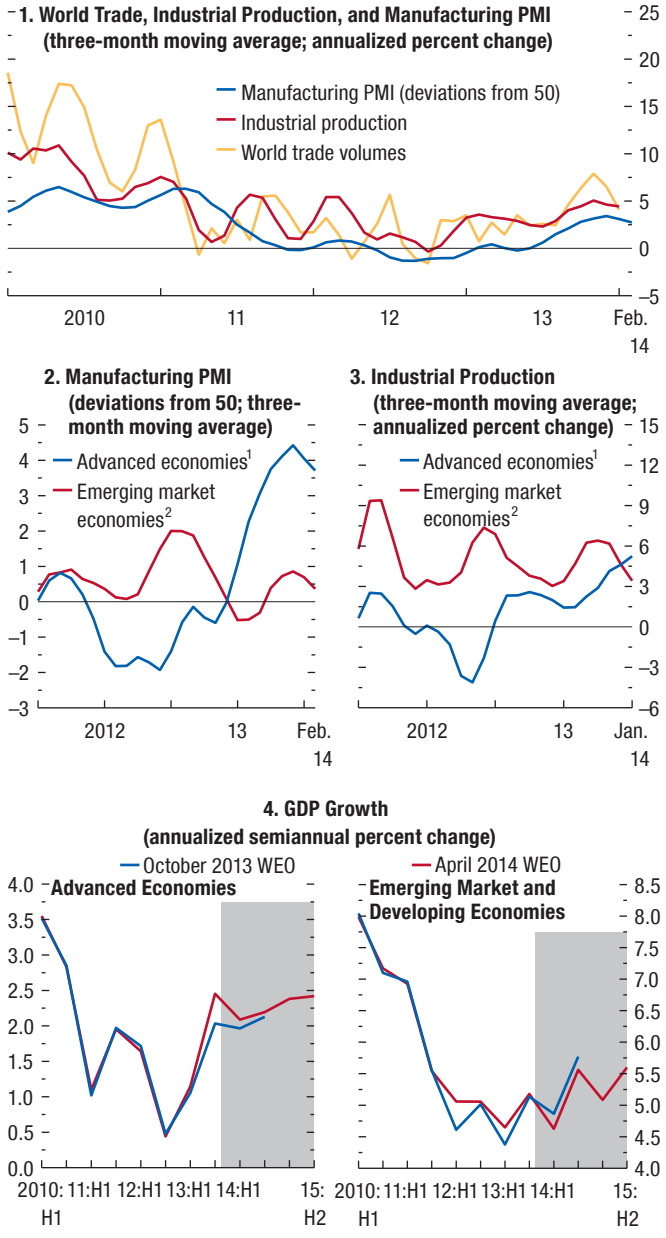
[5]For India, data and forecasts are presented on a fiscal year basis and output growth is based on GDP at market prices. Corresponding growth forecasts for GDP at factor cost are 4.6, 5.4, and 6.4 percent for 2013, 2014, and 2015, respectively.

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

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

Figure 1.1. Global Activity Indicators

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

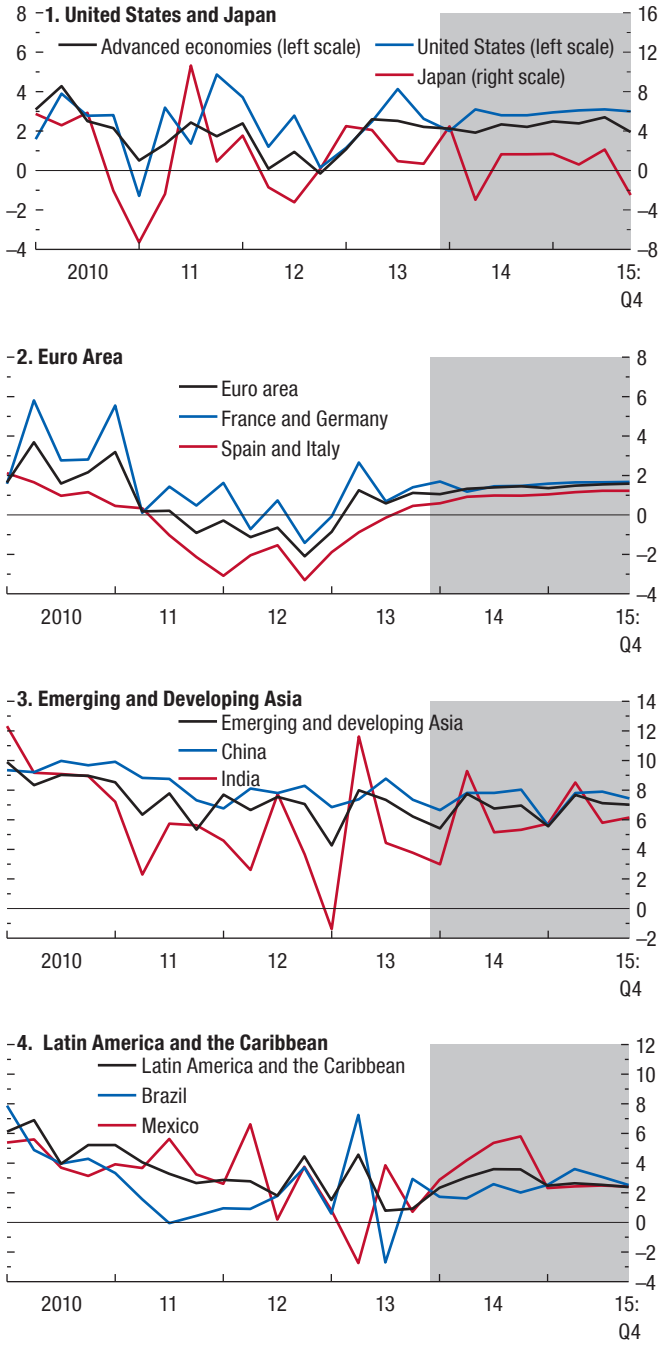


Sources: CPB Netherlands Bureau for Economic Policy Analysis; Haver Analytics; Markit Economics; and IMF staff estimates.
Note: IP = industrial production; PMI = purchasing managers' index.
[1]Australia, Canada, Czech Republic, Denmark, euro area, Hong Kong SAR (IP only), Israel, Japan, Korea, New Zealand,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

Figure 1.2. GDP Growth Forecasts

(Annualized quarterly percent change)

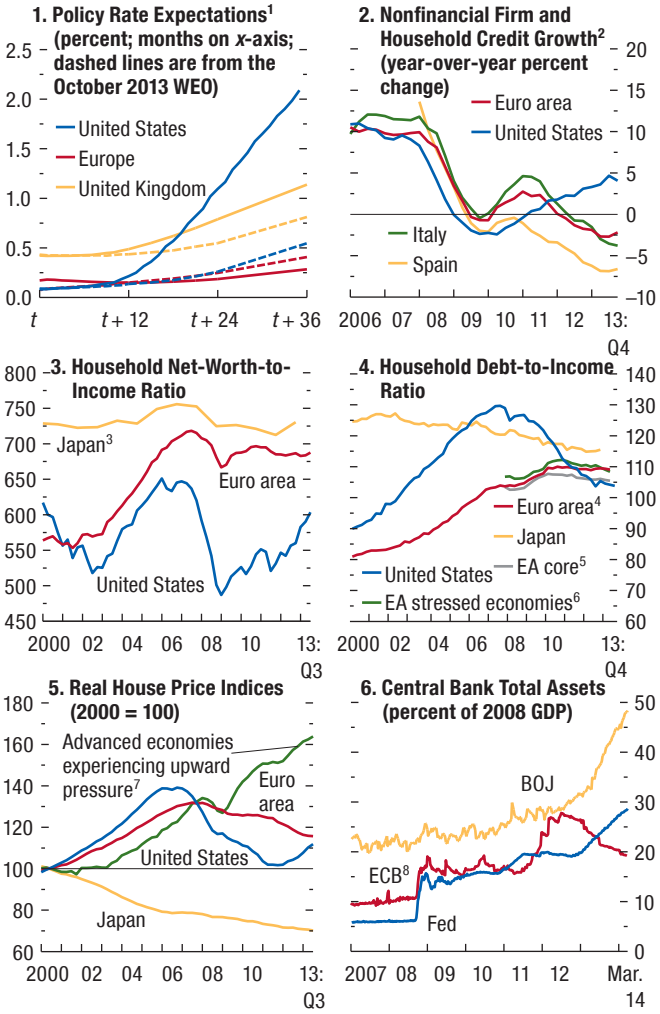
Growth in advanced economies is projected to strengthen moderately in 2014–15, building up momentum from the gains in 2013. Growth in the United States will remain above trend, and growth in Japan is expected to moderate, mostly as the result of a modest fiscal drag. Among emerging market economies,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



Source: IMF staff estimates.

Figure 1.3. Monetary Conditions in Advanced Economies

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



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

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

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

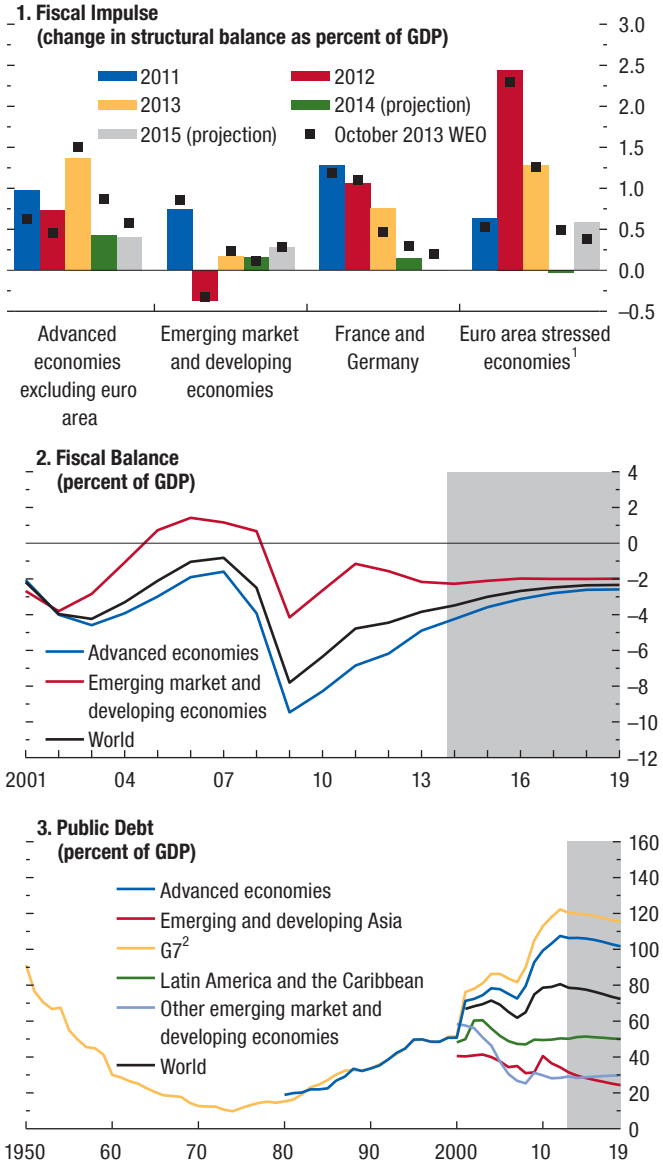
In emerging market and developing economies, growth picked up slightly in the second half of 2013. The weaker cyclical momentum in comparison with that in the advanced economies reflects the opposite effects of two forces on growth. On one hand, export growth increased, lifted by stronger activity in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

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

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

Figure 1.4. Fiscal Policies

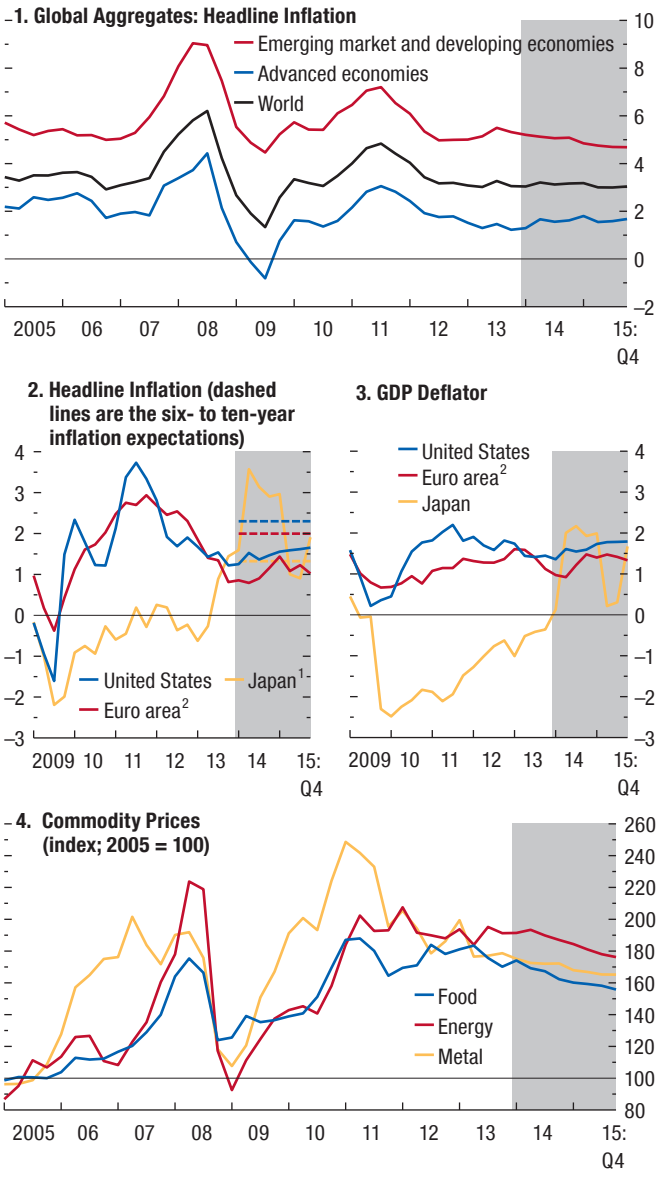
The fiscal drag in advanced economies is expected to decline in 2014, except in the case of Japan, and increase in 2015. This increase is largely due to the second step in the consumption tax increase and the unwinding of fiscal stimulus in Japan. In emerging market economies, the fiscal stance is projected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



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

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

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



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

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

Inflation Is Low

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

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

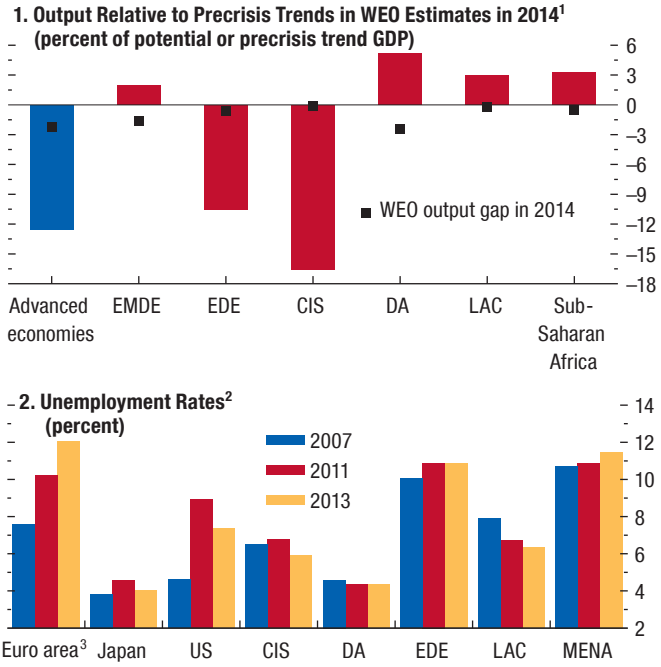
terms are projected to ease a bit further in 2014–15, partly reflecting the path implied by commodity futures prices. As discussed in the Commodity Special Feature, however, for the specific case of oil prices, forecasts differ depending on the underlying approach. That said, different forecasting models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

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

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

Figure 1.6. Capacity, Unemployment, and Output Trend

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



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

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

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

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

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

Monetary Policy, Financial Conditions, and Capital Flows Are Diverging

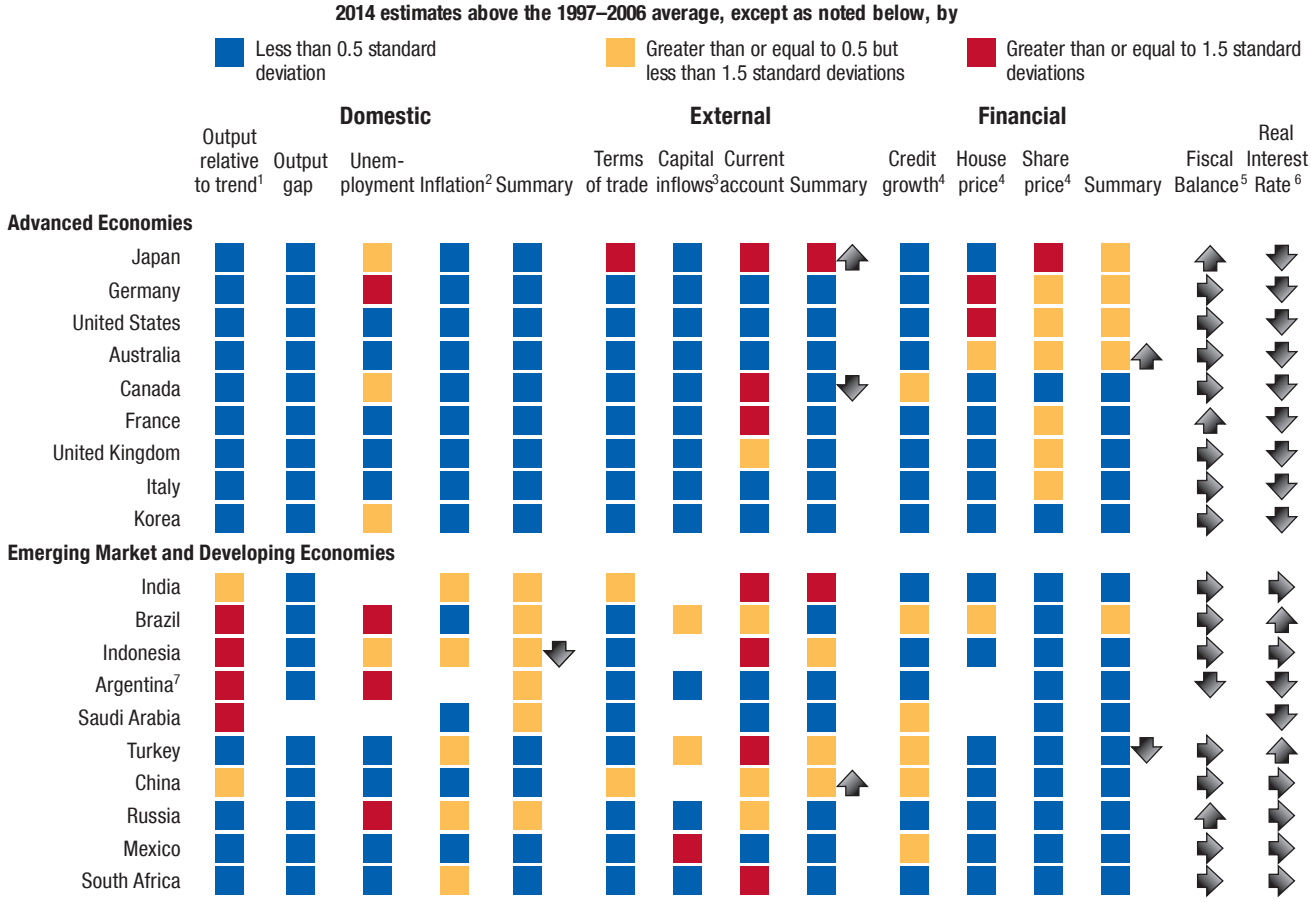
Monetary conditions have stayed mostly supportive in advanced economies despite lasting increases in longer-term interest rates since May 2013, when the Federal Reserve announced its intention to begin tapering its asset purchase program (Figure 1.8, panels 2 and 5). However, longer-term rates are still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

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

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

Figure 1.7. Overheating Indicators for the Group of Twenty Economies

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



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

Note: For each indicator, except as noted below, economies are assigned colors based on projected 2014 values relative to their precrisis (1997–2006) average. Each indicator is scored as red = 2, yellow = 1, and blue = 0; summary scores are calculated as the sum of selected component scores divided by the maximum possible sum of those scores. Summary blocks are assigned red if the summary score is greater than or equal to 0.66, yellow if greater than or equal to 0.33 but less than 0.66, and blue if less than 0.33. When data are missing, no color is assigned. Arrows up (down) indicate hotter (colder) conditions compared with the October 2013 WEO.

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

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

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

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

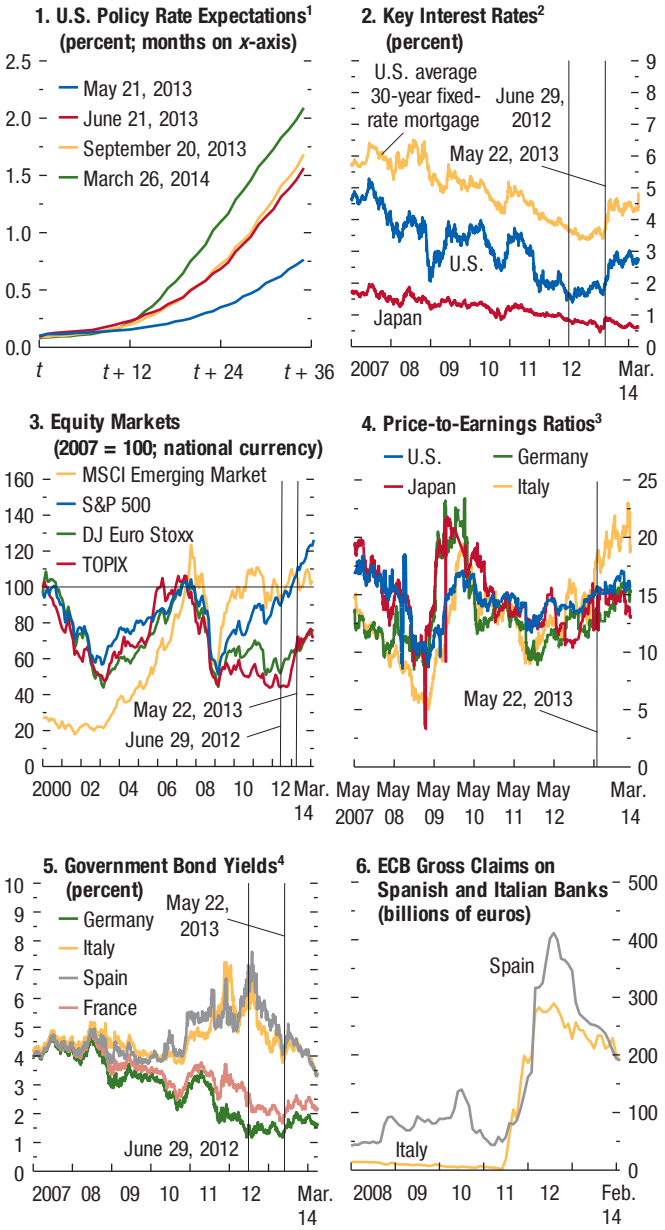
[5]Arrows in the fiscal balance column represent the forecast change in the structural balance as a percent of GDP over the period 2013–14. An improvement of more than 0.5 percent of GDP is indicated by an up arrow; a deterioration of more than 0.5 percent of GDP is indicated by a down arrow. A change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

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

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

Figure 1.8. Financial Market Conditions in Advanced Economies

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



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

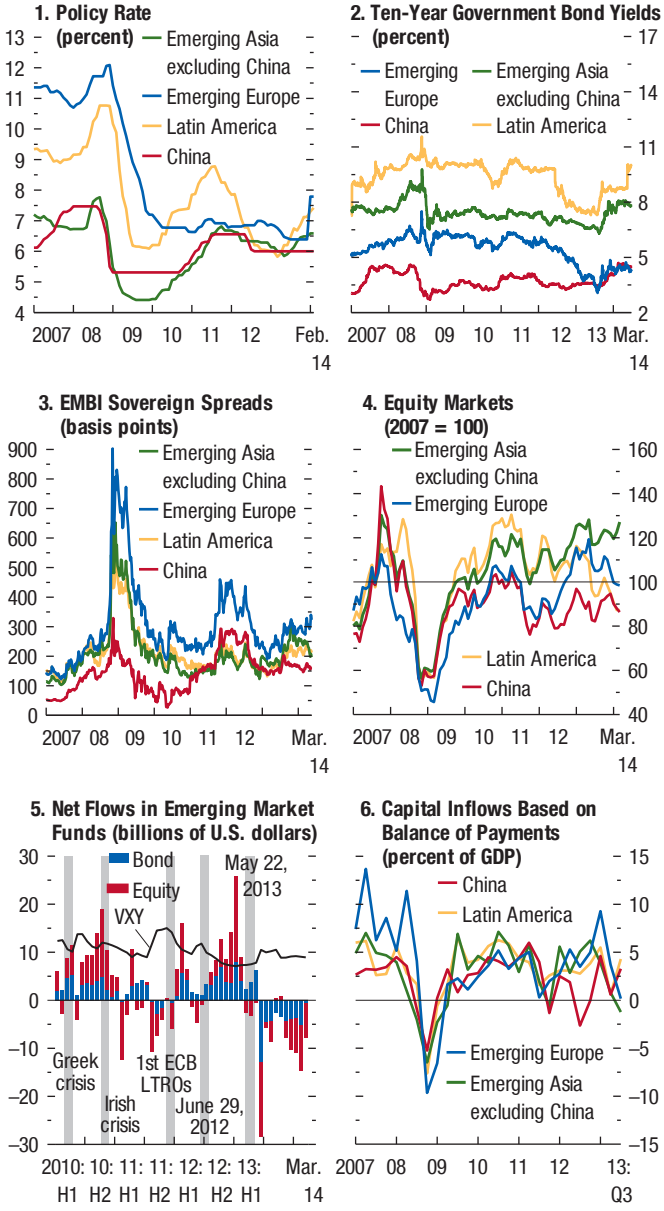
In emerging market economies, there has been a tightening of monetary and financial conditions since May 2013. This is the combined result of spillovers from rising bond rates and better prospects in advanced economies, markets' reassessment of medium-term growth prospects, and greater investor concerns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

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

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

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

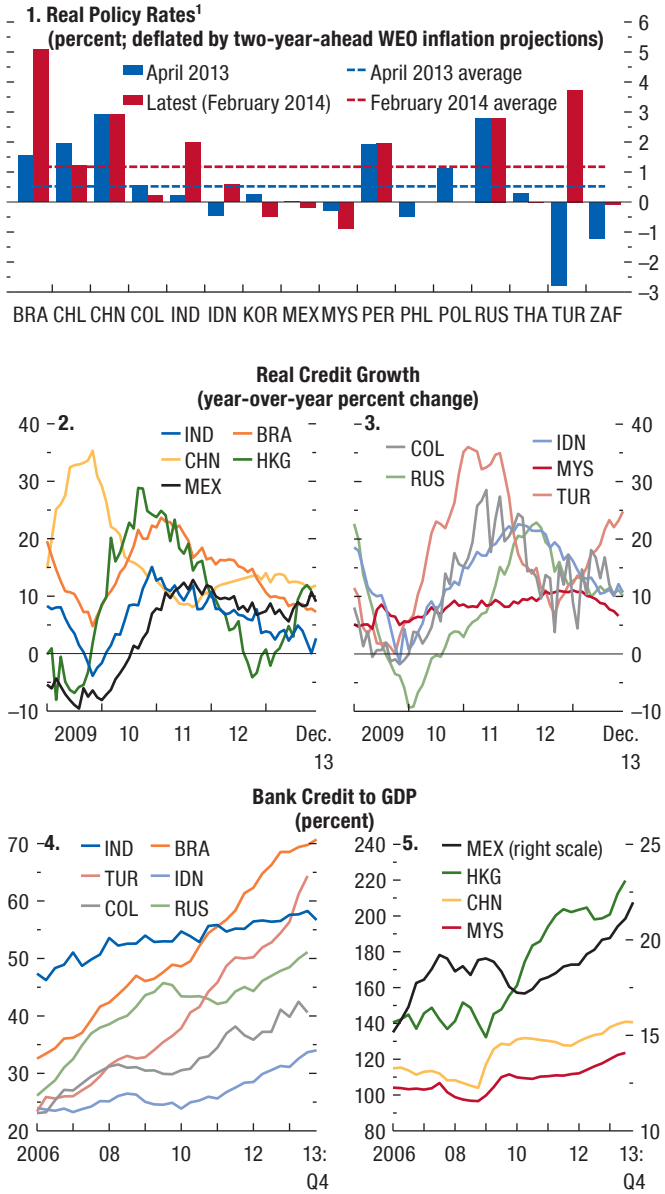
Financial conditions in emerging market economies have tightened recently in response to a more difficult external financial environment. Bond rates and spreads have increased, and equity markets have moved sideways. Gross capital inflows have declined, and exchange rates have depreciated. Overall, the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



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

Figure 1.10. Monetary Policies and Credit in Emerging Market Economies

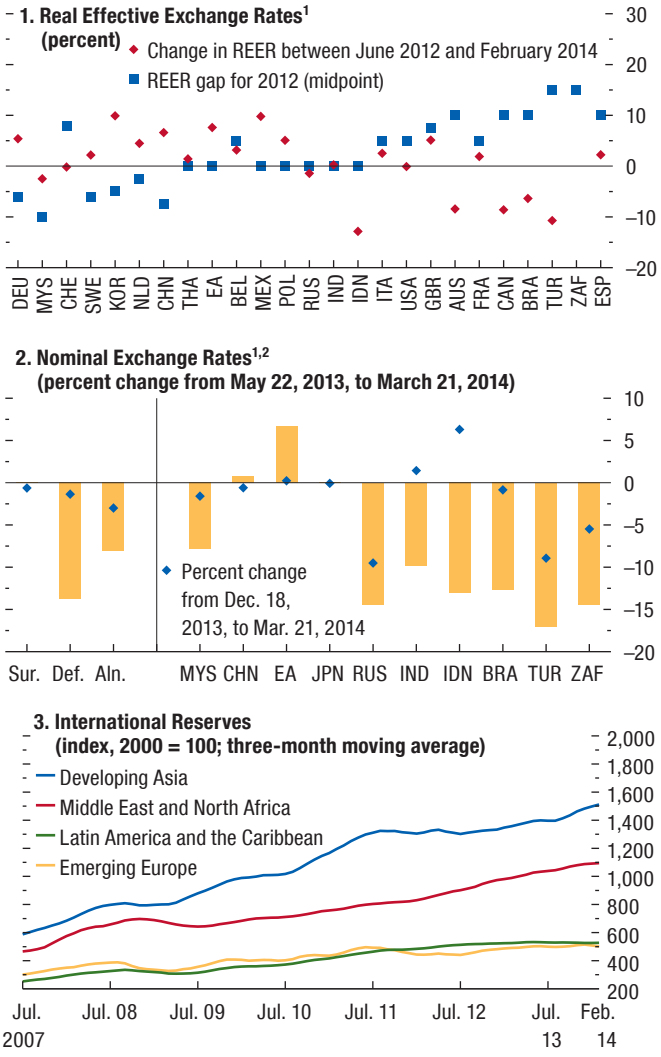
Monetary conditions have tightened in many emerging market economies, reflecting changes in external funding, but also policy rate increases in some economies (including Brazil, Indonesia, South Africa, and Turkey); however, real policy rates remain negative in some emerging markets, in some cases because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



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

Figure 1.11. Exchange Rates and Reserves

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



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

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

The External Sector Perspective

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

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

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

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

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

Downside Risks

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

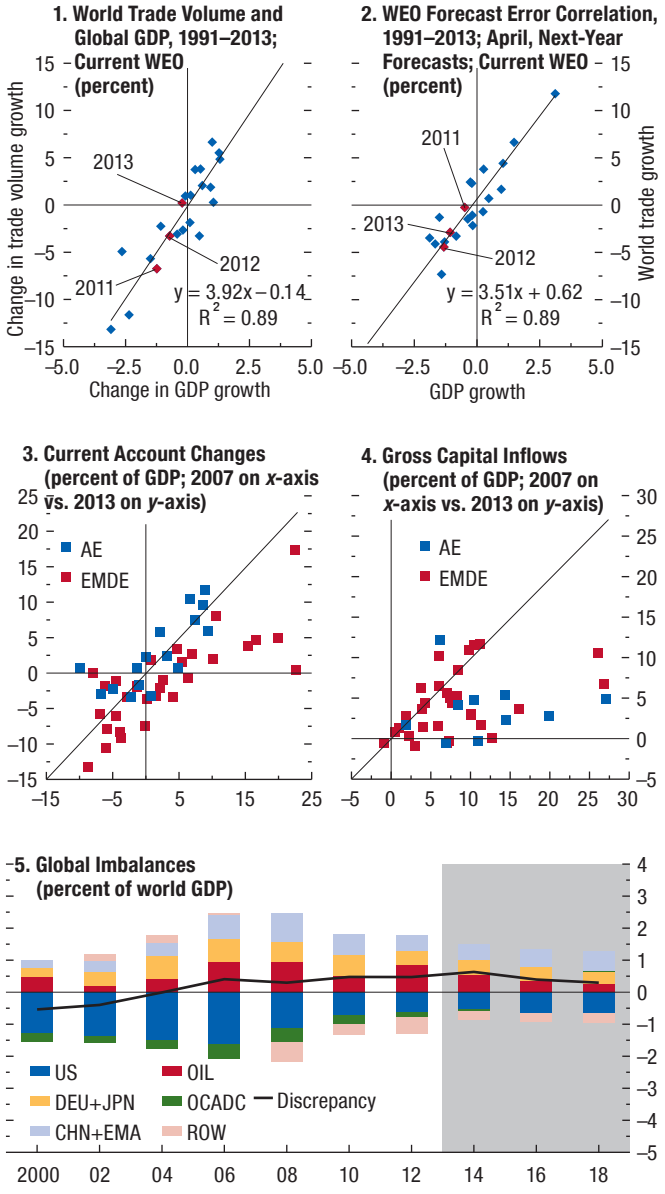
A Quantitative Risk Assessment: Uncertainty Has Narrowed

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

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

Figure 1.12. External Sector

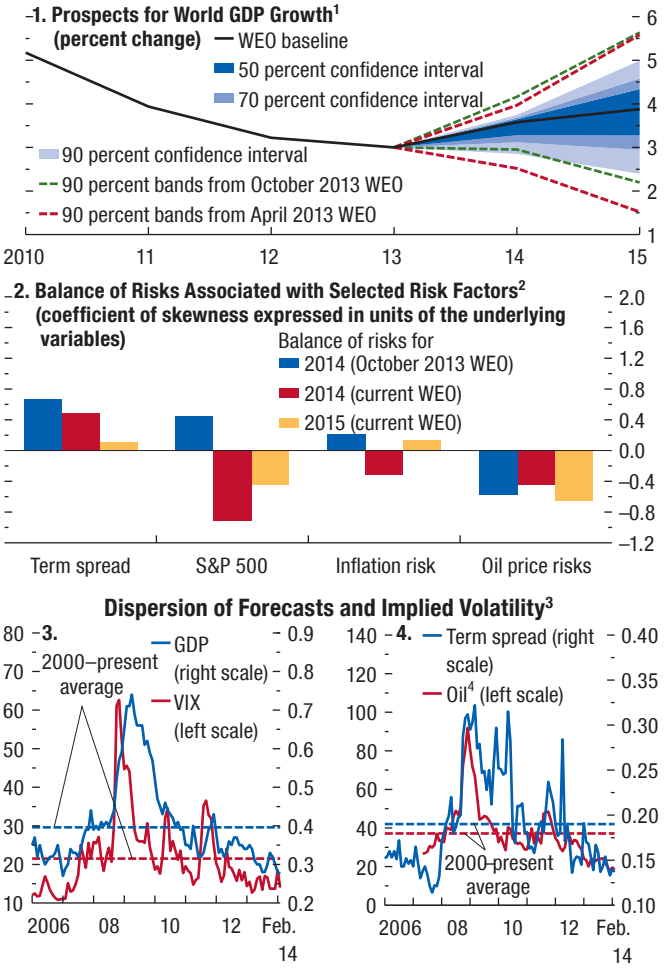
Global trade volumes rebounded with the strengthening in global activity in the second half of 2013. The earlier weakening in global trade was broadly consistent with the slowdown in activity, highlighting the high short-term income elasticities of exports and imports. Current account balances of most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



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

Figure 1.13. Risks to the Global Outlook

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



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

[1]The fan chart shows the uncertainty around the WEO central forecast with 50, 70, and 90 percent confidence intervals. As shown, the 70 percent confidence interval includes the 50 percent interval, and the 90 percent confidence interval includes the 50 and 70 percent intervals. See Appendix 1.2 of the April 2009 WEO for details. The 90 percent bands for the current-year and one-year-ahead forecasts from the April 2013 and October 2013 WEO reports are shown relative to the current baseline.

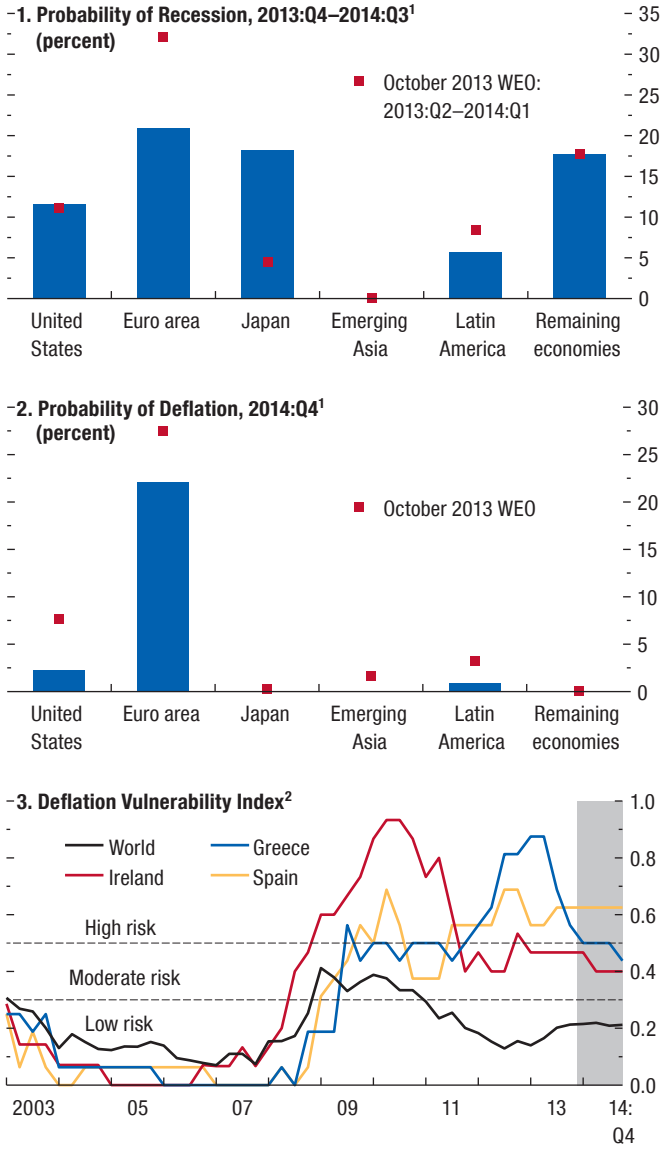
[2]Bars depict the coefficient of skewness expressed in units of the underlying variables. The values for inflation risks and oil price risks enter with the opposite sign since they represent downside risks to growth. Note that the risks associated with the Standard & Poor's (S&P) 500 for 2014 and 2015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

[3]GDP measures the purchasing-power-parity-weighted average dispersion of GDP forecasts for the G7 economies (Canada, France, Germany, Italy, Japan, United Kingdom, United States), Brazil, China, India, and Mexico. VIX = Chicago Board Options Exchange S&P 500 Implied Volatility Index. Term spread measures the average dispersion of term spreads implicit in interest rate forecasts for Germany, Japan, United Kingdom, and United States. Forecasts are from Consensus Economics surveys.

[4]CBOE crude oil volatility index.

Figure 1.14. Recession and Deflation Risks

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



Source: IMF staff estimates.

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

[2]For details on the construction of this indicator, see Kumar (2003) and Decressin and Laxton (2009). The indicator is expanded to include house prices.

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

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

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

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

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

Advanced economy risks

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

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

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

Emerging market economy risks

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

Medium-term risks

Low interest rates and risks of stagnation

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

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

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

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

A hard landing in China

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

Risk scenarios: Tensions from upside and downside risks

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

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

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

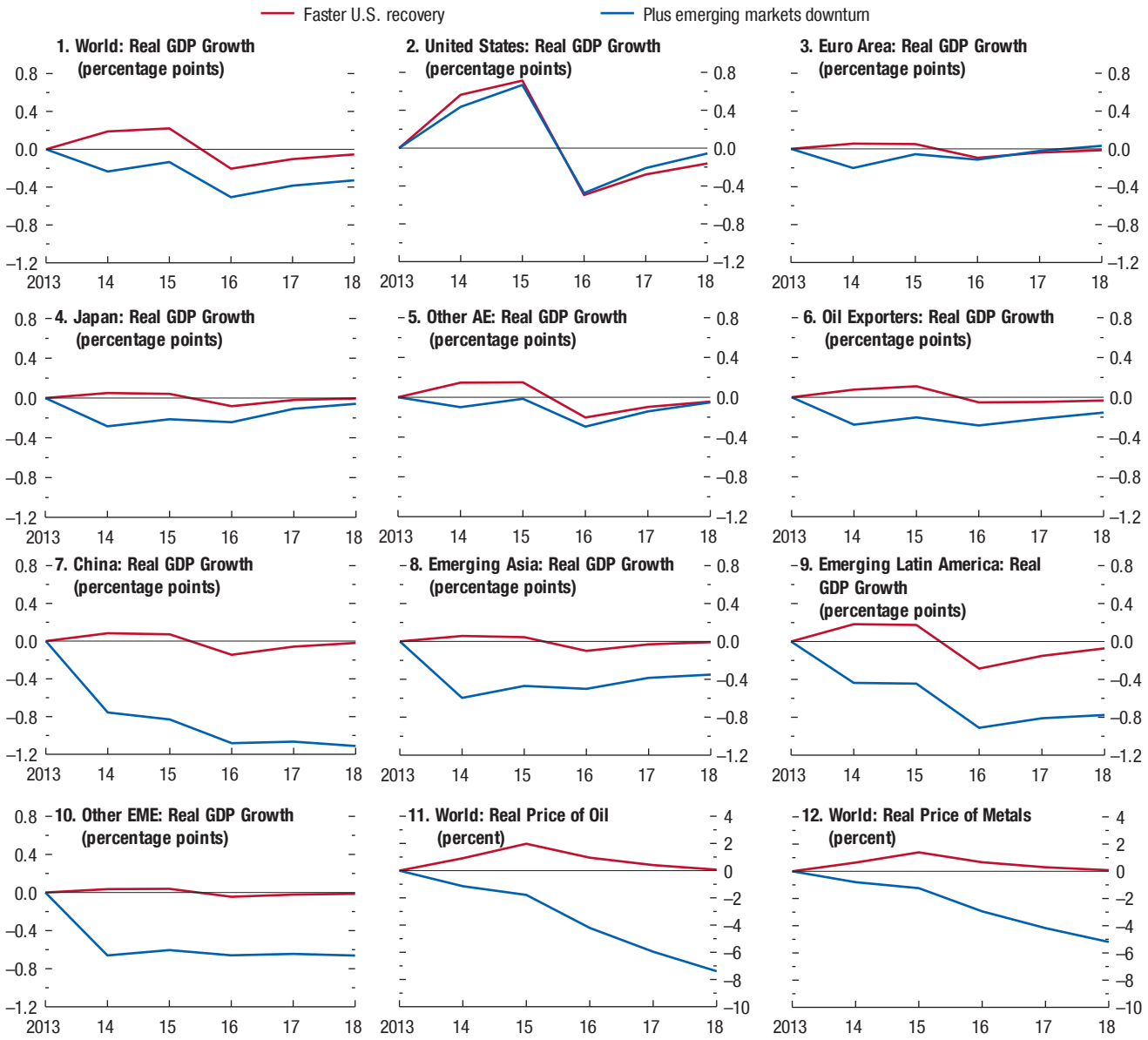
The main scenario results are as follows (Figure 1.15):

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

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

(Percent or percentage point deviations from the WEO baseline)

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



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

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

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

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

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

Policies

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

Preventing Low Inflation in Advanced Economies

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

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

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

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

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

Raising Growth and Lowering the Risks of Stagnation

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

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

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

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

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

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

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

Managing Capital Flow Risks in Emerging Market and Developing Economies

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

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

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

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

Making depreciation manageable

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

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

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

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

Recalibrating macroeconomic policies

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

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

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

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

Policies in low-income countries

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

Continuing High Growth in Major Emerging Market Economies

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

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

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

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

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

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

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

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

Global Demand Rebalancing

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

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

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

Special Feature: Commodity Prices and Forecasts

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

Developments in Commodity Markets[1]

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

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

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

Commodity Price Forecasting

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

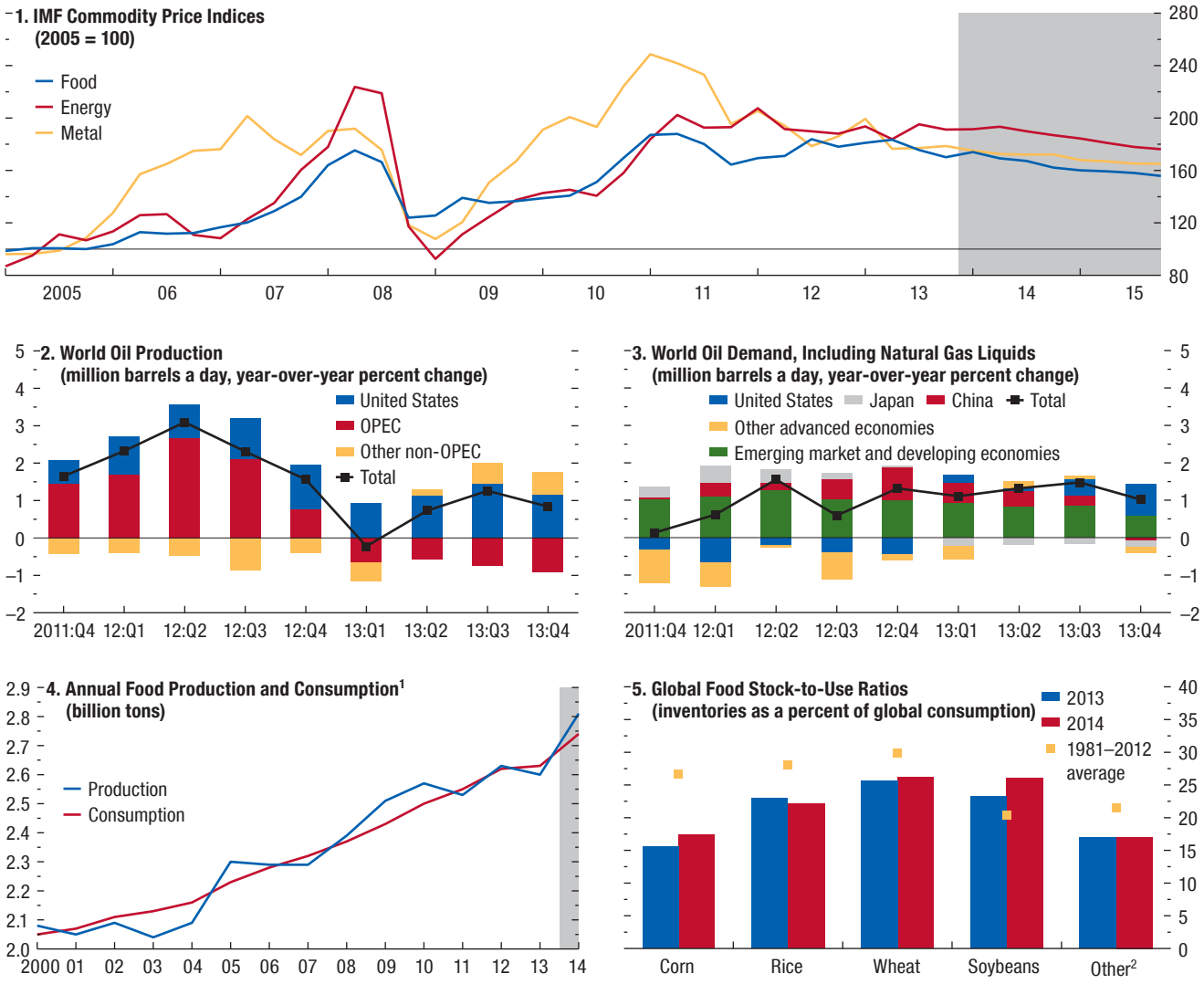
The author of this feature is Samya Beidas-Strom, with assistance from Benjamin Beckers and Daniel Rivera Greenwood. Recent commodity market developments were provided by Marina Rousset and Shane Streifel. Technical details are given in Beckers and Beidas-Strom (forthcoming).

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

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

Figure 1.SF.1. Commodity Market Developments

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



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

What Forecasting Tools Do Policymakers Use?

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

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

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

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

Simple forecast errors

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

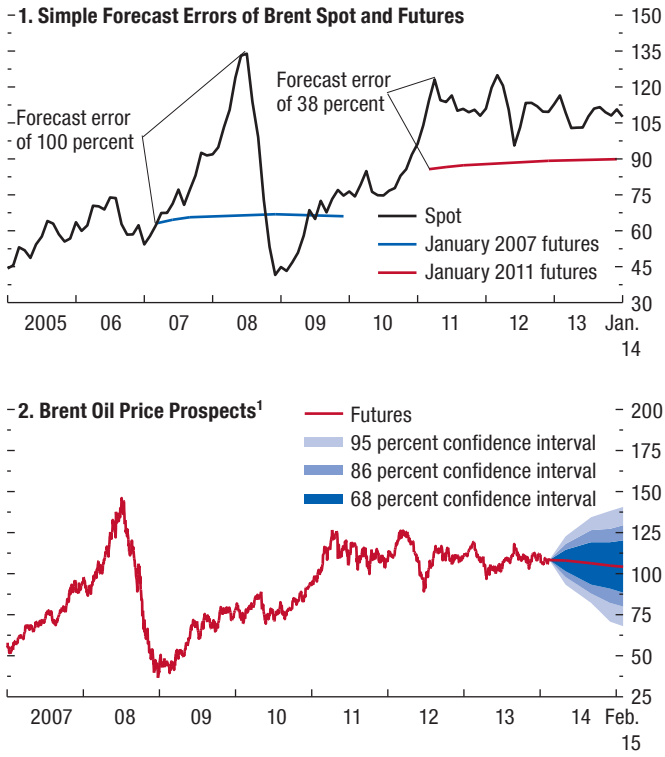
Moreover, the predictive content of commodity futures (and oil futures in particular) has declined since the mid-2000s (Chinn and Coibion, 2013), even when futures were not in backwardation. The forecast error was more than 100 percent (for futures of the January 2007 vintage relative to the actual outturn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

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

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

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

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



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

Latest forecast

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

Model Forecasts[5]

Recent evidence

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

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

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

Model ingredients

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

VAR forecast

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

Recent shocks

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

Risks

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

Which Forecasting Method Has the Lowest Error—and When?

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

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

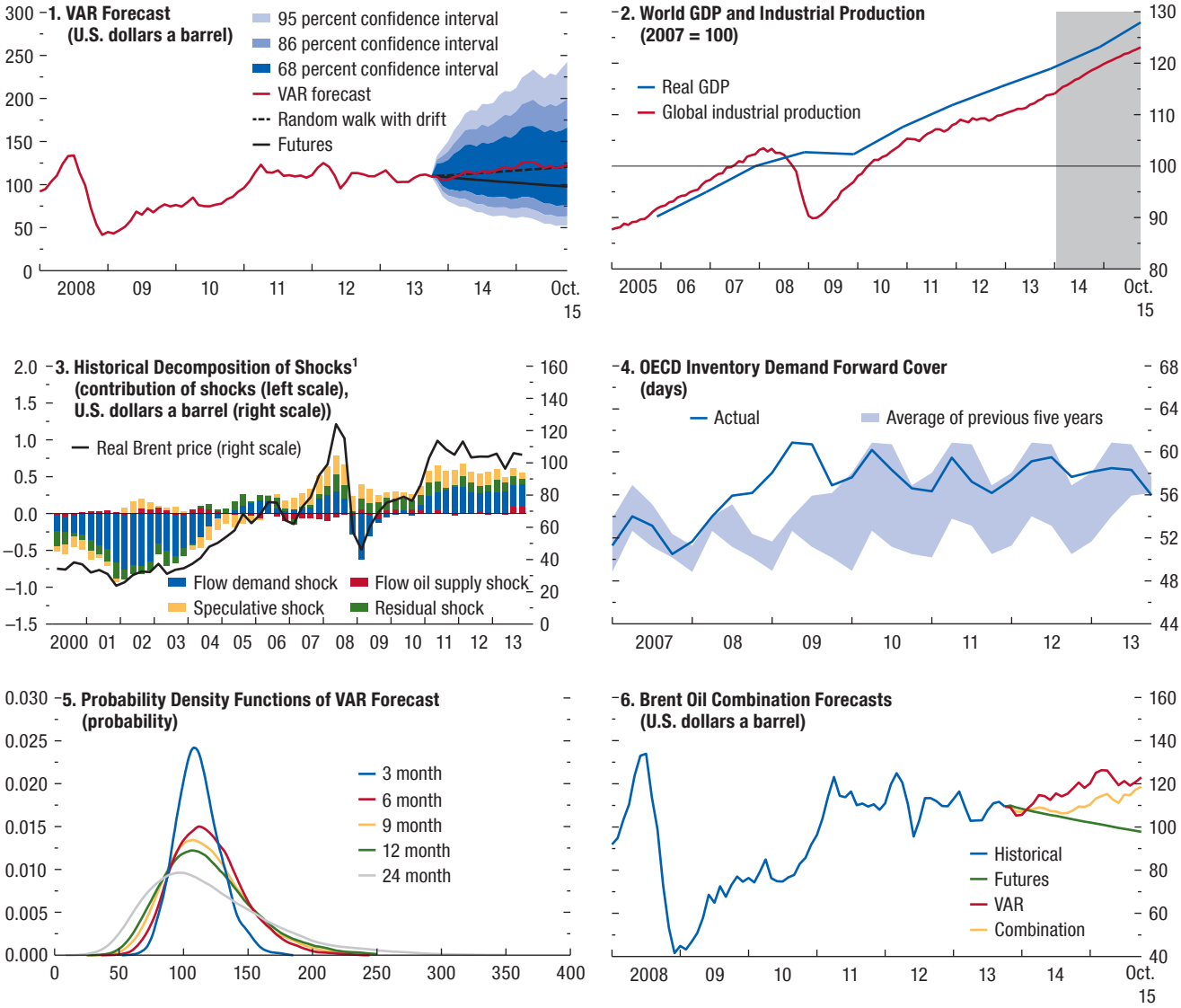
[6]The drift without detrending of the real Brent oil price is 3.97 percent.

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

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

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

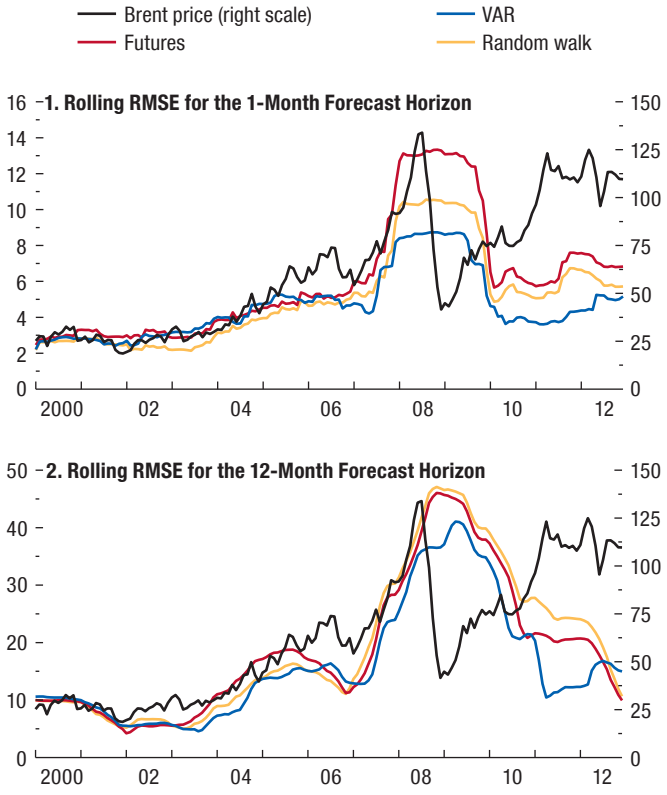
A model-based forecast, based on strengthening global demand, continued small OPEC supply shocks, and a drawdown of oil inventories, suggests higher oil prices and upside risks over the forecast horizon. However, there is merit in a combination of forecasts from this model and futures, which points to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



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

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

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



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

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

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

Which Model Should Be Used?

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

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

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

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

Source: IMF staff calculations.

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

Box 1.1. Credit Supply and Economic Growth

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

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

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

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

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

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

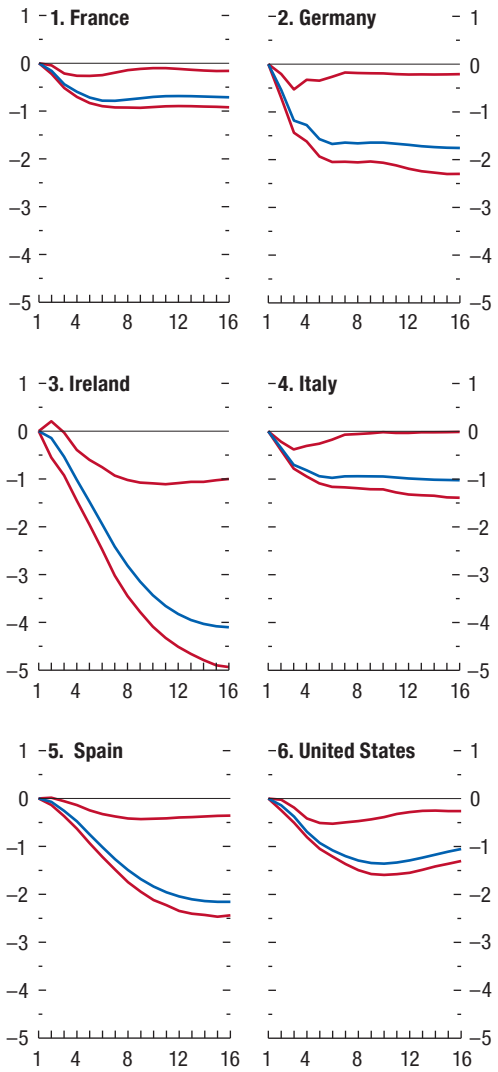
The authors of this box are Andrea Pescatori and Damiano Sandri.

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

Box 1.1 *(continued)*

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

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



Source: IMF staff calculations.

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

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

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

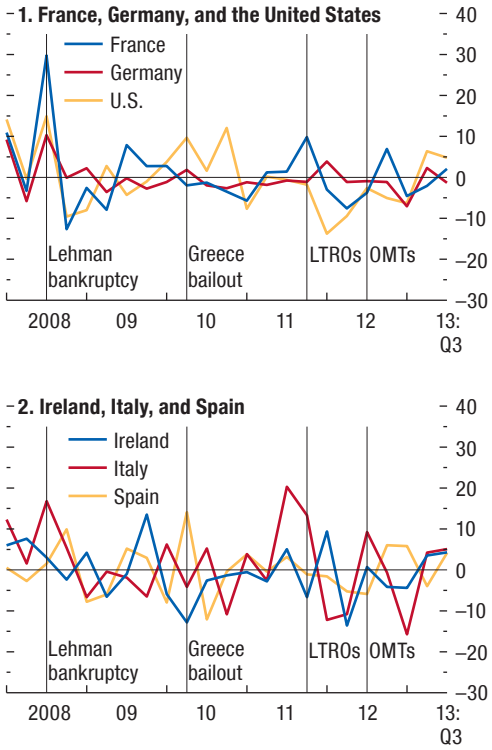
Combining the size and frequency of credit supply shocks (from Figure 1.1.2) with the impact that these shocks have on GDP (from Figure 1.1.1) yields the contribution of credit supply shocks to GDP for a given period. Figure 1.1.3 shows the cumulative contribution of these shocks relative to GDP in the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

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

Box 1.1 *(continued)*

Figure 1.1.2. Credit Supply Shocks

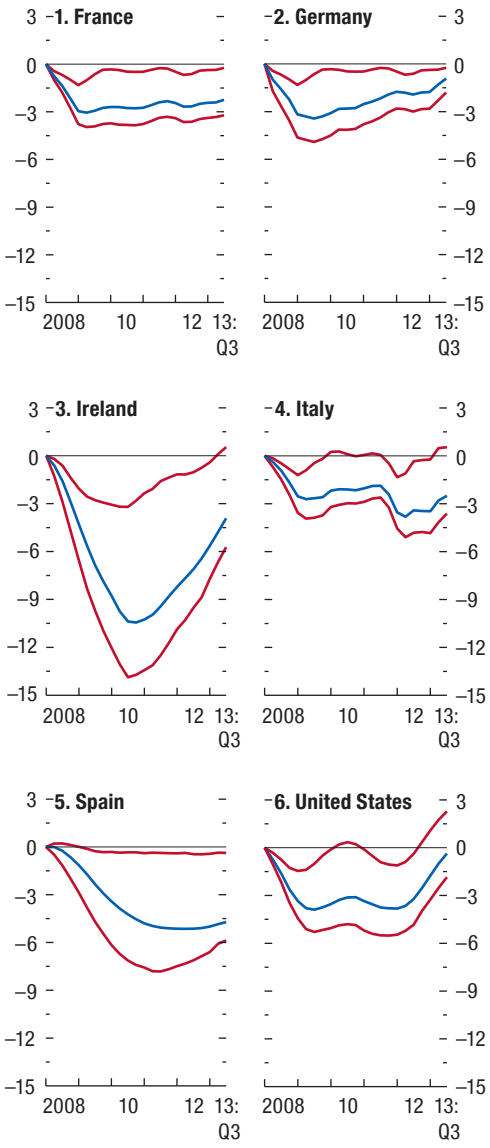
(Percentage point changes in lending standards)



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

Figure 1.1.3. Contribution of Credit Supply Shocks to GDP

(Cumulative contribution with respect to 2008:Q1 GDP; point estimates and 2 standard deviation bootstrapped confidence bands)



Source: IMF staff calculations.

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

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

Box 1.1 *(continued)*

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

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

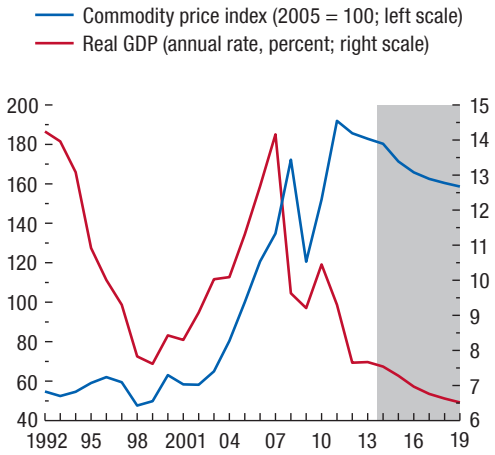
The historical contribution of credit supply shocks shown in Figure 1.1.3 can also shed light on the possible impact of policies to strengthen the banking sector, such as measures to boost bank capital or further progress toward banking union in the euro area. Indeed, the cumulative impact of credit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

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

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

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

Figure 1.2.1. China: Real GDP Growth and Commodity Prices



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

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

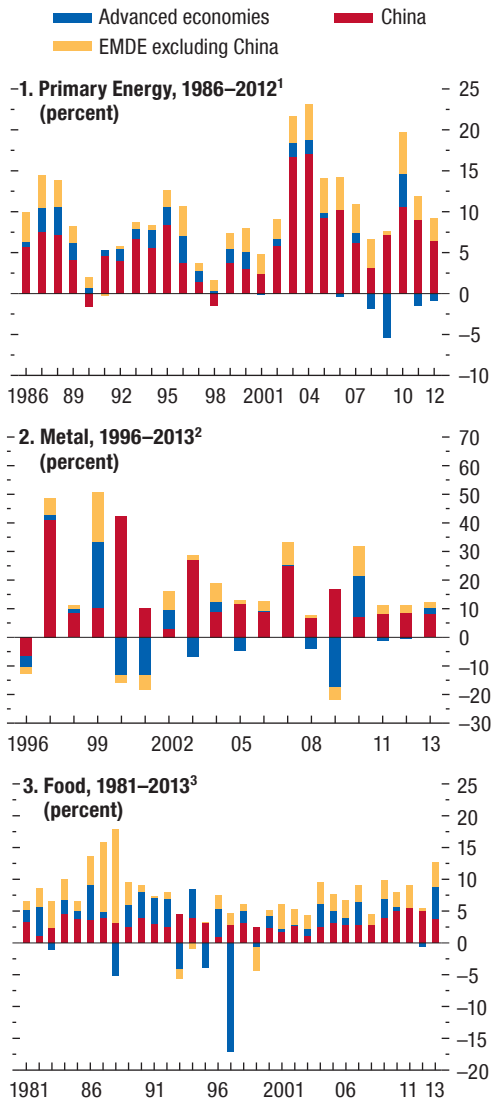
The relationship between commodity consumption and income can help gauge prospects for future commodity consumption in China. The predicted relationship between commodity consumption per capita and income per capita and other determinants is based on cross-country panel regressions estimated over the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

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

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

Box 1.2 *(continued)*

Figure 1.2.2. Growth Rate of Global Commodity Consumption



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

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

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

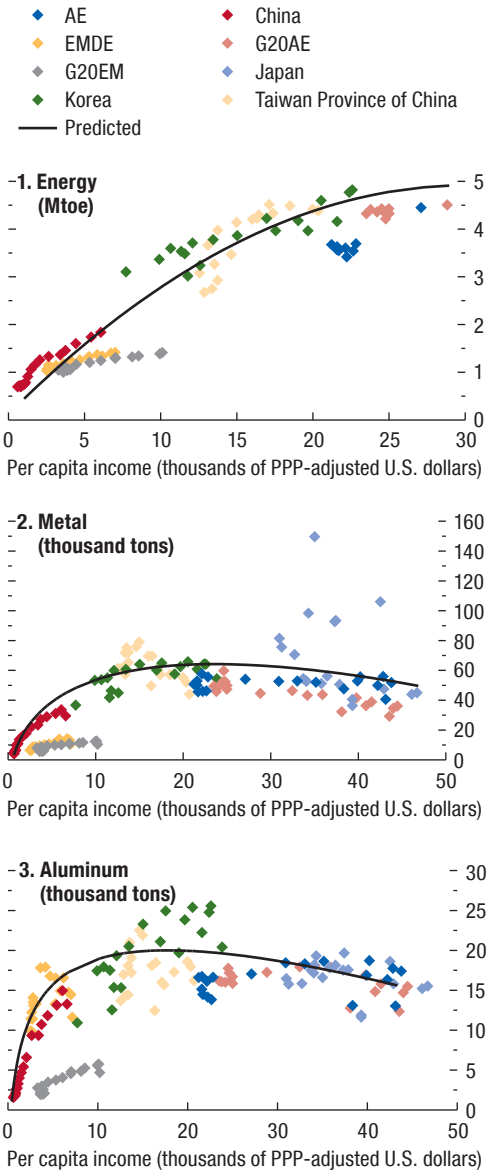
in which i denotes the country, t denotes years, e is primary energy per capita, y is real per capita GDP, $P(y)$ is a third-order polynomial, and fixed effects are captured by α_i. Specifically, income elasticity of energy consumption is close to one at current levels of income per capita in China (as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

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

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

Box 1.2 *(continued)*

Figure 1.2.3. Actual and Predicted Per Capita Commodity Consumption



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

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

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

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

Box 1.2 *(continued)*

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

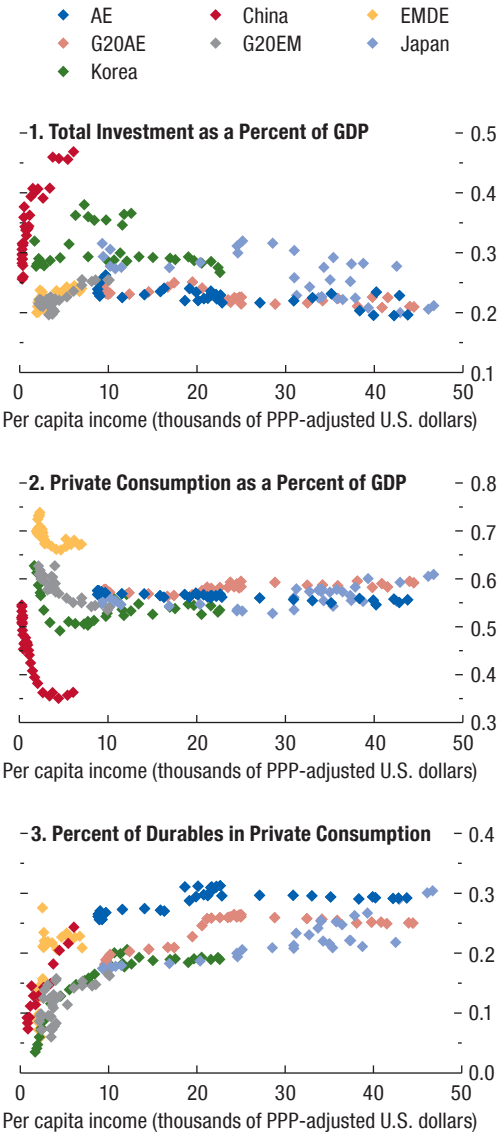
Demand rebalancing should follow. Regression results suggest that the *growth rate* of GDP and the investment-to-GDP ratio drive private consumption at the early stages of income convergence (before the $10,000 per capita threshold), when low-grade commodities are intensively consumed.[6] Thereafter,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

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

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

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

Figure 1.2.4. Spending Patterns



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

Box 1.2 *(continued)*

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

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

Box 1.3. Anchoring Inflation Expectations When Inflation Is Undershooting

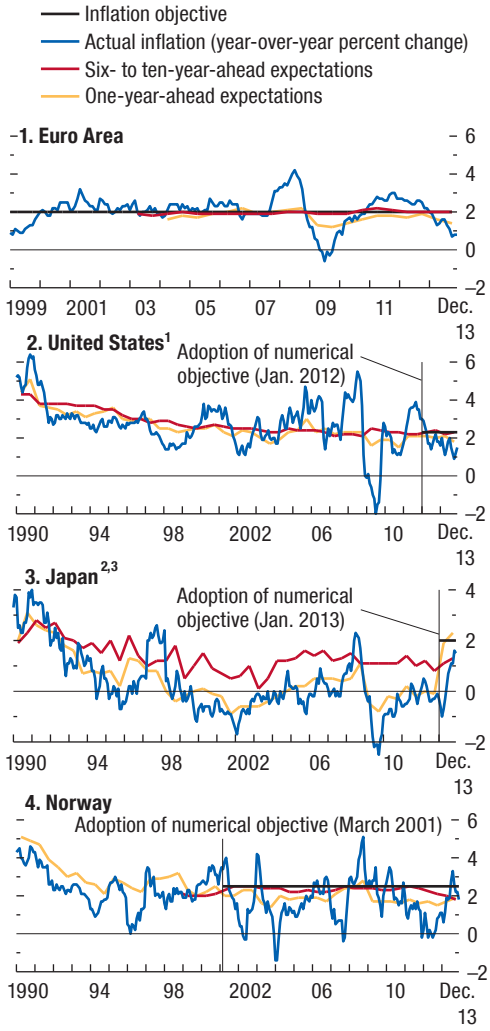
Could financial conditions unexpectedly tighten in the world's largest advanced economies? The question arises because underlying inflation has been running below objective in the euro area, Japan, and the United States. In Japan, where the undershooting has persisted the longest, deflation has become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

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

Inflation performance and short-term expectations

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

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



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

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

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

Box 1.3 *(continued)*

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

(Percent)

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

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

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

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

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

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

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

Policy frameworks and long-term expectations

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

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

Policy since the global financial crisis

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

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

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

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

Box 1.3 *(continued)*

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

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

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

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

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

Conclusions

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

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

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

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

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

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

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

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

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

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

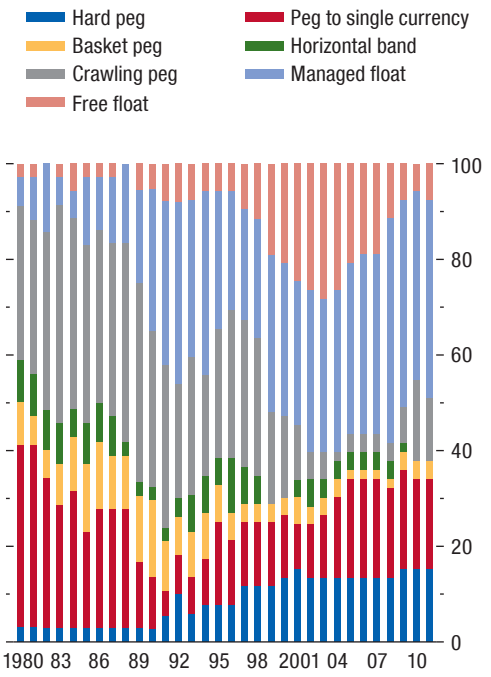
The soft end of the prescription is also a bit murky. An often-overlooked question is what constitutes a "safe" float—that is, where to draw the line between floats and riskier intermediate exchange rate regimes. Although occasional intervention during periods of market turbulence or extreme events does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

Evolving regimes

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

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

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



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

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

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

Box 1.4 *(continued)*

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

Regimes, vulnerabilities, and crisis susceptibility

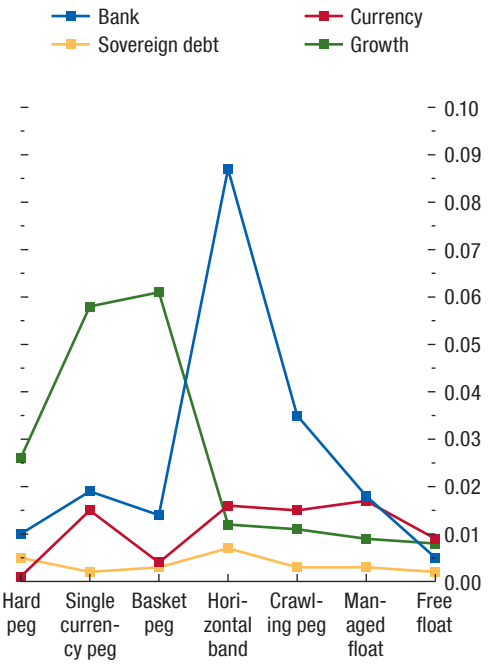
Empirical analysis of the vulnerabilities and risks of crises under different exchange rate regimes in a sample of 50 emerging market economies for 1980–2011 suggests that macroeconomic and financial vulnerabilities (such as currency overvaluation, delayed external adjustment, rapid credit expansion,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

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

Where to draw the line?

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

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



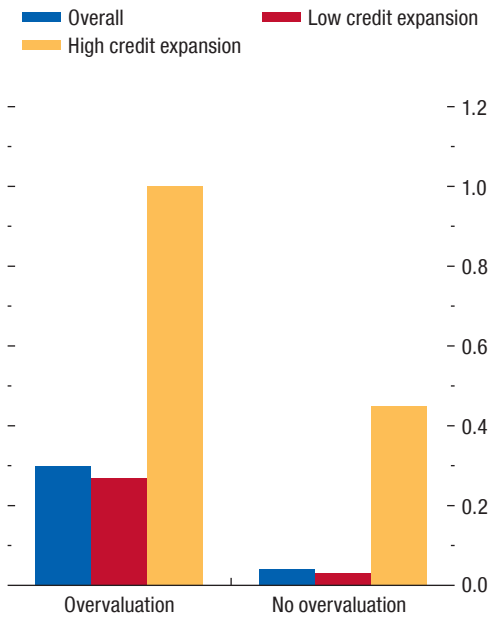
Source: IMF staff calculations.
Note: Predicted probabilities are obtained from a probit model of crisis likelihood evaluated at mean values of control variables. See Ghosh, Ostry, and Qureshi (2014) for details of the control variables included in each crisis likelihood estimation and for definitions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

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

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

Box 1.4 *(continued)*

Figure 1.4.3. Probability of Banking or Currency Crisis



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

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

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

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CHAPTER 2

COUNTRY AND REGIONAL PERSPECTIVES

The global recovery is expected to strengthen, led by advanced economies. Growth in emerging market and developing economies is expected to pick up only modestly. The balance of risks to global growth has improved, largely reflecting better prospects in advanced economies. However, important downside risks remain—notably a yet-greater general slowdown in emerging market economies; risks to activity from lower-than-expected inflation rates in advanced economies; incomplete reforms; and rising geopolitical tensions.

During the second half of 2013, growth in advanced economies rebounded by 1.3 percentage point and is expected to strengthen further in 2014–15. Growth is supported by monetary policy, reduced fiscal drag (except in Japan), and easing crisis legacies amid improving financial conditions in affected economies. In the stressed euro area economies, growth is projected to remain weak and fragile as high debt and financial fragmentation hold back domestic demand. In Japan, fiscal consolidation in 2014–15 is projected to result in some growth moderation. Still-large output gaps in advanced economies highlight the continued fragilities in the recovery.

Growth picked up only modestly in emerging market and developing economies in the second half of 2013—from 4.6 percent in the first half of 2013 to 5.2 percent in the second—although they continue to contribute much of global growth. However, robust or increasing growth was limited to the Asia and sub-Saharan Africa regions, with most other regions experiencing moderating or modest real growth rates. This comes despite the broadly positive lift from exports due to currency depreciation and the firming recovery in advanced economies in many regions, along with robust consumption supporting domestic demand. A worrying development is the downgrade of growth rates in a few large emerging market economies (e.g., Brazil, Russia, South Africa, Turkey) owing to domestic policy weaknesses, tighter domestic and external financial conditions, or investment and supply constraints. Hence only a modest pickup in growth in emerging market and developing economies is expected this year (Figure 2.1, panel 1).

Downside risks to global growth remain. Chief among them is a renewed increase in financial market volatility, especially in emerging market economies. If this risk materializes, capital inflows to emerging market and developing economies will likely decline, and growth in these economies will be lower compared with the baseline—with spillovers to advanced economies, as discussed in this chapter's Spillover Feature. The impact of a more prolonged slowdown in major emerging market economies because of lower investment—a scenario described in detail in Chapter 1—is shown in panel 2 of Figure 2.1. In advanced economies, downside risks to activity stem mainly from prospects of low inflation and the possibility of protracted stagnation, especially in the euro area and Japan. Other downside risks include adjustment fatigue and insufficient policy action in a still financially fragmented euro area and risks related to the exit from unconventional monetary policy. On the upside, the stronger-than-expected growth momentum during the second half of 2013 could buoy confidence in Germany, the United Kingdom, and the United States.

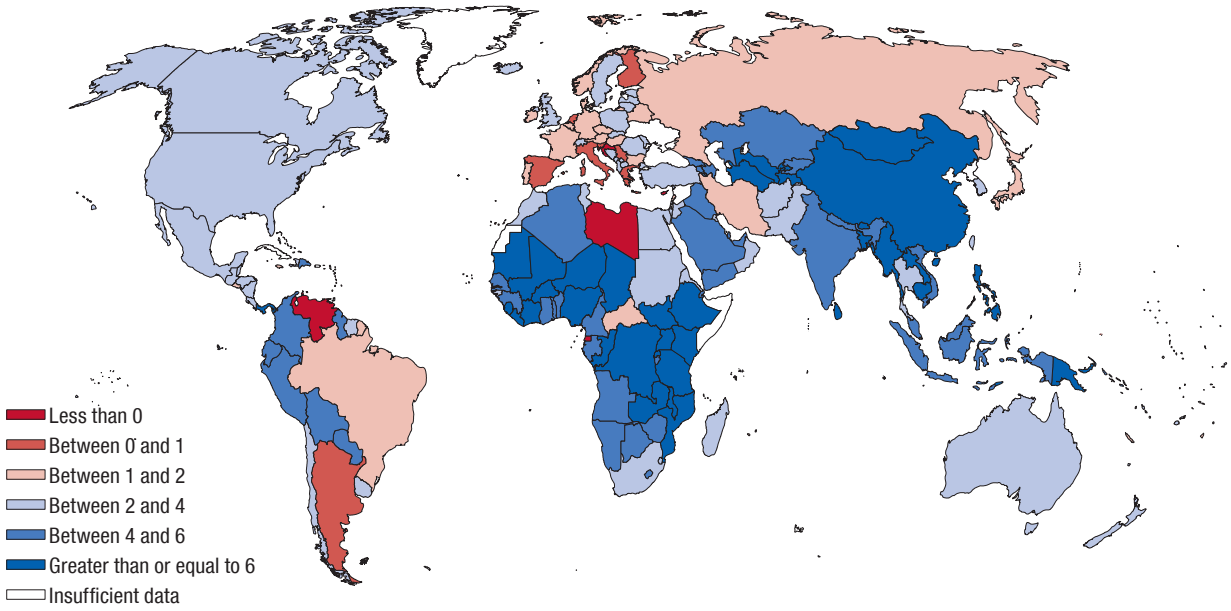
The United States and Canada: Firming Momentum

The U.S. economy grew at a faster-than-anticipated pace in the second half of 2013, led by buoyant domestic demand, robust inventory accumulation, and strong export growth. Although the harsher-than-usual winter weather may have slowed activity in early 2014, the underlying fundamentals of private demand remain strong, and growth is expected to advance at an above-potential rate for the rest of this year. In Canada, annual growth is expected to accelerate in 2014 thanks to stronger external demand and rising business investment.

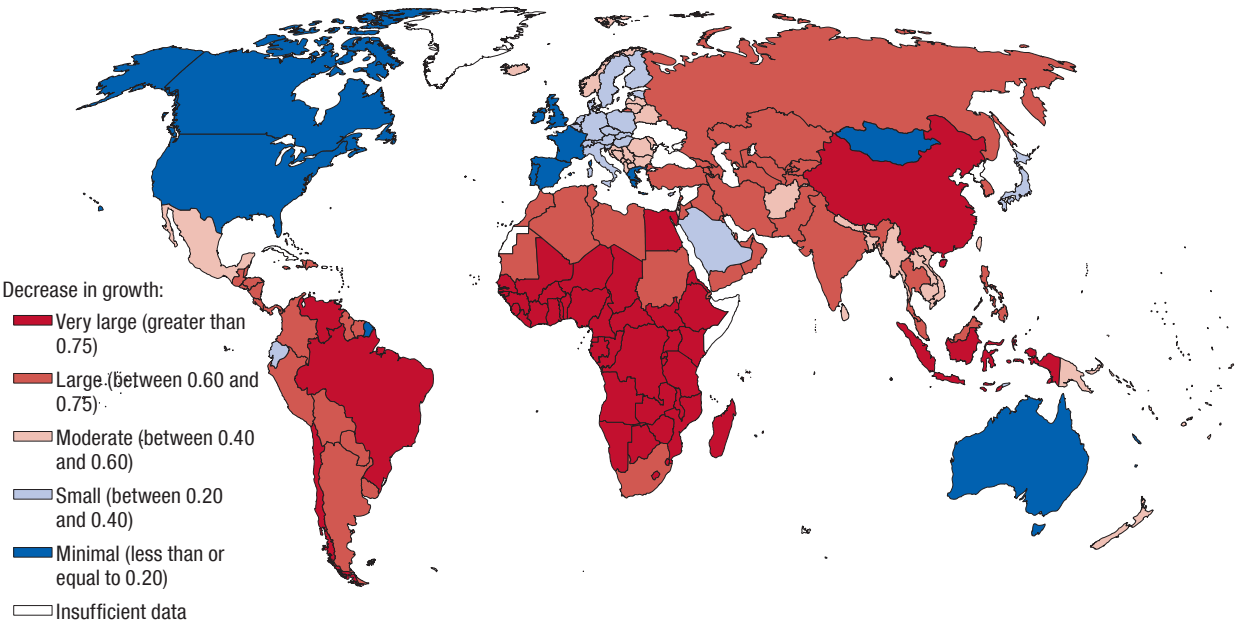
Growth in the United States was 1.9 percent in 2013, with the continued recovery of private domestic

Figure 2.1. 2014 GDP Growth Forecasts and the Effects of a Plausible Downside Scenario

1. 2014 GDP Growth Forecasts[1]
(percent)



2. Effects of a Plausible Downside Scenario
(peak growth deviation from 2014 baseline projections; percentage points)



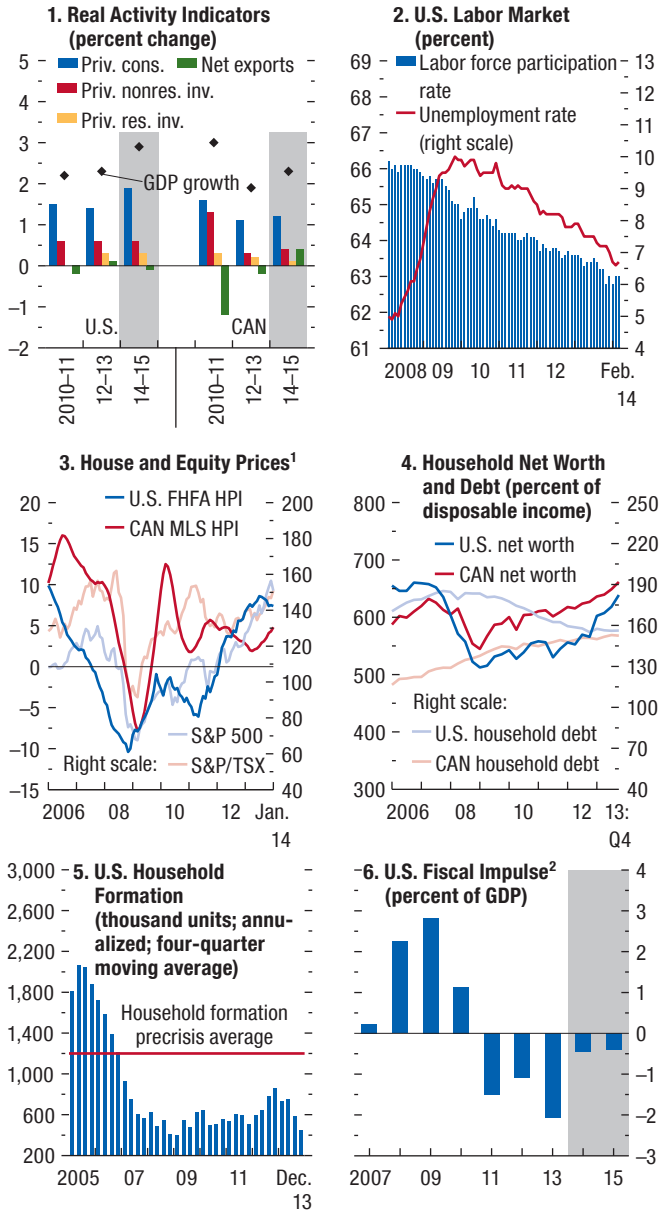
Source: IMF staff estimates.
Note: Simulations are conducted using the IMF's Flexible System of Global Models, with 29 individual countries and eight regions (other European Union, other advanced economies, emerging Asia, newly industrialized Asia, Latin America, Middle East and North Africa, sub-Saharan Africa, oil exporters group). Countries not included in the model are allocated to the regions based on the WEO classification of fuel exporters, followed by geographical regional classifications. Syria is excluded due to the uncertain political situation. Ukraine is excluded due to the ongoing crisis.
[1]The data for Argentina are officially reported data. The IMF has, however, issued a declaration of censure and called on Argentina to adopt remedial measures to address the quality of the official GDP data. Alternative data sources have shown significantly lower real growth than the official data since 2008. In this context, the Fund is also using alternative estimates of GDP growth for the surveillance of macroeconomic developments in Argentina. The Zimbabwe 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.

demand partly offset by the hefty fiscal consolidation effort, which subtracted between 1¼ and 1½ percentage points from GDP growth. Economic momentum picked up during 2013; GDP grew at an average annualized rate of 3.3 percent in the second half compared with 1.2 percent in the first half. Consumer spending also picked up, boosted by higher house and stock prices and a further decline in household debt relative to disposable income, which raised household net worth above its long-term average (Figure 2.2). A faster pace of inventory accumulation and strong export growth (particularly in regard to petroleum products) also contributed to sustained activity in the second half of 2013. Mainly reflecting the October government shutdown, government spending contracted significantly at the end of the year, but financial conditions remained highly accommodative, with long-term rates declining after the sharp increase in mid-2013. The unemployment rate continued to fall in 2013, reaching 6.7 percent in February 2014. However, a major factor behind the decline was a further drop in the labor force participation rate, which stood at 63 percent in February of this year (see Chapter 1). Still-ample slack in the economy was manifest in subdued price pressures, with headline consumer price index inflation standing at 1.6 percent in February 2014. Largely on account of increases in domestic energy production and the associated drop in oil imports, the current account deficit narrowed further to 2.3 percent of GDP in 2013—the lowest in 15 years (Table 2.1).

The unusually harsh winter weather weighed on activity in early 2014, but growth is expected to rebound over the rest of the year—driven by strong growth in residential investment (bouncing back from very low levels and given substantial pent-up demand for housing), solid personal consumption, and a pickup in nonresidential fixed-investment growth as consumer and business confidence improves. Growth will also be supported by less fiscal drag, which is declining to ¼ to ½ percentage point of GDP this year, thanks in part to the Bipartisan Budget Act, which replaced some of the automatic spending cuts in fiscal years 2014 and 2015 with back-loaded savings. The debt limit has been suspended until March 2015, reducing the uncertainty that has characterized fiscal policy in the past few years. Overall, growth is projected to accelerate to 2.8 percent in 2014 and to 3.0 percent in 2015.

Figure 2.2. United States and Canada: Recovery Firming Up

In the United States, growth in 2013 was higher than expected, and recent data remain consistent with a further pickup in 2014 as improvement in the labor and housing markets continues and the fiscal drag wanes. In Canada, growth strengthened in 2013 and is expected to accelerate in 2014 as a result of rising business investment and firming external demand.



Sources: Bloomberg, L.P.; Canadian Real Estate Association; Congressional Budget Office; Haver Analytics; and IMF staff estimates.
Note: CAN = Canada; cons. = consumption; FHFA HPI = Federal Housing Finance Agency Housing Price Index; inv. = investment; MLS HPI = Multiple Listing Service Housing Price Index; nonres. = nonresidential; priv. = private; res. = residential; S&P = Standard & Poor's; TSX = Toronto Stock Exchange.
[1]Year-over-year percent change for house prices and index; January 2005 = 100 for S&P and TSX.
[2]The fiscal impulse is the negative of the change in the primary structural balance.

Table 2.1. Selected 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	
	2013	2014	2015	2013	2014	2015	2013	2014	2015	2013	2014	2015
Advanced Economies	**1.3**	**2.2**	**2.3**	**1.4**	**1.5**	**1.6**	**0.4**	**0.5**	**0.4**	**7.9**	**7.5**	**7.3**
United States	1.9	2.8	3.0	1.5	1.4	1.6	–2.3	–2.2	–2.6	7.4	6.4	6.2
Euro Area[4,5]	–0.5	1.2	1.5	1.3	0.9	1.2	2.3	2.4	2.5	12.1	11.9	11.6
Japan	1.5	1.4	1.0	0.4	2.8	1.7	0.7	1.2	1.3	4.0	3.9	3.9
United Kingdom[4]	1.8	2.9	2.5	2.6	1.9	1.9	–3.3	–2.7	–2.2	7.6	6.9	6.6
Canada	2.0	2.3	2.4	1.0	1.5	1.9	–3.2	–2.6	–2.5	7.1	7.0	6.9
Other Advanced Economies[6]	2.3	3.0	3.2	1.5	1.8	2.4	4.8	4.7	4.3	4.6	4.6	4.5

Note: Data for some countries are based on fiscal years. Please refer to Table F in the Statistical Appendix for a complete list of the reference periods for each country.
[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 Latvia. 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 Latvia.

The balance of risks is tilted slightly to the downside. On the external front, protracted sluggishness in the euro area would weigh on growth, particularly if deflation dynamics take hold. A slowdown in emerging market economies could also pose a risk, with output growth declining by 0.2 percentage point in response to a 1 percent reduction in those economies' GDP (see this chapter's Spillover Feature). On the domestic front, private domestic demand could also lose momentum if long-term yields rise more quickly than expected without an associated improvement in the outlook. In the medium term, heightened fiscal sustainability concerns could pose additional downside risks, while a continuation of the downward trend in the labor force participation rate would further dent potential output and, by reducing the slack in the economy, lead to an earlier-than-expected tightening of monetary policy. On the upside, a more buoyant housing market recovery, with feedback to and from lending conditions, balance sheets, and private demand, remains a possibility. Moreover, greater confidence in the economy's prospects (resulting from a relatively healthy financial sector and low energy costs) could induce businesses to shift more aggressively from cash hoarding toward real investment.

A balanced, gradual, and credible fiscal plan that puts public debt firmly on a downward path continues to be the main policy priority. Such a plan would involve measures to gradually rein in entitlement spending, a revenue-raising tax reform, and replacement of the sequester cuts with back-loaded new revenues and mandatory savings. (The Bipartisan Budget Act is a modest step in this direction.) Although the continued economic momentum justifies the measured reductions in the Federal Reserve's asset purchase program, the overall monetary policy stance should remain accommodative, considering the sizable slack and steady inflation expectations (see Chapter 1). The return to qualitative forward guidance in March 2014 can provide the Federal Reserve with greater flexibility to achieve its employment and inflation goals. As the date of the liftoff draws nearer, the Federal Reserve will have to clearly convey to the market how it will assess progress toward achieving those objectives, in order to avoid an increase in policy uncertainty.

Canada's economy strengthened in 2013, but the much-needed rebalancing from household consumption and residential construction toward exports and business investment has not fully materialized. Growth is expected to rise to 2.3 percent in 2014, up from 2 percent in 2013, with the projected pickup in the U.S. economy boosting Canada's export and business investment growth (Table 2.1, Figure 2.2). Although external demand could surprise on the upside, downside risks to the outlook still dominate, including from weaker-than-expected exports resulting from competitiveness challenges, lower commodity prices, and a more abrupt unwinding of domestic imbalances. Indeed, despite the recent moderation in the housing market, elevated household leverage and house prices remain a key vulnerability (Figure 2.2). With inflation low and downside risks looming, monetary policy

should remain accommodative until growth gains further traction. Fiscal policy needs to strike the right balance between supporting growth and rebuilding fiscal buffers, especially at the federal government level, with less room to maneuver at the provincial level.

Europe

Advanced Europe: From Recession to Recovery

Advanced European economies are expected to resume growth in 2014, but inflation remains very low. Domestic demand in the euro area has finally stabilized and turned toward positive territory, with net exports also contributing to ending the recession. But high unemployment and debt, low investment, persistent output gaps, tight credit, and financial fragmentation in the euro area will weigh on the recovery. Downside risks stem from incomplete reforms, external factors, and even lower inflation. Accommodative monetary policy, completion of financial sector reforms, and structural reforms are critical.

The euro area has finally emerged from recession. Activity shrank by about ½ percent in 2013, but growth has been positive since the second quarter after a long period of output decline (Table 2.2). The turnaround—attributable, in part, to less fiscal drag and some impetus from private domestic demand for the first time since 2010—is materializing largely as anticipated. Budding growth and greatly reduced tail risks have buoyed financial markets, with marked compression in sovereign spreads in stressed economies, although these spreads have increased modestly with recent financial market volatility (see Chapter 1). National and collective policy actions have contributed to this positive turn of events.

Nevertheless, the legacy of the crisis—high unemployment, weak private and public balance sheets, contracting credit, and a large debt burden—and longer-term impediments to growth must still be fully addressed, raising concern about the strength and durability of the recovery.

- The recovery is uneven across countries and sectors. Pockets of stronger growth, such as Germany, are interspersed with stagnant or declining output elsewhere. Growth remains largely export led, although there has been an incipient revival in domestic demand (for example, in France, Spain, and particularly Germany). Private investment, however, has yet to revive strongly across the euro area. Despite some rebalancing (within the euro area), current account balances have improved asymmetrically, with persistent surpluses in some core economies and shrinking external balances in deficit economies.
- Substantial and persistent slack has led to a general softening in inflation rates, which were already well below the European Central Bank's (ECB's) objective (Figure 2.3).
- Pending bank reform and private sector deleveraging, financial fragmentation, though lessening, continues to impair monetary transmission. In countries under stress, the private sector faces high lending rates and contracting private sector credit.
- Longer-term concerns about productivity and competitiveness linger, despite important reforms in several countries.

The euro area recovery is expected to continue in 2014 (Table 2.2), with growth forecast to be 1.2 percent, reflecting a smaller fiscal drag, expectations of improving credit conditions, and stronger external demand. Euro area growth is projected to be about 1½ percent in the medium term. Persistently large output gaps—except in the case of Germany—are expected to moderate inflation to under 1¼ percent in 2014–15, well below the ECB's objective of close to 2 percent for the foreseeable future.

Other advanced economies recorded stronger growth, but durability is far from assured. Growth has rebounded more strongly than anticipated in the United Kingdom on easier credit conditions and increased confidence. However, the recovery has been unbalanced, with business investment and exports still disappointing. Switzerland regained momentum driven by domestic demand, and the exchange rate floor has stemmed deflation. Sweden was held back by continuing high unemployment, a strong krona, and structural labor market weaknesses, although activity is forecast to pick up this year on stronger external demand.

Notwithstanding a pickup in growth, downside risks dominate. The euro area recovery could be derailed should financial stress reemerge from stalled policy initiatives. High unemployment could foster reform fatigue, political uncertainty, and policy reversal, jeopardizing hard-won gains. External shocks—tighter financial conditions in the United States, financial contagion and trade disruptions from geopolitical events, and slower-than-expected emerging market growth—could hurt growth and stability. For instance, an external shock involving further growth disappoint-

Table 2.2. Selected 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	
	2013	2014	2015	2013	2014	2015	2013	2014	2015	2013	2014	2015
Europe	**0.5**	**1.7**	**1.9**	**1.9**	**1.6**	**1.8**	**1.9**	**2.1**	**2.2**	. . .	. . .	. . .
Advanced Europe	**0.1**	**1.5**	**1.7**	**1.5**	**1.1**	**1.3**	**2.6**	**2.6**	**2.8**	**10.8**	**10.6**	**10.2**
Euro Area[4,5]	–0.5	1.2	1.5	1.3	0.9	1.2	2.3	2.4	2.5	12.1	11.9	11.6
Germany	0.5	1.7	1.6	1.6	1.4	1.4	7.5	7.3	7.1	5.3	5.2	5.2
France	0.3	1.0	1.5	1.0	1.0	1.2	–1.6	–1.7	–1.0	10.8	11.0	10.7
Italy	–1.9	0.6	1.1	1.3	0.7	1.0	0.8	1.1	1.1	12.2	12.4	11.9
Spain	–1.2	0.9	1.0	1.5	0.3	0.8	0.7	0.8	1.4	26.4	25.5	24.9
Netherlands	–0.8	0.8	1.6	2.6	0.8	1.0	10.4	10.1	10.1	6.9	7.3	7.1
Belgium	0.2	1.2	1.2	1.2	1.0	1.1	–1.7	–1.3	–1.0	8.4	9.1	8.9
Austria	0.4	1.7	1.7	2.1	1.8	1.7	3.0	3.5	3.5	4.9	5.0	4.9
Greece	–3.9	0.6	2.9	–0.9	–0.4	0.3	0.7	0.9	0.3	27.3	26.3	24.4
Portugal	–1.4	1.2	1.5	0.4	0.7	1.2	0.5	0.8	1.2	16.3	15.7	15.0
Finland	–1.4	0.3	1.1	2.2	1.7	1.5	–0.8	–0.3	0.2	8.1	8.1	7.9
Ireland	–0.3	1.7	2.5	0.5	0.6	1.1	6.6	6.4	6.5	13.0	11.2	10.5
Slovak Republic	0.9	2.3	3.0	1.5	0.7	1.6	2.4	2.7	2.9	14.2	13.9	13.6
Slovenia	–1.1	0.3	0.9	1.6	1.2	1.6	6.5	6.1	5.8	10.1	10.4	10.0
Luxembourg	2.0	2.1	1.9	1.7	1.6	1.8	6.7	6.7	5.5	6.8	7.1	6.9
Latvia	4.1	3.8	4.4	0.0	1.5	2.5	–0.8	–1.6	–1.9	11.9	10.7	10.1
Estonia	0.8	2.4	3.2	3.5	3.2	2.8	–1.0	–1.3	–1.5	8.6	8.5	8.4
Cyprus[6]	–6.0	–4.8	0.9	0.4	0.4	1.4	–1.5	0.1	0.3	16.0	19.2	18.4
Malta	2.4	1.8	1.8	1.0	1.2	2.6	0.9	1.4	1.4	6.5	6.3	6.2
United Kingdom[5]	1.8	2.9	2.5	2.6	1.9	1.9	–3.3	–2.7	–2.2	7.6	6.9	6.6
Sweden	1.5	2.8	2.6	0.0	0.4	1.6	5.9	6.1	6.2	8.0	8.0	7.7
Switzerland	2.0	2.1	2.2	–0.2	0.2	0.5	9.6	9.9	9.8	3.2	3.2	3.0
Czech Republic	–0.9	1.9	2.0	1.4	1.0	1.9	–1.0	–0.5	–0.5	7.0	6.7	6.3
Norway	0.8	1.8	1.9	2.1	2.0	2.0	10.6	10.2	9.2	3.5	3.5	3.5
Denmark	0.4	1.5	1.7	0.8	1.5	1.8	6.6	6.3	6.3	7.0	6.8	6.7
Iceland	2.9	2.7	3.1	3.9	2.9	3.4	0.4	0.8	–0.2	4.4	3.7	3.7
San Marino	–3.2	0.0	2.2	1.3	1.0	1.2	. . .	. . .	. . .	8.0	8.2	7.8
Emerging and Developing Europe[7]	**2.8**	**2.4**	**2.9**	**4.1**	**4.0**	**4.1**	**–3.9**	**–3.6**	**–3.8**	. . .	. . .	. . .
Turkey	4.3	2.3	3.1	7.5	7.8	6.5	–7.9	–6.3	–6.0	9.7	10.2	10.6
Poland	1.6	3.1	3.3	0.9	1.5	2.4	–1.8	–2.5	–3.0	10.3	10.2	10.0
Romania	3.5	2.2	2.5	4.0	2.2	3.1	–1.1	–1.7	–2.2	7.3	7.2	7.0
Hungary	1.1	2.0	1.7	1.7	0.9	3.0	3.1	2.7	2.2	10.2	9.4	9.2
Bulgaria[5]	0.9	1.6	2.5	0.4	–0.4	0.9	2.1	–0.4	–2.1	13.0	12.5	11.9
Serbia	2.5	1.0	1.5	7.7	4.0	4.0	–5.0	–4.8	–4.6	21.0	21.6	22.0
Croatia	–1.0	–0.6	0.4	2.2	0.5	1.1	1.2	1.5	1.1	16.5	16.8	17.1
Lithuania[5]	3.3	3.3	3.5	1.2	1.0	1.8	0.8	–0.2	–0.6	11.8	10.8	10.5

Note: Data for some countries are based on fiscal years. Please refer to Table F in the Statistical Appendix for a complete list of the reference periods for each country.
[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 Latvia. Current account position corrected for reporting discrepancies in intra-area transactions.
[5]Based on Eurostat's harmonized index of consumer prices.
[6]Real GDP growth and the current account balance for 2013 refer to staff estimates at the time of the third review of the program and are subject to revision.
[7]Includes Albania, Bosnia and Herzegovina, Kosovo, FYR Macedonia, and Montenegro.

ment in emerging market economies, if it materializes, could spill over to the euro area given nonnegligible trade linkages, and to the United Kingdom through financial linkages (see this chapter's Spillover Feature). More positively, stronger-than-expected business sentiment could jump-start investment and growth.

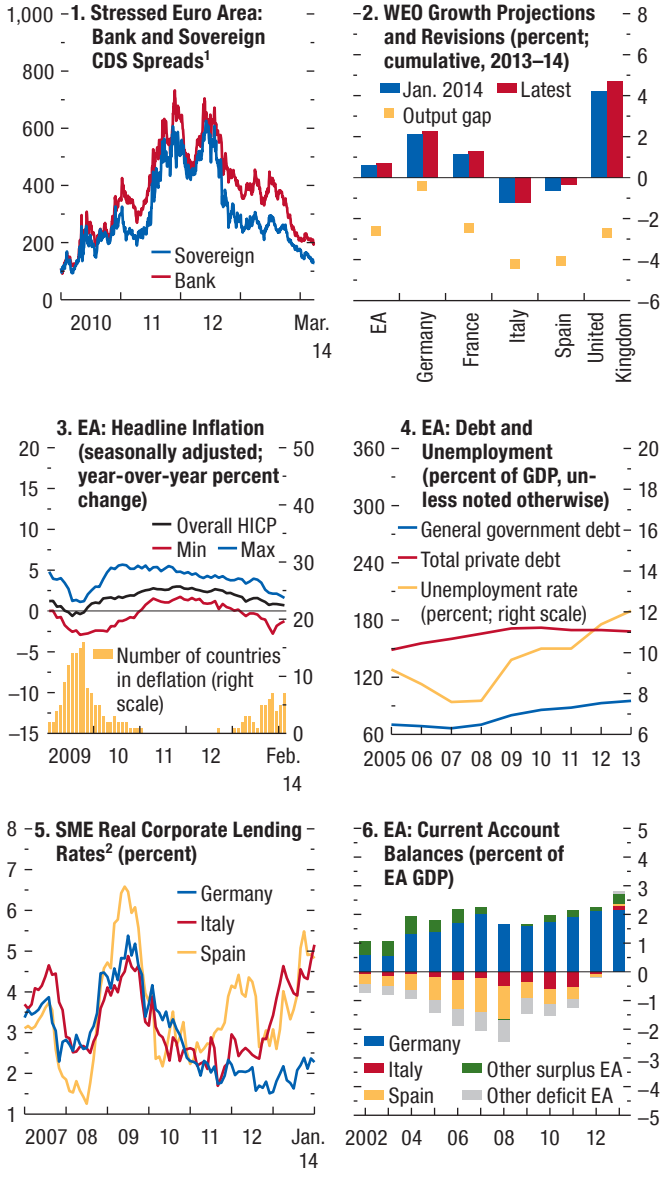
A key risk to activity stems from very low inflation in advanced economies. In the euro area, below-target inflation for an extended period could deanchor longer-term inflation expectations and complicate the task of recovery in the stressed economies, where the real burden of debt and real interest rates would rise.

The priority is to set the stage for stronger and more durable growth and tackle low inflation while ensuring financial stability. The policy mix is complex and interdependent, comprising fiscal and monetary policy, financial sector restructuring and reform, and structural reforms.

- Macroeconomic policies should stay accommodative. In the euro area, additional demand support is necessary. More monetary easing is needed both to increase the prospects that the ECB's price stability objective of keeping inflation below, but close to, 2 percent will be achieved and to support demand. These measures could include further rate cuts and longer-term targeted bank funding (possibly to small and medium-sized enterprises). The neutral fiscal stance for 2014 is broadly appropriate, but fiscal support may be warranted in countries with policy space if low growth persists and monetary policy options are depleted. In the United Kingdom, monetary policy should stay accommodative, and recent modifications by the Bank of England to the forward-guidance framework are therefore welcome. Similarly, the government's efforts to raise capital spending while staying within the medium-term fiscal envelope should help bolster recovery and long-term growth. Sweden's supportive monetary policy and broadly neutral fiscal stance remain adequate.
- Repairing bank balance sheets and completing the banking union are critical to restoring confidence and credit in the euro area (see Chapter 1). To this end, a sound execution of the bank asset quality review and stress tests are essential, supported by strong common backstops to delink sovereigns and banks, and an independent Single Resolution Mechanism to ensure timely, least-cost bank restructuring. The United Kingdom should continue to restore financial sector soundness, ensure that stress tests are well coordinated with those of the European Banking Authority, and guard against any buildup of financial vulnerabilities, including from surging house prices. Sweden should continue to improve bank capitalization and liquidity and introduce demand-side measures to curb household credit growth. Switzerland should ensure that its systemically important banks reduce leverage.
- Despite progress, there is still need to increase potential output and reduce intra-euro-area imbalances through improved productivity and investment. Structural reforms to create flexible labor

Figure 2.3. Advanced Europe: From Recession to Recovery

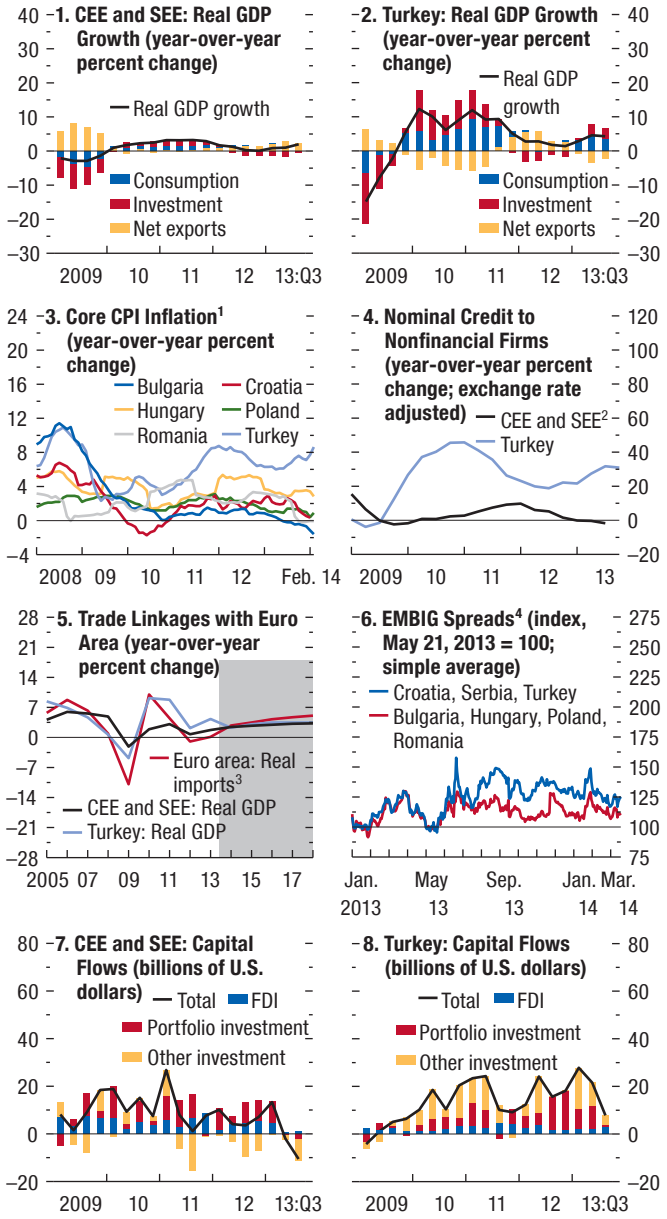
Financial markets in advanced Europe have been buoyant because of receding tail risks and the resumption of growth. Output gaps, however, remain large, reflected in low inflation, which lies well below the ECB's medium-term objective. Unemployment rates are stubbornly high, and debt levels are on an upward trajectory. Financial fragmentation persists. Current account balances have improved asymmetrically, with persistent surpluses in some core economies.



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, Luxembourg, Malta, Netherlands, Portugal, Slovak Republic, Slovenia, Spain. Stressed euro area = Greece, Ireland, Italy, Portugal, Spain. CDS = credit default swap; HICP = harmonized index of consumer prices; SME = small and medium-sized enterprises.
[1]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 24, 2014. All stressed euro area countries are included, except Greece.
[2]Monetary and financial institutions' lending to corporations under €1 million, 1–5 years.

Figure 2.4. Emerging and Developing Europe: Recovery Strengthening, but with Vulnerabilities

Growth decelerated in emerging and developing Europe in 2013, as the region contended with large capital outflows, tighter monetary conditions, and rising financial market volatility.



Sources: Bloomberg, L.P.; CEIC Data Management; European Bank for Reconstruction and Development; Haver Analytics; and IMF staff estimates.
Note: Central and eastern Europe (CEE) and southeastern Europe (SEE) include Albania, Bosnia and Herzegovina, Bulgaria, Croatia, Hungary, Kosovo, FYR Macedonia, Montenegro, Poland, Romania, and Serbia, wherever the 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. CPI = consumer price index; EMBIG = J.P. Morgan Emerging Markets Bond Index Global; FDI = foreign direct investment.
[1]Data through February 2014 except in the case of Croatia (January 2014).
[2]Data through third quarter of 2013.
[3]Excludes Latvia.
[4]Data through March 25, 2014.

markets and competitive product and service markets, ease entry and exit of firms, and simplify tax systems would be necessary. Reducing persistently large current account surpluses would bring beneficial spillovers across the euro area; for example, more public investment could lower the current account surplus in Germany while also raising growth in both Germany and the region. A targeted implementation of the European Union (EU) Services Directive would open up protected professions. A more flexible wage formation process would help address high unemployment in Sweden, especially among vulnerable groups.

Emerging and Developing Europe: Recovery Strengthening but Vulnerabilities Remain

Growth decelerated in emerging and developing Europe in the second half of 2013 as the region contended with large capital outflows. Despite positive spillovers from advanced Europe, the recovery is expected to weaken slightly in 2014. Fragilities in the euro area, some domestic policy tightening, rising financial market volatility, and increased geopolitical risks stemming from developments in Ukraine pose appreciable downside risks. Policies aimed at raising potential output remain a priority for the region.

During 2013 economic recovery in emerging Europe continued to be driven by external demand, except in the cases of Turkey and the Baltic countries, where growth was led by private consumption. In contrast, the rise in private consumption reflected mostly procyclical macroeconomic policies in Turkey, and in the Baltic countries it reflected better labor market conditions. After an initial improvement, financial market volatility has increased since early fall in most countries. As a result, the region, excluding Turkey, experienced capital outflows (Figure 2.4).

Stronger growth in the euro area is expected to lift activity in most of emerging and developing Europe. However, the region as a whole will see slightly weaker growth in 2014 than it did in 2013, mainly on account of Turkey, whose economy is much more cyclically advanced than those of other countries in the region (Table 2.2).

- Despite a projected improvement in net exports, growth in Turkey is expected to weaken in 2014 to 2.3 percent from 4.3 percent in 2013, mainly as a result of a sharp slowdown in private consumption

driven by macroprudential measures, the sizable exchange rate adjustment, and interest rate hikes. Public investment will likely hold up in line with the 2014 budget targets.

- Growth in Hungary and Poland is forecast to strengthen in 2014 to 2.0 and 3.1 percent, from 1.1 and 1.6 percent in 2013, respectively. In both economies the strengthening is being driven by a pickup in domestic demand, supported by monetary easing, improvements in the labor market, and higher EU funds, which are expected to boost public investment. In Hungary, still-high external vulnerabilities, although declining, could weigh on growth.
- As was the case last year, the growth pickup in southeastern Europe will be moderate in 2014 at about 1.9 percent, mostly on account of improving external demand. Domestic demand in a few countries will benefit from EU spending. However, demand will remain constrained because of slow progress in resolving nonperforming loans, persistent unemployment, and the need for fiscal consolidation in some countries.

Inflation is expected to decline or remain moderate in most countries in the region. Core inflation is low in several countries and has been decreasing in Bulgaria, Croatia, and Romania, reflecting a still-negative output gap, depressed domestic demand, weak bank credit, and negative external price developments, among other factors (Figure 2.4). Deflation risks, however, are low for emerging Europe as domestic demand takes hold and the effects of one-off factors dissipate.

Delayed recovery in the euro area and renewed volatility in financial markets resulting from geopolitical events or the onset of Federal Reserve tapering are the main downside risks across the region. Regional growth is highly correlated with euro area growth, and with strong financial links, the euro area remains the main source of shocks for emerging and developing Europe. With large declines in portfolio investment, gross capital inflows to central and southeastern Europe turned sharply negative in the third quarter of 2013 and dropped substantially for Turkey (Figure 2.4). Accelerated outflows become a risk if financial market volatility spikes again, with negative consequences for financing still-sizable fiscal deficits in many countries and external deficits in some. In addition, a further escalation of geopolitical risks related to Ukraine could have significant negative spillovers for the region through both financial and trade channels. Finally, uncertainties associated with the resolution of foreign-currency-denominated mortgages in Hungary, financial sector and corporate restructuring in Slovenia, and achieving the needed fiscal discipline in Serbia also weigh negatively on the outlooks for these countries.

Policies aimed at raising potential growth, including by addressing high structural unemployment, making progress in resolving the large stock of nonperforming loans, and enhancing the role of the tradables sector, remain a priority. Low growth largely reflects structural rigidities in many countries, although negative output gaps in most countries in the region also point to cyclical weaknesses. However, room for policy maneuvering is available only to a few: already-low policy rates and the risk of renewed financial turmoil reduce the scope for further monetary easing in most countries. At the same time, elevated public debt and high headline fiscal deficits highlight the need for consolidation, largely relying on expenditure cuts, in several countries.

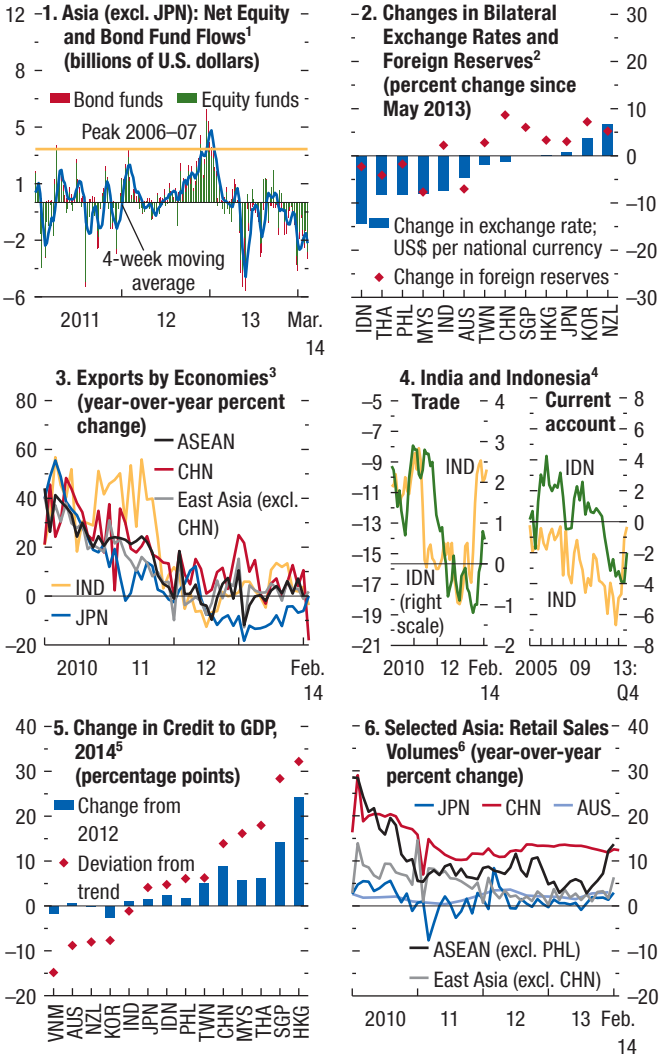
Asia: Steady Recovery

Except in the case of Japan, growth in Asia picked up in the second half of 2013 on recovering exports and robust domestic demand. Global downside risks are still significant and are particularly relevant for economies already weakened by domestic and external vulnerabilities. In addition, homegrown vulnerabilities in China continue to rise, especially those stemming from growth in credit. Policy priorities vary across the region, with some economies tightening, whereas others are still able to support growth. Supply-side reforms would improve resilience and growth prospects.

Economic activity in Asia picked up speed in the second half of 2013, as exports to advanced economies accelerated. Domestic demand has been solid, and retail sales across much of Asia have been brisk. Exports, particularly to the United States and the euro area, have gained momentum. In Japan, while private consumption and public spending remained robust, GDP growth slowed in the second half of 2013 on slow recovery of exports and a surge in import demand due to sustained high energy imports and strong domestic demand (see Chapter 1). Countries with strong fundamentals and policies managed to navigate the pressures seen in mid-2013 and early 2014 from slowing capital flows, with many in emerging Asia unscathed and looking more positive. Despite increas-

Figure 2.5. Asia: Steady Recovery

Activity in Asia picked up in the second half of 2013 as exports recovered owing to stronger demand from advanced economies. With domestic demand still robust, growth is projected to rise to 5.5 percent in 2014 as external demand recovers further.



Sources: Bloomberg, L.P.; CEIC; Haver Analytics; IMF, International Financial Statistics database; and IMF staff calculations.
Note: Asia = Australia (AUS), China (CHN), Hong Kong SAR (HKG), India (IND), Indonesia (IDN), Korea (KOR), Malaysia (MYS), New Zealand (NZL), Philippines (PHL), Singapore (SGP), Thailand (THA), Taiwan Province of China (TWN), Vietnam (VNM). ASEAN = Association of Southeast Asian Nations (IDN, MYS, PHL, SGP, THA). East Asia = CHN, HKG, KOR, TWN. JPN = Japan. Country group aggregates are weighted by purchasing-power-parity GDP as a share of group GDP.
[1]Data include exchange-traded fund flows and mutual fund flows; data are through Mar. 19, 2014.
[2]Exchange rate data are for Mar. 2014; reserves data are for Feb. 2014 except in the case of NZL (Jan. 2014) and CHN (Dec. 2013).
[3]ASEAN data are through Jan. 2013.
[4]Trade balance data are in three-month moving averages and are through Jan. 2014 for IDN. Current account balance data are in percent of GDP.
[5]Latest monthly availability. Trend calculated using Hodrick-Prescott filter over the period 2000–12.
[6]AUS, CHN, JPN, and ASEAN (excluding PHL). Data are through Dec. 2013 for AUS; Jan. 2014 for JPN, east Asia (excluding CHN), and ASEAN (excluding PHL). Linear interpolation is applied on quarterly data for AUS.

ing volatility, financial conditions remain accommodative, partly because weaker currencies are providing some offset (Figure 2.5).

For Asia as a whole, growth is expected to accelerate modestly, from 5.2 percent in 2013 to about 5.5 percent in both 2014 and 2015 (Table 2.3). The improved outlook in advanced economies, alongside more competitive exchange rates in some cases, will help boost exports. Domestic demand will continue to be supported by strong labor markets and still-buoyant credit growth. Policies are expected to remain accommodative, although in a few cases (India, Indonesia) interest rate hikes on the one hand will attenuate vulnerabilities, but on the other hand could weigh on growth. In Japan, fiscal consolidation will be a headwind. Inflation is expected to increase slightly, albeit remaining generally low across the region, as output gaps close. The main exceptions are India and Indonesia, whose high inflation rates should continue to moderate further.

- In *Japan,* GDP growth is expected to moderate to about 1.4 percent in 2014 as fiscal policy weighs on activity. The positive effect of the recently approved stimulus measures is expected to be more than offset by the negative impact of the consumption tax hike and the waning of reconstruction spending and past stimulus measures. Monetary support will ensure that financial conditions remain accommodative, and inflation will rise temporarily to 2¾ percent this year as a result of the consumption tax increase (see Chapter 1).
- In *Korea*, the economy should continue its recovery, with growth accelerating to 3.7 percent in 2014. Stronger growth will be driven mostly by exports, which will be lifted by improving trading partner demand. Domestic demand should also pick up, benefiting from past fiscal stimulus and monetary accommodation as well as continued robust labor market conditions.
- In *Australia*, growth is expected to remain broadly stable at 2.6 percent in 2014 as the slowdown in mining-related investment continues. In *New Zealand*, growth should pick up to 3.3 percent, helped by reconstruction spending.
- In *China,* growth recovered somewhat in the second half of 2013 and should remain robust this year, moderating only marginally to 7.5 percent, as accommodative policies remain in place. The announcement of the government's reform blueprint

Table 2.3. Selected Asian 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	
	2013	2014	2015	2013	2014	2015	2013	2014	2015	2013	2014	2015
Asia	**5.2**	**5.4**	**5.6**	**3.5**	**3.9**	**3.7**	**1.4**	**1.6**	**1.6**	. . .	. . .	. . .
Advanced Asia	**2.1**	**2.3**	**2.2**	**1.1**	**2.4**	**2.2**	**2.0**	**2.1**	**2.0**	**4.0**	**4.0**	**4.0**
Japan	1.5	1.4	1.0	0.4	2.8	1.7	0.7	1.2	1.3	4.0	3.9	3.9
Korea[4]	2.8	3.7	3.8	1.3	1.8	3.0	5.8	4.4	3.5	3.1	3.1	3.1
Australia	2.4	2.6	2.7	2.4	2.3	2.4	–2.9	–2.6	–2.8	5.7	6.2	6.2
Taiwan Province of China	2.1	3.1	3.9	0.8	1.4	2.0	11.7	11.7	10.9	4.2	4.2	4.1
Hong Kong SAR	2.9	3.7	3.8	4.3	4.0	3.8	3.1	3.3	3.9	3.1	3.1	3.1
Singapore	4.1	3.6	3.6	2.4	2.3	2.6	18.4	17.7	17.1	1.9	2.0	2.1
New Zealand	2.4	3.3	3.0	1.1	2.2	2.2	–4.2	–4.9	–5.4	6.1	5.2	4.7
Emerging and Developing Asia	**6.5**	**6.7**	**6.8**	**4.5**	**4.5**	**4.3**	**1.1**	**1.2**	**1.4**	. . .	. . .	. . .
China	7.7	7.5	7.3	2.6	3.0	3.0	2.1	2.2	2.4	4.1	4.1	4.1
India	4.4	5.4	6.4	9.5	8.0	7.5	–2.0	–2.4	–2.5	. . .	. . .	. . .
ASEAN-5	**5.2**	**4.9**	**5.4**	**4.4**	**4.7**	**4.4**	**0.1**	**0.3**	**0.3**	. . .	. . .	. . .
Indonesia	5.8	5.4	5.8	6.4	6.3	5.5	–3.3	–3.0	–2.7	6.3	6.1	5.8
Thailand	2.9	2.5	3.8	2.2	2.3	2.1	–0.7	0.2	0.3	0.7	0.7	0.8
Malaysia	4.7	5.2	5.0	2.1	3.3	3.9	3.8	4.0	4.0	3.1	3.0	3.0
Philippines	7.2	6.5	6.5	2.9	4.4	3.6	3.5	3.2	2.6	7.1	6.9	6.8
Vietnam	5.4	5.6	5.7	6.6	6.3	6.2	6.6	4.3	3.5	4.4	4.4	4.4
Other Emerging and Developing Asia[5]	**6.2**	**6.7**	**7.1**	**6.8**	**6.6**	**6.4**	**–2.1**	**–1.4**	**–1.2**	. . .	. . .	. . .
Memorandum												
Emerging Asia[6]	6.5	6.7	6.8	4.5	4.4	4.2	1.2	1.3	1.4	. . .	. . .	. . .

Note: Data for some countries are based on fiscal years. Please refer to Table F in the Statistical Appendix for a complete list of the reference periods for each country.
[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]Korea's real GDP series is based on the reference year 2005. This does not reflect the revised national accounts released on March 26, 2014, after the WEO was finalized for publication. These comprehensive revisions include implementing the 2008 System of National Accounts and updating the reference year to 2010. As a result of these revisions, real GDP growth in 2013 was revised up to 3 percent from 2.8 percent.
[5]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.
[6]Emerging Asia comprises the ASEAN-5 economies, China, and India.

has improved sentiment, but progress on rebalancing the economy remains tentative (see Box 1.2). Fiscal reforms are expected to increase the efficiency of the tax system, and ongoing financial reforms should improve the allocation of capital and efficiency of investment, although they could also create some near-term volatility in China's capital markets (see Chapter 1). Although the inflation outlook is expected to remain benign, concerns about overinvestment and credit quality should mean a continuation of the withdrawal of monetary support for the economy through slower credit growth and higher real borrowing costs.

- *India*'s growth is expected to recover from 4.4 percent in 2013 to 5.4 percent in 2014, supported by slightly stronger global growth, improving export competitiveness, and implementation of recently approved investment projects. A pickup in exports in recent months and measures to curb gold imports have contributed to lowering the current account deficit. Policy measures to bolster capital flows have further helped reduce external vulnerabilities. Overall growth is expected to firm up on policies supporting investment and a confidence boost from recent policy actions, but will remain below trend. Consumer price inflation is expected to remain an important challenge, but should continue to move onto a downward trajectory.
- Developments in the Association of Southeast Asian Nations (ASEAN) economies will remain uneven. *Indonesia*'s growth is projected to slow this year as subdued investor sentiment and higher borrowing costs weigh on the domestic economy, although the currency depreciation since mid-2013 should give exports a lift. In *Thailand*, the near-term outlook remains

clouded by the political situation; the economy is slowing as private demand weakens and public investment plans are delayed. *Malaysia* and the *Philippines*, however, are on a more positive trajectory, and growth is expected to remain robust in both countries.

- For developing Asia, the economic outlook is largely for continued solid growth with some additional benefit from the ongoing recovery in world trade. However, in *Bangladesh*, domestic demand is expected to recover in 2014 as activity normalizes following a year of political unrest. In addition, macroeconomic imbalances related to rapid credit growth and high current account deficits in *Lao P.D.R.* and *Mongolia* are an ongoing risk.

Concerns linked to the external environment remain, but Asia is also facing various idiosyncratic domestic risks. Overall, there are three broad concerns confronting the region in the coming year (see Chapter 1)—over and above more idiosyncratic risks stemming from political tensions and uncertainties in several countries (for example, Thailand):

- *Tightening global financial conditions:* As growth in the United States improves, Asia will have to adapt to a steady increase in the global term premium. Economies with weaker fundamentals and greater reliance on global finance and trade would be most affected. In some cases, the impact could be amplified by domestic financial vulnerabilities arising from leverage in firms or households, thus negatively affecting the balance sheets of banks.
- *Less effective Abenomics:* In Japan, policy measures could prove less effective at boosting growth than envisaged if they fail to raise inflation expectations, nominal wages, exports, and private investment. Slower growth could have significant negative spillovers for economies with strong trade and foreign direct investment linkages with Japan, such as Indonesia and Thailand—especially if the risk of deflation returns.
- *A sharper-than-envisaged slowdown and financial sector vulnerabilities in China:* A sharper-than-envisaged slowdown in China—for instance, from the implementation of structural reforms—would have significant spillovers for the rest of the region, especially in economies linked to the regional supply chain and commodity exporters. A near-term financial crisis is unlikely, but given recent rapid credit growth and the growth of shadow banking, there could be continued news of credit problems among the trusts or potential debt-servicing problems among local governments. These could spark adverse financial market reaction both in China and globally, but they might also improve the pricing of risk and thus would be welcome.

In addition to tackling near-term vulnerabilities, Asia should also continue to push ahead with structural reforms to enhance medium-term prospects. Generally, reforms should focus on removing structural impediments to growth in India and across the ASEAN economies through higher public and private investment (particularly in infrastructure). In China, reforms that liberalize the financial system and raise the cost of capital will be key to improving the allocation of credit and boosting productivity growth. In Japan, structural reforms are needed to achieve a sustainable pickup in growth and a durable exit from deflation.

Latin America and the Caribbean: Subdued Growth

Economic activity in Latin America and the Caribbean is expected to remain in relatively low gear in 2014. The recovery in advanced economies should generate positive trade spillovers, but these are likely to be offset by lower commodity prices, tighter financial conditions, and supply bottlenecks in some countries. Growth in the Caribbean remains constrained by high debt levels and weak competitiveness. Policymakers need to focus on strengthening fiscal positions, addressing potential financial fragilities, and pressing ahead with growth-enhancing structural reforms to ease supply-side constraints.

Economic activity across Latin America and the Caribbean stayed in relatively low gear last year. Full-year growth for 2013 is estimated to have been 2¾ percent, significantly less than the growth rates observed during previous years (Figure 2.6). Weak investment and subdued demand for the region's exports held back activity, as did increasingly binding supply bottlenecks in a number of economies. Countries with stronger fundamentals were generally affected less by the market pressures in mid-2013 and early 2014 (see Chapter 1). Nonetheless, most currency, equity, and bond markets across Latin America and the Caribbean continue to trade well below the levels of 12 months ago, reflecting tighter external conditions and a reassessment of medium-term growth prospects.

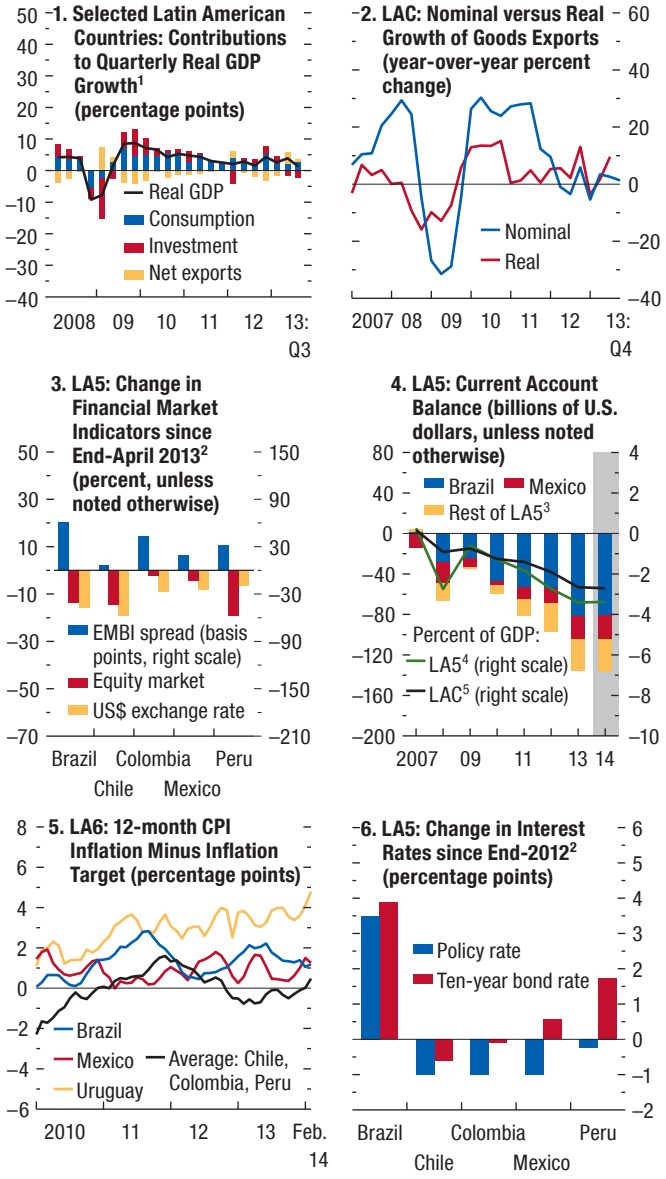
Looking ahead, regional growth is projected to remain subdued in 2014, at 2½ percent. The recovery in the advanced economies is expected to generate positive trade spillovers, but these are likely to be offset by

the impact of lower commodity prices, tighter financial conditions, and supply-side constraints in some economies. However, there is considerable variation in the outlook for different parts of the region (Table 2.4):

- Growth in *Mexico* is expected to rebound to 3 percent this year, after an unexpectedly weak growth rate of 1.1 percent in 2013. Several of the earlier headwinds to activity have eased, with fiscal policy shifting to a more accommodative stance and U.S. demand picking up. Headline inflation is forecast to stay close to the upper end of the inflation target range in the near term, as a result of one-time effects of certain tax measures. However, core inflation and inflation expectations remain well anchored. Looking further ahead, Mexico's ongoing economic reforms, especially in the energy and telecommunications sectors, herald higher potential growth for the medium term.
- *Brazil*'s economy is expected to remain in low gear, with growth slowing to 1.8 percent in 2014. Weighing on activity are domestic supply constraints, especially in infrastructure, and continued weak private investment growth, reflecting loss of competitiveness and low business confidence. Inflation is expected to remain in the upper part of the official target range, as limited spare capacity and the recent depreciation of the *real* keep up price pressures. The policy mix has been skewed toward monetary tightening over the past year, with fiscal policy (including policy lending) expected to maintain a broadly neutral stance in 2014.
- Among the other financially integrated economies, *Colombia* and *Peru* are forecast to continue expanding at fairly rapid rates. Activity in *Chile* is projected to moderate somewhat because private investment growth is decelerating markedly, including in the mining sector. In all three countries, domestic consumption remains brisk, supported by record-low unemployment rates and solid growth in real wages. Nonetheless, price pressures are projected to remain contained.
- Activity in *Argentina* and *Venezuela* is expected to slow markedly during 2014, though the outlook is subject to high uncertainty. Persistently loose macroeconomic policies have generated high inflation and a drain on official foreign exchange reserves. The gap between official and market exchange rates remains large in both countries, and has continued to widen in Venezuela. Administrative measures taken to manage domestic and external imbalances, including controls on prices, exchange rates, and trade, are weighing further on confidence and activity. Recently, both countries adjusted their exchange rates, and Argentina raised interest rates, but

Figure 2.6. Latin America and the Caribbean: Subdued Growth

Growth in Latin America and the Caribbean eased further in 2013, amid subdued export performance and a continued slowdown in investment. Activity is expected to remain in low gear this year, and renewed turbulence in financial markets represents a downside risk, especially for economies with sizable external funding needs or domestic policy weaknesses.



Sources: Bloomberg, L.P.; Haver Analytics; IMF, International Financial Statistics database; national authorities; and IMF staff estimates.
Note: CPI = consumer price index; EMBI = J.P. Morgan Emerging Markets Bond Index; LAC = Latin America and the Caribbean. LA6 = Brazil, Chile, Colombia, Mexico, Peru, Uruguay. LA5 = LA6 excluding Uruguay.
[1]Weighted by GDP valued at purchasing power parity as a share of group GDP for Argentina, Brazil, Chile, Colombia, Costa Rica, Mexico, Paraguay, and Peru.
[2]Data as of March 24, 2014.
[3]Simple average for Chile, Colombia, and Peru.
[4]Simple average.
[5]Weighted by GDP valued at purchasing power parity as a share of group GDP.

Table 2.4. Selected 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	
	2013	2014	2015	2013	2014	2015	2013	2014	2015	2013	2014	2015
North America	**1.8**	**2.8**	**3.0**	**1.6**	**1.6**	**1.8**	**–2.3**	**–2.2**	**–2.5**	. . .	. . .	. . .
United States	1.9	2.8	3.0	1.5	1.4	1.6	–2.3	–2.2	–2.6	7.4	6.4	6.2
Canada	2.0	2.3	2.4	1.0	1.5	1.9	–3.2	–2.6	–2.5	7.1	7.0	6.9
Mexico	1.1	3.0	3.5	3.8	4.0	3.5	–1.8	–1.9	–2.0	4.9	4.5	4.3
South America[4]	**3.2**	**2.3**	**2.7**	**8.1**	. . .	. . .	**–2.7**	**–2.8**	**–2.9**	. . .	. . .	. . .
Brazil	2.3	1.8	2.7	6.2	5.9	5.5	–3.6	–3.6	–3.7	5.4	5.6	5.8
Argentina[5,6]	4.3	0.5	1.0	10.6	. . .	. . .	–0.9	–0.5	–0.5	7.1	7.6	7.6
Colombia	4.3	4.5	4.5	2.0	1.9	2.9	–3.3	–3.3	–3.2	9.7	9.3	9.0
Venezuela	1.0	–0.5	–1.0	40.7	50.7	38.0	2.7	2.4	1.8	9.2	11.2	13.3
Peru	5.0	5.5	5.8	2.8	2.5	2.1	–4.9	–4.8	–4.4	7.5	6.0	6.0
Chile	4.2	3.6	4.1	1.8	3.5	2.9	–3.4	–3.3	–2.8	5.9	6.1	6.2
Ecuador	4.2	4.2	3.5	2.7	2.8	2.6	–1.5	–2.4	–3.1	4.7	5.0	5.0
Bolivia	6.8	5.1	5.0	5.7	6.8	5.3	3.7	3.7	2.4	6.4	6.3	6.2
Uruguay	4.2	2.8	3.0	8.6	8.3	8.0	–5.9	–5.5	–5.2	6.3	6.8	6.9
Paraguay	13.0	4.8	4.5	2.7	4.7	5.0	0.9	–0.9	–1.6	5.4	5.5	5.5
Central America[7]	**4.0**	**4.0**	**4.0**	**4.2**	**3.8**	**4.4**	**–6.9**	**–6.5**	**–6.2**	. . .	. . .	. . .
Caribbean[8]	**2.8**	**3.3**	**3.3**	**5.0**	**4.4**	**4.5**	**–3.7**	**–3.2**	**–3.2**	. . .	. . .	. . .
Memorandum												
Latin America and the Caribbean[9]	2.7	2.5	3.0	6.8	. . .	. . .	–2.7	–2.7	–2.8	. . .	. . .	. . .
Excluding Argentina	2.5	2.8	3.2	6.4	6.8	5.9	–2.8	–2.9	–3.0	. . .	. . .	. . .
Eastern Caribbean Currency Union[10]	0.5	1.4	1.8	1.0	1.2	1.8	–17.6	–17.1	–16.7	. . .	. . .	. . .

Note: Data for some countries are based on fiscal years. Please refer to Table F in the Statistical Appendix for a complete list of the reference periods for each country.

[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 data for Argentina are officially reported data. The IMF has, however, issued a declaration of censure and called on Argentina to adopt remedial measures to address the quality of the official GDP data. Alternative data sources have shown significantly lower real growth than the official data since 2008. In this context, the Fund is also using alternative estimates of GDP growth for the surveillance of macroeconomic developments in Argentina.

[6]The data for Argentina are officially reported data. Consumer price data from January 2014 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, staff forecasts for CPI inflation are not reported in the Spring 2014 *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. 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, Dominican Republic, Grenada, Haiti, Jamaica, St. Kitts and Nevis, St. Lucia, St. Vincent and the Grenadines, and Trinidad and Tobago.

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

[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.

more significant policy changes are needed to stave off a disorderly adjustment.

- *Bolivia*'s economy expanded strongly last year and is expected to remain above potential in 2014, driven by a sharp increase in hydrocarbon exports and accommodative macroeconomic policies. Growth in *Paraguay* also rebounded in 2013 as the agricultural sector recovered from a severe drought.
- Growth in *Central America* is expected to remain broadly unchanged, at 4.0 percent, as the boost from the pickup in economic activity in the United States is offset by fiscal policy tightening in some countries, the effects of a disease on coffee production, reduced financing from Venezuela, and other country-specific factors.
- The *Caribbean* continues to face a challenging economic environment, marked by low growth, high indebtedness, and financial fragilities. Nonetheless, activity is expected to recover modestly this year in the tourism-dependent economies as tourism flows firm up.

Risks to the outlook remain considerable. On the upside, a stronger-than-expected pickup in U.S.

growth could lift the region's exports, although positive trade spillovers would be concentrated in Mexico and a few Central American and Caribbean countries. On the downside, a faster-than-anticipated rise in U.S. interest rates could cause fresh financial headwinds, especially if capital flows were to reverse abruptly. In addition, further downward pressure on commodity prices caused by a sharper-than-expected investment slowdown in China or other factors would be a drag on the commodity exporters in the region.

Against this backdrop, policymakers across Latin America and the Caribbean should focus on improving domestic fundamentals to reduce their economies' vulnerability to external shocks. A gradual reduction in fiscal deficits and public debt levels remains appropriate for countries with large fiscal imbalances, as well as those with limited spare capacity and elevated external current account deficits. Further improvements in the transparency and credibility of fiscal frameworks would also help strengthen investor confidence. In the same vein, it is critical to ensure strong prudential oversight of the financial sector and preemptively address fragilities that could come to the fore if interest rates were to rise sharply or growth to slow further.

Exchange rate flexibility has already helped countries adjust to last year's financial market turmoil and should remain an important buffer in the event of renewed volatility. Meanwhile, monetary policy easing remains the first line of defense against a further growth slowdown in economies with low inflation and anchored inflation expectations. In countries with persistent inflation pressures, which could be exacerbated by further exchange rate depreciation, both monetary and fiscal policy should focus on anchoring inflation expectations.

Structural reforms to raise productivity and strengthen competitiveness are also crucial. Above all, the region needs to invest more, and more effectively, in infrastructure and human capital; address obstacles to greater labor force participation in the formal sector; and improve the business and regulatory environment.

Commonwealth of Independent States: Subdued Prospects

Growth in the Commonwealth of Independent States (CIS) remains subdued despite robust consumption, reflecting weak investment, political tensions, and policy uncertainty in some cases. Geopolitical tensions are casting a pall on part of this region. By contrast, growth is brisk in the Caucasus and Central Asia (CCA). Policies should focus on implementing reforms and increasing investment to raise growth potential, and for some countries, correcting serious imbalances is another priority.

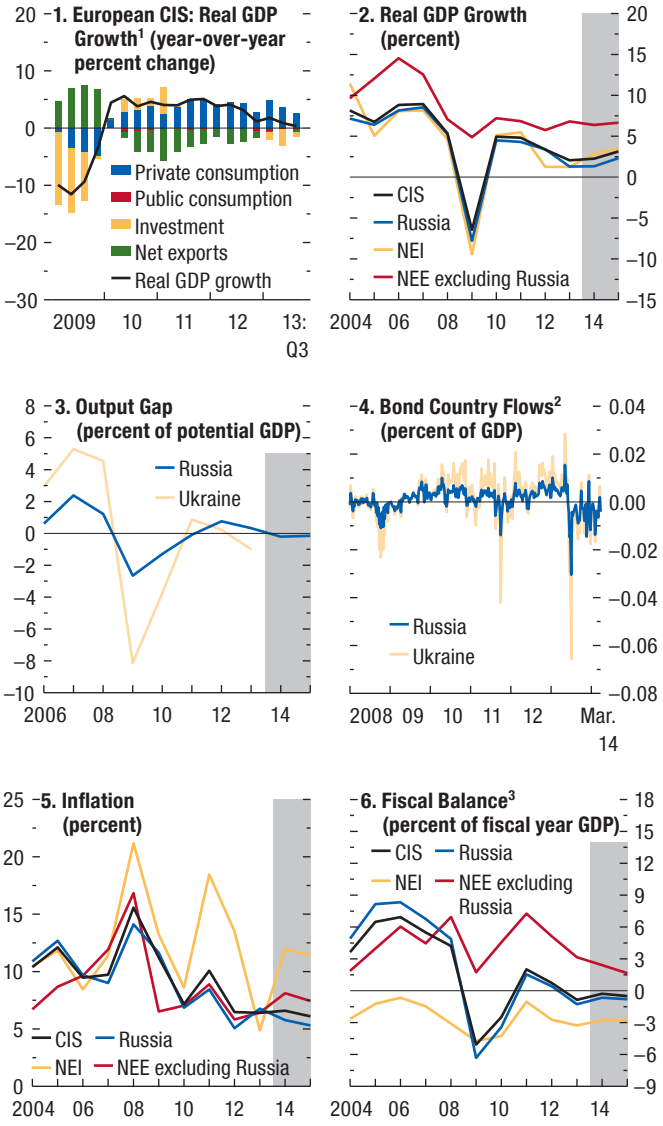
Growth in the European CIS economies continued to soften in the second half of 2013 and was further slowed by geopolitical tensions in early 2014 (Figure 2.7). Russia's growth remained subdued during 2013. Despite strong consumption, activity was constrained by weak investment and the slow global recovery. A bumper harvest and resilient private consumption lifted Ukraine from recession in the fourth quarter of 2013, but large domestic and external imbalances have persisted. Volatility in capital flows increased sharply from the summer onward as concerns over Federal Reserve tapering intensified. In early 2014 domestic political turmoil and the takeover of the Crimea by Russia adversely affected Ukraine's economy and sent spillover waves across the region. The near-term growth outlook for Russia, already weakened, has been further affected by these geopolitical tensions. As the ruble faced downward pressures, with capital outflows intensifying, the central bank temporarily reverted to discretion and increased its foreign exchange intervention. Growth in the CCA region increased by about 1 percentage point to about 6½ percent in 2013, despite the slowdown in Russia, one of the region's main trading partners.

Growth in the European CIS economies will remain weak, while the near-term outlook for the CCA is expected to soften to 6.2 percent in 2014 (Table 2.5).

- *Russia*'s GDP growth is projected to be subdued at 1.3 percent in 2014. The fallout from emerging market financial turbulence and geopolitical tensions relating to Ukraine are headwinds on the back of already weak activity.
- In *Ukraine*, output will likely drop significantly as the acute economic and political shocks take their toll on investment and consumption. Toward the end of 2014, net exports and investment recovery should bring back moderate growth.
- *Belarus*'s growth will remain lackluster at 1.6 percent in 2014. In *Moldova,* GDP growth will moderate to 3½ percent in 2014, mainly reflecting the expected slowdown in agriculture.
- Strengthening external demand as well as recovery of domestic demand in *Armenia* and *Georgia* owing to fiscal easing, and increased hydrocarbon exports from *Turkmenistan* on past expansions in productive capacity, will support economic activity in the CCA,

Figure 2.7. Commonwealth of Independent States: Subdued Prospects

Growth in the Commonwealth of Independent States (CIS) has continued to soften, reflecting further deceleration in Russia and weak external demand elsewhere, and capital flows to the region have declined. Policies should focus on implementing stronger reforms to raise growth potential, and for some countries, correcting serious imbalances.



Sources: EPFR Global/Haver Analytics; Haver Analytics; and IMF staff estimates.
Note: Net energy exporters (NEE) = Azerbaijan, Kazakhstan, Russia, Turkmenistan, Uzbekistan. Net energy importers (NEI) = Armenia, Belarus, Georgia, Kyrgyz Republic, Moldova, Tajikistan, Ukraine. All country group aggregates are weighted by GDP valued at purchasing power parity as a share of group GDP. Projections for Ukraine are excluded due to the ongoing crisis.
[1]European CIS includes Belarus, Moldova, Russia, and Ukraine.
[2]Data through March 18, 2014.
[3]General government net lending/borrowing except in the case of NEI, for which it is the overall balance.

despite a temporary weakening of oil output growth in *Kazakhstan* and flat gold exports from the *Kyrgyz Republic*.

Inflation will be broadly stable at about 6 percent in 2014, but remains high in some economies (Table 2.5). In Russia, it exceeded the target range in 2013 partly because of a temporary uptick in food prices and ruble depreciation and will likely remain higher than the 2014 midpoint target. In Kazakhstan, the recent devaluation of the tenge will add to inflation pressure this year. Inflation has declined in Belarus but will remain in double digits under current policies, whereas it is expected to remain within central banks' targets in most of the CCA countries. In Georgia, inflation is expected to come close to the 5 percent target in 2015, on a pickup in domestic demand and some recent currency depreciation. In Uzbekistan, inflation will continue to linger in the double digits because of increases in administered prices, currency depreciation, and strong credit growth.

The balance of risks remains to the downside, considering rising geopolitical uncertainties following the takeover of the Crimea by Russia, tightening financial conditions, and volatile capital flows. Intensification of sanctions and countersanctions could affect trade flows and financial assets. Contagion could spread through real (trade, remittances) and financial (asset valuation, banking) channels. Even in the absence of sanctions, lower growth in Russia and Ukraine could have a significant impact on neighboring economies over the medium term. Softer commodity prices (see the Commodity Special Feature in Chapter 1) would delay recovery in Ukraine and hamper growth in Russia and in the CCA hydrocarbon exporters. However, countries with large foreign asset buffers would be less affected. Growth in the CCA oil importers would also weaken if growth prospects in emerging markets were to be revised down, with adverse effects on trade, remittances, and project funding, especially considering limited external and fiscal buffers. A slowdown in Russia owing to unsettled conditions would affect the CCA through both real sector and financial channels, particularly if energy supply is disrupted and oil and gas prices rise. On the upside, a stronger recovery in advanced economies could keep oil and gas prices high, benefiting both the oil and gas exporters and the commodity importers through a stronger-than-expected recovery in Russia.

Policies should aim to preserve macroeconomic stability and boost growth potential with ambitious reforms. To manage the potential effects of emerging market

Table 2.5. Commonwealth of Independent States: 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	
	2013	2014	2015	2013	2014	2015	2013	2014	2015	2013	2014	2015
Commonwealth of Independent States	**2.1**	**2.3**	**3.1**	**6.4**	**6.6**	**6.1**	**0.7**	**1.9**	**1.5**	. . .	. . .	. . .
Net Energy Exporters	**2.2**	**2.2**	**3.1**	**6.7**	**6.2**	**5.7**	**1.9**	**2.5**	**1.9**	. . .	. . .	. . .
Russia	1.3	1.3	2.3	6.8	5.8	5.3	1.6	2.1	1.6	5.5	6.2	6.2
Kazakhstan	6.0	5.7	6.1	5.8	9.2	7.5	0.1	1.9	2.0	5.2	5.2	5.2
Uzbekistan	8.0	7.0	6.5	11.2	11.0	11.0	1.7	2.2	1.9	. . .	. . .	. . .
Azerbaijan	5.8	5.0	4.6	2.4	3.5	4.0	19.7	15.0	9.9	6.0	6.0	6.0
Turkmenistan	10.2	10.7	12.5	6.6	5.7	6.0	–3.3	–1.1	1.3	. . .	. . .	. . .
Net Energy Importers	**1.2**	**2.8**	**3.5**	**4.9**	**12.0**	**11.4**	**–8.9**	**–9.0**	**–7.5**	. . .	. . .	. . .
Ukraine[4]	0.0	. . .	. . .	–0.3	. . .	. . .	–9.2	. . .	. . .	7.4	. . .	. . .
Belarus	0.9	1.6	2.5	18.3	16.8	15.8	–9.8	–10.0	–7.8	0.6	0.6	0.6
Georgia[5]	3.2	5.0	5.0	–0.5	4.0	4.6	–6.1	–7.9	–7.3	. . .	. . .	. . .
Armenia	3.2	4.3	4.5	5.8	5.0	4.0	–8.4	–7.2	–6.8	18.5	18.0	17.9
Tajikistan	7.4	6.2	5.7	5.0	5.4	5.9	–1.9	–2.1	–2.3	. . .	. . .	. . .
Kyrgyz Republic	10.5	4.4	4.9	6.6	6.1	6.6	–12.6	–15.5	–14.3	7.6	7.6	7.5
Moldova	8.9	3.5	4.5	4.6	5.5	5.9	–4.8	–5.9	–6.4	5.2	5.6	5.3
Memorandum												
Caucasus and Central Asia[6]	6.6	6.2	6.4	6.0	7.7	7.1	2.6	3.0	2.4	. . .	. . .	. . .
Low-Income CIS Countries[7]	7.1	6.0	5.8	7.7	8.3	8.4	–2.2	–2.3	–2.2	. . .	. . .	. . .
Net Energy Exporters Excluding Russia	6.8	6.4	6.7	6.4	8.1	7.4	3.6	4.2	3.4	. . .	. . .	. . .

Note: Data for some countries are based on fiscal years. Please refer to Table F in the Statistical Appendix for a complete list of the reference periods for each country.
[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]Projections for Ukraine are excluded due to the ongoing crisis.
[5]Georgia, which is not a member of the Commonwealth of Independent States (CIS), is included in this group for reasons of geography and similarity in economic structure.
[6]Includes Armenia, Azerbaijan, Georgia, Kazakhstan, Kyrgyz Republic, Tajikistan, Turkmenistan, and Uzbekistan.
[7]Low-Income CIS countries comprise Armenia, Georgia, Kyrgyz Republic, Moldova, Tajikistan, and Uzbekistan.

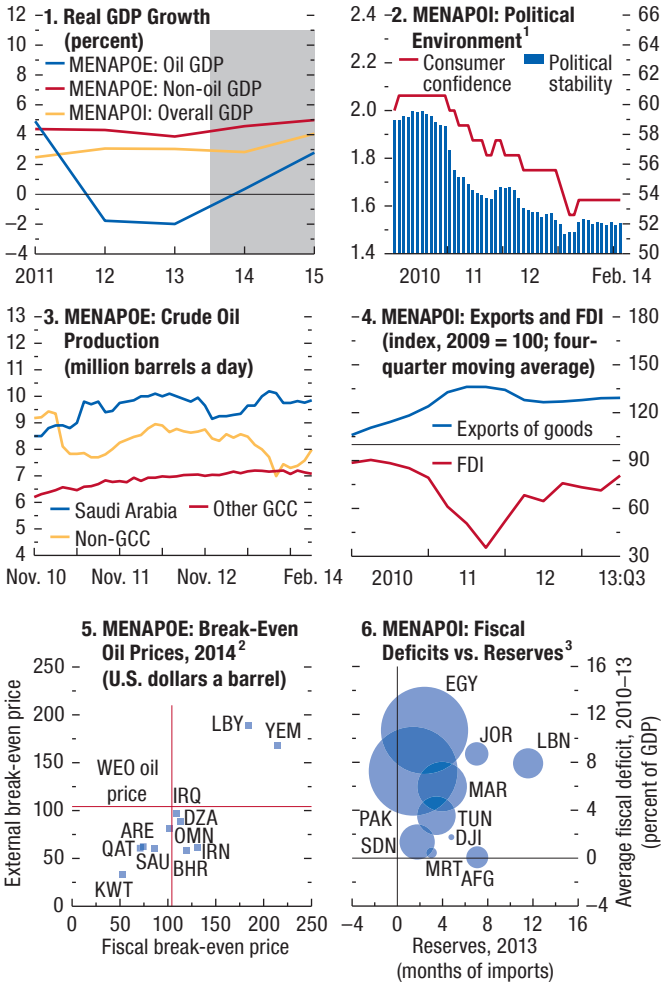
financial turmoil and geopolitical tensions, Russia should continue to rely on exchange rate flexibility to facilitate adjustment while avoiding excessive volatility, keep monetary policy focused on anchoring inflation, and maintain a broadly neutral structural fiscal policy while allowing automatic stabilizers to work. Fiscal consolidation and tapering of quasi-fiscal losses in the energy sector are critical for economic stabilization in Ukraine. Although financial support from Russia could provide Belarus with some short-term breathing space, steps to reduce wage and credit growth and to increase exchange rate flexibility should be taken expeditiously to narrow imbalances. While remaining committed to medium-term consolidation, Armenia and Georgia are planning some fiscal stimulus in 2014. Structural reforms to improve the business environment, diversify the economy, and enhance external competitiveness are also needed across the region for strong growth to last and become more inclusive in the years ahead.

The Middle East and North Africa: Turning the Corner?

Growth was tepid across the Middle East and North Africa, Afghanistan, and Pakistan (MENAP) in 2013, as declines in oil production and weak private investment growth amid continued political transitions and conflict offset increases in public spending. Economic activity will strengthen in 2014–15 as export growth improves in line with trading partners' recoveries and public and private investment accelerates. However, weak confidence, high unemployment, low competitiveness, and in many cases, large public deficits will continue to weigh on economic prospects in the region. Risks are tilted to the downside on slow progress in reforms during complex political transitions. Reforms to raise and diversify potential output and improve competitiveness and resilience are essential for achieving sustainable and inclusive growth and creating jobs.

Figure 2.8. Middle East, North Africa, Afghanistan, and Pakistan: Turning a Corner?

Growth was tepid across the Middle East, North Africa, Afghanistan, and Pakistan (MENAP) in 2013, as high public spending was offset by declines in oil supply and weak non-oil exports amid continued sociopolitical upheaval. Robust non-oil activity on high public spending and recovery in oil production, however, should accelerate activity this year.



Sources: Haver Analytics; IMF, Direction of Trade Statistics database; International Energy Agency; national authorities; PRS Group, Inc., *International Country Risk Guide;* and IMF staff estimates.
Note: MENAP oil exporters (MENAPOE) = Algeria (DZA), Bahrain (BHR), Iran (IRN), Iraq (IRQ), Kuwait (KWT), Libya (LBY), Oman (OMN), Qatar (QAT), Saudi Arabia (SAU), United Arab Emirates (ARE), and Yemen (YEM); MENAP oil importers (MENAPOI) = Afghanistan (AFG), Djibouti (DJI), Egypt (EGY), Jordan (JOR), Lebanon (LBN), Mauritania (MRT), Morocco (MAR), Pakistan (PAK), Sudan (SDN), Syria (SYR), and Tunisia (TUN). FDI = foreign direct investment; GCC = Gulf Cooperation Council. Data from 2011 onward exclude SYR. Country group aggregates for panel 1 and exports of goods in panel 4 are weighted by purchasing-power-parity GDP as a share of group GDP; panel 2 shows simple averages (excludes AFG, DJI, and MRT); panel 3 and FDI (for EGY, MAR, PAK, and TUN) in panel 4 show sums.
[1]Consumer confidence on the left scale and political stability on the right scale. Higher values of the consumer confidence measure (political stability rating) signify greater consumer confidence (political stability).
[2]Prices at which the government budget and current account are balanced, respectively. YEM data are for 2013.
[3]Bubble size is relative to each country's 2013 purchasing-power-parity GDP.

Oil-Exporting Economies

For MENAP oil exporters, economic activity moderated in 2013 to about 2 percent, less than half the growth rate experienced in recent years. Growth in the non-oil economy was supported by sustained public investment in infrastructure and private credit expansion. However, tepid global oil demand, increased oil supply from the United States, and regional oil supply disruptions—mainly those in Libya, where a wave of instability caused oil output to fall to about one-third of capacity—slowed growth in the oil sectors (Figure 2.8; also see the Commodity Special Feature in Chapter 1).

As oil output stabilizes alongside strengthening global activity and sustained consumption and investment, total GDP growth is expected to rise to about 3½ percent in 2014 (Table 2.6). In the United Arab Emirates, where real estate prices are rising at a fast pace, the award of World Expo 2020 has further strengthened growth prospects. Likewise, Qatar has embarked on a large public investment program to advance economic diversification and prepare for the Fédération Internationale de Football Association 2022 World Cup.

Softening food prices are expected to contain inflation at less than 5 percent in most oil exporters. A notable exception is the Islamic Republic of Iran, which is experiencing stagflation despite some recent improvements in the outlook resulting from temporary easing of some international sanctions.

Falling oil revenues are already causing fiscal surpluses to decline, to 2.6 percent in 2014, despite withdrawal of the fiscal stimulus initiated by many countries during the global recession and the Arab Spring. Large current account surpluses are also expected to decline because of lower oil revenues (Table 2.6). Although fiscal positions have been weakening across the Gulf Cooperation Council (GCC) economies over the past several years, most still have substantial buffers to withstand large shocks to oil prices, provided the shocks are short lived.

Risks to the near-term outlook for oil exporters have declined. The recent interim agreement between the P5+1 and Iran has eased geopolitical tensions, and the potential for further large oil supply disruptions in other non-GCC countries now appears more limited. Faster-than-expected growth in the U.S. oil supply and lingering risks of weaker-than-expected global oil demand because of a slowdown in either emerging markets or

Table 2.6. Selected Middle East and North 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	
	2013	2014	2015	2013	2014	2015	2013	2014	2015	2013	2014	2015
Middle East and North Africa	**2.2**	**3.2**	**4.5**	**10.5**	**8.4**	**8.3**	**10.3**	**8.7**	**6.6**	. . .	. . .	. . .
Oil Exporters[4]	**2.0**	**3.4**	**4.6**	**11.3**	**8.4**	**8.3**	**14.1**	**11.9**	**9.7**	. . .	. . .	. . .
Iran	–1.7	1.5	2.3	35.2	23.0	22.0	8.1	5.2	2.8	12.9	14.0	14.6
Saudi Arabia	3.8	4.1	4.2	3.5	3.0	3.2	17.4	15.8	13.3	5.5	. . .	. . .
Algeria	2.7	4.3	4.1	3.3	4.0	4.0	0.4	0.5	–1.3	9.8	9.4	9.0
United Arab Emirates	4.8	4.4	4.2	1.1	2.2	2.5	14.9	13.3	12.4	. . .	. . .	. . .
Qatar	6.1	5.9	7.1	3.1	3.6	3.5	29.2	25.4	20.5	. . .	. . .	. . .
Kuwait	0.8	2.6	3.0	2.7	3.4	4.0	38.8	37.4	34.2	2.1	2.1	2.1
Iraq	4.2	5.9	6.7	1.9	1.9	3.0	0.0	1.0	1.2	. . .	. . .	. . .
Oil Importers[5]	**2.7**	**2.7**	**4.2**	**7.9**	**8.5**	**8.2**	**–6.4**	**–5.5**	**–6.4**	. . .	. . .	. . .
Egypt	2.1	2.3	4.1	6.9	10.7	11.2	–2.1	–1.3	–4.6	13.0	13.0	13.1
Morocco	4.5	3.9	4.9	1.9	2.5	2.5	–7.4	–6.6	–5.8	9.2	9.1	9.0
Tunisia	2.7	3.0	4.5	6.1	5.5	5.0	–8.4	–6.7	–5.7	16.7	16.0	15.0
Sudan	3.4	2.7	4.6	36.5	20.4	14.3	–10.6	–8.2	–7.1	9.6	8.4	8.0
Lebanon	1.0	1.0	2.5	3.2	2.0	2.0	–16.2	–15.8	–13.9	. . .	. . .	. . .
Jordan	3.3	3.5	4.0	5.5	3.0	2.4	–11.1	–12.9	–9.3	12.2	12.2	12.2
Memorandum												
Middle East, North Africa, Afghanistan, and Pakistan	2.4	3.2	4.4	10.1	8.5	8.3	9.5	8.0	6.1	. . .	. . .	. . .
Pakistan	3.6	3.1	3.7	7.4	8.8	9.0	–1.0	–0.9	–1.0	6.7	6.9	7.2
Afghanistan	3.6	3.2	4.5	7.4	6.1	5.5	2.8	3.3	–0.3	. . .	. . .	. . .
Israel[6]	3.3	3.2	3.4	1.5	1.6	2.0	2.5	1.4	1.7	6.4	6.7	6.5
Maghreb[7]	2.0	2.9	7.5	3.3	3.9	4.0	–3.2	–6.1	–5.8	. . .	. . .	. . .
Mashreq[8]	2.1	2.2	3.9	6.4	9.3	9.7	–4.7	–4.3	–6.1	. . .	. . .	. . .

Note: Data for some countries are based on fiscal years. Please refer to Table F in the Statistical Appendix for a complete list of reference periods for each country.

[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 Djibouti and Mauritania. Excludes Syria due to the uncertain political situation.

[6]Israel, which is not a member of the 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. Excludes Syria due to the uncertain political situation.

advanced economies present downside risks to oil prices and GCC production. Policy priorities continue to be centered on diversifying these economies to reduce dependence on oil, increase employment opportunities in the private sector for nationals, and enhance resilience to shocks. Reforms to foster entrepreneurship, along with public wage and employment restraint, are key. Fiscal policy needs to manage demand pressures, preserve wealth for future generations, and ensure efficient public capital spending. Reduction of energy subsidies, currently ranging from 4 percent to 12½ percent of GDP, would curtail energy consumption and free up resources for targeted social spending and to help finance public investment. Eliminating subsidies should be gradual and would require an effective communications strategy to broaden public support and reduce the risk of policy reversals.

Oil-Importing Economies

In 2013, three years after the Arab Spring, recovery in the MENAP oil importers remained sluggish. Uncertainties arising from political transitions and social unrest and drag from unresolved structural problems continued to weigh on confidence and economic activity. Despite supportive fiscal and monetary policies, growth has hovered around 3 percent since 2011—half the rate needed to reduce the region's high and persistent unemployment and improve living standards.

The outlook is for continued slow recovery, with growth lingering around 3 percent in 2014 before rising to 4 percent in 2015. Export growth will strengthen gradually as internal demand in trading partner countries, particularly those in Europe, recovers. Recent

reforms set in motion to relax supply-side constraints and enhance competitiveness should also help improve confidence, spurring economic activity and foreign direct investment. However, domestic demand will remain subdued because of lingering policy uncertainty. In some countries, fiscal stimulus will turn into a slight fiscal drag, because consolidation is necessary to arrest erosion of fiscal and external buffers. Inflation will rise slightly to 8.5 percent, with upward pressure from energy subsidy phase-outs partly offset by declining global commodity prices (Table 2.6).

Beyond these broad trends, country-specific outlooks are as follows:

- In *Egypt,* growth in 2014 is expected to be broadly the same as in 2013, as political uncertainty will continue to weigh on tourism and foreign direct investment, notwithstanding the fiscal stimulus supported by GCC financing. Large imbalances will persist unless structural reforms and fiscal consolidation are initiated.
- The Syrian conflict continues to weigh heavily on *Lebanon*, with intensification of sectarian violence, hampered confidence, and added pressures to a deteriorating fiscal position—leaving growth flat in 2014. The conflict has also significantly increased the fiscal adjustment and financing burden in *Jordan.*
- In *Pakistan*, faster-than-expected manufacturing sector recovery, reflecting improved electricity supply and recent exchange rate depreciation, is being partly offset by weak cotton production.
- *Tunisian* growth is expected to strengthen, spurred by improved confidence from a new constitution, reduced security tensions, and preelection reforms.
- Economic activity in *Morocco* will slow, albeit increasingly driven by the nonagricultural sectors, owing to reforms supporting economic diversification.

The recovery remains fragile, and risks are to the downside. Political transitions, intensification of social and security tensions, and spillovers from regional conflicts could damage confidence and threaten macroeconomic stability. Lower-than-expected growth in emerging market economies, Europe, or the GCC could slow exports. Domestic interest rates may rise in countries with limited exchange rate flexibility if global financial conditions tighten sharply, although reliance on official external financing and bond guarantees should limit these effects. On the upside, faster progress in political transitions and economic reforms could boost confidence and growth.

A lasting improvement in economic prospects will require structural reforms, from lowering the cost of doing business to deepening trade integration with international and regional markets. Many of these reforms are difficult to implement during political transitions. However, some measures can be pursued immediately and should help improve confidence: streamlining business regulations, training the unemployed and unskilled, and improving customs procedures, for example.

Macroeconomic policies need to balance the dual goals of bolstering growth and ensuring economic stability. Broadening the tax base in some countries as a means of mobilizing resources to finance higher social spending and public investment would help. Increases in public investment and social support to the poor can also help boost domestic demand. Given large fiscal deficits and debt, these public expenditures have to be financed by reorienting spending away from generalized subsidies that benefit the rich. Fiscal consolidation can proceed at a gradual pace, if financing allows, anchored in credible medium-term plans to ensure continued willingness of investors to provide adequate financing. Accommodative monetary policy, and in some cases greater exchange rate flexibility, can soften the near-term adverse impact of fiscal consolidation on growth, while strengthening external buffers.

Sub-Saharan Africa: Accelerating Growth

Growth in sub-Saharan Africa remains robust and is expected to accelerate in 2014. Tight global financing conditions or a slowdown in emerging market economies could generate some external headwinds, especially for middle-income countries with large external linkages, producers of natural resources, and frontier economies.[1] However, some of the most salient risks are domestic, stemming from policy missteps in various countries, security threats, and domestic political uncertainties ahead of elections. Policymakers should avoid a procyclical fiscal stance in fast-growing countries, tackle emerging risks in countries facing major fiscal imbalances, address vulnerabilities in those countries more exposed to external shocks, and foster sustainable and inclusive growth.

Growth in sub-Saharan Africa remained strong in 2013 at 4.8 percent, virtually unchanged from 2012, underpinned by improved agricultural production and

[1]Frontier market economies in sub-Saharan Africa include Ghana, Kenya, Mauritius, Nigeria, Rwanda, Senegal, Tanzania, Uganda, and Zambia.

Table 2.7. Selected 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	
	2013	2014	2015	2013	2014	2015	2013	2014	2015	2013	2014	2015
Sub-Saharan Africa	**4.9**	**5.4**	**5.5**	**6.3**	**6.1**	**5.9**	**–3.6**	**–3.6**	**–3.9**	. . .	. . .	. . .
Oil Exporters[4]	**5.8**	**6.7**	**6.7**	**7.4**	**6.9**	**6.6**	**3.9**	**3.3**	**2.1**	. . .	. . .	. . .
Nigeria	6.3	7.1	7.0	8.5	7.3	7.0	4.7	4.9	4.0	. . .	. . .	. . .
Angola	4.1	5.3	5.5	8.8	7.7	7.7	5.0	2.2	–0.4	. . .	. . .	. . .
Equatorial Guinea	–4.9	–2.4	–8.3	3.2	3.9	3.7	–12.0	–10.2	–10.9	. . .	. . .	. . .
Gabon	5.9	5.7	6.3	0.5	5.6	2.5	10.6	6.9	4.5	. . .	. . .	. . .
Republic of Congo	4.5	8.1	5.8	4.6	2.4	2.4	–1.2	2.0	0.1	. . .	. . .	. . .
Middle-Income Countries[5]	**3.0**	**3.4**	**3.7**	**5.8**	**5.9**	**5.5**	**–5.7**	**–5.1**	**–4.9**	. . .	. . .	. . .
South Africa	1.9	2.3	2.7	5.8	6.0	5.6	–5.8	–5.4	–5.3	24.7	24.7	24.7
Ghana	5.4	4.8	5.4	11.7	13.0	11.1	–13.2	–10.6	–7.8	. . .	. . .	. . .
Cameroon	4.6	4.8	5.1	2.1	2.5	2.5	–4.4	–3.5	–3.6	. . .	. . .	. . .
Côte d'Ivoire	8.1	8.2	7.7	2.6	1.2	2.5	–1.2	–2.2	–2.0	. . .	. . .	. . .
Botswana	3.9	4.1	4.4	5.8	3.8	3.4	–0.4	0.4	0.2	. . .	. . .	. . .
Senegal	4.0	4.6	4.8	0.8	1.4	1.7	–9.3	–7.5	–6.6	. . .	. . .	. . .
Low-Income Countries[6]	**6.5**	**6.8**	**6.8**	**6.0**	**5.5**	**5.5**	**–11.8**	**–11.8**	**–11.7**	. . .	. . .	. . .
Ethiopia	9.7	7.5	7.5	8.0	6.2	7.8	–6.1	–5.4	–6.0	. . .	. . .	. . .
Kenya	5.6	6.3	6.3	5.7	6.6	5.5	–8.3	–9.6	–7.8	. . .	. . .	. . .
Tanzania	7.0	7.2	7.0	7.9	5.2	5.0	–14.3	–13.9	–12.9	. . .	. . .	. . .
Uganda	6.0	6.4	6.8	5.4	6.3	6.3	–11.7	–12.6	–12.1	. . .	. . .	. . .
Democratic Republic of the Congo	8.5	8.7	8.5	0.8	2.4	4.1	–9.9	–7.9	–7.2	. . .	. . .	. . .
Mozambique	7.1	8.3	7.9	4.2	5.6	5.6	–41.9	–42.8	–43.2	. . .	. . .	. . .
Memorandum												
Sub-Saharan Africa Excluding South Sudan	4.7	5.4	5.4	6.4	6.1	5.9	–3.6	–3.6	–4.0	. . .	. . .	. . .

Note: Data for some countries are based on fiscal years. Please refer to Table F in the Statistical Appendix for a complete list of the reference periods for each country.

[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 Chad and South Sudan.

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

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

investment in natural resources and infrastructure. Growth was robust throughout the region, especially in low-income and fragile states.[2] Outside these groups, in Nigeria growth remained strong owing to relatively high oil prices, despite security problems in the north and large-scale oil theft in the first half of 2013. In contrast, growth in South Africa continued to decelerate, constrained by tense industrial relations in the mining sector, tight electricity supply, anemic private investment, and weak consumer and investor confidence (Table 2.7).

[2]Fragile states include Burundi, the Central African Republic, the Comoros, the Democratic Republic of the Congo, Côte d'Ivoire, Eritrea, Guinea, Guinea-Bissau, Liberia, São Tomé and Príncipe, Togo, and Zimbabwe. This list does not include some fragile countries where oil sales account for a major share of exports and government revenue, which are classified as oil exporters.

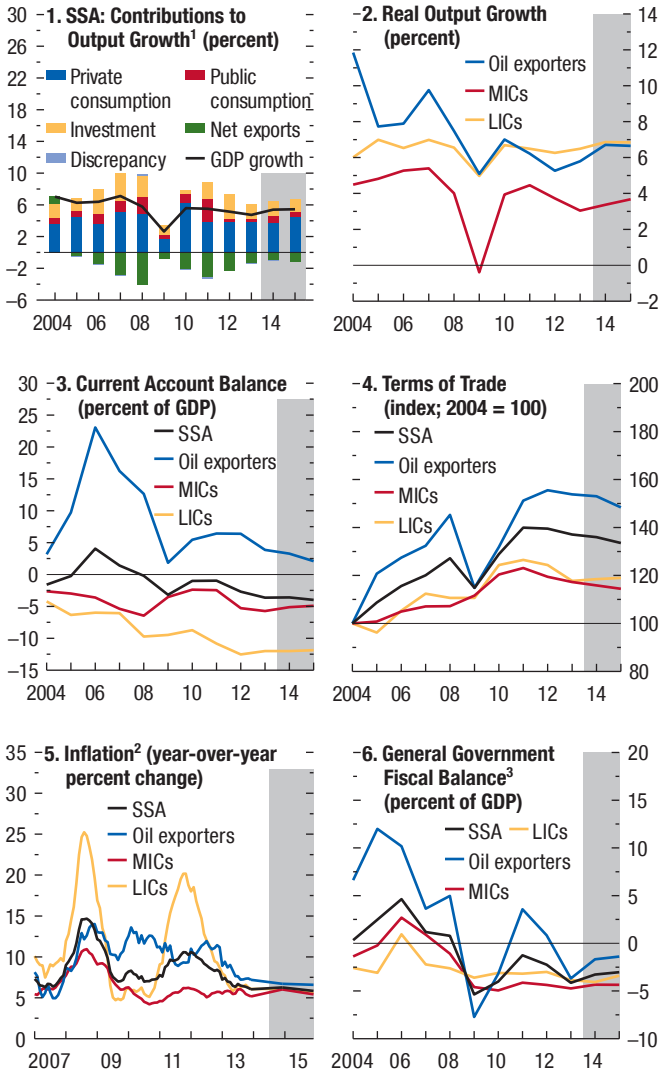
Inflation continued to abate, with a few exceptions (Figure 2.9). The currencies of South Africa and some frontier market economies weakened, reflecting tightening global monetary conditions and, in some instances, weak external or fiscal balances (Ghana, Nigeria, South Africa, Zambia). Because of high fiscal deficits, a few countries' credit ratings were downgraded, putting additional pressure on yields, and some countries postponed sovereign bond issuance.

Growth is projected to accelerate to about 5½ percent in 2014, reflecting positive domestic supply-side developments and the strengthening global recovery:

- In *South Africa,* growth is forecast to rise moderately, driven by improvements in external demand, but risks are to the downside. (See Chapter 1 for details.)
- *Nigerian* growth is projected to rebound by 0.8 percentage point, as major oil pipelines are repaired

Figure 2.9. Sub-Saharan Africa: Accelerating Growth

In 2013, investments in natural resources and infrastructure and good harvests sustained robust growth in sub-Saharan Africa. Inflation continued to abate, but fiscal deficits widened, driven by increased expenditure on investment and wages, contributing to a worsening of current account balances. Growth is projected to accelerate in 2014, helped by improved domestic supply and a favorable global environment. In the face of significant domestic and external downside risks, countries in the region should improve their resilience to shocks by strengthening their fiscal balances and increasing their budget flexibility.



Sources: 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. See Table 2.7 for country groupings and the Statistical Appendix for country group aggregation methodology.
[1]Liberia, South Sudan, and Zimbabwe are excluded because of data limitations.
[2]Because of data limitations, the following are excluded: South Sudan from oil exporters; Eritrea and Zimbabwe from LICs.
[3]General government includes the central government, state governments, local governments, and social security funds.

and production in the non-oil sectors continues to expand. Other oil producers are also expected to see a significant growth pickup.

- Growth is also expected to accelerate in other countries, including several fragile states, in the wake of an improved domestic political and security situation *(Mali),* massive investments in infrastructure and mining *(Democratic Republic of the Congo, Mozambique, Niger),* and maturing investments *(Mozambique)*.

Moderate food prices and prudent monetary policies should facilitate further declines in inflation in much of the region, and fiscal balances are projected to improve by about ½ percent of GDP on average. Nevertheless, the average current account deficit is not expected to narrow, owing to relatively tepid prospects for commodity prices (see the Commodity Special Feature in Chapter 1) and demand from emerging market economies, and to continuing high levels of foreign-direct-investment-related imports.

In several countries, the largest downside risks are domestic, including policy uncertainty, deteriorating security conditions, and industrial tensions. External risks are particularly important for natural resource exporters, which could suffer from a slowdown in emerging markets and a shifting pattern in China from investment- to consumption-led growth. In addition, they are important for countries with external market access, such as South Africa and frontier markets, which are most exposed to a reversal of portfolio flows if global financial conditions tighten further.

To avoid a procyclical fiscal stance and increase their resilience to shocks, fast-growing economies in the region should take advantage of the growth momentum to strengthen their fiscal balances. In a few cases in which deficits have become large or public debt is at high levels, fiscal consolidation needs to be pursued to ensure continued macroeconomic stability, and in many countries mobilizing resources for high-value spending remains a priority. Throughout the region, urgent requirements include improving the efficiency of public expenditure; investing in strategic and carefully selected projects to develop energy supply and critical infrastructure; and implementing structural reforms aimed at promoting economic diversification, private investment, and competitiveness. Monetary policies should remain focused on consolidating the gains on the inflation front. In some countries, sustained exchange rate depreciations may pose risks to the inflation outlook.

South Africa and the group of frontier market economies should prepare to weather further tightening of global financing conditions by preserving their budget flexibility and, where vulnerabilities are of particular importance, by tightening policies. These countries should be ready to adjust their financing plans in a scenario of greatly reduced access to external funding, while allowing their exchange rates to respond to changes in capital flows. Consideration should also be given to prefinancing rollovers when reasonable conditions arise. Countries should also bolster macroprudential supervision to address potential areas of strain and step up international cooperation to supervise cross-border banks and subsidiaries.

Spillover Feature: Should Advanced Economies Worry about Growth Shocks in Emerging Market Economies?

Economic activity in emerging market economies weakened during the past few months, raising concern in some quarters about the implications of a further synchronized downturn in these economies for the global economy as a whole and for the still-fragile recovery in advanced economies. Although spillovers to advanced economies from previous episodes of weak growth in emerging market economies were limited, an across-the-board negative growth shock to these economies in the present climate would likely have some effect on advanced economies, given stronger economic links between these two groups.[1]

A common growth shock in emerging market economies can spill over into advanced economies through several channels. A negative growth shock will affect demand for advanced economies' exports, which tend to be capital-intensive goods. Shocks capable of disrupting global supply chains would also adversely affect advanced economies with an upstream position in global trading networks. A growth shock in emerging market economies could influence their asset prices and currencies, which would hurt advanced economies with substantial financial exposure to these markets. Financial stresses in emerging market economies could also raise global risk aversion and lead to sharp corrections in advanced economy financial markets.

This Spillover Feature analyzes the impact on advanced economies of growth shocks emanating from emerging markets. Specifically, it addresses the following questions: What are the spillover channels and how have they changed over time? What were the spillover effects on the advanced economies from previous broad-based growth downturns in emerging market economies? How much would a widespread growth shock in emerging market economies today affect advanced economies' output growth?

The analysis in this feature suggests that a negative growth shock to emerging market economies, akin to those experienced in the mid- to late 1990s but not necessarily crisis driven, would have moderate effects on all advanced economies, with Japan affected the most. Trade has been the most prominent spillover channel. There is evidence to suggest, however, that the financial channel could play a bigger role in future transmission of growth shocks in emerging markets.

The Evolution of Trade and Financial Links between Advanced Economies and Emerging Market Economies

The growing role of emerging markets in the global economy is good reason for concern about a possible downturn. During the past half century, emerging market economies have moved from peripheral players to systemically important trade and financial centers (IMF, 2011a). In the new global economic landscape, economic linkages among advanced and emerging market economies are stronger, and advanced economies are more exposed to economic developments in the latter group.

Trade linkages between the two groups have increased sharply (Figure 2.SF.1).[2] Exports of goods to emerging market economies represent, on average, 3 percent of GDP in advanced economies (compared with 1.6 percent in 1992–2002). During the past decade, emerging market economies absorbed close to 20 percent of total exports of goods from advanced economies, and China absorbed a quarter of those exports (compared with 13 percent in the 1990s). The ratios presented in the figure are calculated using the IMF's Direction of Trade Statistics database, which measures trade in gross terms and includes both intermediate and final goods, and the IMF's World Economic Outlook (WEO) database. As discussed in IMF (2011a) and Koopman and others (2010), gross exports tend to overstate the exposure of advanced economies to emerging market economies. The reason

The author of this spillover feature is Juan Yépez, with research assistance from Angela Espiritu. Ben Hunt and Keiko Honjo prepared the model simulations.

[1]For this feature, advanced economies comprise four euro area countries (France, Germany, Italy, Spain), Japan, the United Kingdom, and the United States. Emerging market economies included are Argentina, Brazil, Chile, China, Colombia, India, Indonesia, Malaysia, Mexico, the Philippines, Poland, Russia, South Africa, Thailand, Turkey, and Venezuela.

[2]Trade linkages among emerging market economies have markedly increased as well, with exports to other emerging market economies representing, on average, 10 percent of GDP, concentrated in the largest such economies. These links, in turn, make larger emerging market economies more systemically important, particularly to commodity exporters with relatively less-diversified economies (Roache, 2012; Ahuja and Nabar, 2012).

is that exports' gross value is much larger than the value added in exports to economies that engage heavily in assembly and processing trade, such as those in east Asia, because gross exports incorporate inputs from these economies. This implies that only a part of gross exports to emerging market economies depends on domestic demand in those economies. This appears to be particularly true for large manufacturing exporters such as Japan (Table 2.SF.1).

Exports from advanced economies to emerging markets are concentrated in capital goods and related products (for example, machinery and transportation equipment), although the share of capital goods in total exports has declined considerably since 2000 as high-technology exports have shifted toward the most dynamic emerging markets (IMF, 2011a).[3] Despite their marked reduction as a share of total exports in advanced economies, capital goods still represent, on average, 50 percent of total imports in emerging market economies. An abrupt downturn in the largest of these economies, accompanied by a sharp drop in investment, could hurt advanced economies that have large trade exposures to emerging market economies, particularly in capital goods. For example, capital goods constitute the bulk of exports to emerging market economies for Japan (58 percent) and the euro area (53 percent).

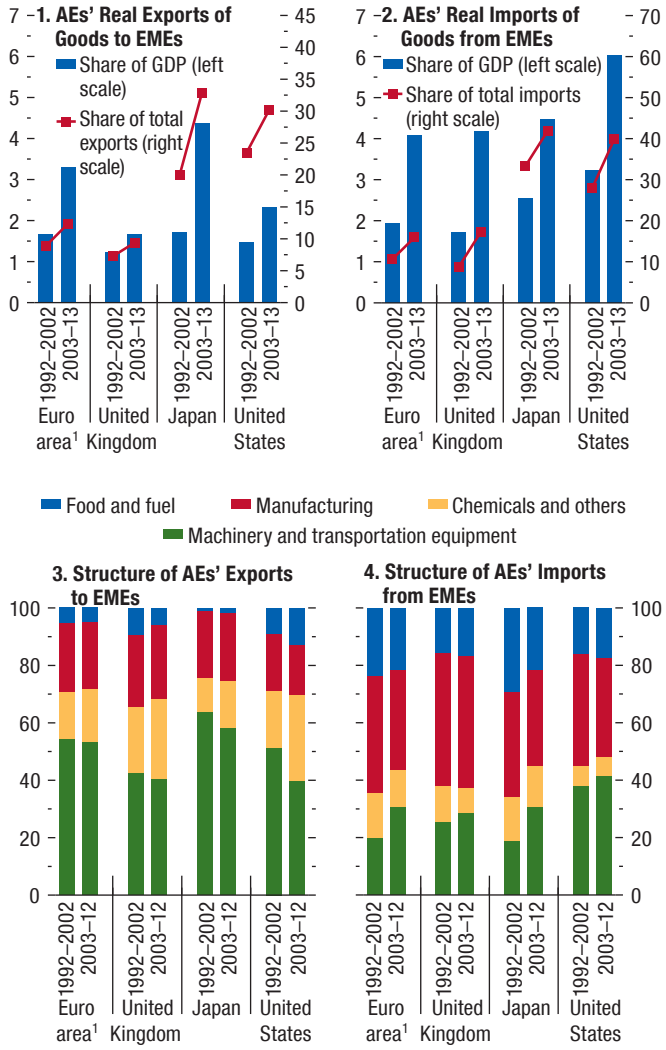
Advanced economies' imports from emerging market economies have also increased markedly. Imports from these economies represent, on average, 30 percent of advanced economies' total imports, and the ratio of imports to GDP has doubled as well. The composition of imports from these economies continues to be dominated by commodities (fuels and food products) and low-technology manufactured goods (food and textiles). Since 2000, however, there has been a sizable increase in the share of machinery and transportation equipment in advanced economies' imports from emerging markets—evidence of the larger role of emerging markets in global supply chains. As a result, large manufacturing exporters (namely, Japan and Germany) are particularly susceptible to any disruption in trade flows. These exporters are vulnerable because of their upstream position in regional and global supply

[3]This is particularly important in the United States, where machinery and transportation equipment in 2012 accounted for roughly 30 percent of total exports to emerging market economies, compared with close to 50 percent in the 1990s.

Figure 2.SF.1. Real Trade Linkages between Advanced Economies and Emerging Market Economies

(Percent)

Trade linkages between advanced economies (AEs) and emerging market economies (EMEs) have increased sharply in recent years. Exports from advanced economies to emerging market economies are concentrated in capital-related goods (namely, machinery and transportation equipment), whereas imports from emerging market economies continue to be dominated by commodity and low-technology manufacturing goods.



Sources: IMF, Direction of Trade Statistics database; and U.N. Commodity Trade Statistics Database.
[1]Euro area = France, Germany, Italy, and Spain. Unweighted average.

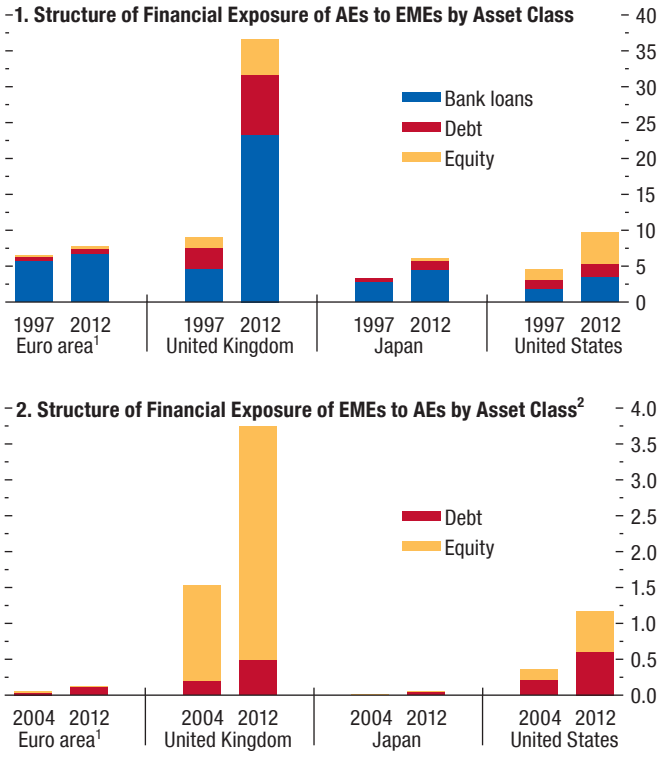
Table 2.SF.1. Exports to Emerging Market Economies, 1995 versus 2008

	(1) Ratio of Gross Exports in 2008 to Gross Exports in 1995	(2) Ratio of Value-Added Exports in 2008 to Value-Added Exports in 1995	(1)/(2) Ratio of Gross Exports to Ratio of Value-Added Exports
Euro Area	1.71	1.54	1.11
United Kingdom	1.20	1.27	0.95
Japan	2.45	1.99	1.23
United States	1.30	1.23	1.06

Source: Organization for Economic Cooperation and Development–World Trade Organization Trade in Value-Added database.

Figure 2.SF.2. Financial Exposure of Advanced Economies to Emerging Market Economies
(Percent of GDP)

Financial exposure of advanced economies (AEs) to emerging market economies (EMEs) remains concentrated in foreign bank claims, although exposure through portfolio investment has recently surged. Advanced economies that are financial centers have seen the largest increase in exposures to emerging market economies. Except in the case of China, risks from a reduction in the demand of emerging market economies for advanced economies' securities appear limited.



Sources: Bank for International Settlements; and IMF, Coordinated Portfolio Investment Survey database.
[1]Median value for France, Germany, Italy, and Spain.
[2]Excluding China.

chains and as trade networks continue to expand and become more dispersed.

Financial links have also strengthened in recent years. The median exposure of advanced economies to emerging market economies, measured as gross external asset holdings, reached 8.7 percent of GDP in 2012—an increase of almost 3.5 percentage points of GDP from the median value in 1997 (Figure 2.SF.2). Although financial exposure remains concentrated in bank claims, exposure through portfolio investment has increased, particularly in equity investment. Not surprisingly, advanced economies that are financial centers have seen the largest increase in exposures to emerging market economies. In the United Kingdom, bank claims on these economies currently represent 14 percent of total foreign bank claims, up from just 4 percent a decade ago. It is important to note that because the United Kingdom is a major financial center, gross financial exposures could overstate actual financial linkages between the United Kingdom and emerging markets.[4] Advanced economies with large exposures to emerging market economies could be susceptible to significant valuation and wealth effects resulting from sharp movements in asset prices and currencies in these economies. Given that large output drops in emerging market economies have often preceded past default episodes (Levy-Yeyati and Panizza, 2011), increased economic turbulence in those economies, coupled with bad memories of past crises, could sour investors' risk sentiment and result in sharp corrections in global financial centers.

Advanced economies could also be vulnerable to a sudden reduction in demand from emerging market economies for their debt instruments. China is the second-largest exporter of capital in the world, after the United States, and China's central bank is the

[4]In addition, most of these claims are held by two banks that, although notionally British, have very limited banking presence in the United Kingdom. This could overstate the financial exposure of the United Kingdom to emerging market economies.

largest purchaser of U.S. financial assets. (See the April 2013 *Global Financial Stability Report.*) A shock to emerging market economies capable of slowing the pace of reserves accumulation in China or causing a sell-off of its reserves in an attempt to defend its currency could affect advanced economies by raising their long-term yields. Long-term yields in the United States and other advanced economies could also rise if China gradually changes its portfolio away from U.S. to emerging market treasuries (IMF, 2011b).

Spillover Effects on Advanced Economies during Previous Episodes of Financial Turbulence in Emerging Market Economies

To obtain some order of magnitude of the effects from past spillovers, an event study is conducted around past episodes with synchronized growth slowdowns in emerging market economies: the Mexican Tequila crisis in 1995, the east Asian crisis in 1997, and the Russian crisis in 1998.[5] The analysis focuses on the dynamics of trade and financial variables during a four-quarter window after the realization of each event.[6]

Results suggest that during episodes of financial turmoil, import demand in emerging market economies was an important spillover channel, particularly during the east Asian and Russian crises (Figure 2.SF.3). During these events, bilateral real exports contracted by at least one standard deviation from their 15-year average. Japanese exports have been particularly vulnerable to shocks stemming from emerging market economies, which could be explained by Japan's high trade interconnectedness with emerging market economies in east Asia and the high share of capital goods in its export structure.

Although imports from emerging market economies have also tended to decline during these episodes, partly as a result of supply-chain disruptions, reductions have been more moderate. The behavior of exports around these events could be explained by the dynamics of bilateral nominal exchange rates, with

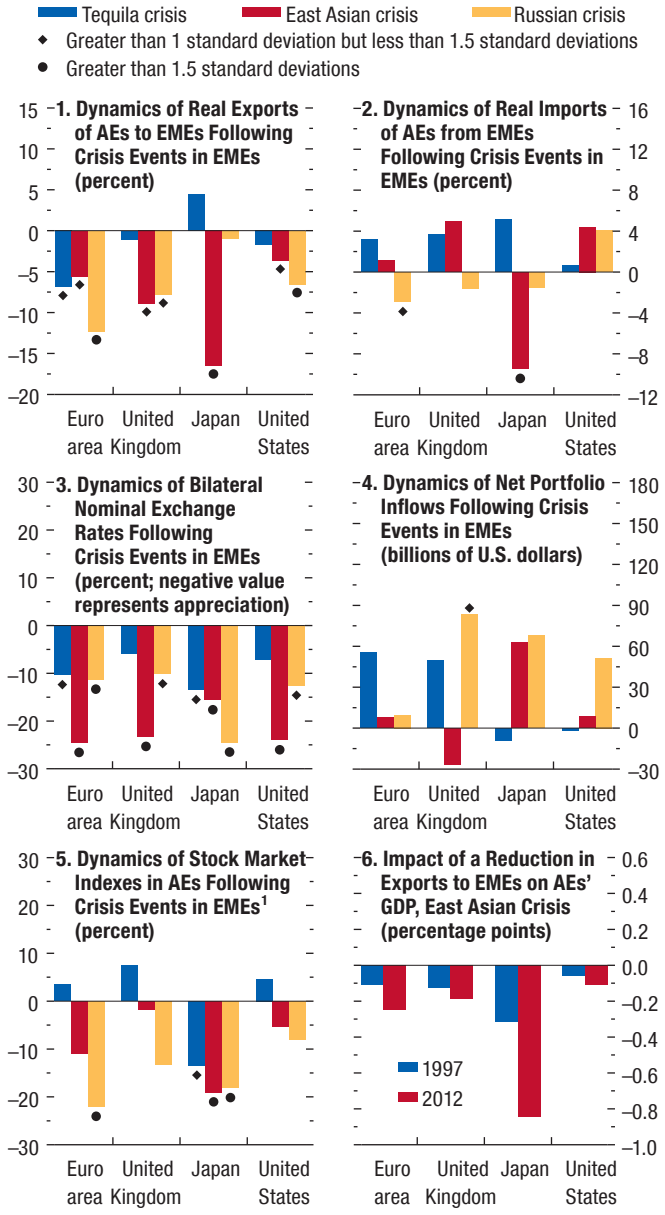
[5]The analysis starts in 1990 because of data limitations for emerging market economies. The 1995 Mexican Tequila crisis, the 1997 east Asian crisis, and the 1998 Russian crisis could be characterized as events in emerging market economies that, to a certain extent, were unrelated to developments in advanced economies. The dates of the events are obtained from the chronology in Laeven and Valencia (2012).

[6]With the exception of the analysis of the dynamics of stock market indexes, in which the behavior of these indexes is examined three months after the realization of each event.

Figure 2.SF.3. Event Studies around Downturn Episodes in Emerging Market Economies

(Peak effect in four quarters)

Event studies built around major episodes of financial turmoil in emerging market economies (EMEs) point to the sensitivity of import demand in those economies during these events. The sharp reduction in exports from advanced economies (AEs) to emerging market economies during these episodes came hand in hand with substantial appreciation of their currencies, in part explained by a spike in capital inflows. The dynamics of stock markets during these episodes also shed light on the importance of financial markets in transmitting these shocks to emerging market economies. Given that trade and financial linkages are now stronger, similar growth downturn events are likely to have sizable effects on most exposed advanced economies.



Sources: Haver Analytics; IMF, Direction of Trade Statistics database; and IMF staff calculations.

[1]Standard & Poor's 500 for United States, Nikkei 225 for Japan, FTSE 100 for United Kingdom, and average of Deutscher Aktien Index and Société des Bourses Françaises 120 for the euro area.

currencies in advanced economies appreciating, on average, more than 20 percent, 1½ standard deviations above their mean. The strengthening of advanced economies' currencies also points to a flight-to-safety scenario, as evidenced by large spikes in portfolio inflows. In addition, dynamics of stock market price indexes in advanced economies show that shocks from emerging market economies can be transmitted via financial markets, most notably in Japan and the euro area.

The east Asian crisis stands out in the brief event analysis because it was triggered by a common shock whose effect on regional comovements was almost as large as that of the global financial crisis (Chapter 3 of the October 2013 WEO). What was the spillover effect of a shock of the magnitude of the east Asian crisis on Japan's output growth?[7] An informal estimate suggests that the 15 percent drop in exports in Japan during the east Asian crisis could have represented a 0.3 percentage point decline in Japan's real GDP growth, given that Japanese exports to emerging markets were 2 percent of GDP in 1997. A similar shock in 2012 would have implied a much larger decline in output growth (that is, 0.8 percentage point), because the share of exports to emerging market economies in Japan's GDP has more than doubled since the east Asian crisis.

Quantifying the Spillover Effects of Emerging Market Economy Growth Shocks on Advanced Economies' GDP

The impact of a growth shock in emerging market economies on advanced economies is estimated using a standard vector-autoregression-based (VAR-based) approach and through simulations from a dynamic stochastic general equilibrium model. These estimates are much more informative than the simple informal calculations reported earlier.

The first element of the empirical analysis involves estimating country-wise VARs for each advanced economy with the following recursive specification: the growth rate of output of all advanced economies excluding the advanced economy for which the VAR is estimated, the growth rate of output in the advanced economy of interest, the growth rate of output in emerging market economies, and the growth rate of real bilateral exports from the advanced economy of interest to emerging market economies. Because the global financial crisis was an exceptional event with unusual effects, a modified version of the VAR model is also estimated. In this modified version, the regressors are also allowed to interact with a dummy variable that equals one from the last quarter in 2007 to the first quarter in 2009 and zero otherwise.[8]

The spillover effects on advanced economies of a 1 percentage point drop in the GDP growth of emerging market economies range from a 0.15 percentage point drop in output growth in the United Kingdom to a 0.5 percentage point decline in Japan (Figure 2.SF.4). In line with the findings discussed in the event study analysis, results from the empirical exercise suggest that the impact of shocks to emerging market economies' output on advanced economies' output is significant (both economically and statistically) in Japan and the euro area.[9] Based on the decomposition of the responses of advanced economies' GDP growth, it appears that the trade channel is particularly important for the transmission of shocks to Japan, whereas nontrade effects seem to dominate in other advanced economies.[10] Results from the interaction VAR estimation show that, when the global financial crisis is controlled for—that is, when the dummy is equal to zero—elasticities are reduced by half (except in the case of the United Kingdom) and spillovers are neither statistically nor economically significant across advanced economies.

The results from the simple VAR analysis illustrate the magnitude of possible spillover effects; however, they do not identify the sources of the growth slowdown, which matter for the spillovers. Different spillover transmission channels may be involved, depending on the nature of the shock.

[7]Japan experienced its own banking crisis in 1997–98; therefore the large growth spillover impact on Japan during the east Asian crisis should be interpreted cautiously.

[8]The country-wise VARs are estimated using seasonally adjusted quarterly data from 1996 through 2013, with two lags based on the Akaike information criterion. The second specification implements an interaction VAR framework introduced by Towbin and Weber (2013).

[9]The large effect observed in Japan could reflect a banking crisis experienced at the same time as the east Asian crisis and the use of gross instead of value-added real bilateral exports in the VAR analysis. As discussed earlier, gross trade linkages tend to overstate direct trade exposures to emerging market economies in countries with an upstream position in global trade networks.

[10]The nontrade transmission channel corresponds to the estimated responses of GDP growth in advanced economies using the full VAR dynamics, but with real bilateral exports treated as an exogenous variable (that is, the GDP growth equation coefficients on real bilateral exports set to zero).

To illustrate the potential impact of emerging market economy shocks on advanced economies under a more structural simulation, the IMF's Flexible System of Global Models is used.[11] The baseline model is calibrated such that a 1 percentage point drop in emerging market economy GDP growth reduces the growth rate of total exports of advanced economies, on average, by 1.3 percentage points (a value of similar magnitude to the average response observed in the baseline VAR estimations). In a second specification, the baseline model is modified to incorporate a capital flight scenario by assuming that turbulence in emerging market economies is accompanied by an increase in the sovereign risk premium of 200 basis points and an increase in the corporate risk premium of 400 basis points.[12] Both scenarios show a slight real currency appreciation in advanced economies, whereas emerging market economy currencies depreciate, on average, by 0.2 percent from baseline. In addition, import demand in emerging market economies softens by 4 percent in both scenarios. In line with the VAR estimations presented earlier, Japan is most susceptible to an emerging market economy growth shock, with output growth declining by 0.32 percentage point in response to a 1 percent reduction in emerging market economy GDP (Figure 2.SF.5). The United Kingdom is the least affected by the shock. Estimations from this model are likely to be on the high side, given that monetary policy responses across advanced economies to a slowdown in emerging market economies are constrained by the zero bound on nominal interest rates.

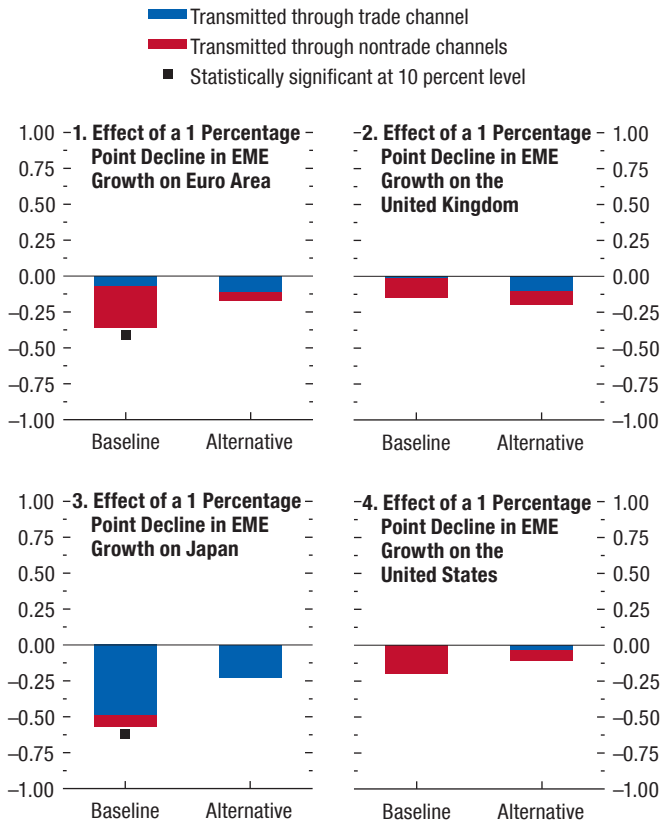
It is important to note that in both scenarios, the trade channel is the main transmitter of the shock in the emerging market economies to advanced economies. This result hinges, however, on the assumption that there are no direct financial spillovers from emerging market to advanced economies. Depending on the origin of the slowdown in the emerging market economies, this assumption could be too restrictive. For example, if risk premiums in advanced economies react to the growth shock in emerging market economies—possibly because of concern about balance sheet

[11]The Flexible System of Global Models is an annual, multiregional general equilibrium model, combining both micro-founded and reduced-form formulations of various economic sectors. It has a fully articulated demand side and some supply-side features. International linkages are modeled in aggregate for each region. It does not model intermediate goods; therefore, supply chain effects are not captured in these simulations.

[12]Shocks last for one year.

Figure 2.SF.4. Peak Effect of a Growth Shock to Emerging Market Economies on Advanced Economies' Output Growth
(Four quarters after impact; percentage points)

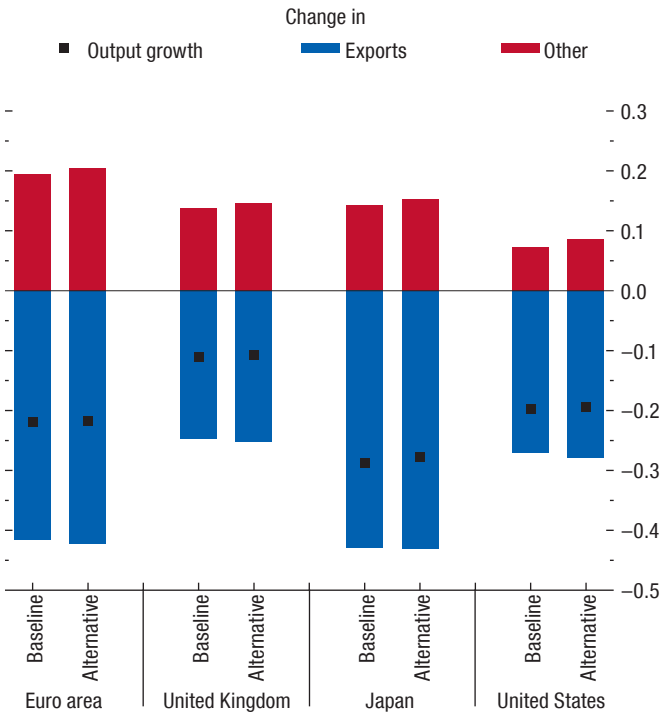
The impact of shocks to emerging market economies' (EMEs') output on advanced economies' (AEs') output is significant (both statistically and economically) only for Japan and the euro area. The trade channel is particularly important for the transmission of shocks to Japan, whereas nontrade effects appear to dominate in other advanced economies. The impact of growth shocks in emerging market economies on advanced economies' output tends to be attenuated, and become negligible, when the effects of the global economic crisis are controlled for.



Source: IMF staff calculations.
Note: "Baseline" refers to the model in which advanced economies' GDP growth is contemporaneously exogenous to emerging market economies' GDP growth. "Alternative" refers to elasticities obtained from the interaction vector autoregression model, when the dummy variable denoting global economic crisis is equal to zero.

Figure 2.SF.5. Model Simulations of Potential Growth Spillover Effects from Emerging Market Economies on Advanced Economies
(Contribution to change in output growth; percentage points)

A synchronous shock has nonnegligible effects across the advanced economies. Japan is particularly susceptible to emerging market economies' growth shock, and the United Kingdom is the least affected by the shock. Spillovers are transmitted mainly through the trade channel, given the assumption that risk premiums in advanced economies are not affected by the growth downturn in emerging market economies. However, simulation-based estimates from this model are likely to be on the high side, because monetary policy response across advanced economies to a slowdown in emerging market economies is constrained by the zero bound on nominal interest rates.



Source: IMF staff calculations.
Note: "Baseline" refers to the baseline simulation. "Alternative" refers to results from simulation in which a negative growth shock to emerging market economies is accompanied by a rise in the sovereign risk premium of 200 basis points and a rise in the corporate risk premium of 400 basis points.

exposure of financial intermediaries—the spillover could be larger and financial channels come into play. Similarly, once cross-border asset linkages are incorporated, shocks to asset prices in emerging market economies could also have wealth and other direct effects on aggregate demand of advanced economies.

Conclusions

Macroeconomic fundamentals in many emerging market economies are generally stronger today than in the 1990s and early 2000s, and a simultaneous shock to all emerging market economies similar to those two decades ago is unlikely. Nevertheless, a recurrence of similar events could now have different outcomes for advanced economies, given that the global economic landscape and economic linkages between these two groups have changed. Emerging market economies are now much larger and more integrated into global trade and financial markets, which has increased the exposure of advanced economies to these economies. Spillovers from a synchronized downturn in emerging market economy output, operating primarily through trade channels, could be sizable for some advanced economies, but would likely remain manageable and probably short lived. At the same time, financial links between advanced economies and emerging market economies have strengthened recently, and although the magnitudes are much more challenging to quantify, financial spillovers in the case of a slowdown in emerging market economies and their effects on advanced economies could be important. The recovery of advanced economies from the global financial crisis is still fragile, and policymakers in these economies should closely monitor growth in emerging markets and be prepared to take action to mitigate the impact of external disturbances.

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CHAPTER 3

PERSPECTIVES ON GLOBAL REAL INTEREST RATES

Real interest rates worldwide have declined substantially since the 1980s and are now in slightly negative territory. Common factors account for much of these movements, highlighting the relevance of global patterns in saving and investment. Since the late 1990s, three factors appear to account for most of the decline. First, a steady increase in income growth in emerging market economies during 2000–07 led to substantially higher saving rates in these economies. Second, the demand for safe assets increased, largely reflecting the rapid reserve accumulation in some emerging market economies and increases in the riskiness of equity relative to bonds. Third, there has been a sharp and persistent decline in investment rates in advanced economies since the global financial crisis. This chapter argues that global real interest rates can be expected to rise in the medium term, but only moderately, since these three factors are unlikely to reverse substantially. The zero lower bound on nominal interest rates will remain a concern for some time: real interest rates will likely remain low enough for the zero lower bound to reemerge should risks of very low growth in advanced economies materialize.

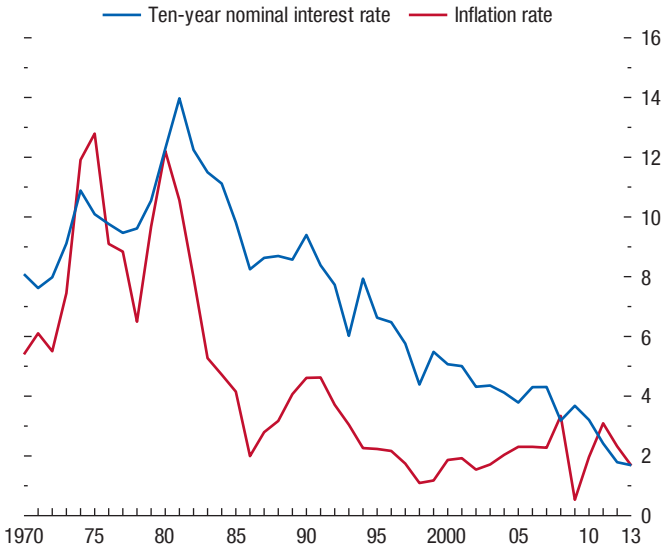
In the past few years, many borrowers with good credit ratings have enjoyed a cost of debt close to zero or even negative when it is adjusted for inflation. This is not just a consequence of the global financial crisis. Since the early 1980s, yields of all maturities have declined worldwide well beyond the decline in inflation (Figure 3.1).

However, because the recent interest rate declines reflect, to a large extent, weak economic conditions in advanced economies after the crisis, some reversal is likely as these economies return to a more normal state. But how much of a reversal? Certain factors suggest a substantial increase in interest rates in the medium term: high and rising debt levels in advanced economies; population aging; lower growth in emerging market economies, which might lower their saving rates; and further financial deepening in emerging market economies, which would reduce borrowing constraints and thereby net saving.[1] Other factors, however, would work in the opposite direction: long-lasting negative effects of the global financial crisis on economic activity (Cerra and Saxena, 2008; Reinhart and Rogoff, 2008), persistence of the "saving glut" in key emerging market economies, and renewed declines in the relative price of investment goods.

This chapter constructs global real interest rates at short and long maturities and reviews their evolution since 1980. It also traces the evolution of the cost of

Figure 3.1. Ten-Year Interest Rate on Government Bonds and Inflation

(Simple average across France, Germany, United Kingdom, and United States; percent a year)



Sources: Bloomberg, L.P.; Haver Analytics; Organization for Economic Cooperation and Development; World Bank, World Development Indicators database; and IMF staff calculations.
Note: Inflation is calculated as the percent changes in the consumer price index.

The main authors of this chapter are Davide Furceri and Andrea Pescatori (team leader), with support from Sinem Kilic Celik and Katherine Pan, and with contributions from the Economic Modeling Division of the IMF's Research Department.

[1]For example, McKinsey Global Institute (2010) argues that worldwide real interest rates are set to increase substantially in the medium to long term, putting an end to cheap capital.

capital—a weighted average of the cost of debt and the cost of equity. It then analyzes key factors that could explain the observed patterns: shifts in private saving, changes to fiscal policy, shifts in investment demand, changes in the relative price of investment, monetary policy, and portfolio shifts between bonds and equity. It closes by considering how the main factors behind the decline in real rates might play out in the medium term. The analysis is largely qualitative. The effects of each factor are discussed in a general equilibrium context, but the quantitative effects may not be identified precisely.

The following questions arise:

- Is there a global trend in interest rates, or do country-specific dynamics dominate?
- What have been the main factors contributing to the decline in real interest rates since the 1980s?
- What have been the effects of the global financial crisis on real rates, and how long are these effects likely to last?
- What should we expect in the medium term?
- What are the implications for fiscal authorities in advanced economies and for fund and asset managers? What are the implications for monetary policy?

These are the main findings:

- Economic and financial integration has increased sufficiently during the past three decades or so for real rates to be determined largely by common factors. Thus, using a global measure of real interest rates and exploring global patterns of saving and investment are appropriate.
- Since the early 1980s, global real interest rates have strongly declined. The cost of capital has also fallen, but to a lesser extent because the required return on equity has increased since 2000.
- Monetary policy dominated the evolution of real rates and the cost of capital in the 1980s and early 1990s. Fiscal policy improvement in advanced economies was the main factor underlying the decline in real interest rates during the rest of the 1990s. In addition, the decline in the relative price of investment may have reduced the demand for loanable funds in both the 1980s and 1990s.
- Since the late 1990s, the following factors have largely driven the decline in real rates and the cost of capital:
  - *A large increase in the emerging market economy saving rate* between 2000 and 2007 more than offset a reduction in advanced economy public saving rates. Strikingly, increases in income growth seem to be the most relevant proximate cause behind the rise in emerging market economy saving rates during the same period.
  - *Portfolio shifts in the 2000s in favor of bonds* were due to higher demand for safe assets, mostly from the official sector in emerging market economies, and to an increase in the riskiness of equity relative to that of bonds. These shifts led to an increase in the real required return on equity and a decline in real rates—that is, an increase in the equity premium.[2]
  - *Scars from the global financial crisis* have resulted in a sharp and persistent decline in investment in advanced economies. Their effects on saving have been more muted.

Real interest rates and the cost of capital are likely to rise moderately in the medium term from current levels. Part of the reason is cyclical: the extremely low real rates of recent years reflect large negative output gaps in advanced economies—indeed, real rates might have declined even further in the absence of the zero lower bound on nominal interest rates. The analysis in this chapter suggests, however, that real rates and the cost of capital are likely to remain relatively low in the medium term, even when output gaps are eventually closed. The main reasons are as follows:

- The effects of the global financial crisis will persist. The findings of the chapter suggest that the investment-to-GDP ratios in many advanced economies are unlikely to recover to precrisis levels in the next five years.
- The portfolio shift in favor of bonds that started in the early 2000s is unlikely to be reversed. Although bond rates may rise again on account of a rising term premium when unconventional monetary policy is wound down, this will probably have a smaller effect on bond rates than will other forces. In particular, stronger financial regulation will further increase demand for safe assets. A reduction in emerging market economy saving and thus in the pace of official reserve accumulation would work the

[2]Between 2008 and 2012, quantitative easing, mainly in the United States and United Kingdom, may also have contributed to a portfolio shift by compressing term premiums on long-term bonds. There is, however, uncertainty about the magnitude of estimates of these premiums, and even upper-end estimates suggest that the long-term impact of quantitative easing over the period 2008–13 on the equity premium has probably been modest.

opposite way, and the net effect is therefore likely to be small.[3]

- Lower growth in emerging market economies compared with growth during the precrisis boom years is expected to result in somewhat lower saving rates. Based on the evidence of previous saving shifts, the magnitude of the effect on real rates is likely to be modest.

In summary, real rates are expected to rise. However, there are no compelling reasons to believe in a quick return to the average level observed during the mid-2000s (that is, about 2 percent). Within this global picture, however, there may well be some countries that will see higher real rates than in the early 2000s because of higher sovereign risk premiums. The conclusions here apply to the risk-free rate.

An important concern is the possibility of a prolonged period of very low growth ("secular stagnation") in advanced economies, especially if new shocks were to hit demand in these economies or if policies do not address crisis legacy issues as expected (see Chapter 1 of the October 2013 *World Economic Outlook,* WEO). As discussed in Chapter 1, with current low inflation, real interest rates will likely be low enough for the zero lower bound issue to reemerge if such risks of very low growth in advanced economies materialize. Real interest rates may then be unable to decline to the negative levels required to restore full employment.

The prospect that real interest rates could increase to relatively low levels in the medium term has important implications:

- Pension funds, insurance companies that provide defined benefits, and savers in general may suffer from a prolonged period of continued low real interest rates. An environment of continued low real (and nominal) interest rates may also induce financial institutions to search for higher real (and nominal) yields by taking on more risk.[4] This, in turn, may increase systemic financial sector risks, and appropriate macro- and microprudential oversight will be critical for maintaining financial stability.
- Symmetrically, borrowers would enjoy the benefits of low rates, all else equal.[5] For one thing, achieving fiscal sustainability would be less difficult. As an example, a 1 percentage point reduction in real rates in the next five years relative to the rate currently projected (October 2013 WEO) would reduce the average advanced economy debt-to-GDP ratio by about 4 percentage points. If real rates are expected to be close to or lower than real GDP growth rates for a long time, some increases in debt-financed government spending, especially public investment, may not lead to increases in public debt in the medium term.[6]
- With respect to monetary policy, a period of continued low real interest rates could mean that the neutral policy rate will be lower than it was in the 1990s or the early 2000s. It could also increase the probability that the nominal interest rate will hit the zero lower bound in the event of adverse shocks to demand with inflation targets of about 2 percent. This, in turn, could have implications for the appropriate monetary policy framework.

The rest of the chapter is structured as follows. The second section constructs the global real rate and cost of capital; the third section introduces the conceptual framework to analyze observed patterns in the global real rate and the cost of capital; the fourth section tests the hypotheses laid out in the third; the fifth section summarizes the findings and draws implications for fiscal policy in the medium term; and the final section concludes.

Stylized Facts: Measuring Real Rates and the Cost of Capital

Real interest rates are directly observable only from the yields on inflation-indexed bonds. Such bonds, however, are typically not issued at short maturities

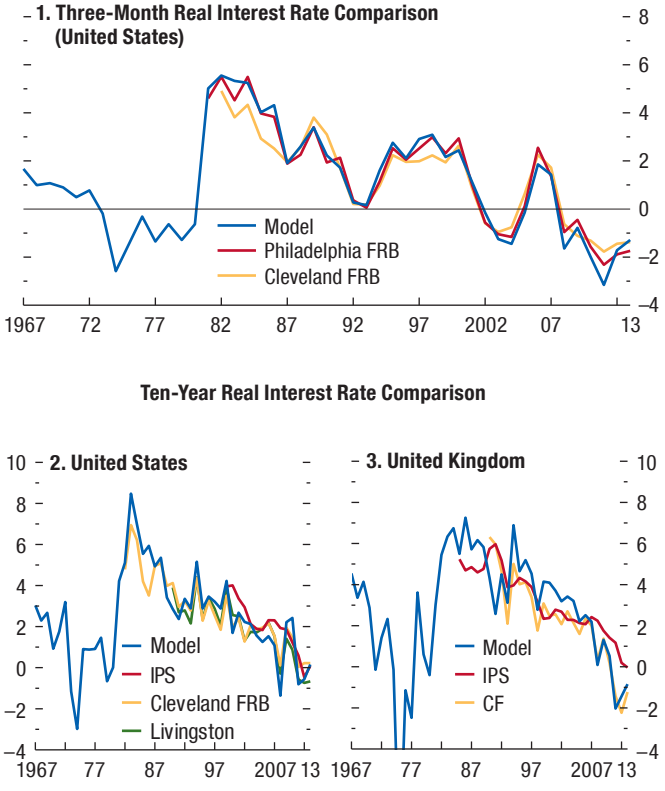
[3]Withdrawal from quantitative easing may also induce a modest reversal of the portfolio shifts observed between 2008 and 2013 by raising real term premiums to precrisis levels. Its effect on the global cost of capital, however, will probably be small.

[4]Maddaloni and Peydró (2011) find that periods of low short-term rates are associated with softening of bank lending standards in the euro area and the United States. Altunbas, Gambacorta, and Marqués-Ibañez (2012) also find that low interest rates over protracted periods lead to an increase in bank risk.

[5]To the extent that rates are lower than expected because of lower-than-expected activity, however, borrowers may well be worse off than under a scenario of higher growth and higher interest rates.

[6]If the real rate is permanently lower than real GDP growth, then a temporary debt-financed increase in government spending will lead to only a temporary increase in the public debt ratio. More generally, the debt-to-GDP ratio may not increase in the medium term if the increased spending permanently raises GDP (for example, by raising the productivity of private capital), generating an increase in annual tax revenue large enough to cover the increase in annual debt service, as argued by Delong and Summers (2012).

Figure 3.2. Real Interest Rate Comparison
(Percent a year)



Sources: Consensus Economics; Federal Reserve Bank of Cleveland; Federal Reserve Bank of Philadelphia, *Livingston Survey;* Federal Reserve Bank of Philadelphia, *Survey of Professional Forecasters;* Haver Analytics; and IMF staff calculations.
Note: CF = *Consensus Forecasts;* FRB = Federal Reserve Bank; IPS = inflation-protected securities.

(that is, less than one year), and even at longer maturities few countries have good data coverage (King and Low, 2014).[7] In the absence of inflation-protected securities, real rates can be approximated by the difference between the nominal interest rate and inflation expectations over the relevant time horizon:

$$r_t^{[n]} = i_t^{[n]} - E_t\pi_{t,t+n}, \qquad (3.1)$$

in which $i_t^{[n]}$ is the nominal yield of a zero coupon bond of maturity n at time t, and $E_t\pi_{t,t+n}$ is the expected consumer price inflation over the life of the bond. Bond yields are observable, but inflation expectations are not (at least not directly). For estimates of expected inflation, the analysis relies on survey information and on forecasts from an estimated autoregressive process. Because the parameters of this autoregressive process are likely to change over time, rolling windows are used. To maximize sample coverage, three-month and ten-year maturities are used to represent short- and long-term real rates, respectively.[8]

Estimated three-month real rates for the United States and ten-year real rates for the United States and the United Kingdom are shown in Figure 3.2. The model- and survey-based approaches give very similar estimates. The figure suggests that real rates in the two countries have declined sharply since the early 1980s. Moreover, the rate decline has been global (Figure 3.3). The average global ten-year real rate declined from a high of 6 percent in 1983 to approximately zero in 2012.[9]

The relevance of common forces driving the worldwide decline in real rates is confirmed by a principal component analysis. The results show that the contribution of the first common factor to the variation in real rates increased from about 55 percent in 1980–95 to almost 75 percent in 1995–2012 (Figure 3.4, panel 1).[10] The greater relevance of common factors can also be seen in the evolution of the cross-country dispersion in real rates over time.

Figure 3.4 (panel 2) shows that the cross-sectional standard deviation of ten-year real rates declined from about 400 basis points in the early 1980s to 100 basis points in the most recent years.[11] This decline is consistent with the view that within-country factors driving rates away from the common global mean have become

[7]Markets for indexed bonds are not deep and are susceptible to changes in the liquidity premium and to technical factors. Following Blanchard (1993), because of tax considerations, for the United Kingdom, the real rate is adjusted by adding $\tau/(1-\tau) \times \pi$, in which τ denotes the income tax rate on coupon payments and is set at 20 percent (see Blanchard, 1993) and π denotes the expected inflation rate over the life of the security.

[8]See Appendix 3.1 for details. The sample comprises 40 countries: 25 advanced economies and 15 emerging market economies. The interest rates used are those on government securities, where available; otherwise interbank rates are used.

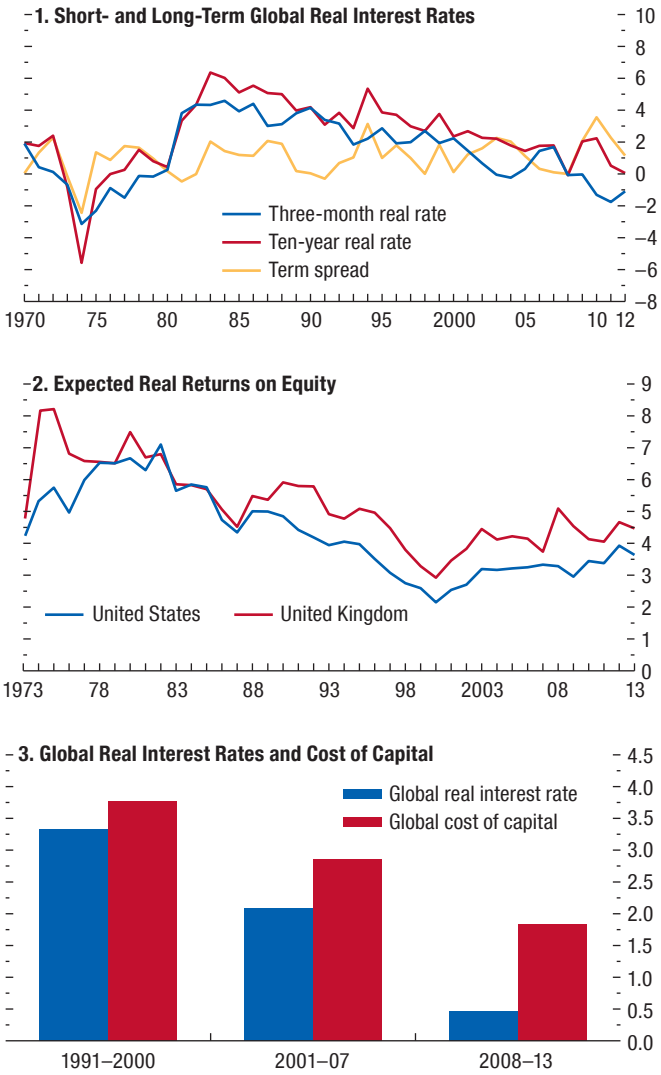
[9]These are GDP-weighted averages. A similar pattern emerges from simple averages for Group of Seven (G7) countries (Canada, France, Germany, Italy, Japan, United Kingdom, United States) and for GDP-weighted averages excluding the United States (see Appendix 3.7).

[10]Similar results are obtained when changes in real interest rates are used.

[11]Similar results can be found for short-term emerging market economy securities using a sample starting in 1990 (the data for long-term rates are scant for emerging market economies). These results show that the contribution of emerging market economies to overall real rate dispersion has declined markedly. The analysis excludes those countries that have experienced a significant increase in default risk in the aftermath of the global financial crisis (that is, some noncore euro area countries), because analyzing the determinants of default risks goes beyond the scope of the chapter. It is possible to observe, in regard to the euro area, that whereas the

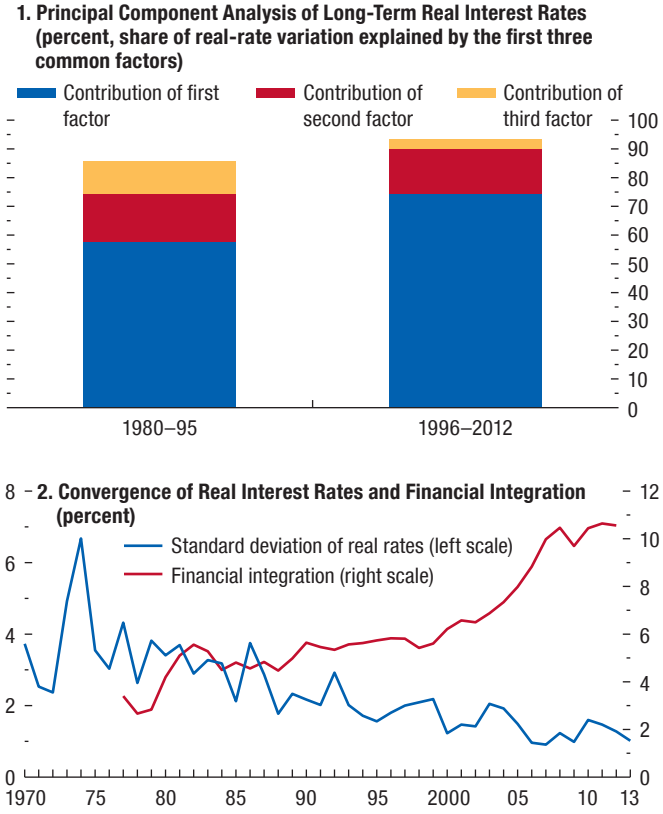
Figure 3.3. Real Interest Rates, Real Returns on Equity, and Cost of Capital

(Percent a year)



Sources: Bloomberg, L.P.; Haver Analytics; IMF, International Financial Statistics database; Organization for Economic Cooperation and Development; World Bank, World Development Indicators database; and IMF staff calculations.
Note: Term spread is defined as the difference between short- and long-term real rates.

Figure 3.4. Common Factors in Real Interest Rates



Sources: Bank for International Settlements; Bloomberg, L.P.; Haver Analytics; IMF, International Financial Statistics database; Organization for Economic Cooperation and Development; World Bank, World Development Indicators database; and IMF staff calculations.
Note: Financial integration is constructed as banks' bilateral assets and liabilities as a share of countries' GDP.

less important. However, even though the fraction of the total variance explained by the *first factor* has increased for both three-month and ten-year real rates, it remains significantly lower at the shorter maturity. This is consistent with continued scope for monetary policy in individual countries to play an important countercyclical role in smoothing domestic output fluctuations.

The greater weight of the common factors may be attributable to a variety of reasons. Because inflation risk affects the term premium, a common decline in long-term real rates may be due to simultaneous adoption of

standard deviation of long-term real rates has steadily declined for core euro area countries, it has recently increased for noncore euro area countries (see Appendix 3.7). In contrast, the standard deviation of short-term real rates has decreased for both core and noncore countries.

monetary policy frameworks that ensure low and stable inflation. However, such simultaneous adoption would not explain the trend decline in short-term real rates, because such rates are little affected by inflation risk. In other words, a worldwide decline in the inflation risk premium would have caused a similar decline in the term spread, which has not happened (Figure 3.3, panel 1).[12] An alternative hypothesis for the increased relevance of common factors is increased financial market integration. Figure 3.4 (panel 2) shows the evolution of cross-holdings of banks' assets and liabilities (a measure of financial market integration). According to this measure, financial integration has steadily and substantially increased during the past three decades. The correlation between the financial integration and real-rate dispersion variables is –0.74, supporting the hypothesis.

Financing decisions are not limited to short-term borrowing or the fixed-income market. A firm's evaluation of whether it is worthwhile to undertake a given investment project requires that the expected return on the project be greater than the overall cost of capital, which includes the cost of equity finance as well as that of borrowing.

For the cost of equity, a measure of expected real return on major stock markets is constructed.[13] Stated roughly, the expected return on equity is equal to the dividend yield plus the expected long-term growth rate of real dividends. Expected dividend growth is estimated through a vector autoregressive process of dividend and GDP growth. Figure 3.3 (panel 2) shows the expected long-term real return on equity constructed for the U.S. and U.K. stock markets.

The estimated cost of capital is a weighted average of the estimates for the real long-term interest rate and the required return on equity.[14] The ex ante real returns on both bonds and equity declined between the 1980s and the late 1990s, but after the dot-com bubble burst in 2000–01, the expected return on equity increased. The decline in the overall cost of capital was therefore less than the decline in the real interest rate.[15] Thus, although the estimated global real interest rate in the first part of the 2000s was 1.15 percentage points lower than in the 1990s, the estimated global cost of capital was only 0.62 percentage point lower (Figure 3.3, panel 3).

Determinants of Real Rates: A Saving-Investment Framework

The equilibrium real interest rate is the price that equilibrates the desired demand for and supply of funds. Factors affecting the equilibrium real rate shift or tilt the demand or supply schedules (Figure 3.5). A reduction in the equilibrium real rate would be produced by an outward shift in the supply schedule of funds or an inward shift in the demand schedule. The supply of funds may come from private saving, public saving (the budget surplus), or monetary policy actions.

Changes in expected investment profitability and in the relative price of investment goods (for example, machinery, equipment, information technology) may shift the demand for funds. A decrease in the profitability of investment reduces investment and real rates, and the economy converges to a smaller capital stock. A reduction in the relative price of investment, for a given investment volume, reduces the value of loan demand. At the same time, it is likely to increase the volume of investment. Thus, in theory, the net effect on the value of global investment, and on real interest rates, depends on the elasticity of the volume of investment to its relative price.

Shifts in private saving can be induced by several factors: changes in current and expected income, social safety nets, and demographics, as well as financial innovations, among others. For example, the permanent income hypothesis predicts a decrease in the saving rate whenever a new development increases expected future income growth. A different result may arise, however, in the presence of consumption habits: an increase in GDP

[12]The average real term spread (the difference between long- and short-term real rates) for the entire period is about 100 basis points. The absence of a trend suggests a stable term premium (at short and medium frequency, the term spread varies because of the business cycle). More recently, default risk has been a factor in the euro area. The evolution of default risk, however, is beyond the scope of this chapter.

[13]The real required (internal) rate of return on equity in period t for a horizon n, $R^{[n]}_{e,t}$, is estimated from the following equation:

$$S_t/D_t = \Sigma^n_{j=0}(1 + R^{[n]}_{e,t})^{-j}E_t g_{t,t+1+j},$$

in which S is a stock price index, D denotes dividends consistent with the stock index chosen, and $E_t g_{t,t+j} = D_{t+j}/D_t$ is the expected cumulated dividend growth.

[14]Equal weights for the two variables are assumed for the United States, and two-thirds (cost of debt) and one-third (cost of equity) for all the other countries. Weights are chosen based on average values of corporate bond and stock market capitalization in the United States and in other countries, and tax corrections are not included. Nevertheless, since 2000, for any possible choice of weights, the cost of capital has declined less than the real rate.

[15]Similar results are obtained when the cost of debt is measured using real corporate yields.

growth can raise the saving rate (see Appendix 3.6). All else equal, such a shift in the saving schedule would reduce real interest rates, increasing the equilibrium level of global investment. Population aging reduces saving under the life cycle model, which predicts that saving rates are the highest for age groups in the middle. Overall, aging should increase real interest rates and reduce global investment.

Changes in public saving (that is, fiscal policy) affect the aggregate saving schedule similarly to those in private saving. Because long-term rates are a weighted average of expected future short-term rates, expectations of future deficits will tend to increase today's long-term real bond rate. In addition, the overall effect of fiscal policy on real rates includes an effect from the stock of public debt. Given that saving decisions depend partly on wealth, of which public debt is a part, a high level of debt tends to depress private saving and, in turn, increase real interest rates.[16]

A neutral monetary policy (that is, keeping output at its potential) does not contribute to the determination of the real interest rate, which is then at its *natural* level. However, deviations of monetary policy from a neutral stance should lead the real rate to move away from its natural level. Loosely speaking, monetary policy easing (tightening) can be represented as an outward (inward) shift in the supply of funds.[17]

In the absence of portfolio shifts, the equity premium is constant, implying that movements in the cost of capital can be summarized by movements in real rates. The equity premium, however, varies over time. Specifically, two factors can affect the equity premium: (1) a shift in the relative supply of (demand for) bonds and equities and (2) a change in the relative risks of holding bonds and equities.[18]

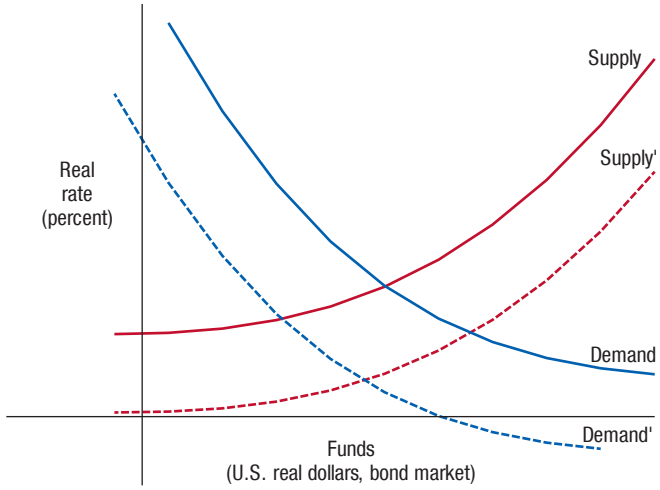
The hypotheses outlined above, and their implications for real rates, returns on equities, and global investment and saving schedules, are summarized in Table 3.1.

[16]Appendix 3.3 shows the negative effect of the stock of public debt on private saving in an overlapping-generations model in which Ricardian equivalence does not hold.

[17]In the standard Investment Saving–Liquidity Preference Money Supply (IS-LM) model, a decrease in money supply (a leftward shift in the LM curve) increases the real rate, which, in turn, reduces output and investment. The decline in output would shift the saving curve until saving and investment are in equilibrium.

[18]More technically, a change in the relative risk of holding bonds and equities is a change in the covariance of long-term bonds or equity with households' marginal utility of consumption, making one of the two asset classes relatively riskier (or safer) as a financial investment.

Figure 3.5. Real Interest Rate and Shifts in Demand for and Supply of Funds



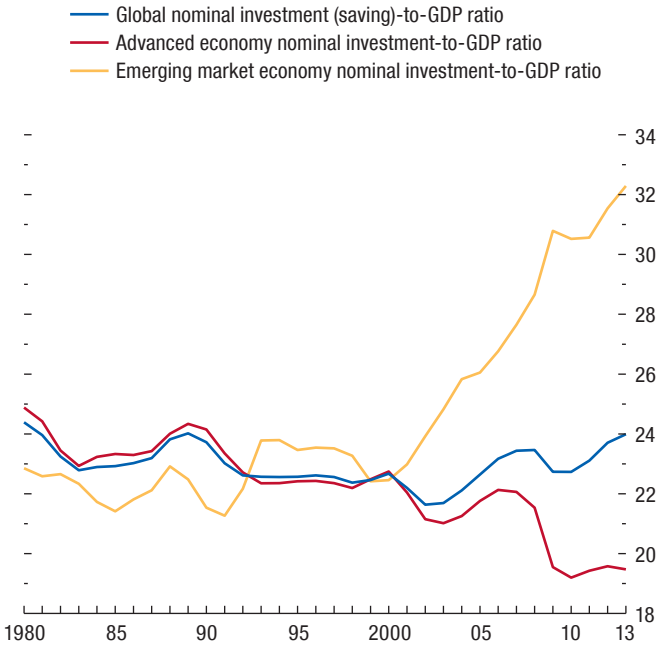
Source: IMF staff illustration.

Table 3.1. Alternative Hypotheses Explaining a Decline in Real Interest Rates

		Predicted Effect		
	Hypothesis	Real Interest Rates	Expected Return on Equity	Global Investment Ratio
Investment Shift	Decrease in the Relative Price of Investment	?	?	?
	Decrease in Investment Profitability	↓	↓	↓
Saving Shift	Tight Fiscal Policy	↓	↓	?
	GDP Growth Increase (habit)	↓	↓	↑
	Demographics (aging)	↑	↑	↓
Monetary Policy	Easing	↓	↓	↑
Portfolio Shift	Increase in Relative Risk of Equities	↓	↑	?
	Increase in Relative Demand for Bonds	↓	↑	=

Source: IMF staff illustration.

Figure 3.6. Investment-to-GDP Ratios
(Percent of GDP)



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

Which Factors Contributed to the Decline in Real Interest Rates?

This section assesses various hypotheses for explaining the observed decline in real interest rates.

Shifts in the Demand for Funds

The investment-to-GDP ratio in advanced economies shows a marked decline since 1980, particularly since 2000 (Figure 3.6). This decline may reflect two factors: a lower price of investment and a reduction in the profitability of investment.

Decline in the relative price of investment

Figure 3.7 (panel 1) shows the evolution of the relative price of investment and of the value and volume of investment as a share of GDP. The figure shows that although the relative price of investment did not decline meaningfully after 2002, it fell steadily from 1980 to the beginning of the 2000s.[19] This reduction, in turn, led to a decline in the value of investment as a share of GDP.[20]

Reduced investment profitability

Figure 3.7 also presents the evolution of real corporate profit growth (panel 2) and of corporate profit rates (panel 3). It shows that although no negative shifts in investment profitability are observable up to the early to mid-2000s, investment profitability has markedly declined in the aftermath of the global financial crisis, particularly in the euro area, Japan, and the United Kingdom. Therefore, the hypothesis that a decline in investment profitability in advanced economies has contributed to the decline in real rates does not find empirical support up to the crisis, after which it becomes a key factor.[21]

Another way to examine the evolution of the attractiveness of investment is to look at the dynamic of Tobin's q (Hayashi, 1982). A q value greater than one for a company means that the market value of the company is greater than the value of its recorded assets and that firms have an incentive to invest in it. Likewise, a decline in the value of q implies that investment becomes less attractive. Using Thomson Reuters Worldscope data for a sample of more than 30,000 firms for 74 countries for 1990–2013 (Brooks and Ueda, 2011), the analysis finds that the dynamic of q seems to follow the evolution of investment profitability presented above (Figure 3.7, panel 4).[22] In particular, no negative shifts in the attractiveness of investment are observable in the 1990s and early to mid-2000s, but q slumped in the aftermath of the global financial crisis.

[19]The decline in the relative price of investment has been extensively documented in previous studies (for example, Gordon, 1990). These studies typically associate the decline in investment price with better research and development, embodied in new, more efficient investment goods (for example, Fisher, 2006). In addition, falling commodity prices (such as that for steel) also may have contributed to the decline in the relative price of investment in the 1980s and 1990s.

[20]Although the volume of investment increased during this period, it could not compensate for the reduction in the relative price of the value of investment.

[21]The decline in investment profitability in advanced economies is confirmed by an estimated measure of profitability (see Appendix 3.2). Furthermore, it coincides with the decline in productivity growth observed in many advanced economies in the aftermath of the crisis.

[22]The calculations in this analysis assume that the marginal q value is equal to the average q value.

In summary, both of these factors contributed to the decline in advanced economy investment ratios, but during different periods: (1) from 1980 to early in the first decade of the 2000s, the substantial decline in the relative price of investment was important, and (2) in the aftermath of the global financial crisis, the negative shift in investment profitability was important.

Shifts in Saving: The Role of Emerging Market Economies

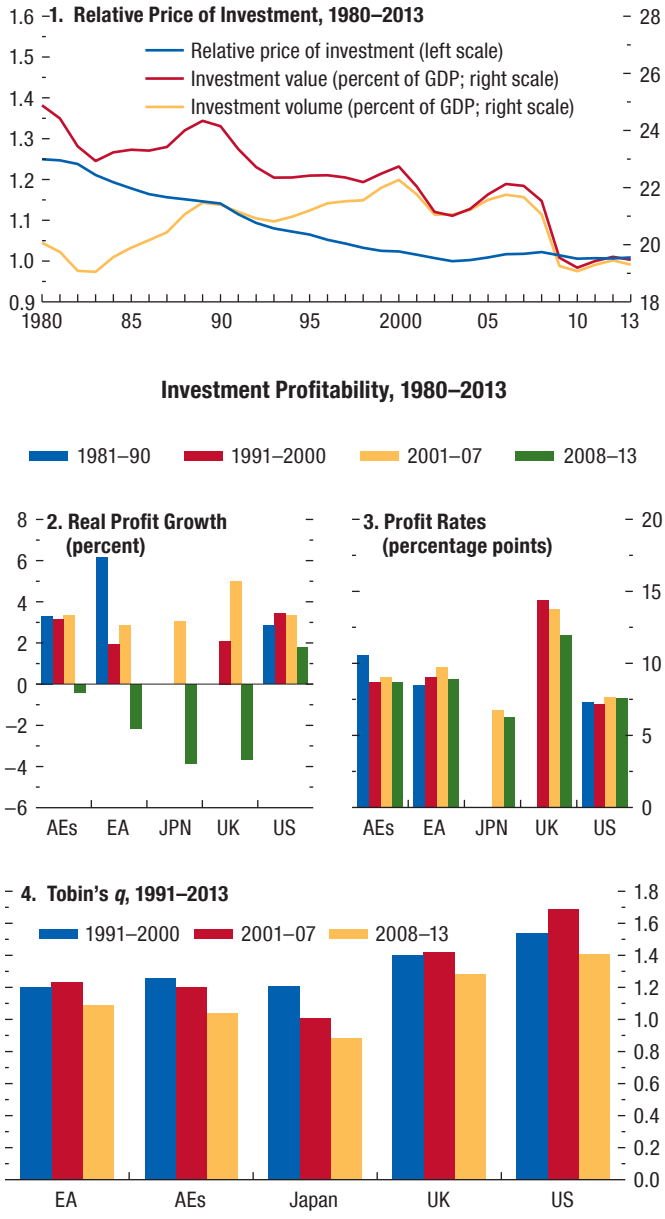
The saving-to-GDP ratio in emerging market economies increased markedly after 2000 (Figure 3.8, panel 1). As a result, the global saving rate between 2000 and 2007 increased by 1.7 percentage points (of which 1.5 percentage points can be attributed to increased saving rates in emerging market economies and a further 0.8 percentage point to the increased weight of emerging market economies in world GDP, with a subtraction of 0.6 percentage point resulting from the decline of advanced economy saving rates). Within the emerging market economies, China's saving accounted for an ever-increasing share—approaching 18 percent of total emerging market economy GDP by 2013, about half of total emerging market economy saving (Figure 3.8, panel 2). The increased supply of saving from emerging market economies, in particular from China, must have contributed significantly to the decline in real interest rates.

What factors explain this increase in emerging market economy saving? Higher oil prices contributed to the increase in saving in the oil exporters in this group between 2004 and 2008 (Figure 3.8, panel 2). In addition to rising oil prices, various causes have been proposed, including the erosion of the social safety net in China, financial constraints, demographic factors, and the desire to accumulate a substantial buffer in official reserves (see next section).[23] However, in many emerging market economies, financial constraints have decreased (Abiad, Detragiache, and Tressel, 2010), and safety nets have generally been strengthened, which would result in lower saving rates.[24] For China, Wu (2011) finds that developments in demographics, safety nets, and financial

[23]See, for example, Chamon and Prasad (2010), Song and Yang (2010), Curtis, Lugauer, and Mark (2011), Wei and Zhang (2011), and G20 (2011, 2012).

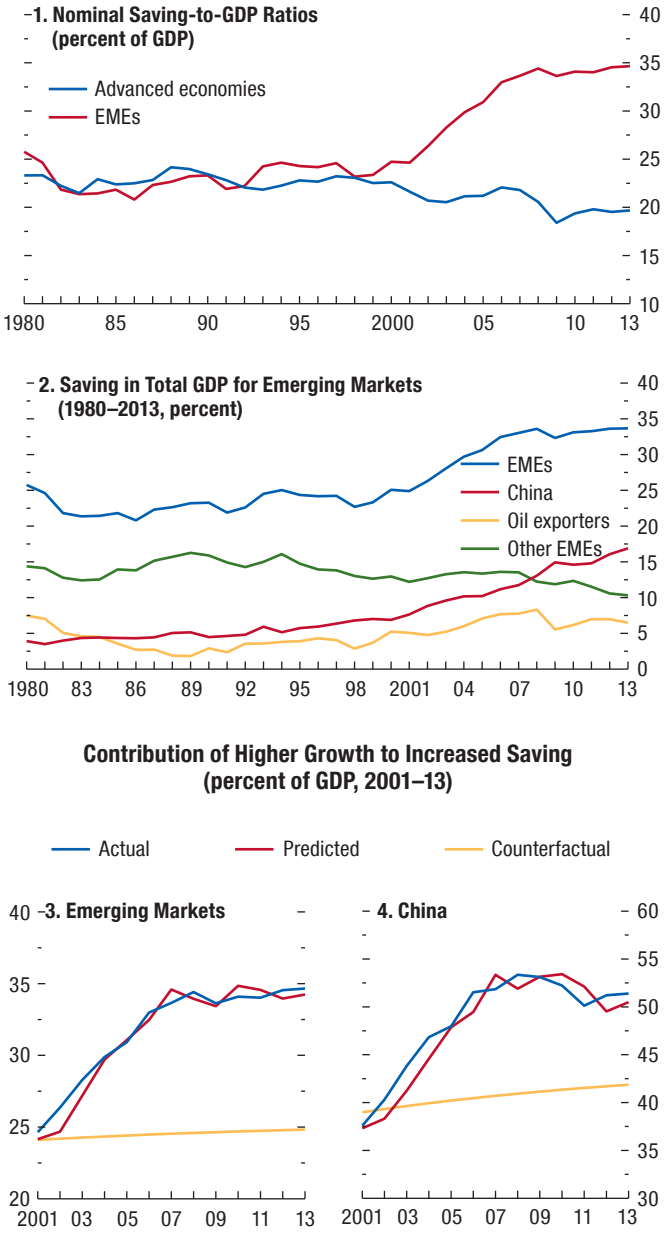
[24]For example, between 2000 and 2007, the ratio of public health expenditure to GDP increased to 3.0 percent from 2.7 percent in emerging market economies and to 0.75 percent from 0.49 percent in China.

Figure 3.7. Investment Shifts in Advanced Economies



Sources: Brooks and Ueda (2011); Haver Analytics; Organization for Economic Cooperation and Development; World Bank, World Development Indicators database; and IMF staff calculations.
Note: Real profit growth is the rate of growth of real corporate gross operational surplus. Profit rate is the ratio of corporate gross operational surplus to the capital stock. AEs = advanced economies, EA = euro area, JPN = Japan, UK = United Kingdom, US = United States.

Figure 3.8. Saving Shifts in Emerging Markets



Sources: Organization for Economic Cooperation and Development; World Bank, World Development Indicators database; and IMF staff calculations.
Note: EMEs = emerging market economies; Actual = actual saving-to-GDP ratio; Predicted = predicted saving-to-GDP ratio obtained by regressing the EME saving rate on its lagged value and EME real GDP growth; Counterfactual = conditional forecast of the saving rate assuming real GDP growth is constant at the average value of the late 1990s.

constraints have contributed only modestly to the increase in saving rates. Empirical research performed for this chapter confirms this result (Box 3.1).

Demographic factors and financial constraints seem important in explaining long-term saving trends and sustained cross-country differences (IMF, 2013). As discussed in Box 3.1, however, they cannot explain the rapid increase in emerging market economy saving rates during 2000–07. A more relevant explanation is that saving rates increased because growth steadily increased (see also Carroll and Weil, 1994). This hypothesis is investigated in Box 3.1. A time-series model, in which saving rates are a function of lagged saving rates and contemporaneous real GDP growth, explains most of the time-series variation in emerging market economy saving rates (Figure 3.8, panels 3 and 4).[25] The model suggests that the steady increase in emerging market economy growth in the past decade contributed to a shift in saving rates of about 10 percentage points between 2000 and 2007 (panel 3 of the figure), mainly accounted for by the effect of the acceleration in China (panel 4). These results strongly support the hypothesis that increased emerging market economy growth in the first decade of the 2000s contributed to the rise in emerging market economy saving rates above and beyond the increase in investment rates (that is, net saving increased).[26]

Shifts in Saving: The Role of Fiscal Policy

Theory suggests three main channels through which fiscal policy may affect long-term real rates. The first is by reducing public sector saving, thereby raising contemporaneous short-term real rates. The second is through anticipated future deficits, which affect expected short-term real rates. The third is via the stock of public debt and future taxes, which can affect private wealth and thus current saving and consumption decisions. Each of these is examined in turn.

[25]The model also fits the evolution of saving rates in advanced economies remarkably well, explaining about 90 percent of the variation.

[26]The relationship between growth and saving is complex and difficult to pin down with great confidence. To the extent Box 3.1 can do so, it finds that the positive relationship between growth and saving in the short to medium term is determined by the effect of growth on saving, rather than the effect of saving on growth. Similarly, strong evidence is found that a steady reduction in growth in many advanced economies (notably Japan) has contributed significantly to the decline in their saving rates.

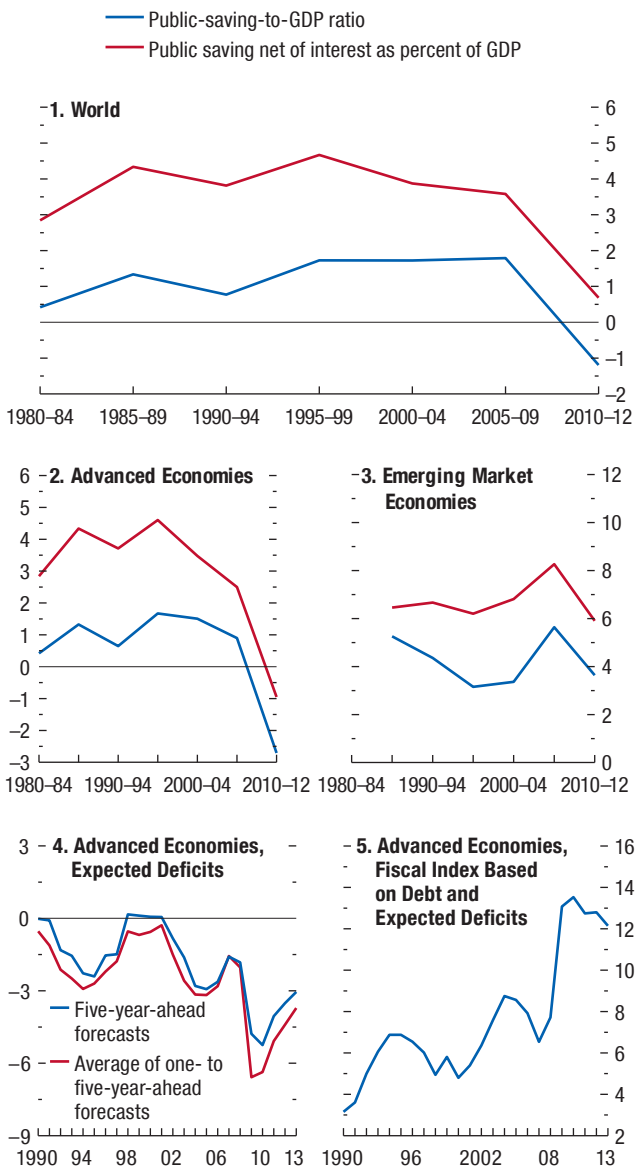
- Panel 1 of Figure 3.9 shows the historical evolution of world public sector saving as a percentage of world GDP. The global public saving ratio rose during the mid- to late 1980s and mid- to late 1990s, broadly reflecting the profile of the advanced economy ratio (Figure 3.9, panels 2 and 3).
- Figure 3.9 (panel 4) shows expected fiscal positions, as represented by WEO forecasts. These, too, improved considerably in the second part of the 1990s.[27]
- Finally, following Blanchard and Summers (1984) and Blanchard (1985), a forward-looking index is constructed that depends on the current level of debt and ten-year forecasts of primary deficits. A decrease in the index over time indicates a reduction in private wealth due to fiscal policy and, thus, a positive shift in total saving.[28] The evolution of the aggregate index for advanced economies shows a decline of 2.1 percentage points from 1994 to 2000 (Figure 3.9, panel 5).[29]

Thus, the evidence regarding all three channels indicates that advanced economy fiscal policies contributed significantly to the decline in real interest rates in the 1990s. Outside of that decade, however, they had the opposite effect. The fact that real rates nevertheless continued to decline during the 2000s means that other factors more than offset the effect of fiscal policy.

Monetary Policy

To the extent that monetary policy is neutral (that is, keeping output at its potential), it does not contribute to the determination of the real interest rate, which is then anchored at its natural level. In practice, it is reasonable to assume that whenever a central bank does not deviate from the systematic behavior implied by its long-standing monetary policy rule, its stance is approximately neutral across business cycles.[30] In

Figure 3.9. Effect of Fiscal Policy on Real Interest Rates
(Percent of GDP)



Sources: Organization for Economic Cooperation and Development; World Bank, World Development Indicators database; and IMF staff calculations.

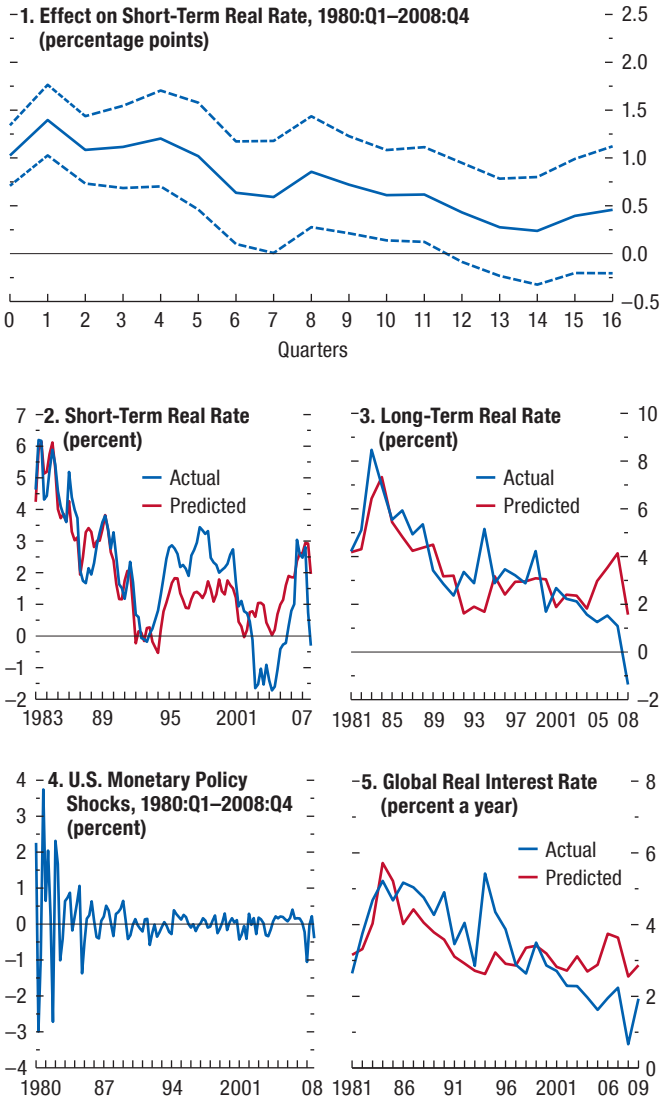
[27]These forecasts are available beginning in 1990, but unfortunately only for advanced economies.

[28]The index is constructed as $x_t = 0.1[b_t + \sum_{i=0}^{\infty}(1.1)^{-i} pd_{t,t+i}]$, in which $pd_{t,t+i}$ is the WEO forecast for the primary-deficit-to-GDP ratio in year $t + i$, and b_t is the debt-to-GDP ratio at time t. See Appendix 3.3 for details.

[29]This suggests an arc elasticity of about 0.21. In all other periods, the index has increased, putting upward pressure on real rates.

[30]This is clearly an approximation. For example, over the business cycle, whenever there is a trade-off between output gap and inflation stabilization, the monetary authority has too few instruments to achieve the first-best allocation. This, in turn, implies that over the cycle, the actual real rate cannot be equal to the natural (Wicksellian) rate.

Figure 3.10. Effect of U.S. Monetary Policy Shocks on Real Interest Rates



Sources: Bloomberg, L.P.; Coibion (2012); Organization for Economic Cooperation and Development; and IMF staff calculations.
Note: In the first panel, the solid line denotes estimated effect; dashed lines denote 90 percent confidence bands. $t = 0$ is the year of the monetary policy shock. In panel 5, global real rates exclude U.S. real rates.

contrast, monetary policy shocks, defined as deviations from the policy rule, should lead to deviations from the neutral stance. For example, a series of tightening shocks should lead to a real rate above the natural rate for some time.

To assess the role played by monetary policy, the analysis uses a measure of U.S. monetary policy shocks. The United States is interesting in itself because of its prominent role in the global financial system. Moreover, it is the only country for which a reliable measure of monetary policy shocks that dates back to the 1980s is available (Coibion, 2012).[31] In essence, the estimated shocks are exogenous innovations in the policy rate—that is, changes in the rate that are not related to current or expected inflation and economic conditions. Following the approach proposed by Romer and Romer (2004), the effect of monetary policy is estimated as follows:

$$\Delta r_t = a + b(l)mps_t + \varepsilon_t, \qquad (3.2)$$

in which r is a real rate, and mps is a monetary policy shock.

The results, depicted in Figure 3.10 (panel 1), show that monetary policy shocks have significant and long-lasting effects on short-term real interest rates.[32] To what extent does monetary policy explain the actual decline in real interest rates? Panel 2 of Figure 3.10 plots the actual evolution of short-term real rates as well as the evolution that can be explained by monetary policy shocks. Until 1992, about 88 percent of the variance in short-term real rates is explained by monetary policy shocks alone; afterward, the percentage of the variance explained is much lower. The story is similar for long-term real rates (panel 3 of the figure), although, as one would expect, monetary policy shocks explain less of the variation.

Large tightening policy shocks mostly occurred in the 1980s: between 1980 and 1989, the average policy shock was *positive* at about 24 basis points a quarter. These positive shocks are consistent with the dramatic change in the conduct of U.S. monetary policy

[31]The estimated monetary policy shocks are the residuals from an estimated monetary rule based on the Federal Reserve's Greenbook forecasts. The approach is similar to the one originally proposed by Romer and Romer (2004), but by introducing time-varying parameters, Coibion (2012) allows a distinction to be made between innovations to the central bank's rule and changes in the rule itself. This distinction is particularly useful for an analysis of a long time span.

[32]This finding is not novel, and it is consistent with the hypothesis of price rigidities (Christiano, Eichenbaum, and Evans, 1999).

inaugurated at the Federal Reserve by Chairman Paul Volcker on October 6, 1979, which eventually led to successful disinflation (Bernanke and Mishkin, 1992). After 1990 the size of monetary policy shocks declined markedly because the low-inflation regime was by then solidly established (Figure 3.10, panel 4).[33]

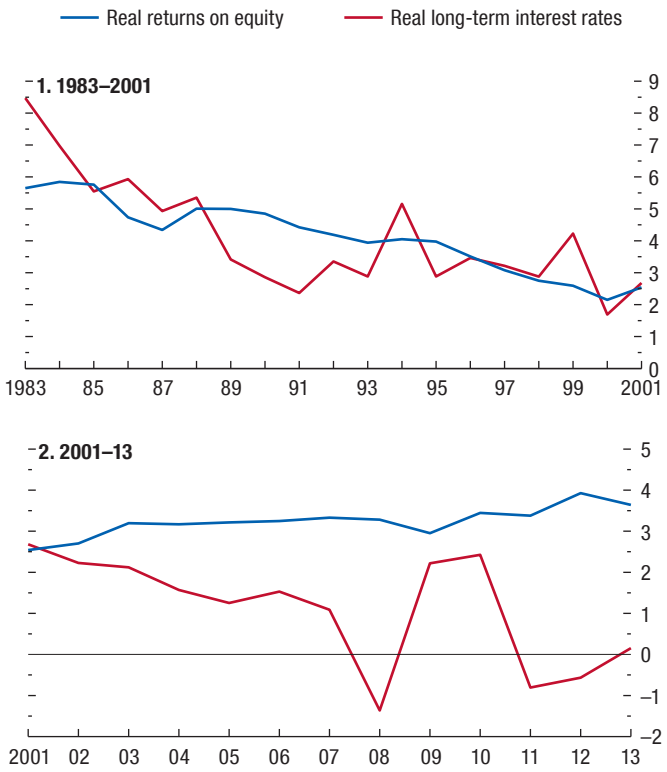
If there is little doubt that the fluctuations in U.S. real interest rates in the 1980s were driven mainly by U.S. monetary policy, it is also clear that U.S. monetary policy shocks explained a substantial part of the fluctuations in the global rate (excluding the U.S. real rate) in that decade (Figure 3.10, panel 5). There are two economic explanations for this result. First, U.S. monetary shocks have substantial spillover effects on other countries' short-term interest rates, especially for those countries that attempt to stabilize their exchange rates with the U.S. dollar (October 2013 WEO).[34] Second, during the 1980s and early 1990s, central banks around the world adopted inflation reduction policies that initially required tighter monetary policy stances, similar to the U.S. Federal Reserve's.[35]

Portfolio Shifts

The hypotheses evaluated so far predict a decline in the real return on a wide spectrum of assets. However, although trends in the returns on bonds and equity were both declining between the 1980s and the late 1990s, after the bursting of the dot-com bubble in 2000–01, the equity premium increased sharply (Figure 3.11).[36] There are three explanations for the divergent trend.

First, the surge in excess saving (that is, current account surpluses) in emerging market economies led to a steep increase in their foreign exchange reserves in the 2000s (Figure 3.12, panel 1), which were invested mainly in government or government-guaranteed fixed-income liabilities. Indeed, foreign holdings of U.S. Treasury securities increased considerably after 2000, and foreign official holdings in China and other emerging market economies accounted for the largest part of this increase (Figure 3.12, panels 2 and 3). Conversely, the share of foreign private holdings of U.S. equities and other assets remained relatively stable (Figure 3.12, panel 4). Empirical evidence suggests that these foreign official purchases of U.S. Treasuries significantly contributed to the decline in real interest rates in the first decade of the 2000s (Warnock and Warnock, 2009; Bernanke, Reinhart, and Sack, 2004; Beltran and others, 2013).[37]

Figure 3.11. Real Long-Term Interest Rates and Real Returns on Equity
(Percent a year)



Sources: Bloomberg, L.P.; Organization for Economic Cooperation and Development; and IMF staff calculations.

[33]Various authors have attributed a prominent role to better monetary policy in explaining the reduction in output volatility (see, among others, Galí and Gambetti, 2009; Nakov and Pescatori, 2010).

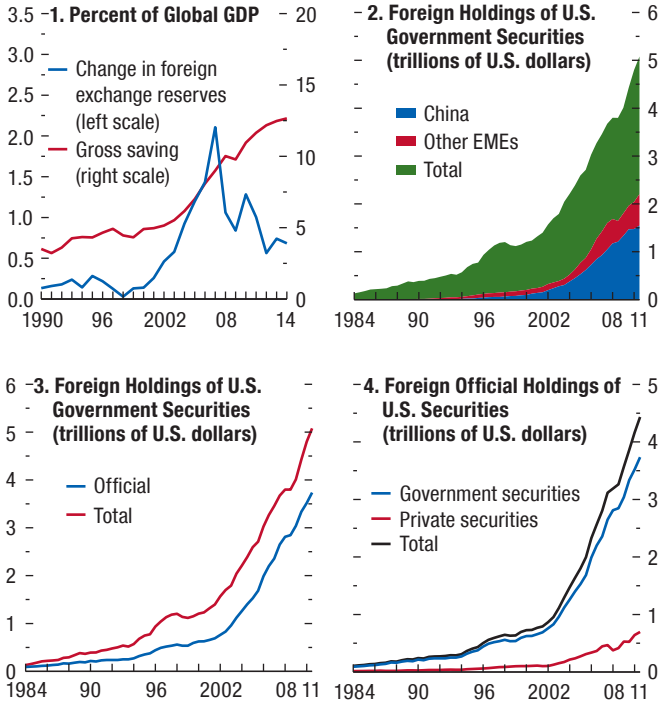
[34]In the 1980s, various inflation-prone countries adopted exchange rate targeting as a way of finding a nominal anchor.

[35]Many advanced economies had reduced inflation and inflation volatility substantially by the early 1990s. Most emerging market economies substantially reduced inflation between the second half of the 1990s and the beginning of the 2000s. In an increasing number of countries, the policy shift was embodied in the adoption of inflation targeting.

[36]Although the analysis focuses on the United States because of the availability of longer time series for the equity premium, most advanced and emerging market economies follow a similar pattern. U.S. stock market capitalization accounts for more than 35 percent of global stock market capitalization.

[37]A comparison of previous studies' estimates of the effects of purchases on Treasury yields suggests that if foreign official inflows into U.S. Treasuries were to decrease in a given month by $100 billion, Treasury rates would rise by 46 to 100 basis points in the short term and by 4 to 20 basis points in the long term (Beltran and others, 2013).

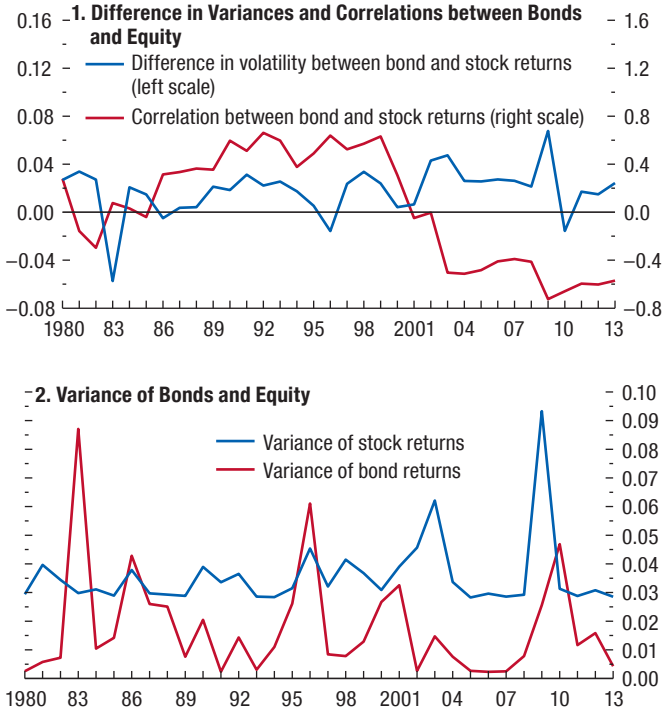
Figure 3.12. Portfolio Shifts and Relative Demand for Bonds versus Equity



Sources: Beltran and others (2013); and IMF staff calculations.
Note: EMEs = emerging market economies.

Figure 3.13. Portfolio Shifts and Relative Riskiness of Bonds versus Equity, 1980–2013

(Percent)



Sources: Bloomberg, L.P.; and IMF staff calculations.
Note: Based on autoregressive (ARCH(1)) and generalized autoregressive (GARCH(1)) conditional heteroscedasticity models of bond and stock returns.

Second, a change in the relative riskiness of bonds and equities has made bonds relatively more attractive. In particular, the evidence summarized in Figure 3.13 (panel 1) shows that the correlation between bond and equity returns has steadily declined (similar results have been found in Campbell, Sunderam, and Viceira, 2013), whereas the correlation between consumption growth and equity returns has dramatically increased since 2000.[38]

Panel 2 of Figure 3.13 shows that the volatility of equity holdings markedly increased in the aftermaths of the bursting of the dot-com bubble and of the global financial crisis.[39]

Finally, between 2008 and 2013 some central banks in advanced economies embarked on unconventional monetary policies aimed at stimulating the economy. In particular, some empirical studies (D'Amico and others, 2012; Joyce and others, 2011) provide evidence that *quantitative easing*, in the form of long-term asset purchases, may have compressed real term premiums on long-term government bonds in the United States and United Kingdom between 2008 and 2012. A reduction in the real term premium, in turn, may explain part of the increase in the equity premium.[40] Even though the estimates of the effect of quantitative easing on the term premium are surrounded by wide uncertainty, it is possible that quantitative easing contributed moderately to the observed increase in the equity premium between 2008 and 2013.[41]

[38]The correlation between annual consumption growth and equity returns increased from –0.27 in the 1970–99 sample to more than 0.50 in the period 2000–13. An asset with high returns when consumption is low provides a hedge and therefore yields a low expected return, a negative risk premium. In general, the more procyclical an asset's return, the higher the risk premium associated with that asset.

[39]Figure 3.13 also suggests that the increase in the variance of bond returns relative to those of equities may explain the short-lived increase in U.S. real interest rates in the early 1980s (Blanchard, 1993).

[40]D'Amico and others (2012) estimate a cumulated effect of Federal Reserve long-term asset purchases on ten-year U.S. government bond yields of about 80 basis points (a similar result is found by Joyce and others, 2011, for the United Kingdom). They claim that most of this effect is attributable to the compression of the real term premium. There is substantial uncertainty, however, about the *persistence* of the effect.

[41]It is possible, however, that in the absence of quantitative easing, the increase in the expected real return on equity would have been greater.

Scars from the Global Financial Crisis

Investment-to-GDP ratios in many advanced economies have not yet recovered to precrisis levels. What should we expect in the medium term? A look at previous financial crises helps answer this question. Two sets of episodes provide the basis for the examination: (1) the entire sample of advanced economy financial crises between 1970 and 2007 identified by Laeven and Valencia (2012) and (2) the "Big 5" financial crises (Spain, 1977; Norway, 1987; Finland, 1991; Sweden, 1991; and Japan, 1992) identified by Reinhart and Rogoff (2008) as the most comparable in severity to the recent one. Looking at financial crises in individual countries allows investment and saving to be analyzed separately.[42]

The econometric estimates imply that financial crises cause significant and long-lasting declines in the investment-to-GDP ratio (Figure 3.14, panels 1 and 2).[43] Financial crises have typically reduced this ratio by about 1 percentage point in the short term (one year after the occurrence of the crisis), with a peak effect of 3 to 3½ percentage points three years after the crisis. The estimated effect matches the 2½ percentage point decline in the investment-to-GDP ratio between 2008 and 2013 remarkably well. Moreover, it is in line with the effect, found in previous studies (Furceri and Mourougane, 2012; Chapter 4 of the October 2009 WEO), of financial crises on the capital-to-labor ratio.

With respect to saving, previous financial crises have typically reduced the saving-to-GDP ratio by about 2 percentage points over a two-year horizon. This reduction tapers off to nothing in the medium term (Figure 3.14, panels 3 and 4). The reason financial crises do not have a persistent impact on the total saving rate is that the decline in public saving rates—which typically occurs in the aftermath of financial crises (Reinhart and Rogoff, 2011; Furceri and Zdzienicka, 2012)—is offset by a persistent increase in private saving rates (Figure 3.14, panels 5 and 6).

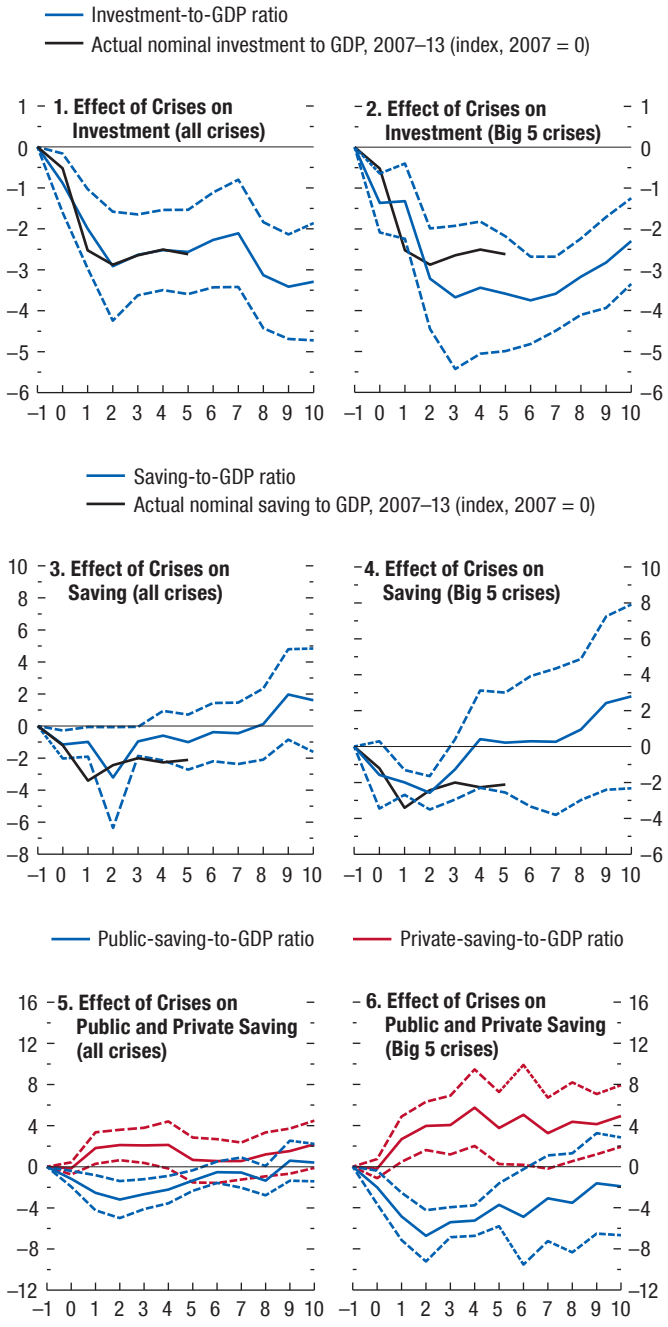
Based on this evidence, the global financial crisis can be expected to leave significant scars in the medium term on investment but not on saving, which will contribute to continued low real interest rates for some time.

[42]A similar exercise cannot be performed for a global crisis, since investment and saving are equal at the global level.

[43]See Appendix 3.4 for a description of the methodology used to assess the impact of financial crises on investment and saving as shares of GDP.

Figure 3.14. Effect of Financial Crises on Saving- and Investment-to-GDP Ratios

(Percent of GDP)



Sources: Organization for Economic Cooperation and Development; and IMF staff calculations.
Note: Big 5 financial crises are those in Spain, 1977; Norway, 1987; Finland, 1991; Sweden, 1991; and Japan, 1992. Solid blue (red) line denotes estimated effect; dashed blue (red) lines denote 90 percent confidence bands; and black line denotes the actual evolution of the investment-to-GDP ratio in advanced economies from 2007 to 2013. *X*-axis units are years; $t = 0$ denotes the year of the financial crisis.

Table 3.2. Factors Affecting Real Interest Rates

	Real Interest Rate (percent)	Cost of Capital (percent)	Saving Shifts	Investment Shifts	Portfolio Shifts
1996–2000	3.3	3.5			
2001–07	2.1	2.9	↓↓	—	↓↓
2008–12	0.6	2.2	—	↓↓	↓↓
Future, Medium Term	<2.1	<2.9	↑	—	—

Source: IMF staff calculations.
Note: Arrows denote the impact of saving, investment, and portfolio shifts on the real interest rate and the cost of capital. ↑(↓) denotes positive (negative) effects. Multiple arrows indicate larger effects. Dash equals no effect.

Should We Expect a Large Reversal in Real Rates?

The past 15-year period is divided by the global financial crisis. Before the crisis real interest rates declined even as the global investment-to-GDP ratio increased, suggesting that a shift in the global saving schedule took place. However, if the outward shift in global saving was the only factor driving the decline in the real rate, a similar decline in the cost of capital should have been observed, but it was not. More precisely, whereas real interest rates declined by about 1.2 percentage points, the cost of capital decreased only by 0.6 percentage point. This difference in declines suggests that portfolio shifts contributed about 0.6 percentage point to decreases in real bond yields (Table 3.2).[44]

In the aftermath of the global financial crisis, real rates have continued to decline, but equilibrium saving and investment have decreased. The analysis above suggests that an inward shift in the global investment schedule (of about 2 percentage points) was the primary factor—while saving responded to the change in yield. Again, there was a difference in declines between the real rate and the cost of capital. The former declined by about 1½ percentage points, whereas the latter declined only by 0.7 percentage point, suggesting that portfolio shifts contributed about 0.8 percentage point to decreases in real bond yields. Quantitative easing (in the form of long-term asset purchases), by compressing the term premium on long-term government bonds, may explain part of the observed portfolio shift.[45] Moreover, high elasticity of real rates to investment shifts (that is, of about 1.5) implies that real rates would have declined considerably more (that is, by about 3 percentage points) in the absence of the zero lower bound on nominal interest rates.[46] Unconventional monetary policy in the advanced economies has only mitigated the effects of the zero lower bound, suggesting that *natural* real rates likely are negative now.

Should an increase in real rates be expected in the medium term? Answering this question requires some conjecture about the future evolution of the main determinants of the real rates since 2000:

- Investment shifts: The evidence on the effect of severe financial crises suggests that a full reversal of the downward investment shift in advanced economies is unlikely. In emerging market economies, growth is expected to be about 1 percentage point a year less than that in the first decade of the 2000s. Such a deceleration would reduce machinery and equipment investment in the medium term. In the case of China, the reduction would be amplified by the rebalancing of growth away from investment and toward consumption.
- Saving shifts: The empirical evidence suggests that the lower projected growth would lead to a medium-term negative shift in emerging market economy saving rates of about 3.5 percentage points.[47] Such a reduction would be significantly smaller in absolute terms than the upward shift during the first decade of the 2000s. In advanced economies, the effect of high

[44]It is possible that looser fiscal policy in advanced economies moderated the real-rate decline.

[45]An *upper-bound* estimate of the cumulated effect of quantitative easing between 2009 and 2012 in the United States and United Kingdom on the term premium of ten-year government bonds is 80 basis points (D'Amico and others, 2012; Joyce and others, 2011). Since the fixed-income market in those countries is about the same size as the equity market, the impact of quantitative easing would be at most 40 basis points on both the U.S. and U.K. cost of capital. Because these countries contribute to the global cost of capital by no more than half, the contribution of unconventional monetary policy to portfolio shifts was 0.2 at most.

[46]A 1 percentage point shift in investment is estimated in this analysis to reduce the real interest rate (the cost of capital) by about 1.5 percentage points (see Appendix 3.5). This estimate implies that the investment shift that took place (of about 2 percentage points) may have reduced the equilibrium real rate by about 3 percentage points.

[47]Simulations based on the IMF's Global Integrated Monetary and Fiscal model suggest that the impact of a 3.5 percentage point reduction in emerging market economy saving rates on the global real rate is between 0.25 and 1.25 percentage points in the long term.

stocks of public debt on real rates would probably be more than offset by projected improvements in those economies' fiscal positions.[48]

- Portfolio shifts: To the extent that the high demand for safe assets continues in the medium term—as a result of strengthened financial regulation—a reversal of the portfolio shift out of equities is unlikely to occur.[49]
- Monetary policy: While output is below potential in advanced economies, monetary policy will probably not contribute to increasing real rates.[50] In the medium term, once output gaps are closed, monetary policy is expected to be neutral.

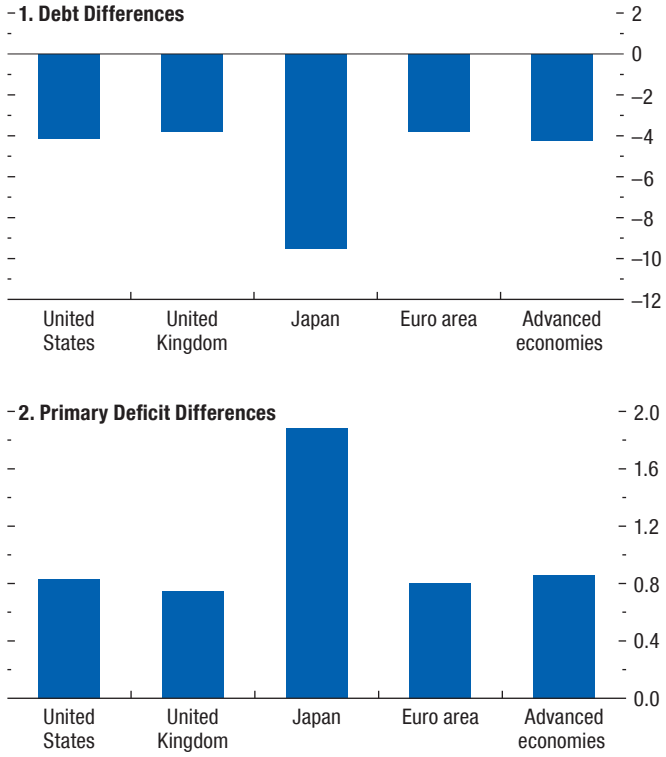
In summary, although real interest rates are likely to increase in the medium term, there are no compelling reasons to believe that rates will return to the levels of the early 2000s.

Implications of Persistent Low Real Interest Rates for Debt Sustainability

Given the high levels of public debt in advanced economies, even small differences in real interest rates during the coming decades will have major implications for fiscal policy. For a given level of economic activity, if interest rates are higher than expected, current fiscal consolidation targets may not be sufficient to ensure debt sustainability. If they are lower, the debt decline could be faster.

The results presented in Figure 3.15 show that if real rates were to remain, for example, about 1.5 percent, which is about 1 percentage point lower than the October 2013 WEO projection, all else equal, this would reduce the advanced economy debt-to-GDP ratio five years ahead by about 4 percentage points. The impact would be larger for countries with higher initial stocks of debt (notably Japan). To achieve the same reduction in the debt path with fiscal policy, the primary-surplus-to-GDP ratio would have to be higher by about 0.8 percentage point a year.[51]

Figure 3.15. Implications of Lower Real Interest Rates for Debt Sustainability
(Percent of GDP)



Sources: Bloomberg, L.P.; Organization for Economic Cooperation and Development; and IMF staff calculations.
Note: Panel 1 shows the differences in the five-year-ahead debt-to-GDP ratio implied by lower real rates. Panel 2 shows the increase in the primary deficit that would need to be sustained each year from 2014 to 2018 to reach the same debt-to-GDP ratio, under the same lower real rates as in panel 1.

Summary and Policy Conclusions

Movements in domestic real interest rates have a major common, global component. Therefore, examining shifts in the global supply of and demand for funds is necessary to understand the behavior of interest rates within any region.

[48]The projected evolution of the fiscal index derived in the previous section suggests that fiscal policy in advanced economies may contribute to maintaining low real rates in the medium term. In particular, the fiscal index is projected to decline from about 1.3 in 2013 to about 1.1 in 2018.

[49]Withdrawal from quantitative easing may induce a modest reversal of the portfolio shifts observed between 2008 and 2013 by raising real term premiums to precrisis levels.

[50]To the extent that the zero lower bound constrains the reduction of nominal rates and thus prevents real rates from being reduced as desired, actual real rates are likely to be higher than the *natural* rate. The monetary policy stance is thus involuntarily tight—although unconventional monetary policy can partly mitigate this problem. Once the recovery is sufficiently strong, the natural rate will start rising. Monetary policy, however, is expected to be accommodative until output gaps are closed, by keeping policy rates below the natural level.

[51]These figures are illustrative examples. They do not take into account all the details (for example, the maturity structure of debt) needed for a precise calculation. In addition, the exercise assumes that GDP growth is the same in the two scenarios.

Global real interest rates have declined substantially since the 1980s. The cost of capital has fallen to a lesser extent, because the return on equity has increased since 2000. Since the early 2000s, three factors have contributed to the declines in real rates and in the cost of capital:

- Saving shifts: The substantial increase in saving in emerging market economies, especially China, in the middle of the first decade of the 2000s contributed to a modest decline in the cost of capital. High income growth in emerging market economies during this period seems to have been the most important factor behind the saving shift.
- Portfolio shifts: About half of the reduction in real rates in the first decade of the 2000s can be attributed to an increase in the *relative* demand for bonds, which, in turn, reflected an increase in the riskiness of equity and the resulting higher demand for safe assets among emerging market economies to increase official foreign reserves accumulation.[52] In the aftermath of the global financial crisis, these factors, though more moderate, have continued to contribute to the decline in real rates.
- Investment shifts: The postcrisis reduction in the cost of capital has been driven mainly by a collapse in the demand for funds for investment in advanced economies.

The evidence presented here does not suggest a quick recovery in the investment-to-output ratio for advanced economies in the medium term. The monetary policy stance is expected to be neutral in the medium term once output gaps are closed. A full reversal of the portfolio shift favoring bonds observed in the 2000s is unlikely: although a reduction in surplus emerging market economy saving, and thus in the pace of official reserves accumulation, might reduce the demand for safe assets, strengthened financial regulation will have the opposite effect. The net effect on real interest rates is likely to be small, unless there is a major unexpected change in policies. In advanced economies the effect of high stocks of public debt on real rates is likely to be more than offset by the projected improvements in fiscal balances. The projected reduction in GDP growth in emerging market economies would probably reduce their net saving rate—and this could be amplified by the rebalancing of growth away from investment in China.[53] In summary, it is likely that real interest rates will rise, but no compelling reasons suggest a return to the average level observed during the mid-2000s (that is, about 2 percent). Within this global picture, however, there may be some countries that will see higher real rates because of higher sovereign risk premiums. The conclusions here apply to the risk-free rate.

A protracted period of low real interest rates would have negative implications for pension funds and insurance companies with defined-benefit obligations. An environment of continued low real (and nominal) interest rates might also induce investors and financial institutions more broadly to search for higher real (and nominal) yields by taking on more risk. Increased risk taking, in turn, might increase systemic financial sector risks, and appropriate macro- and microprudential oversight would therefore be critical for maintaining financial stability.

If real interest rates were to be lower than currently projected in the WEO, achieving fiscal sustainability would be somewhat easier. For example, with real interest rates 1 percentage point lower than projected, the average medium-term debt-to-GDP ratio in advanced economies would be about 4 percentage points lower. Moreover, if real rates are expected to be close to or below the real GDP growth rate for some time, some increases in debt-financed government spending, especially public investment, may not lead to increases in public debt in the medium term.

Lower natural real rates also have important implications for monetary policy. For example, with an inflation target of 2 percent, if the equilibrium real interest rate is substantially less than 2 percent as anticipated, the typical neutral policy rate would be significantly less than 4 percent.[54] A lower natural rate does not reduce the effectiveness of monetary policy during normal times. However, for a given inflation target, it raises the probability that nominal interest rates will hit the zero lower bound. The higher risk of potential monetary policy ineffectiveness in times of recessions, in turn, may be an important consideration in the choice of an appropriate monetary policy framework.

[52]Higher demand for safe assets was only partly satisfied by the deterioration in advanced economies' public finances. The 2000s also saw a vast expansion in holdings of government-guaranteed debt, in particular, mortgage-backed securities. The securitization boom preceding the global financial crisis can be seen as a market response to higher demand for safe assets.

[53]The effect would be reduced by a composition effect. The countries with the highest GDP growth rates are the ones with the highest saving rates. Their rapid growth would continue to raise the global saving rate even if their own rate were to decline slightly.

[54]In the United States, the average policy rate between 1990 and 2007 was 4.4 percent.

Appendix 3.1. Model-Based Inflation and Dividend Growth Expectations

This appendix describes the empirical methodology used to construct real interest rates and real returns on equity for an unbalanced sample of 25 advanced economies and 15 emerging market economies from 1970 through 2013.

Real Interest Rates

Real rates can be approximated by computing the difference between the nominal bond yield and the relevant inflation expectations. Survey information and forecasts from an estimated autoregressive process for inflation are used to obtain inflation expectations (model-based inflation expectations).

In particular, model-based inflation expectations over any horizon j are estimated using a monthly autoregressive process $AR(p)$ for the variable $\gamma_t = \ln P_t - \ln P_{t-12}$, in which P is the consumer price index and $p = 12$ is the order of the process. The $AR(p)$ process is estimated on a rolling window of 60 months to minimize the effect of parameter instability. Using out-of-sample forecasts of γ_t, $E_t \ln P_{t+j} - \ln P_t$, which is the inflation expectation at time t for the period $t + j$, is calculated.[55]

Real rates are then constructed as

$$r_t^{[n]} = i_t^{[n]} - \frac{(1-g)}{(1-g^n)} \Sigma_{i=1}^{n} g^i E_t \pi_{t,t+i}, \tag{3.3}$$

with $g = (1 + \bar{I})^{-i}$, in which $r_t^{[n]}$ and $i_t^{[n]}$ are the real and nominal rates, respectively, on a bond of maturity n; $E_t\pi_{t,t+i}$ is the inflation expectation at time t for period $t + i$; and $\bar{I}$ is the average nominal rate for the period examined. In sum, the real rate is defined as the nominal rate minus the weighted average inflation expectation over the entire life of the bond.

Real Returns on Equity

The real required internal rate of return on equity in period t for horizon n is estimated as

$$S_t/D_t = \Sigma_{j=0}^{n} (1 + R_{e,t}^{[n]})^{-j} E_t g_{t,t+1+j}, \tag{3.4}$$

in which S is an equity price index and $g_{t,t+j} = D_{t+j}/D_t$ is cumulated dividend growth, consistent with the equity index chosen. Stated roughly, the expected return on equity ($R_{e,t}^{[n]}$) is equal to the dividend yield plus the expected long-term growth rate of real dividends. Expected dividend growth rates are constructed by estimating a quarterly bivariate VAR(p) of dividend and GDP growth, with $p = 4$. The VAR(p) process is estimated on a rolling window of 60 months to minimize the effect of parameter instability.

[55]This methodology produces smaller forecast errors, and matches survey expectations better, than an autoregressive process with consumer price index log differences over the previous month, a vector autoregression (VAR) with commodity prices, and a VAR with GDP growth.

Appendix 3.2. Investment Profitability

One possible explanation for the decrease in investment-to-GDP ratios in many advanced economies is that investment profitability has declined. Various factors can explain shifts in investment profitability (including changes in business taxation, factor prices, productivity, and uncertainty), and quantifying them is difficult. As an alternative, the analysis assesses whether the reduction in the investment-to-GDP ratio can be attributed to the unexpected strengthening of GDP or instead to an anticipated decline in profitability. To discriminate between these two factors, following Blanchard and Summers (1984), the following regression is estimated for each country in the sample:

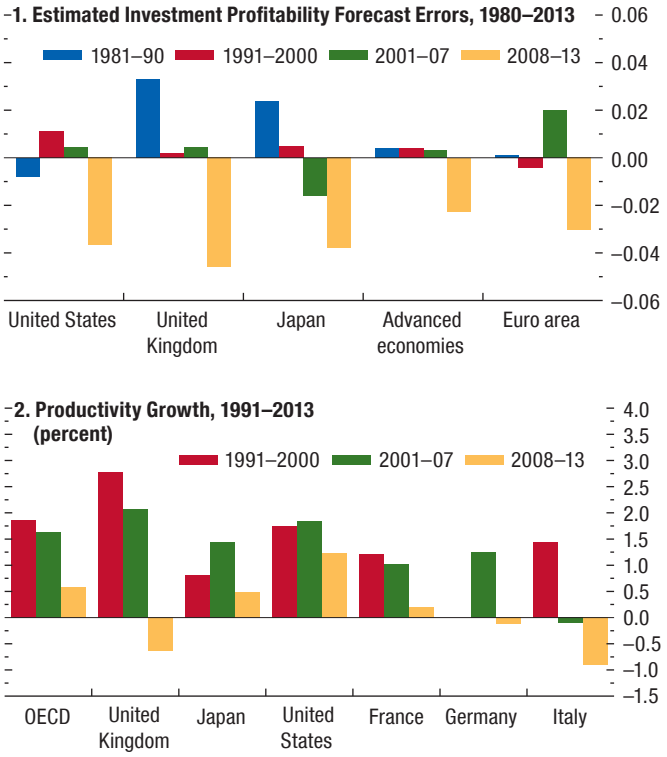
$$\ln I_t = \alpha + \Sigma_{i=0}^{2} \beta_i \ln Y_{t-i} + u_t, \tag{3.5}$$

in which

$$u_t = \rho u_{t-1} + \varepsilon_t, \tag{3.6}$$

with I denoting real private investment and Y real GDP. Under the hypothesis that there has been a negative shift in expected profitability, investment should have declined more than predicted by the evolution in output, thus implying a negative forecast error $\hat{\varepsilon}_t$. Panel 1 of Figure 3.16 presents the aggregated forecast errors for advanced economies. The figure suggests that the hypothesis that a decline in investment profitability has contributed to the decline in real interest rates does not find empirical support up to the global financial crisis, after which it becomes a key factor. A similar conclusion can be reached by looking at the evolution of total factor productivity (Figure 3.16, panel 2).

Figure 3.16. Investment Shifts in Advanced Economies



Sources: Haver Analytics; Organization for Economic Cooperation and Development (OECD); World Bank, World Development Indicators database; and IMF staff calculations.
Note: Investment profitability is computed as described in the appendix text.

Appendix 3.3. Fiscal Indicator

This appendix describes the framework for assessing the impact of debt on total saving and real interest rates. As noted in the chapter text, measuring the impact of fiscal policy on real rates requires looking not only at current and future anticipated deficits, but also at the level of the stock of public debt. Following Blanchard and Summers (1984) and Blanchard (1985), a fiscal index is derived.

In a standard life cycle model, consumption is related to wealth. Formally, this can be formulated as

$$C = \omega[K + B + \pi(W - T; r + p)], \quad (3.7)$$

in which C denotes consumption, $K + B$ financial wealth, ω the marginal propensity to consume out of wealth, and $\pi(W - T; r + p)$ the present value of after-tax labor income discounted at rate $r + p$. The term r is the real interest rate, and p is a myopia coefficient, reflecting the mortality of current consumers or their myopia about the future. Focusing on the share of aggregate demand (X) that depends directly on fiscal policy and subtracting the present value of government spending yields

$$X = \omega[B + \pi(D; r + p)] + [G - \omega\pi(G; r + p)], \quad (3.8)$$

in which G is government spending, and D denotes primary deficits. The first term of equation (3.8) represents the effect of debt and government finance on demand; the second term represents the effect of government spending financed by current taxes.

If consumers are not myopic ($p = 0$), the first term of equation (3.8) is equal to zero, because consumers fully anticipate the fiscal implications of the government's budget constraint: if consumers discount future taxes at the interest rate, the timing of a change in taxes does not affect their level of spending (Ricardian equivalence). If consumers are myopic, however, the first term is positive, because they do not fully anticipate that taxes will go up to finance higher interest payments on the stock of public debt.

To construct an empirical counterpart of X, given the more limited reliability of forecasts for G, the focus is on the first term of equation (3.8). Dividing each term of equation (3.8) by GDP and focusing on the first term of the equation, equation (3.8) can be rewritten as

$$x = \omega[b + \pi(d; r + p - g)], \quad (3.9)$$

in which lowercase letters indicate shares of GDP, and g is the rate of GDP growth. Assuming a value for ω equal to 0.1, and a value of $r + p - g$ equal to 10 percent a year,[56] the empirical index is determined as

$$x_t = 0.1[b_t + \Sigma_{i=0}^{\infty}(1.1)^{-i} pd_{t,t+i}], \quad (3.10)$$

in which b_t is the stock of public debt at time t, and $pd_{t,t+i}$ is the forecast of primary deficits at time t for the period $t + i$. In particular, anticipated deficits are constructed using WEO forecasts. These forecasts are available beginning only in 1990, and they should, in principle, incorporate changes in current policies, as well as forecasts of output growth and the evolution of debt and interest payments over time. However, because the forecasts are available only for a time horizon of five years, the ratio of deficits to GDP for year

[56]The value is chosen as in Blanchard and Summers (1984) and is based on Hayashi's (1982) estimates. Although choosing a different value would affect the level of the index, it would not affect its evolution, which is the main interest in this analysis.

$t + i > 5$ is assumed to be equal to the ratio forecast for year $t + 5$.

Appendix 3.4. The Effect of Financial Crises on Investment and Saving

This appendix describes the statistical technique used to assess the impact of financial crises on investment and saving as shares of GDP. The statistical method follows the approach proposed by Jordà (2005) to estimate robust impulse response functions. This approach has been advocated by, among others, Stock and Watson (2007) and Auerbach and Gorodnichenko (2013) as a flexible alternative that does not impose dynamic restrictions embedded in vector autoregression (autoregressive distributed lag) specifications. The model is particularly suitable when the dependent variable is highly persistent, as in the analysis in this chapter.

More formally, the following econometric specification is estimated:

$$y_{i,t+k} - y_{i,t-1} = \alpha_i^k + \gamma_t^k + \Sigma_{j=2}^{l} \gamma_j^k \Delta y_{i,t-j} + \beta_k D_{i,t} + \varepsilon_{i,t}^k, \quad (3.11)$$

in which y denotes the investment- (saving-)to-GDP ratio, D is a dummy that takes the value one for the starting date of the occurrence of the crisis and zero otherwise, and α_i and γ_t are country and time fixed effects, respectively.

The sample consists of an unbalanced panel of 35 advanced economies from 1970 through 2007. Crisis episodes are taken from Laeven and Valencia (2012). Two sets of crisis episodes are of particular interest: (1) the entire sample of financial crisis episodes in advanced economies (1970–2007) and (2) the "Big 5" financial crises (Spain, 1977; Norway, 1987; Finland, 1991; Sweden, 1991; and Japan, 1992) identified by Reinhart and Rogoff (2008) as the most comparable in severity to the recent one.

The model is estimated for each $k = 0, \ldots, 10$. 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 number of lags (l) has been tested, and the results suggest that inclusion of two lags produces the best specification. Corrections for heteroscedasticity, when appropriate, are applied using robust standard errors; the problem of autocorrelation is solved using the two lags of the change in the investment- (saving-)to-GDP ratio as control variables.[57] Although the presence of a lagged dependent variable and country fixed effects may, in principle, bias the estimation of γ_j^k and β_k in small samples (Nickell, 1981), the length of the time dimension mitigates this concern.[58] In theory, another potential concern could be reverse causality, because changes in the investment- (saving-)to-GDP ratio may affect the probability of occurrence of financial crises. However, this empirical strategy addresses the issue by estimating changes in the investment- (saving-)to-GDP ratio in the years that *follow* a crisis.[59]

Appendix 3.5. Sensitivity of Saving and Investment to Real Rates

This appendix presents a framework for assessing the sensitivity of global saving and investment to the real interest rate. The demand for funds (that is, the elasticity of investment to the real rate) is identified using changes in safety nets (proxied by social expenditure) that give rise to exogenous shifts in the supply of funds (saving); the supply of funds is identified using changes in the relative price of investment, which shifts the demand for funds.

In particular, the following system of equations is estimated on annual data from 1980 through 2013:

$$s_t = a_0 + a_1 r_t + a_2 n_t + \epsilon_t, \quad (3.12)$$

$$i_t = b_0 + b_1 r_t + b_2 p_t + \varepsilon_t, \quad (3.13)$$

$$s_t = i_t, \quad (3.14)$$

in which s denotes global saving as a percent of GDP, i is global investment as a percent of GDP, n is advanced economy social expenditure as a percent of GDP, and p is the advanced economy relative price of investment.

The inclusion of the variables n and p allows the exercise to identify the coefficients of the structural equations (3.12 and 3.13) from a linear combination of the reduced-form coefficients. In particular, the estimates of reduced-form coefficients presented in Table 3.3 give an elasticity of investment to the real rate of

[57]Tests for autocorrelation of the residuals have been performed and have rejected the hypothesis of serial correlation.

[58]The finite sample bias is on the order of $1/T$, where T in the sample is 38.

[59]In addition, robustness checks for endogeneity confirm the validity of the results.

Table 3.3. Investment (Saving) and the Real Interest Rate, Reduced-Form Equations

	Investment (Saving) Equation	Real Interest Rate Equation
Safety Nets	–0.553***	0.106***
	(0.016)	(0.042)
Relative Price of Investment	3.334***	21.369***
	(1.121)	(2.978)
R Squared	0.400	0.660

Source: IMF staff calculations.
Note: Robust standard errors are in parentheses. *** denotes significance at the 1 percent level.

about –0.5, and an elasticity of saving to the real rate of about 0.15.[60] This also implies that the impact of exogenous shifts in saving and investment on the real rate can be quantified as $\Delta r = 1.5(\textit{Saving shifts} - \textit{Investment shifts})$.

Appendix 3.6. Saving and Growth with Consumption Habit

This appendix derives a simple closed-form solution for both consumption and the saving rate in a rational-expectations permanent income model.

Assume households in each period t enjoy a utility flow from $u(c_t^*)$ in which $c_t^* = c_t - \gamma c_{t-1}$ and the utility function is quadratic. The role of habit formation is captured by the parameter γ; when $\gamma = 0$, there is no habit. Denote household income as y_t and financial wealth as A_{t-1}. Households discount the future at a rate r, which is also the return on wealth. Saving is defined as $S_t = rA_{t-1} + y_t - c_t$. It is then possible to derive the following relationship (Alessie and Lusardi, 1997):

$$S_t = \gamma S_{t+1} + \Delta y_t - \left[1 - \frac{\gamma}{1+r}\right] E_t \Sigma_{j=0}^{\infty} (1+r)^{-j} \Delta y_{t+j}. \tag{3.15}$$

Dividing both sides of equation (3.15) by y_t, we get

$$s_t(1+g_t) = \gamma s_{t-1} + g_t - \left[1 - \frac{\gamma}{1+r}\right] \times E_t \Sigma_{j=0}^{\infty} (1+r)^{-j} \Delta y_{t+j}/y_{t-1}, \tag{3.16}$$

in which $s_t = S_t/y_t$ and $g_t = \Delta y_t/y_{t-1}$. When g_t is sufficiently small, equation (3.16) can be approximated as

$$s_t \cong \text{const} + \gamma s_{t-1} + g_t - \left[1 - \frac{\gamma}{1+r}\right] E_t \Sigma_{j=0}^{\infty} (1+r)^{-j} g_{t+j}. \tag{3.17}$$

Assume that output growth follows a stochastic process $E_t g_{t+j} = \rho^j g_t$, with $|\rho| < 1$; then equation (3.17) can be written as

$$s_t \cong \text{const} + \gamma s_{t-1} + \frac{\gamma - \rho}{1 + r - \rho} g_t. \tag{3.18}$$

If the habit parameter is higher than the persistence parameter of the growth process, an increase in GDP growth leads to a rise in the saving rate.

Appendix 3.7. Sample of Countries Used in Tables and Figures

This appendix describes the sample used to estimate global real interest rates, global investment, global saving, the standard deviation of the real interest rates, and the financial integration indicator. In general, the sample was chosen based on the availability of the data. The coverage period and the full list of countries used to estimate short- and long-term global real interest rates, global nominal investment, and the nominal saving-to-GDP ratio are presented in Table 3.4. The countries in the samples used for some specific figures are also presented in the following paragraphs.

Figure 3.3, panel 1, uses a balanced sample of countries for which real interest rates are available since 1970. The global short-term real rate includes data for Australia, Austria, Belgium, Canada, Finland, France, Germany, Greece, Japan, Luxembourg, the Netherlands, Norway, Portugal, South Africa, Spain, Sweden, the United Kingdom, and the United States. The global long-term real rate includes data for Australia, Austria, Belgium, Canada, Finland, France, Germany, Greece, Italy, Japan, the Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland, the

[60]The estimated elasticity of investment to the real rate is similar to that found in previous studies. For example, Gilchrist and Zakrajsek (2007), using a panel of 926 publicly traded U.S. nonfarm firms from 1973 to 2005, find that a 1 percentage point increase in the cost of capital implies a reduction in the rate of investment of ½ percentage point.

Table 3.4. Data Coverage for Global Interest Rates, Investment, and Saving

Country	Period			
	Short-Term Interest Rate	Long-Term Interest Rate	Investment	Saving
Albania	n.a.	n.a.	1960–2013	1960–2013
Algeria	n.a.	n.a.	1963–2013	1966–2013
Angola	n.a.	n.a.	1980–2013	1970–2013
Antigua and Barbuda	n.a.	n.a.	1977–2013	1977–2013
Argentina	2000–13	2003–13	1960–2013	1967–2013
Australia	1968–2013	1967–2013	1960–2013	1960–2013
Austria	1967–2013	1967–2013	1960–2013	1965–2013
The Bahamas	n.a.	n.a.	1962–2013	1968–2013
Bahrain	n.a.	n.a.	1969–2013	1969–2013
Bangladesh	n.a.	n.a.	1963–2013	1968–2013
Barbados	n.a.	n.a.	1965–2013	1967–2013
Belgium	1967–2013	1967–2013	1960–2013	1980–2013
Belize	n.a.	n.a.	1963–2013	1968–2013
Benin	n.a.	n.a.	1969–2013	1969–2013
Bhutan	n.a.	n.a.	1979–2013	1980–2013
Bolivia	n.a.	n.a.	1970–2013	1967–2013
Botswana	n.a.	n.a.	1963–2013	1968–2013
Brazil	2001–13	2001–13	1963–2013	1967–2013
Bulgaria	n.a.	n.a.	1969–2013	1969–2013
Burkina Faso	n.a.	n.a.	1963–2013	1968–2013
Burundi	n.a.	n.a.	1960–2013	1968–2013
Cabo Verde	n.a.	n.a.	1963–2013	n.a.
Cameroon	n.a.	n.a.	1963–2013	1963–2013
Canada	1967–2013	1967–2013	1960–2013	1960–2013
Central African Republic	n.a.	n.a.	1969–2013	1969–2013
Chad	n.a.	n.a.	1969–2013	n.a.
Chile	1990–2012	2004–13	1960–2013	1960–2013
China	1991–2013	2002–13	1963–2013	1968–2013
Colombia	n.a.	2009–12	1960–2013	1968–2013
Comoros	n.a.	n.a.	1969–2013	1969–2013
Democratic Rep. of the Congo	n.a.	n.a.	1960–2013	1978–2013
Republic of Congo	n.a.	n.a.	1963–2013	1968–2013
Costa Rica	n.a.	n.a.	1960–2013	1967–2013
Côte d'Ivoire	n.a.	n.a.	1963–2013	1968–2013
Cuba	n.a.	n.a.	1970–2010	n.a.
Cyprus	n.a.	n.a.	1963–2013	1967–2013
Czech Republic	1998–2013	2000–13	n.a.	n.a.
Denmark	1974–2013	1974–2013	1966–2013	1969–2013
Dominica	n.a.	n.a.	1963–2013	1968–2013
Dominican Republic	n.a.	n.a.	1960–2013	1967–2013
Ecuador	n.a.	n.a.	1965–2013	1976–2013
Egypt	n.a.	n.a.	1963–2013	1967–2013
Equatorial Guinea	n.a.	n.a.	1969–2013	n.a.
Estonia	1999–2012	n.a.	n.a.	n.a.
Ethiopia	n.a.	n.a.	1963–2013	1967–2013
Fiji	n.a.	n.a.	1963–2013	1979–2008
Finland	1970–2013	1967–2013	1960–2013	1969–2013
France	1970–2013	1967–2013	1960–2013	1965–2013
Gabon	n.a.	n.a.	1963–2013	1968–2013
The Gambia	n.a.	n.a.	1963–2013	1968–2013
Germany	1967–2013	1967–2013	1960–2013	1960–2013
Ghana	n.a.	n.a.	1963–2013	1967–2013
Greece	1967–2013	1967–2013	1960–2013	1960–2013
Grenada	n.a.	n.a.	1977–2013	1980–2013
Guatemala	n.a.	n.a.	1960–2013	1967–2013
Guinea	n.a.	n.a.	1969–2013	1969–2013
Guinea-Bissau	n.a.	n.a.	1979–2013	n.a.
Guyana	n.a.	n.a.	1960–2013	1967–2013
Haiti	n.a.	n.a.	1963–2013	n.a.
Honduras	n.a.	n.a.	1963–2013	1967–2013

Table 3.4. Data Coverage for Global Interest Rates, Investment, and Saving *(continued)*

Country	Period			
	Short-Term Interest Rate	Long-Term Interest Rate	Investment	Saving
Hong Kong SAR	1987–2013	1991–2013	1961–2013	1961–2013
Hungary	1988–2013	1999–2013	1960–2013	1968–2013
Iceland	1983–2013	1983–2013	1960–2013	1960–2013
India	1996–2012	1990–2013	1960–2013	1967–2013
Indonesia	1990–2013	2003–13	1963–2013	1967–2013
Iran	n.a.	n.a.	1963–2013	1963–2013
Ireland	1983–2013	1982–2013	1960–2013	1960–2013
Israel	1992–2013	1997–2013	1963–2013	1963–2013
Italy	1971–2013	1967–2013	1960–2013	1965–2013
Jamaica	n.a.	n.a.	1963–2013	1967–2013
Japan	1967–2013	1967–2013	1960–2013	1960–2013
Jordan	n.a.	n.a.	1963–2013	n.a.
Kenya	n.a.	n.a.	1963–2013	1963–2013
Kiribati	n.a.	n.a.	1977–1992	1979–1992
Korea	1980–2013	1982–2013	1960–2013	1965–2013
Kuwait	n.a.	n.a.	1963–2013	n.a.
Latvia	n.a.	n.a.	1980–2013	n.a.
Lebanon	n.a.	n.a.	1963–2013	1967–2013
Lesotho	n.a.	n.a.	1963–2013	1968–2013
Libya	n.a.	n.a.	1976–2013	1969–2013
Luxembourg	1967–2013	1985–2013	1960–2013	1970–2013
Madagascar	n.a.	n.a.	1963–2013	1968–2013
Malawi	n.a.	n.a.	1963–2013	1967–2013
Malaysia	1976–2013	1992–2013	1960–2013	1966–2013
Maldives	n.a.	n.a.	1980–2013	1968–2013
Mali	n.a.	n.a.	1967–2013	1969–2013
Malta	n.a.	n.a.	1970–2013	1971–2013
Mauritania	n.a.	n.a.	1960–2013	n.a.
Mauritius	n.a.	n.a.	1963–2013	1967–2013
Mexico	1978–2013	2002–13	1960–2013	1967–2013
Mongolia	n.a.	n.a.	1969–2013	1969–2013
Morocco	n.a.	n.a.	1963–2013	1968–2013
Mozambique	n.a.	n.a.	1963–2013	1968–2013
Myanmar	n.a.	n.a.	1960–2013	n.a.
Namibia	n.a.	n.a.	1980–2013	n.a.
Nepal	n.a.	n.a.	1963–2013	1968–2013
Netherlands	1967–2013	1967–2013	1960–2013	1970–2013
New Zealand	1974–2013	1967–2013	1960–2013	1969–2013
Nicaragua	n.a.	n.a.	1960–2013	1969–2013
Niger	n.a.	n.a.	1963–2013	1963–2013
Nigeria	n.a.	n.a.	1963–2013	n.a.
Norway	1970–2013	1967–2013	1960–2013	1969–2013
Oman	n.a.	n.a.	1967–2013	1969–2013
Pakistan	1991–2013	2002–12	1960–2013	1967–2013
Panama	n.a.	n.a.	1963–2013	1967–2013
Papua New Guinea	n.a.	n.a.	1960–2013	1968–2013
Paraguay	n.a.	n.a.	1963–2013	1967–2013
Peru	n.a.	2007–12	1960–2013	1968–2013
Philippines	1976–2013	1998–2013	1960–2013	1968–2013
Poland	n.a.	n.a.	n.a.	1963–2013
Portugal	1967–2013	1967–2013	1960–2013	1969–2013
Puerto Rico	n.a.	n.a.	1960–2011	n.a.
Qatar	n.a.	n.a.	1963–2013	1968–2013
Romania	1997–2013	2011–12	1963–2013	1979–2013
Rwanda	n.a.	n.a.	1963–2013	n.a.
St. Kitts and Nevis	n.a.	n.a.	1963–2013	n.a.
St. Lucia	n.a.	n.a.	1963–2013	1968–2013
St. Vincent and the Grenadines	n.a.	n.a.	1963–2013	1968–2013
Saudi Arabia	n.a.	n.a.	1963–2013	1967–2013
Senegal	n.a.	n.a.	1963–2013	1968–2013

Table 3.4. Data Coverage for Global Interest Rates, Investment, and Saving *(continued)*

Country	Period			
	Short-Term Interest Rate	Long-Term Interest Rate	Investment	Saving
Seychelles	n.a.	n.a.	1976–2013	1969–2013
Sierra Leone	n.a.	n.a.	1963–2013	1967–2013
Singapore	1981–2013	1986–2013	1965–2013	1965–2013
Solomon Islands	n.a.	n.a.	1963–2013	1968–2013
South Africa	1967–2013	1980–2013	1960–2013	1960–2013
Spain	1967–2013	1967–2013	1960–2013	1969–2013
Sri Lanka	n.a.	n.a.	1963–2013	1967–2013
Sudan	n.a.	n.a.	1976–2013	n.a.
Suriname	n.a.	n.a.	1977–2005	n.a.
Swaziland	n.a.	n.a.	1963–2013	1968–2013
Sweden	1967–2013	1967–2013	1960–2013	1960–2013
Switzerland	1974–2013	1967–2013	1965–2013	1980–2011
Syria	n.a.	n.a.	1965–2010	1969–2010
Taiwan Province of China	1983–2013	1992–2013	1963–2013	1963–2013
Tanzania	n.a.	n.a.	1963–2013	1967–2013
Thailand	1977–2013	1996–2012	1960–2013	1968–2013
Togo	n.a.	n.a.	1963–2013	1968–2013
Tonga	n.a.	n.a.	1975–2013	n.a.
Trinidad and Tobago	n.a.	n.a.	1960–2013	1967–2013
Tunisia	n.a.	n.a.	1963–2013	1968–2013
Turkey	n.a.	n.a.	1960–2013	1963–2013
Uganda	n.a.	n.a.	1963–2013	1963–2013
Ukraine	2007–13	2007–13	n.a.	n.a.
United Arab Emirates	n.a.	n.a.	1964–2013	1968–2013
United Kingdom	1967–2013	1967–2013	1960–2013	1960–2013
United States	1967–2013	1967–2013	1960–2013	1960–2013
Uruguay	n.a.	n.a.	1960–2013	1967–2013
Venezuela	n.a.	n.a.	1963–2013	1966–2013
Vietnam	n.a.	n.a.	1963–2013	1967–2013
Zambia	n.a.	n.a.	1963–2013	1967–2013
Zimbabwe	n.a.	n.a.	1960–2013	n.a.

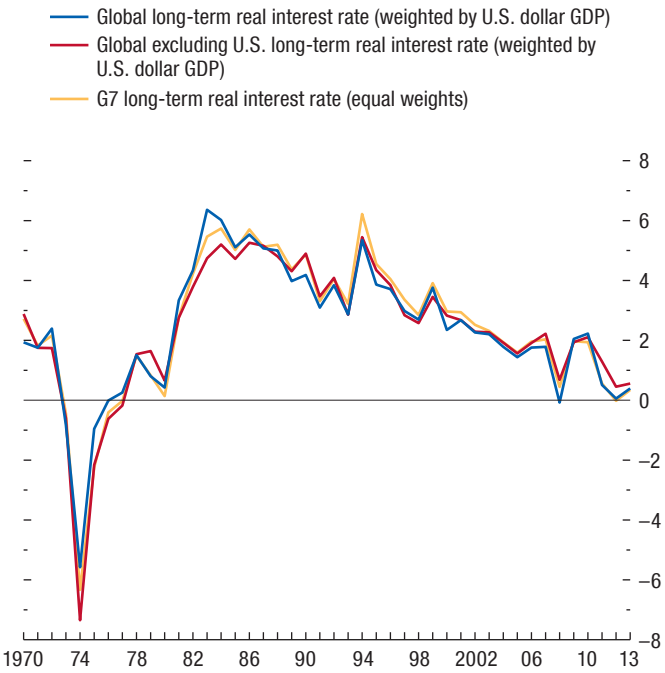
Source: IMF staff calculations.

United Kingdom, and the United States. Figure 3.3, panel 3, includes countries with data available starting in 1991. The global real interest rate includes data for Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Greece, Hong Kong SAR, Iceland, India, Ireland, Italy, Japan, Korea, Luxembourg, the Netherlands, New Zealand, Norway, Portugal, Singapore, South Africa, Spain, Sweden, Switzerland, the United Kingdom, and the United States. The global cost of capital includes data for Austria, Belgium, Canada, Denmark, France, Germany, Hong Kong SAR, the Netherlands, Spain, Switzerland, the United Kingdom, and the United States.

The principal component analysis in Figure 3.4, panel 1, includes data for Australia, Austria, Belgium, Canada, Finland, France, Italy, Japan, the Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland, the United Kingdom, and the United States. The standard deviation of the real interest rate in Figure 3.4, panel 2, employs data for the same sample as the short-term global real rate in Figure 3.3, panel 1. The financial integration in Figure 3.4, panel 2, is constructed using data for Australia, Austria, Belgium, Canada, Finland, France, Germany, Italy, Japan, the Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland, the United Kingdom, and the United States.

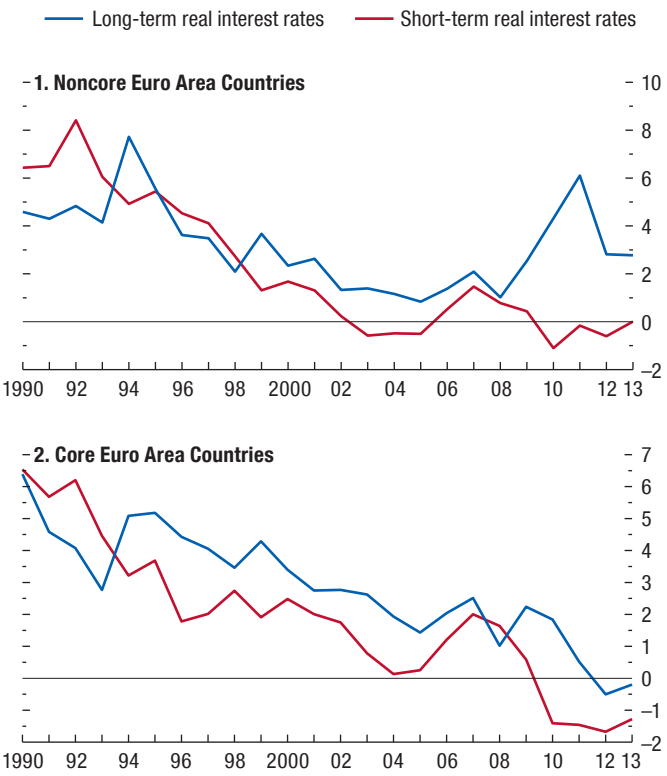
The global long-term real interest rate in Figure 3.17 is estimated using data for the same sample as in Figure 3.3, panel 1.

Figure 3.17. Global Long-Term Real Interest Rates
(Percent a year)



Sources: Bloomberg, L.P.; Haver Analytics; IMF, International Financial Statistics database; Organization for Economic Cooperation and Development; World Bank, World Development Indicators database; and IMF staff calculations.
Note: G7 comprises Canada, France, Germany, Italy, Japan, United Kingdom, and United States.

Figure 3.18. Convergence of Real Interest Rates in the Euro Area
(Percent)



Sources: Bloomberg, L.P.; Organization for Economic Cooperation and Development; and IMF staff calculations.
Note: Noncore euro area countries comprise Greece, Ireland, Italy, Portugal, and Spain.

Finally, the construction of global long-term real rates excludes those countries that have experienced a significant increase in default risk in the aftermath of the global financial crisis (that is, some noncore euro area countries), because analyzing the determinants of default risks goes beyond the scope of the chapter. It is possible to observe, in regard to the euro area, that whereas global long-term real rates have steadily declined for core euro area countries, they have recently increased for noncore euro area countries. In contrast, short-term real rates have decreased for both core and noncore countries (Figure 3.18).

Box 3.1. Saving and Economic Growth

The study of private saving behavior has long been central to economics because private national saving is the main source for the financing of investment. Within this research, the causal nexus between the saving rate and economic growth has been the subject of long-standing debate. This box argues that this issue is critical to the understanding of recent saving developments in the global economy. It presents evidence that the increased growth acceleration in emerging market economies during the early years of the 2000s contributed to the increase in their saving rates.

In principle the causality between saving and growth may run in both directions. For example, it may be reasonable to consider high saving a precondition for high growth, especially if domestic investment cannot be easily financed with foreign capital (Solow, 1956; Romer, 1986; Rebelo, 1992). In contrast, Modigliani and Brumberg (1954, 1980) predict that higher income growth causes the household saving rate to rise. The crucial assumption behind their argument is that over the life cycle, young, working generations save, whereas the old spend what they accumulated when they were young. In the presence of productivity growth, the young generation is richer than its parents were at the same age. If incomes are growing, the young will be saving on a larger scale than the old are dissaving, so that higher economic growth causes higher saving rates.

This prediction has been challenged on both theoretical and empirical grounds. Kotlikoff and Summers (1980, 1988) argue that life cycle saving (that is, saving for retirement) is only a small fraction of national saving.[1] Others argue that with more realistic demographic structures, the effects of productivity growth on aggregate saving could go either way.[2]

Recent studies of consumption behavior have revived the idea that higher growth may lead to higher medium-term saving. In the presence of consumption habits, households whose incomes rise (fall) will adjust their consumption only slowly to the new higher (lower) level—that is, the saving rate will temporarily rise (fall) (Carroll and Weil, 1994).[3]

This box revisits the saving-growth nexus from an empirical point of view, paying particular attention to the ability of growth to predict saving in the short to medium term.

First, the analysis addresses the direction of causality between saving rates and output growth in the short to medium term by looking at whether past real GDP growth and private-saving-to-GDP ratios help predict one another.[4] The results of this analysis suggest that increases in saving rates seem to predict lower (not higher) GDP growth in the short to medium term.[5] In contrast, increases in GDP growth seem to predict higher saving rates (Table 3.1.1).[6] Overall, the results imply that even though the causality between saving and growth runs in both directions, the observed positive correlation between growth and saving must be driven by the effects of changes in growth on saving rates, not the other way around.[7]

Next, the growth-saving nexus in light of recent experience in advanced economies and emerging market economies, and in Japan and China, is reviewed (Figure 3.1.1). The experiences of Japan and China are relevant because they have contributed significantly to the recent changes in saving behavior in

The authors of this box are Davide Furceri, Andrea Pescatori, and Boqun Wang.

[1]It is also possible that uncertainty about life span, health, and health costs makes older people cautious about spending their assets (Deaton, 1992).

[2]The presence of liquidity constraints or prudential saving in a life cycle model can, however, induce young generations to save even in the presence of income growth (see Kimball, 1990; Jappelli and Pagano, 1994) and may be another explanation for the positive correlation between growth and the saving rate.

[3]Technically, the introduction of consumption habits means that households want to smooth not only the level of their consumption but also its change.

[4]Technically, a Granger causality test, which is a test of predictive causality, is being performed. The specification used is the following:

$$s_{it} = \alpha_{i1} + \rho_1 s_{it-1} + \beta_1 g_{it-1} + \varepsilon_{it1},$$

$$g_{it} = \alpha_{i2} + \rho_2 g_{it-1} + \beta_2 s_{it-1} + \varepsilon_{it2},$$

in which s_t and g_t denote the five-year (nonoverlapping) averages of the private-saving-to-GDP ratio and real GDP growth, respectively. The inclusion of country fixed effects makes it possible to analyze deviations from countries' averages. The analysis is performed for an unbalanced sample of 45 advanced and emerging market economies from 1970 to 2013.

[5]The sign of the effect, however, turns positive when country fixed effects are excluded, corroborating the growth theories' prediction that higher saving rates lead to higher output (growth) in the long term.

[6]These results are in line with those obtained by Carroll and Weil (1994).

[7]Similar results are also obtained using a two-step generalized-method-of-moments system estimator.

Box 3.1 *(continued)*

Table 3.1.1. Saving and Growth: Granger Causality Tests

	Saving		Growth	
Variable	(1)	(2)	(3)	(4)
Lagged Five-Year Saving	0.534***	0.556***	–0.0748***	–0.0846***
	(0.034)	(0.033)	(0.020)	(0.020)
Lagged Five-Year Growth	0.269***	0.187**	0.0965**	0.128***
	(0.080)	(0.073)	(0.046)	(0.045)
Constant	0.0970***	0.101***	0.0317***	0.0263***
	(0.016)	(0.015)	(0.009)	(0.009)
Number of Observations	502	502	502	502
R Squared	0.902	0.899	0.432	0.333
Country Fixed Effects	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	No	Yes	No

Source: IMF staff calculations.
Note: Standard errors are in parentheses. *, **, and *** denote significance at the 10 percent, 5 percent, and 1 percent levels, respectively.

advanced economies and emerging market economies, respectively.

Beginning with emerging market economies, panel 1 of Figure 3.1.1 shows that increases (decreases) in saving rates followed increases (decreases) in growth. In China, the increase in growth early in the first decade of the 2000s was followed by an increase in the saving rate of about 12 percentage points during 2000–07 (panel 2 of the figure). Conversely, the recent growth slowdown was followed by a decline in the saving rate.

In advanced economies, the decline in the saving rate was preceded by declines in growth rates (panel 3 of the figure). This trend is particularly evident for Japan (panel 4 of the figure), where lower growth after 1990 was followed by a reduction in the saving rate of about 10 percentage points. These experiences also suggest that the effect of growth on saving has been broadly symmetric (that is, it has been present both when growth increases and when growth decreases).

The results suggest that current saving rates are well explained by lagged saving rates and real GDP growth (Table 3.1.1, columns 1 and 2). This holds not only for a panel of countries at medium-term frequencies, but also at the country level at annual frequencies (the estimated equations typically explain about 90 percent of the variation in saving rates).[8]

This model is used to assess the extent to which perfect foresight about GDP growth would help predict saving rates. To this end, the evolution of saving rates since 2001 is predicted, conditional on observed GDP growth for the same period and the initial saving-to-GDP ratio in 2000. The results, presented in Figure 3.1.2, show that the predicted values closely follow the actual evolution of the saving rate.[9] For example, in the case of China, the saving rate between 2001 and 2007 increased by about 13 percentage points. The results suggest that about 11 percentage points (that is, 85 percent) of the actual increase can be attributed to the increase in GDP growth.

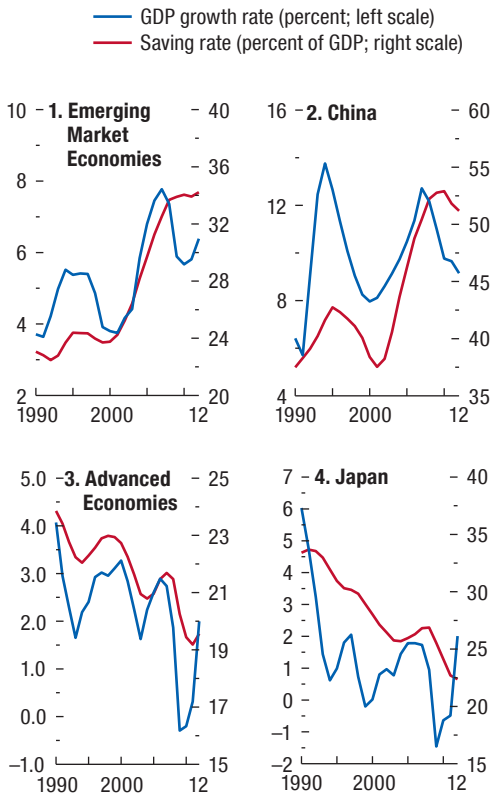
Finally, the analysis turns to some other possible determinants of saving in the short to medium term. In addition to growth, other factors may affect saving rates, including safety nets, financial constraints, and demographic structures. For example, these factors have been found to contribute to an explanation of *long-term* trends and cross-country differences in saving rates (IMF, 2013). Here, the exercise tests whether they also explain short- and medium-term movements in saving rates. For this purpose, the saving rate is regressed against its lagged value, GDP growth, and a vector of controls, including (1) the private-credit-to-GDP ratio (as a proxy for financial deepening), (2) the age-dependency ratio (defined as the ratio of the population ages 0–14 and 65 and older to the population

[8]It can be shown that this specification is equivalent to a reduced-form life cycle model with habit in which $s_t = \alpha_0 + \alpha_1 h_t^* + u_t$, and $h_t^* = \beta g_t + (1 - \beta) h_{t-1}^*$. In this equation, s_t is the saving-to-GDP ratio at time t, g_t is the growth rate of income at time t, and h_t^* is the unobservable stock of habit at time t. The reduced-form equation is then estimated using instrumental variables. See Furceri, Pescatori, and Wang (forthcoming).

[9]In particular, the average absolute ten-year-ahead forecast error of saving rates is only about 1.1 percentage points of GDP (that is, about 4½ percent of the saving-to-GDP ratio). Figure 3.1.2 presents the results only for selected countries. Similar results (available on request) are obtained for most of the countries in the sample.

Box 3.1 *(continued)*

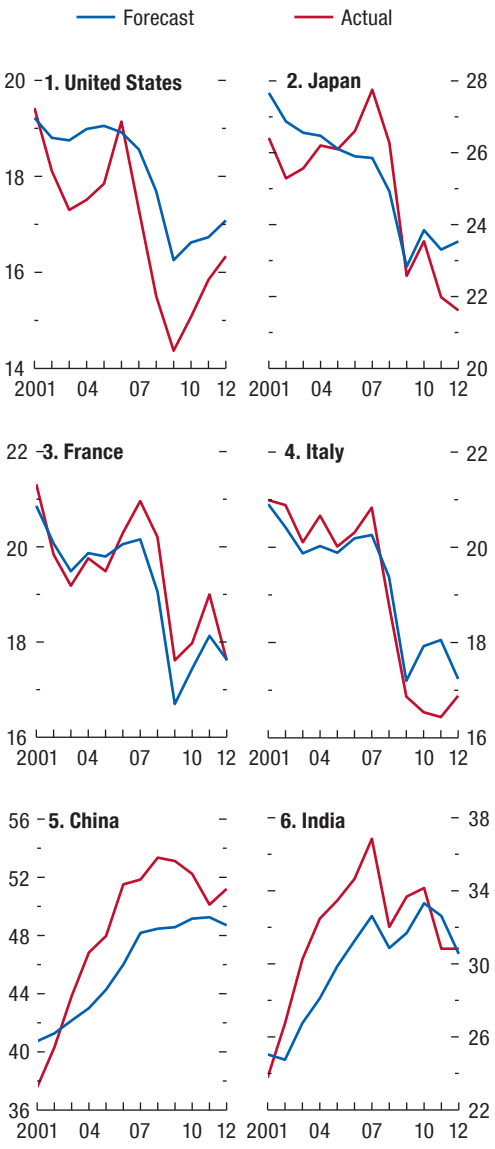
Figure 3.1.1. Saving Rate and Accelerations (Decelerations) in GDP



Sources: Haver Analytics; Organization for Economic Cooperation and Development; World Bank, World Development Indicators database; and IMF staff calculations.

Figure 3.1.2. Total Saving: Actual versus Conditional Forecasts

(Percent of GDP)



Sources: World Bank, World Development Indicators database; and IMF staff calculations.
Note: Forecast is conditional on observed GDP growth and the initial saving-to-GDP ratio observed in 2000.

in the 15- to 64-year-old age bracket), and (3) public health expenditure as a share of GDP (as a proxy for safety nets).[10]

The results show that even though the signs of the coefficients are as expected—increases in safety nets, financial deepening, and aging reduce saving—none of the control variables is statistically significant (Table

[10]In particular, the following specification is estimated:

$$S_{it} = \alpha_i + \rho_1 S_{it-1} + \beta_1 g_{it} + \delta' Z_{it} + \varepsilon_{it}.$$

Country fixed effects are included so that the effect of the explanatory variables on deviations of the saving rates from countries' averages can be analyzed.

Box 3.1 *(continued)*

Table 3.1.2. Determinants of the Evolution in Saving-to-GDP Ratios

	(1)	(2)	(3)	(4)
Lagged Saving Ratio	0.756***	0.763***	0.756***	0.756***
	(0.029)	(0.028)	(0.028)	(0.028)
GDP Growth	0.282***	0.302***	0.202*	0.203*
	(0.045)	(0.074)	(1.78)	(0.115)
Financial Deepening	–0.003	–0.005		–0.001
	(0.006)	(0.004)		(0.006)
Safety Nets	–0.161		–0.245*	–0.223
	(0.145)		(0.125)	(0.165)
Age-Dependency Ratio	–0.748			
	(2.772)			
GDP Growth × Financial Deepening		–0.001		–0.001
		(0.001)		(0.001)
GDP Growth × Safety Nets			0.003	0.002
			(0.002)	(0.002)
Average Short-Term Impact of Growth on Saving	0.282***	0.290***	0.350***	0.289***
Number of Observations	878	878	878	878
Adjusted *R* Squared	0.890	0.890	0.890	0.890

Source: IMF staff calculations.
Note: Country fixed effects are included but not reported. Clustered robust standard errors are in parentheses. The average (short-term) impact of growth on saving is computed as $\beta_1 + \vartheta\bar{Z}$, in which $\bar{Z}$ is the simple average of the control variable interacted with GDP growth. *, **, and *** denote significance at the 10 percent, 5 percent, and 1 percent levels, respectively.

3.1.2, column 1).[11] A possible explanation for this result is that these variables differ significantly across countries and they move only gradually. Therefore, whereas they are important in explaining cross-country differences in saving rates, as shown in IMF (2013), they do not seem significant in explaining short- to medium-term movements within countries.

Another way through which some of these factors (namely, financial constraints and safety nets) may affect saving rates is by strengthening the response of saving to changes in income (for example, Jappelli and Pagano, 1994; Sandri, 2010; Furceri, Pescatori, and Wang, forthcoming). To test this hypothesis, interaction terms between growth and the set of control variables are included in the previous specification.[12] The results suggest that interaction effects are not statistically significant (Table 3.1.2, columns 2–4). Moreover, the inclusion of these variables (both as controls and as interaction terms) does not improve the fit of the regression and does not significantly affect the overall impact of growth on saving.[13]

In summary, the analysis performed confirms a strong relationship between the saving rate and growth at the country level in the short to medium term. Overall, life cycle motives coupled with consumption habits (and possibly prudential saving behavior) are plausible explanations for the observed saving patterns.

[11]These results are robust to the inclusion of time fixed effects, using a two-step generalized-method-of-moments system estimator and alternative specifications of the variables, such as (1) using both old and youth age-dependency ratios; (2) using a low-order polynomial to represent 15 population brackets: 0–4, 5–9, . . . , 65–69, 70+ (Higgins, 1998); and (3) using de jure measures of financial constraints (Abiad, Detragiache, and Tressel, 2010).

[12]In particular, the following specification is estimated:

$$S_{it} = \alpha_i + \rho_1 S_{it-1} + \beta_1 g_{it} + \delta' Z_{it} + \vartheta' g_{it} Z_{it} + \varepsilon_{it}.$$

[13]When the interaction terms are included, the average impact of growth on saving is given by $\beta_1 + \vartheta\bar{Z}$.

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CHAPTER 4

ON THE RECEIVING END? EXTERNAL CONDITIONS AND EMERGING MARKET GROWTH BEFORE, DURING, AND AFTER THE GLOBAL FINANCIAL CRISIS

This chapter finds that external factors induce significant fluctuations in emerging market economies' growth, explaining about half the variance in their growth rates. Higher growth in advanced economies benefits emerging markets even though it is accompanied by higher global interest rates. A tighter external financing environment, stemming from a higher risk premium on emerging markets' sovereign debt, reduces their growth. The payoffs from positive demand shocks are greater for economies that have strong trade ties with advanced economies and lesser for economies that are financially open. Adverse external financing shocks hit economies that are financially open, as well as those with limited policy space. China itself has become a key external factor for other emerging markets in the past 15 years—its strong growth provided a buffer during the global financial crisis. China's recent slowdown has, however, weighed on emerging markets' growth. Despite the importance of external factors, how much emerging markets are affected also depends on their internal policy responses. The influence of these internal factors has risen in the past two years, although they appear to be reducing rather than spurring growth in some key economies, including China. The persistent dampening effect from internal factors in recent years suggests that trend growth could be affected as well.

The recent slowdown in emerging market and developing economies has caused much angst in policy circles. These economies grew at a remarkable pace from the late 1990s until the onset of the global financial crisis in 2008–09 (Figure 4.1, panel 1). With a few exceptions—notably in emerging and developing Europe—activity in these economies also rebounded much more strongly in 2009–10 than in advanced economies (panel 2 of the figure). However, economic growth decelerated after this initial rebound, and growth in some major emerging market economies is now significantly below levels recorded before the global financial crisis. Thus, policymakers worry that this slowdown could be a sign of the lasting effects of the crisis—temporarily offset by policy stimulus—and the beginning of worse to come.

Two polar views have been offered to explain emerging markets' growth experience, with quite different implications for their future prospects. Some have argued that the slowdown in these economies is inevitable following years of rapid growth, helped by a favorable—but ultimately transitory—external environment characterized by high commodity prices and cheap external credit (Aslund, 2013; Eichengreen, Park, and Shin, 2011). In contrast, others have argued that their improved performance was underpinned by structural reforms and strong macroeconomic policies (de la Torre, Levy Yeyati, and Pienknagura, 2014; Subramanian, 2013; Abiad and others, 2012). The reality could indeed lie somewhere between these competing views, wherein positive external conditions provided emerging market economies with the opportunity to strengthen their economic policies and reforms, and although growth may soften with the unwinding of these conditions, it will remain strong.

In this light, it is useful to understand how external conditions have typically affected emerging market economies' growth, so as to get a picture of how they will cope with the impending changes in these conditions. Historically, different external factors have probably affected these economies in different ways: for example, recent weak growth in advanced economies was likely unfavorable for emerging market economies' exports and growth, whereas ultralow global interest rates (see Chapter 3), set to support the recovery in advanced economies, may have helped sustain growth by fueling domestic demand. As shown by the black squares in panel 3 of Figure 4.1, domestic demand in some emerging market economies has been growing at a stronger pace than before the global financial crisis. Looking ahead, these global conditions are set to shift: growth in advanced economies should gain speed and support emerging markets' external demand, but global interest rates will also rise as advanced econo-

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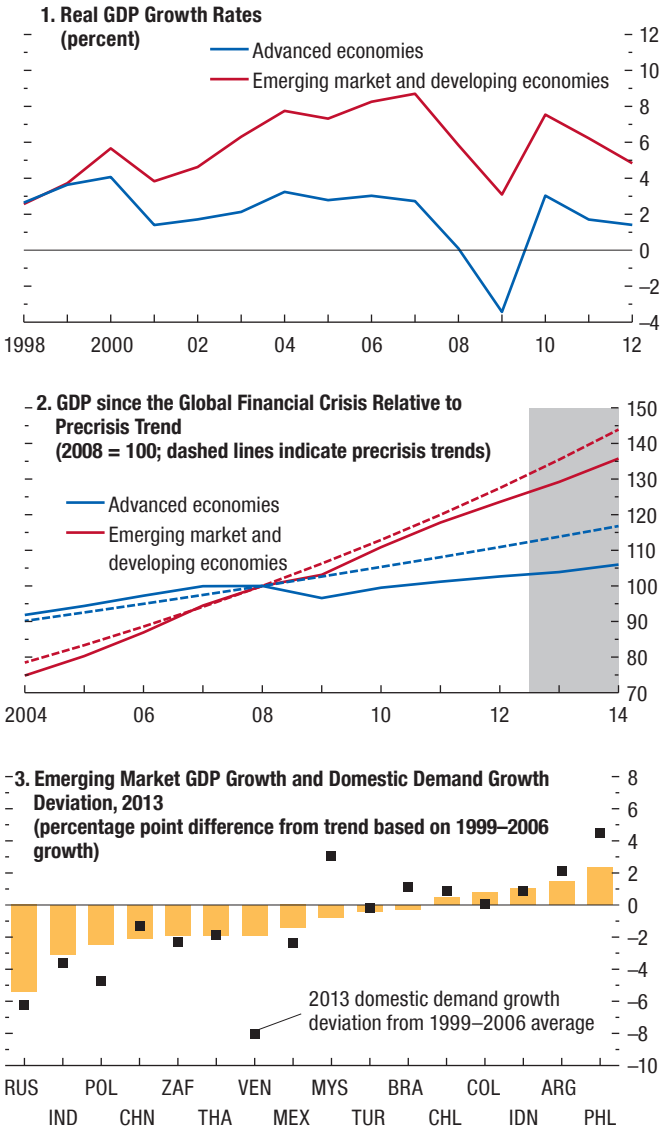
Figure 4.1. Growth Developments in Advanced and Emerging Market and Developing Economies

Emerging market economies grew at a remarkable pace from the late 1990s until the onset of the global financial crisis in 2008–09. With some exceptions, activity in emerging market and developing economies rebounded much more strongly in 2009–10 than in advanced economies. However, economic growth has recently decelerated, with growth in some major emerging markets now significantly below levels recorded prior to the global financial crisis.



Source: IMF staff estimates.
Note: *X*-axis in panel 3 uses International Organization for Standardization (ISO) country codes.

mies' monetary policies normalize (see Chapter 1). Similarly, many emerging market economies, especially commodity exporters, will face weaker terms of trade as commodity price increases are reversed. How these economies perform will depend not only on their exposures to these external factors, but also on whether and how they use policies to respond to the changes.

This chapter analyzes the effect of external factors on emerging market economies' growth in the period before, during, and after the global financial crisis and more recently.[1] Specifically, it addresses the following questions:

- How have external conditions (such as growth in advanced economies, global financing conditions, and terms of trade) typically affected emerging market economies' growth over the past decade and a half?
- Are the effects of external factors similar or different across time? Are all emerging markets equally exposed to external shocks, or are some economies more vulnerable?
- Within emerging market economies, how has China's growth influenced growth in other emerging markets?
- How has the relationship between emerging market economies' growth and the underlying external and internal factors changed since the onset of the global financial crisis?
- What are the prospects for emerging market economies' growth—given the expected changes in the global environment—and what are the policy implications?

The chapter's main findings and conclusions are the following: changes in external conditions have important effects on emerging market economies' growth. Specifically, an unexpected 1 percentage point increase in U.S. growth raises emerging markets' growth by 0.3 percentage point on impact, and the cumulated effects remain positive beyond the short term (more than one to two years). These positive effects incorporate the fact that the 1 percentage point U.S. growth increase also raises the 10-year U.S. Treasury bond rate by close to 10 basis points on impact and 25 basis points after one year.

[1]A related literature analyzes to what extent recent growth changes in emerging market economies are explained by structural versus cyclical factors (see Box 1.2 of the October 2013 *World Economic Outlook*). Although this chapter does not distinguish between structural growth and cyclical growth, it relates to this issue by addressing whether the growth effects of changes in external conditions are persistent or transitory.

Similarly, stronger euro area growth boosts emerging market economies' growth. Conversely, growth is hurt by tighter external financing conditions: a 100 basis point increase in the composite emerging market global sovereign yield reduces growth by ¼ percentage point on impact. On average, in the medium term, external shocks—stemming from external demand, financing costs, and terms of trade—explain about half of the variance in emerging market economies' growth rates.

The incidence of external shocks varies across economies, with stronger growth in advanced economies having a stronger growth effect on emerging market economies that are relatively more exposed to advanced economies in trade and a weaker effect on economies that are more financially open. Similarly, the adverse effects of global financing shocks are higher for emerging market economies that are typically more prone to capital flow volatility or have relatively higher current account deficits and public debt.

External factors have contributed as much as or more than other, mostly internal, factors in explaining emerging markets' growth deviations from the estimated average growth over the past 15 years—although there is considerable heterogeneity across time and across economies. The sharp dip in these economies' growth during the global financial crisis was almost fully accounted for by external factors. Conversely, the pullback in growth for some emerging market economies since 2012 is mostly attributable to internal factors. External factors have generally been much less important compared with internal factors for some relatively large or closed economies, such as China, India, and Indonesia.

China is, in fact, an important contributor to growth for other emerging market economies. China's strong expansion provided emerging markets with an important buffer during the global financial crisis. However, China's recent slowdown has also softened emerging market economies' growth. Specifically, of the 2 percentage point decline in average emerging market economy growth since 2012 compared with 2010–11, China has accounted for close to ½ percentage point, other external factors for 1¼ percentage points, and other, mostly internal, factors for the remaining ¼ percentage point.

Finally, although emerging markets' output and growth outturns since the crisis have been stronger than those observed after most previous global recessions, dynamic forecasts from the empirical model in the analysis, conditional on the path of external factors, show that in some economies—such as China and a few large emerging market economies—growth since 2012 has been systematically lower than expected given external developments. The persistent dampening effects from these factors suggest that growth could remain lower for some time, affecting growth in the rest of the world as well.

Should emerging markets therefore be concerned about their growth prospects as the external environment changes? This chapter's findings suggest that these economies are likely to face a more complex and challenging growth environment than in the period before the global financial crisis, when most external factors were supportive of growth. On the one hand, if external changes are dominated by a strong recovery in advanced economies, this will, overall, benefit emerging markets despite the accompanying higher U.S. interest rates. However, if external financing conditions tighten by more than can be explained by the recovery in advanced economies, as observed for some emerging market economies during the bouts of market turbulence in the summer of 2013 and the beginning of 2014, emerging markets will suffer. Moreover, as the Chinese economy transitions to a more sustainable but slower pace of growth, this will temporarily weigh on growth in other emerging market economies. Finally, growth will decline further if the drag from internal factors, as observed in some emerging market economies since 2012, continues. In this light, the priority is to better understand the role of these internal factors and assess whether there is scope for policies to improve emerging market growth prospects, without generating macroeconomic imbalances.

The rest of the chapter is structured as follows. The next section presents the empirical framework for analyzing the effects of external factors on emerging market economies' growth and maps those factors' contributions over the past decade and a half. It also highlights the heterogeneity across emerging markets in the incidence of shocks. The subsequent section discusses the role of China as an independent external factor, followed by an assessment of the relationship between external factors and medium-term growth. The penultimate section discusses how the relationship between emerging market economies' growth and its underlying external and internal drivers has evolved since the onset of the global financial crisis. The final section draws on the chapter's findings to discuss emerging market economies' growth prospects and the implications for policy.

Effects of External Factors on Emerging Market Growth

Analytical Framework

The analysis draws on a simple organizing framework to consider the relationship between emerging market economies' growth and external conditions. It assumes that most emerging markets are small open economies and that global economic conditions are exogenous to their growth, at least on impact. Thus, the impact of external shocks on a particular economy depends on how exposed the economy is to these shocks via cross-border linkages and on how domestic policy stabilizers are allowed to work. Over time, the cumulated effect on domestic growth may be amplified or dampened as domestic policies respond further to external shocks.

However, such a framework does not fully consider the potential implications of the rising importance of emerging market economies. Emerging market and developing economies now account for more than one-third of world output at market exchange rates—up from less than 20 percent in the 1990s. Thus, global economic conditions could be treated as endogenous to shocks emanating from emerging market economies as a group. Emerging market and advanced economies could also be driven by common shocks. The analysis in this chapter assumes that any such contemporaneous feedback effects from emerging market economies' domestic conditions within a quarter are small enough to be ignored, but allows for these domestic conditions to affect global conditions with a lag.[2] The chapter also considers the effects of China's growth—as an external factor distinct from other traditional external factors—on growth in other emerging market economies. With this in mind, this chapter adds to the related literature in three ways:[3]

- First, by focusing on the past decade and a half, during which emerging market economies' performance and policies improved remarkably, as evidenced by their resilience to the deepest global recession in recent history, it analyzes whether the role of external conditions in determining emerging market economies' growth has fundamentally changed in recent years.
- Second, it documents how the heterogeneity in the incidence of external shocks across emerging market economies relates to differences in their structural characteristics and policies.
- Third, it addresses whether and how the emergence of China as a systemically important component of the global economy has reshaped the impact of external factors on emerging market economies' growth.[4]

The analysis uses a standard structural vector autoregression (VAR) model to quantify the growth effects of external shocks. The baseline model comprises nine variables, each placed into either an external or an internal block. The external variables (the "external block") include U.S. real GDP growth, U.S. inflation as measured by the consumer price index, the 10-year U.S. Treasury bond rate, the composite emerging market economy bond yield (from the J.P. Morgan Emerging Market Bond Index (EMBI) Global), and economy-specific terms-of-trade growth. In expanded versions of the baseline specification, the external block is augmented by additional proxies for global financing conditions, such as the U.S. high-yield spread, as well as proxies for global demand, such as growth in China and the euro area. The domestic variables (the "internal block") include domestic real GDP growth, domestic consumer price inflation, the rate of appreciation of the economy's real exchange rate against the U.S. dollar, and the domestic short-term interest rate. The external block is assumed to be contemporaneously exogenous to the internal block—that is, external variables are not affected by internal variables within a quarter.

Within the external block, the structural shocks are identified using a recursive scheme, based on the above order. In other words, U.S. growth shocks are able to affect all other variables within a quarter, whereas shocks to other variables can affect U.S. growth only with a lag of at least one quarter. U.S. inflation shocks are able to affect all the variables ordered below U.S. inflation within a quarter, whereas shocks to the

[2]Given these restrictions, one caveat is that the analysis could overstate the effects of external shocks. It is, however, reassuring that the chapter's estimates for the magnitude of the effects of external conditions are similar to estimates from other recent studies. See note 21 for details.

[3]Other studies analyzing the role of external conditions in emerging markets' growth include Calvo, Leiderman, and Reinhart (1993), Canova (2005), Swiston and Bayoumi (2008), and Österholm and Zettelmeyer (2007) for Latin America; Utlaut and van Roye (2010) for Asia; and Adler and Tovar (2012), Erten (2012), and Mackowiak (2007) for a more diverse group of emerging market economies. Most, if not all, find that external shocks—however identified—are important for emerging markets' growth, explaining about half of its variance.

[4]Utlaut and van Roye (2010) ask a similar question for emerging Asia, as do Cesa-Bianchi and others (2011) for Latin America.

variables below U.S. inflation can affect it only with a lag. A similar logic then applies to variables lower in the external block. Within the internal block, structural shocks are not explicitly ordered and therefore are not identified.[5]

Taken together, the U.S. variables in the external block proxy for advanced economy economic conditions: U.S. growth captures advanced economy demand shocks; after U.S. growth is controlled for, U.S. inflation captures advanced economy supply shocks; and the 10-year U.S. Treasury bond rate captures the stance of advanced economy monetary policy.[6] Changes in emerging market financing conditions arising from factors other than external demand conditions are incorporated through the EMBI Global yield. Similarly, changes in terms-of-trade growth represent factors other than changes in external demand or financing conditions.

The model is estimated individually for each economy in the sample using quarterly data from the first quarter of 1998 through the latest available quarter in 2013. The focus is on the period after the 1990s, given the significant shifts in policies in these economies during this time (Abiad and others, 2012). These include, for example, the adoption of flexible exchange rate regimes, inflation targeting, and the reduction of debt levels. Furthermore, the first quarter of 1998 was the earliest common starting point for all the economies based on data availability at a quarterly frequency. The number of variables and lags chosen for the specification results in a generous parameterization relative to the short sample length. As a result, degrees of freedom are limited such that standard VAR techniques may yield imprecisely estimated relationships that closely fit the data—a problem referred to as "overfitting." A Bayesian approach, as advocated by Litterman (1986), is adopted to overcome this problem. It allows previous information about the model's parameters to be combined with information contained within the data to provide more accurate estimates. Given the observed persistence in emerging market economy growth (see Chapter 4 of the October 2012 *World Economic Outlook,* WEO), it is assumed that all variables follow a first-order autoregressive (AR(1)) process, with the AR coefficient of 0.8 in the priors.[7]

In view of the short sample length, and given the need to focus on a select few measures for external conditions, a number of robustness checks on the main analysis have been performed, as reported in Appendix 4.2.[8] Overall, the main results are found to be largely unaffected by changes in the underlying specification of the model, addition of new variables, changes in the assumptions about the priors (for example, white noise around the unconditional means instead of AR(1) processes), or even changes in the statistical methodology (for example, pooling across economies in a panel VAR and discarding the Bayesian approach).

The sample comprises 16 of the largest emerging market economies, spanning a broad spectrum of economic and structural characteristics (Figure 4.2).[9] Together, they account for three-quarters of the output of all emerging market and developing economies in purchasing-power-parity terms. Malaysia, the Philippines, and Thailand are relatively more integrated with global trade and financial markets (panels 1 and 3 of Figure 4.2). Malaysia, Mexico, and Poland are relatively more exposed to advanced economies in goods trade (panel 2). Chile is also financially highly integrated but not that vulnerable to capital flow volatility (panels 3 and 4). Brazil and India have low levels of goods trade exposure to advanced economies

[5]See Appendix 4.1 for a description of the data and Appendix 4.2 for additional details regarding the recursive identification.

[6]With the federal funds rate constant at near zero since 2008 and the Federal Reserve's focus on lowering U.S. interest rates at the long end, the 10-year Treasury bond rate is likely a better proxy for U.S. monetary policy for the analysis. That said, none of the main results of the analysis would be affected if the federal funds rate were used instead (see Appendix 4.2 for details).

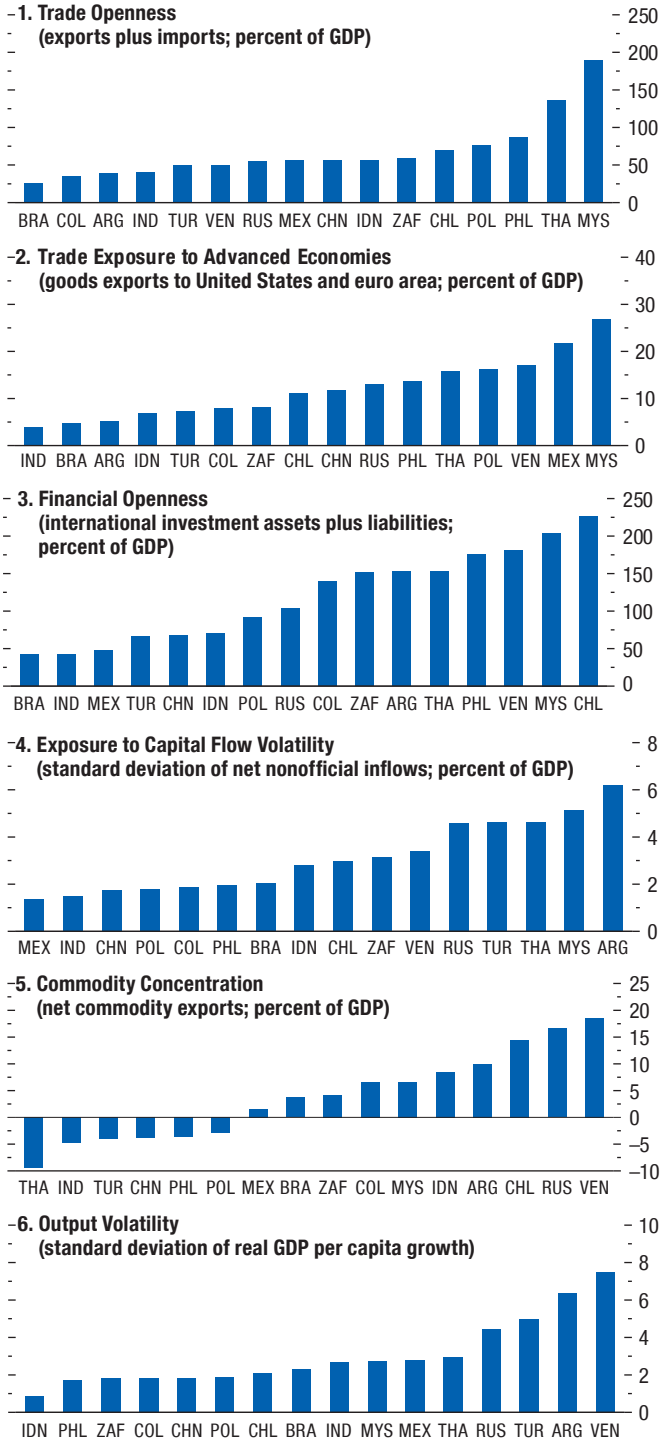
[7]A more persistent growth process in the prior in part recognizes that growth could in fact be drifting away from its mean for a prolonged period during the sample period. This is possible for a number of the economies in the sample, as observed in their actual growth movements in the past 15 years (see Appendix 4.1).

[8]The Bayesian methodology is particularly helpful given the relatively short estimation period. With 60 to 62 observations for each economy-specific regression and 37 coefficients to estimate, the prior gets a weight of slightly less than 25 percent in the baseline specification. The weight does increase with the alternative specifications, rising to 50 percent for the short sample regressions in the penultimate section. However, alternative methodologies that do not rely on Bayesian techniques yield broadly similar results: Box 4.1 sheds light on the medium-term relationship between growth and external factors, whereby growth is averaged over a five-year period to remove any effects from business cycles. Appendix 4.2 also discusses the results of the main analysis for a smaller sample of economies for which data are available back to the mid-1990s, which, therefore, does not use Bayesian methods. Finally, it also outlines additional robustness checks using panel VARs.

[9]The sample is Argentina, Brazil, Chile, China, Colombia, India, Indonesia, Malaysia, Mexico, Philippines, Poland, Russia, South Africa, Thailand, Turkey, Venezuela.

Figure 4.2. Average Country Rankings, 2000–12

The sample of 16 of the largest emerging market economies covers a broad spectrum of economic and structural characteristics.



Sources: IMF, Balance of Payments Statistics database; IMF, Direction of Trade Statistics database; IMF, International Financial Statistics database; IMF, April 2012 *World Economic Outlook*, Chapter 4; and IMF staff calculations.
Note: *X*-axis in panels uses International Organization for Standardization (ISO) country codes.

and are relatively less open among the sample economies. Argentina and Venezuela experience large output fluctuations—likely reflecting their narrow export bases (panel 5), but also domestic policies—as do Russia and Turkey (panel 6).

The discussion of the results focuses on the findings for emerging market economies that enjoyed strong macroeconomic performance during the past 15 years but are now slowing. Although the impulse responses to alternative shocks show the mean group estimates based on all the economies in the sample, the average response for a smaller subsample of emerging market economies, excluding economies that experienced high macroeconomic volatility or recent crises (specifically, Argentina, Russia, and Venezuela), is also presented.

Key Findings

Stronger external demand has a lasting positive effect on emerging market economies' growth despite the attendant rise in the 10-year U.S. Treasury bond rate (Table 4.1, Figure 4.3). A 1 percentage point increase in U.S. growth typically raises emerging markets' growth by 0.3 percentage point on impact; the incremental effects remain positive for six quarters (panels 1 and 2 of the figure), and the cumulative effects remain positive beyond the short term (more than one to two years), as shown by the black squares in panel 2 of the figure. Positive spillovers are also transmitted through a small boost to emerging market economies' terms-of-trade growth (Table 4.1). The impact effect tends to be stronger for economies that are relatively more exposed to advanced economies in trade (for example, Malaysia and Mexico), but also stands out for some others (for example, India and Turkey).[10] As shown in Table 4.1, the increase in U.S. growth induces an increase in the 10-year U.S. Treasury bond rate by close to 10 basis points on impact and further through the first two years (see the estimates in the third grouping within the first data column of the table).[11]

[10]The relatively high impact elasticity of India's growth to U.S. growth could reflect the fact that the Indian economy is more closely integrated with that of the United States than is implied by a measure of integration based on the share of India's goods trade to advanced economies, as in Figure 4.2, panel 2, notably through its sizable service sector exports (for example, outsourcing). Even the data suggest a relatively strong correlation between India's growth and advanced economy growth in the past 15 years (see Appendix 4.1).

[11]The effects of the increase in U.S. growth remain strong at about the same level even after growth in other advanced economies is

Table 4.1. Impulse Responses to Shocks within the External Block: Baseline Model
(Percentage points)

		Shock				
	Response[1]	U.S. Real GDP Growth	U.S. Inflation	Ten-Year U.S. Treasury Bond Rate	EMBI Yield	Terms-of-Trade Growth[2]
U.S. Real GDP Growth	On Impact	1.00	0.00	0.00	0.00	0.00
	End of First Year	3.20	–0.63	0.10	–0.09	0.02
	End of Second Year	3.86	–2.44	–0.72	0.72	0.06
	End of Third Year	3.28	–2.04	–2.72	1.61	0.09
U.S. Inflation	On Impact	0.11	1.00	0.00	0.00	0.00
	End of First Year	0.66	1.96	0.21	–0.31	0.01
	End of Second Year	1.50	0.66	1.21	–0.42	0.02
	End of Third Year	1.56	0.70	0.91	–0.18	0.05
Ten-Year U.S. Treasury Bond Rate	On Impact	0.07	0.07	1.00	0.00	0.00
	End of First Year	0.26	–0.07	3.08	–0.01	0.01
	End of Second Year	0.65	–0.07	4.96	0.21	0.01
	End of Third Year	1.00	–0.14	6.21	0.49	0.02
EMBI Yield	On Impact	–0.31	–0.17	0.22	1.00	0.00
	End of First Year	–0.85	0.14	0.96	2.83	0.00
	End of Second Year	–1.00	0.51	2.56	4.13	–0.02
	End of Third Year	–0.67	0.44	4.76	4.98	–0.04
Terms-of-Trade Growth[2]	On Impact	0.09	1.43	0.29	–0.28	1.00
	End of First Year	1.22	0.45	1.86	–1.47	2.23
	End of Second Year	1.10	–2.79	1.89	–0.76	1.88
	End of Third Year	–0.39	–0.83	–0.44	–0.35	2.04

Source: IMF staff calculations.
Note: EMBI = J.P. Morgan Emerging Markets Bond Index.
[1]All responses are cumulated for the end of the period and normalized for a 1 percentage point shock.
[2]Averaged across country-specific shocks and responses.

Growth boosts from other advanced economies—proxied by euro area growth in addition to U.S. growth in an alternative specification—are also substantial on impact for emerging market growth (panel 3 in Figure 4.3), even though the positive effects do not endure for as long as those from the U.S. growth shock. This emphasizes the broader sensitivity of growth in emerging market economies to external demand shocks from advanced economies beyond simply the United States. Given the prevailing downside risks to growth prospects in the euro area (see Chapter 1), the risk of adverse spillovers to emerging market growth from Europe also remains strong.

Tighter external financing conditions result in a decline in emerging market economies' growth within the same quarter (Figures 4.4 and 4.5). A 100 basis point increase in the composite EMBI yield (a risk premium shock) reduces emerging market economies' growth by ¼ percentage point on impact, and the cumulated effects remain negative even after two years for a majority of the economies. The real exchange rate tends to depreciate, and domestic short-term rates are typically raised in response, possibly reflecting the capital outflows associated with such shocks. The net effect partly depends on the extent to which a weaker currency is able to support export growth.

Shocks to other proxies for emerging markets' external financing conditions yield results similar to those for shocks to the EMBI yield. Since EMBI yields also fluctuate with domestic developments within emerging markets, the composite index, rather than the country-specific yields, is used as the proxy for external financing conditions. In this index, country-specific factors should be less important. That said, it is possible that changes in the composite EMBI yield could still reflect changes in market sentiment toward underlying domestic developments in emerging markets. Therefore, in an alternative specification, the U.S. corporate high-yield spread is used as an additional proxy for external financing conditions.[12] An increase in the U.S.

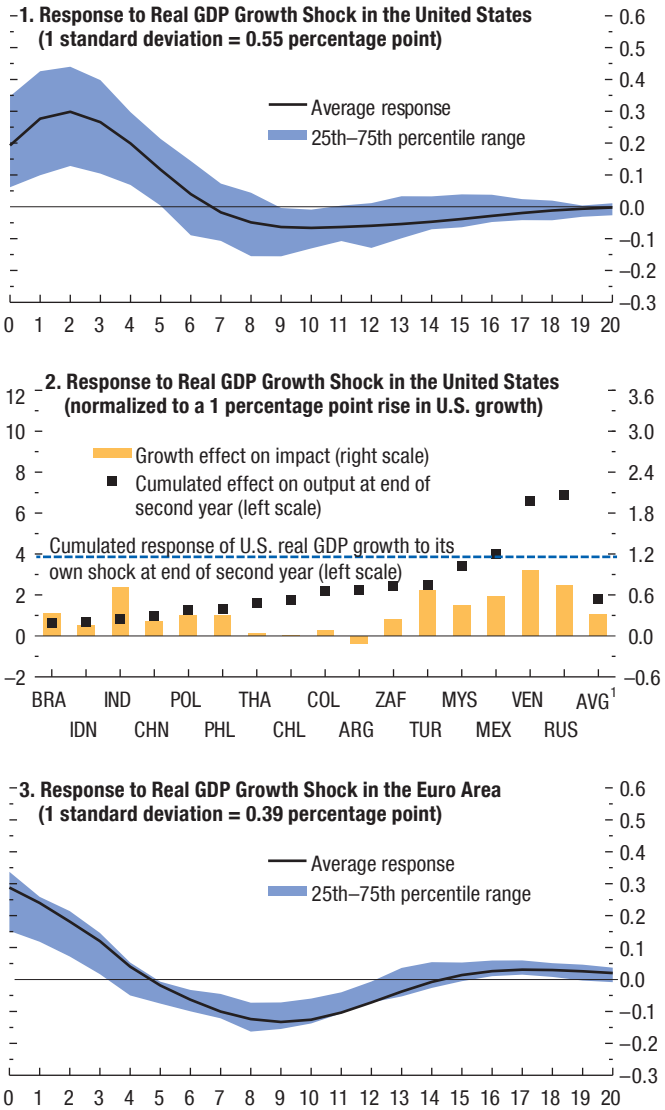
controlled for. These findings are in line with the related literature (see Österholm and Zettelmeyer, 2007). See Appendix 4.2 for details.

[12]The U.S. high-yield spread is placed before the EMBI yield, and after all other U.S. variables, in the external block.

Figure 4.3. Impulse Responses of Domestic Real GDP Growth to External Demand Shocks

(Percentage points)

Stronger external demand, proxied by a rise in real GDP growth in advanced economies, has a lasting positive effect on emerging market economies' growth.

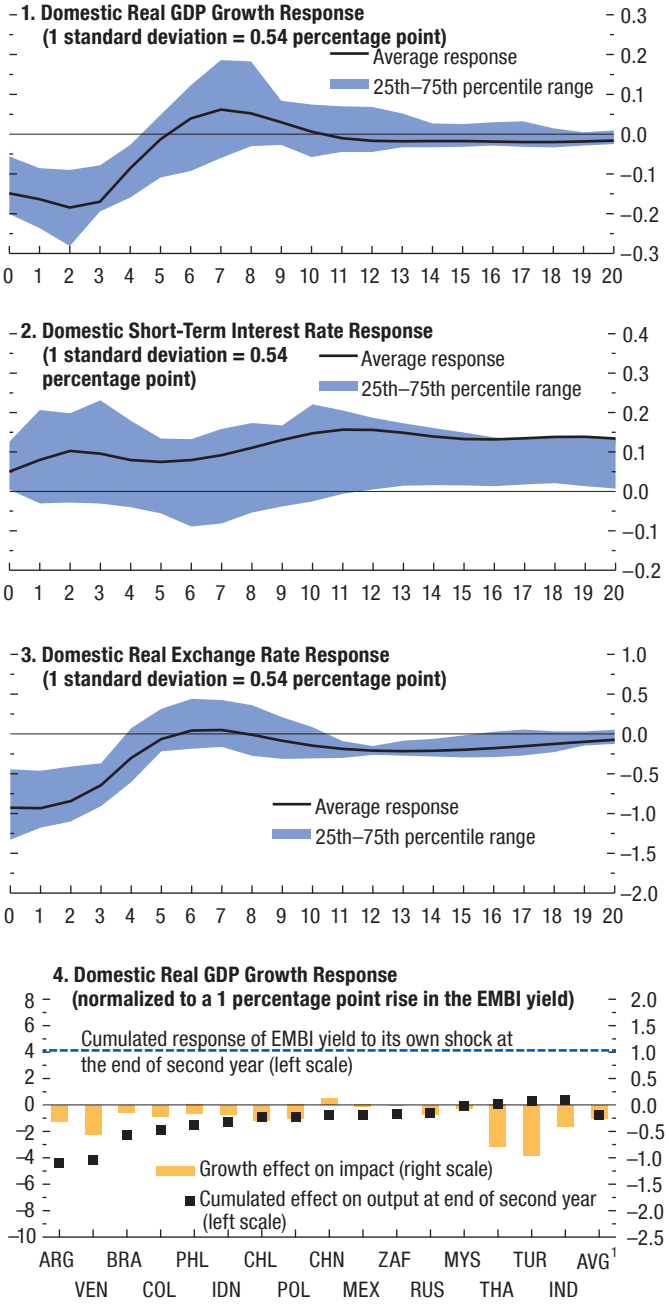


Source: IMF staff calculations.
Note: *X*-axis units in panels 1 and 3 are quarters; $t = 0$ denotes the quarter of the shock. *X*-axis in panel 2 uses International Organization for Standardization (ISO) country codes.
[1]Average for all sample economies except Argentina, Russia, and Venezuela.

Figure 4.4. Impulse Responses to External Financing Shock

(Percentage points)

A higher risk premium on emerging market economies' sovereign debt reduces their growth.



Sources: Federal Reserve Economic Data; Haver Analytics; IMF, International Financial Statistics database; Thomson Reuters Datastream; and IMF staff calculations.
Note: *X*-axis units in panels 1–3 are quarters; $t = 0$ denotes the quarter of the shock. *X*-axis in panel 4 uses International Organization for Standardization (ISO) country codes. EMBI = J.P. Morgan Emerging Markets Bond Index.
[1]Average for all sample economies except Argentina, Russia, and Venezuela.

high-yield spread has an even stronger negative growth effect, with a 100 basis point increase in the spread reducing emerging markets' growth by 0.4 percentage point on impact (Figure 4.5).

Effects of changes in U.S. monetary policy, as proxied by the 10-year U.S. Treasury bond rate in the baseline specification, are also considered. The rise in the U.S. 10-year rate has a negative effect on emerging market growth after a lag of five to six quarters. This may reflect the fact that changes in the U.S. 10-year rates (that are unrelated to U.S. GDP growth and inflation) can still embody many other factors unrelated to the U.S. monetary policy stance, such as expectations about the path of the U.S. economy, or even changes to risk appetite in international investors because of non-U.S. factors as observed through safe haven flows to U.S. Treasury bonds during crises. The details are discussed in Appendix 4.2. Similar results—a lagged negative growth response to a U.S. interest rate increase after the early 1990s—have also been found by others (Mackowiak, 2007; Österholm and Zettelmeyer, 2007; Ilzetzki and Jin, 2013).[13]

Simple associations linking economies' growth responses to external shocks with their structural and macroeconomic characteristics are examined by way of bivariate scatter plots (Figure 4.6). With 16 observations for each correlation in this figure, the statistical relationships are suggestive at best. Notable observations include the following:

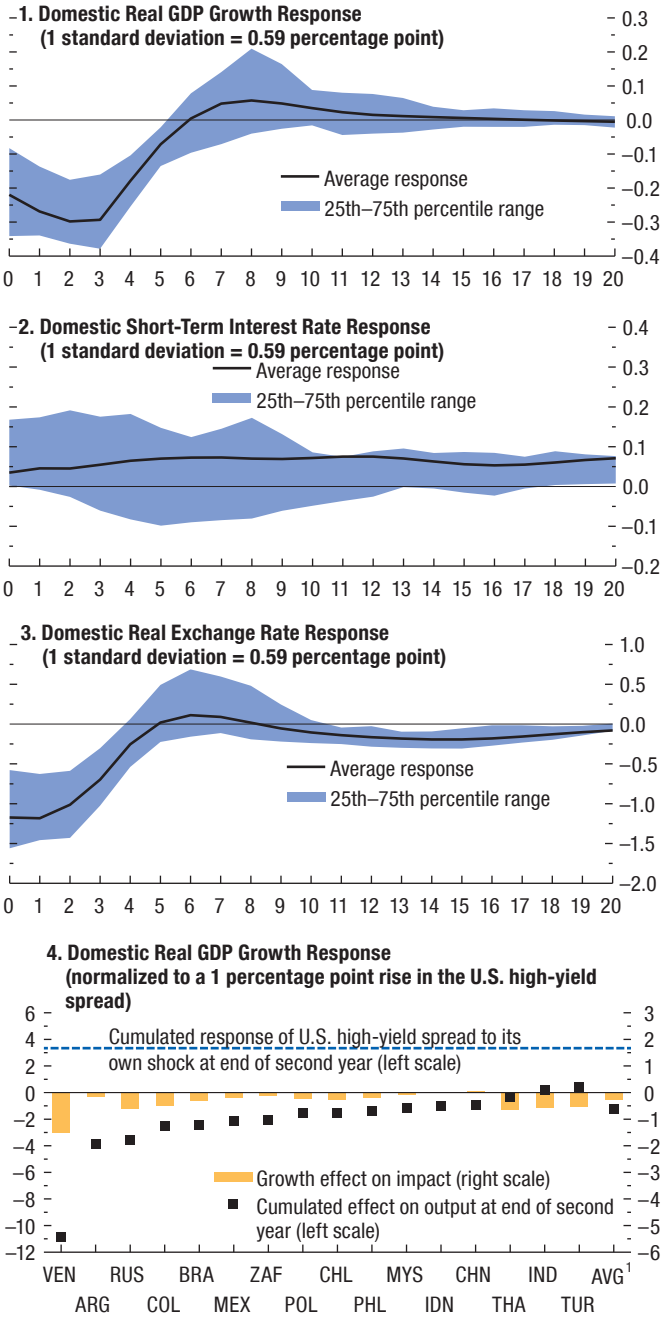
- Higher advanced economy growth imparts stronger growth spillovers for emerging markets that trade relatively more with advanced economies (for example, Mexico; see panel 1 of the figure) but weaker spillovers for those that are financially more open (for example, Chile; see panel 2). Countries exposed to greater capital flow volatility in general (for example, Thailand; see panel 3) also benefit less. It is possible that stronger growth in advanced economies (and the attendant rise in their interest rates) results in greater capital outflows

[13]Other proxies for U.S. monetary policy (besides the 10-year U.S. Treasury bond rate in the baseline specification) that are considered include the effective federal funds or policy rate, the ex ante real federal funds rate, the change in the policy rate, the term spread (the 10-year Treasury bond rate minus the effective federal funds rate), and measures of pure monetary policy shocks (such as those in Kuttner, 2001, and Romer and Romer, 2004). For each of these proxies, the 10-year rate is replaced with the proxy in alternative specifications. Shocks to most of these proxies result in a lagged negative effect on emerging markets' growth. Only increases in the term spread have an immediate negative effect (see Appendix 4.2 for details).

Figure 4.5. Impulse Responses to U.S. High-Yield Spread Shock

(Percentage points)

A rise in the U.S. high-yield spread also has a strong negative effect on emerging market economies' growth.



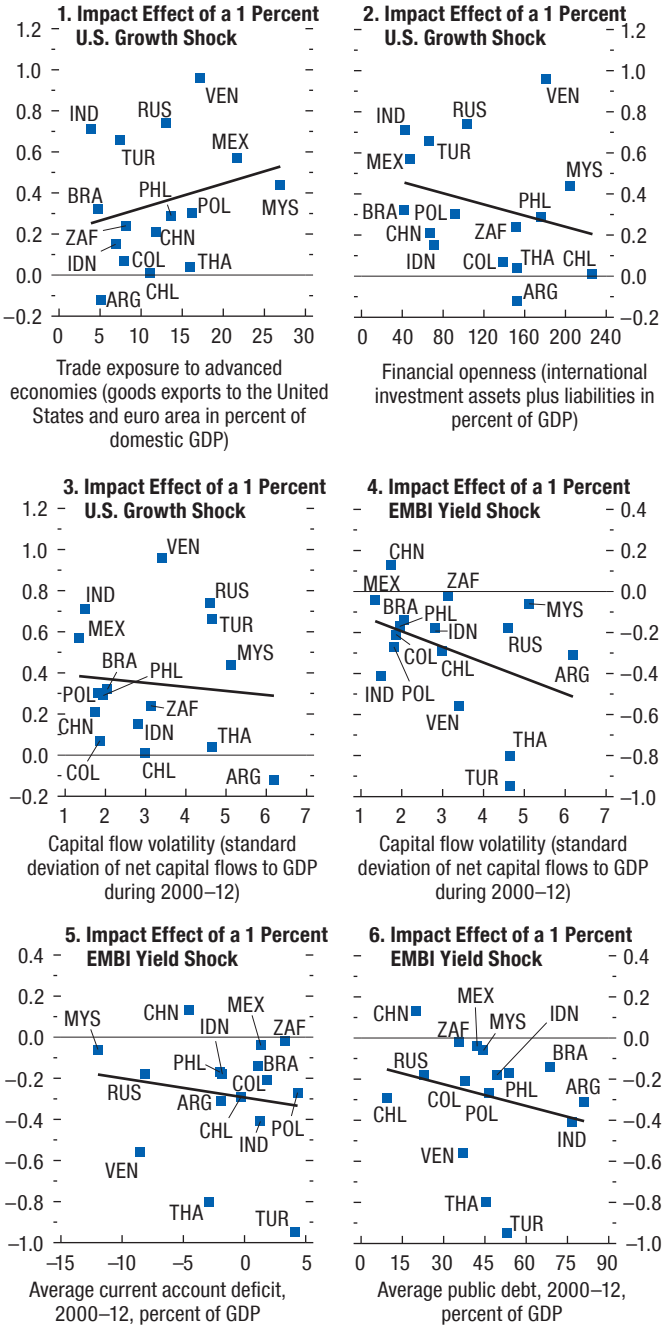
Sources: Federal Reserve Economic Data; Haver Analytics; IMF, International Financial Statistics database; Thomson Reuters Datastream; and IMF staff calculations.

Note: *X*-axis units in panels 1–3 are quarters; $t = 0$ denotes the quarter of the shock. *X*-axis in panel 4 uses International Organization for Standardization (ISO) country codes.

[1]Average for all sample economies except Argentina, Russia, and Venezuela.

Figure 4.6. Correlations between Growth Responses to External Shocks and Country-Specific Characteristics
(Percentage points)

Stronger external demand is more beneficial to economies that have stronger trade links with advanced economies and less beneficial to economies that are financially very open. External financing shocks more severely affect economies that are more exposed to capital flow volatility and those with relatively less policy space.



Sources: IMF, Balance of Payments Statistics database; IMF, Direction of Trade Statistics database; IMF, International Financial Statistics database; IMF, April 2012 *World Economic Outlook,* Chapter 4; and IMF staff calculations.
Note: EMBI = J.P. Morgan Emerging Markets Bond Index. Data labels in the figure use International Organization for Standardization (ISO) country codes.

from financially integrated economies, partly or fully offsetting the beneficial effects of the external demand increase, especially for economies that do not have strong trade ties with advanced economies.

- Adverse external financing shocks hurt economies more when they tend to be more exposed to capital flow volatility (for example, Thailand and Turkey; see panel 4) or when they have relatively higher external current account deficits and public debt (see panels 5 and 6). The effects are less acute for some economies despite their financial openness, which could be attributable to relatively strong macroeconomic positions (for example, Malaysia). Chile and Malaysia are among the few economies in the sample that have tended to hold their domestic interest rates steady or have even cut them in response to higher EMBI yields. For some others, inadequate policy space may have limited the scope for countercyclical policies to cushion the growth effects of higher EMBI yields.

These results resonate well with policies observed in the second half of 2013 and so far in 2014 in response to financial market volatility. Many emerging market economies have resorted to raising domestic interest rates as external financing conditions have tightened and have allowed their exchange rates to adjust. The findings in this chapter suggest that how these economies will be affected will depend on whether their external financial conditions tighten by more than what can be explained by a growth recovery in advanced economies, as well as on their domestic policy response. If financing conditions are tighter, and emerging market economies are forced to limit capital outflows by raising domestic rates, growth will decline, with the decline offset, in part, by exchange rate depreciation. Growth will be further hit in economies that are more exposed to capital flow volatility or those with limited policy space to respond countercyclically to these shocks.

Increases in emerging market economies' terms-of-trade growth that are not accounted for by external demand have a small positive effect on growth that lasts about one year (Figure 4.7). The relatively muted response (compared with responses to other shocks) may reflect the fact that these terms-of-trade changes are driven by supply shocks.[14]

[14]As shown in Appendix 4.2, an alternative specification that considers the global commodity price index, as an additional proxy for emerging market economies' terms of trade, yields broadly similar results for the effects of shocks from global commodity price growth on emerging market economies' real GDP growth.

External versus Internal Factors' Contributions in Historical Growth Dynamics

The analysis so far has confirmed that shocks stemming from external demand and financing conditions have significant repercussions for emerging markets' growth. However, the combination of domestic structures and policies has helped offset the shocks in some cases, whereas it has amplified them in others. In this light, this section looks back historically to assess the extent to which emerging market economies' growth performance relative to their estimated average growth over the sample period is explained by external factors.

External factors tended to explain one-half or more of the deviation in emerging market economies' growth from the estimated sample mean during 1998–2013 (Figure 4.8, panel 1).[15] The higher contribution of external factors is particularly noticeable during the last two recessions originating in advanced economies—in the early 2000s and during the global financial crisis. However, the other, mostly internal factors contributed more during the onset of emerging markets' rapid expansion in the period before the global financial crisis, as well as during the slowdown beginning in 2012.

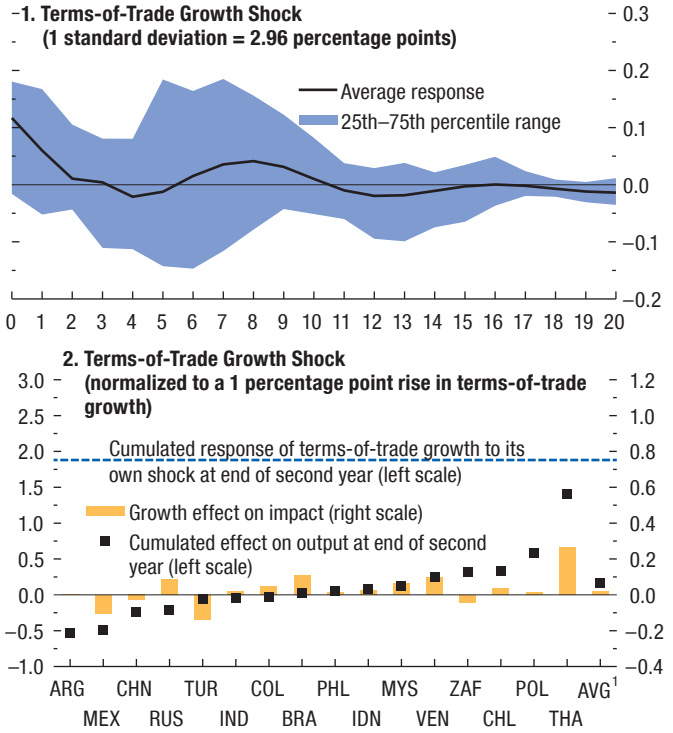
Internal factors played a more important role, however, in relatively closed or large economies for the entire sample period (Figure 4.8, panels 2–7). Note that in Figure 4.8, the increase or decline in the contribution of a factor is measured by the change in its level relative to the previous quarter. In China, internal factors started contributing less to deviations from average growth beginning in early 2007. The negative contribution of internal factors increased at the onset of the crisis, peaking in the first quarter of 2009, after which a large-scale fiscal stimulus package was deployed (see Dreger and Zhang, 2011). The contribution of internal factors started rising in mid-2009, turning positive in the fourth quarter of 2009 and peaking in 2010. Similarly, in India, internal factors began dampening growth in early 2008, likely as the result of tensions from growing bottlenecks in infrastructure after a period of rapid growth (see IMF, 2008a). Their negative incidence continued until mid-2009, when internal factors started contributing more to growth again. In contrast, the sharp dip in growth in Brazil and Indonesia during the global financial crisis was almost fully driven by external factors. In Russia and South Africa, external factors dominated growth dynamics during the global financial crisis, but internal factors also played a role, possibly reflecting problems related to domestic overheating (in Russia; see IMF, 2008b) or supply-side constraints (in South Africa; see IMF, 2008c).

[15]Given the estimates from the reduced-form VAR, growth for each economy at any point in history can be expressed as the sum of initial conditions and all the structural shocks in the model. The sum of the shocks from the identified external factors—advanced economy indicators, EMBI yield, and terms-of-trade growth—provides the contribution of all external factors. The remaining shocks likely stem from domestic variables (such as domestic inflation, real exchange rates, and short-term interest rates in the model) and are termed internal. That said, these unidentified residual shocks could also partly embody other factors, such as common or exogenous shocks (for example, natural disasters).

Figure 4.7. Impulse Responses of Domestic Real GDP Growth to Terms-of-Trade Growth Shock

(Percentage points)

Increases in emerging market economies' terms-of-trade growth that are not accounted for by external demand have a small positive effect on growth that lasts for about one year.



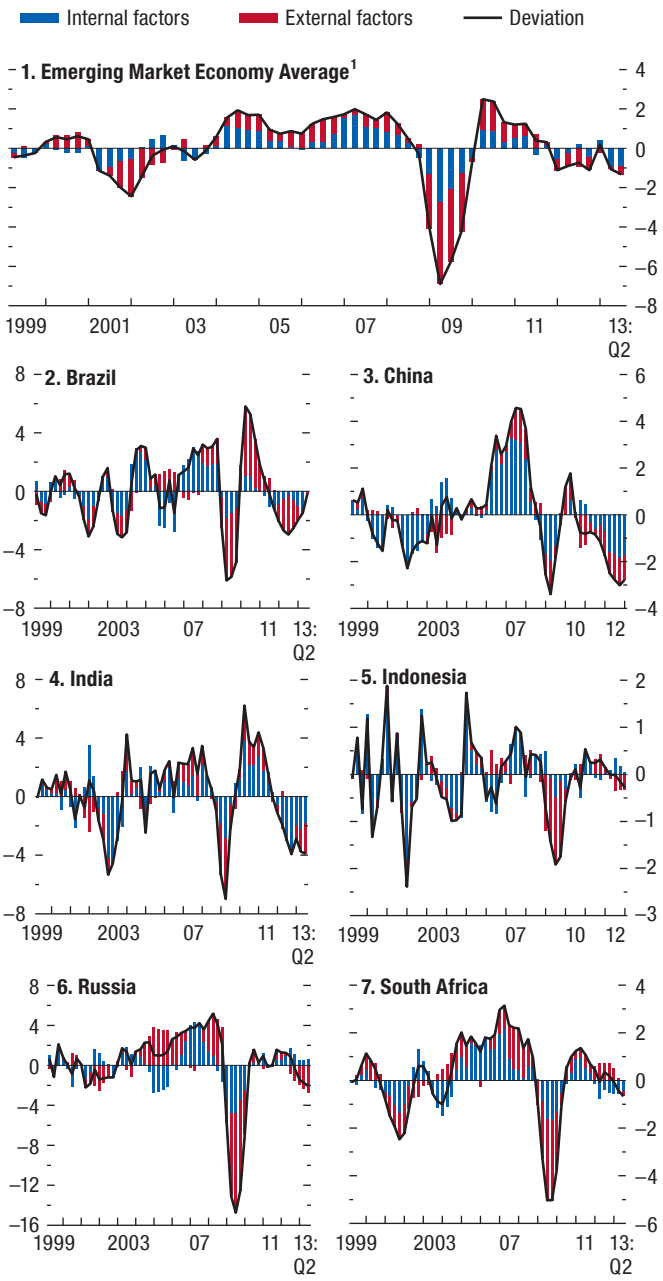
Sources: Haver Analytics; IMF, International Financial Statistics database; Organization for Economic Cooperation and Development; and IMF staff calculations.

Note: *X*-axis units in panel 1 are quarters; $t = 0$ denotes the quarter of the shock. *X*-axis in panel 2 uses International Organization for Standardization (ISO) country codes. Average response to terms-of-trade growth shock is calculated as the average of the responses of emerging market economies' growth to their country-specific terms-of-trade growth shock.

[1]Average for all sample economies except Argentina, Russia, and Venezuela.

Figure 4.8. Historical Decompositions of Real GDP Growth into Internal and External Factors
(Percentage points)

External factors tended to explain one-half or more of emerging market economies' growth deviation relative to the estimated sample mean during 1998–2013. The roles of external versus internal factors, however, varied across economies, with internal factors playing a more important role in relatively closed or large economies throughout the sample period.



Sources: Haver Analytics; Thomson Reuters Datastream; and IMF staff calculations.
Note: The underlying vector autoregression model includes U.S. real GDP growth, U.S. inflation, 10-year U.S. Treasury bond rate, J.P. Morgan Emerging Markets Bond Index yield, and terms-of-trade growth in the external block.
[1]Average for all sample economies except Argentina, Russia, and Venezuela.

Internal factors appear to have been pulling down growth in some economies in recent years, although their contribution to growth changes over time has differed across countries. In China, these factors were largely depressing growth after late 2010, but there is a small uptick in their contribution in the last quarter of 2012. A similar picture emerges for India, wherein internal factors reduced growth from 2011 until the third quarter of 2012, but there is an increase in their contribution since late 2012. A more nuanced picture emerges for Brazil and South Africa, but in both economies, after a drag from internal factors in the second half of 2012, these factors contributed more to growth in the first half of 2013.

Global Chain or Global China? Quantifying China's Impact

China's dramatic expansion during the past several decades has garnered much policy attention. The economy's rising weight in international trade has offered many emerging market economies the scope to diversify their exports away from advanced economies toward China. A number of recent studies have found significant implications of changes in China's real activity for growth in the rest of the world (Arora and Vamvakidis, 2010; Ahuja and Nabar, 2012; Cesa-Bianchi and others, 2011; IMF, 2012, 2013a; and the Spillover Feature in Chapter 2). Moreover, China itself has become more resilient to changes in advanced economies' economic developments, as documented in the previous section.

Accordingly, this section analyzes the implications of China as a distinct external factor for other emerging markets' growth since the late 1990s. How China influences growth beyond its borders will, of course, depend on the nature of its cross-country linkages. One prominent channel is the global supply chain, through which China imports intermediate inputs from elsewhere—especially emerging Asia—to produce final goods for advanced economy markets. In this role, changes in China's growth are largely endogenous to changes in demand conditions in advanced economies. Another channel arises from China's own demand. China's investment-oriented growth can boost commodity-exporting emerging market economies via higher commodity demand and prices. Further demand rebalancing toward private consumption will also benefit those exporting final goods to China (see

Box 1.2). Finally, China can also support growth elsewhere through higher foreign direct investment flows into those economies (Dabla-Norris, Espinoza, and Jahan, 2012). To identify China's economic impact on others, its growth is placed in the external block for the other 15 emerging market economies in the sample.[16]

The results confirm China's systemic importance in emerging markets' growth (Figure 4.9). A 1 percentage point rise in China's growth—which is not explained by U.S. growth—increases other emerging market economies' growth by about 0.1 percentage point on impact. The positive effect tends to build over time as emerging markets' terms of trade get a further boost, highlighting China's relevance for global commodity markets (see Table 4.2).[17] The impact elasticity is high for some economies in Asia, such as Thailand, but also for commodity exporters such as Russia.[18] Growth shocks from China also feed back into the global economy. A 1 percentage point growth shock in China boosts U.S. growth with a lag, the cumulative effect rising to 0.4 percentage point for a cumulative rise in China's growth to 4.6 percent after two years (see Table 4.2 and panel 2 of Figure 4.9). However, the effect reverses fully within three years.

Emerging markets' economic integration with China has provided an offset to other external factors at key moments (Figure 4.10). Note once again that the increase or decline in the contribution of a factor is measured by the change in its level relative to the previous quarter. China's growth contributed positively to other emerging markets' growth from mid-2001 until early 2002, helping to ameliorate the negative effects of other external factors in the aftermath of the advanced economy recession. Also, after the onset of the global financial crisis, recovering Chinese growth—boosted by

[16]In this specification, the U.S.-specific variables control for advanced economy growth influences on emerging market economies through the global supply chain and are placed before China's growth in the recursive ordering. In an alternative specification with both China and euro area growth, the euro area's growth is placed after U.S. growth in the recursive ordering, whereas China's growth still comes after all advanced economy indicators. However, switching the place of China's growth in the external block (either after U.S. or euro area growth or after all advanced economy indicators) does not materially affect the main results.

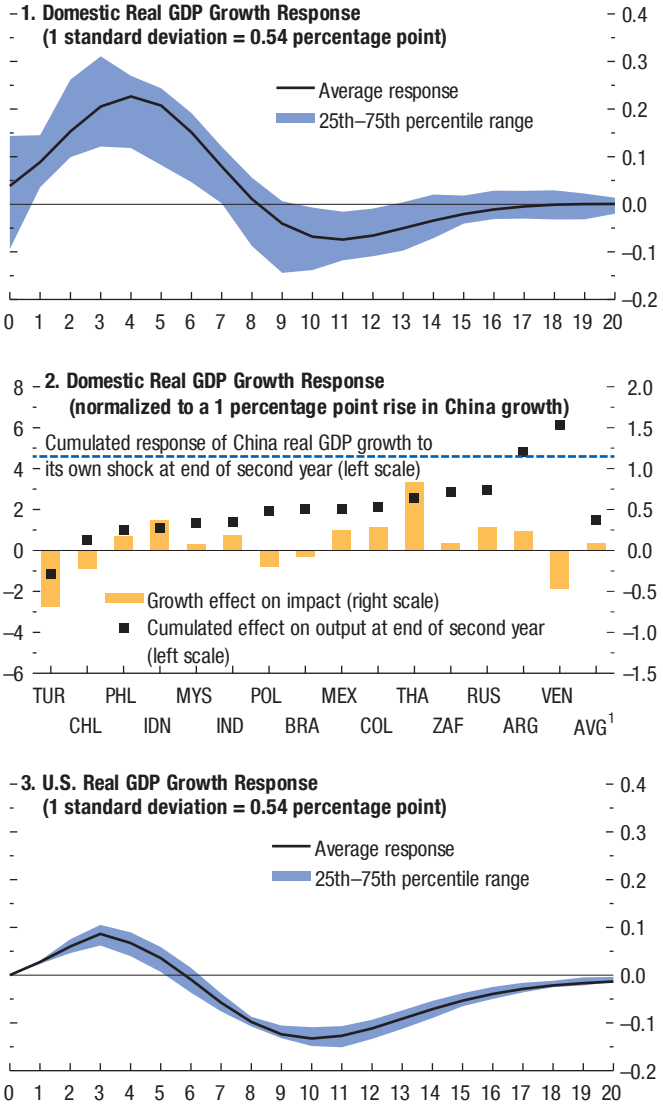
[17]The effects of changes in China's real investment growth on domestic growth follow a similar pattern but are smaller in magnitude (see Appendix 4.2 for details).

[18]For some commodity exporters, the positive effects build over time and peak at the end of the second year (for example, Brazil and Chile).

Figure 4.9. Impulse Responses to Real GDP Growth Shock in China

(Percentage points)

A 1 percentage point rise in China's growth increases emerging market economies' growth by 0.1 percentage point on impact, on average. The positive effect builds over time as emerging market economies' terms-of-trade growth gets a further boost, highlighting China's relevance for global commodity markets.



Source: IMF staff calculations.
Note: *X*-axis units in panels 1 and 3 are quarters; $t = 0$ denotes the quarter of the shock. *X*-axis in panel 2 uses International Organization for Standardization (ISO) country codes.
[1]Average for all sample economies except Argentina, Russia, and Venezuela.

Table 4.2. Impulse Responses to Shocks within the External Block: Modified Baseline Model with China Real GDP Growth
(Percentage points)

		Shock					
	Response[1]	U.S. Real GDP Growth	U.S. Inflation	Ten-Year U.S. Treasury Bond Rate	China Real GDP Growth	EMBI Yield	Terms-of-Trade Growth[2]
U.S. Real GDP Growth	On Impact	1.00	0.00	0.00	0.00	0.00	0.00
	End of First Year	3.18	–0.55	0.28	0.32	–0.04	0.01
	End of Second Year	3.88	–2.31	–0.35	0.39	0.56	0.06
	End of Third Year	3.40	–1.99	–2.47	–0.50	1.04	0.08
U.S. Inflation	On Impact	0.12	1.00	0.00	0.00	0.00	0.00
	End of First Year	0.66	2.08	0.28	0.19	–0.20	0.01
	End of Second Year	1.42	0.91	1.46	0.68	–0.16	0.01
	End of Third Year	1.51	0.89	1.46	0.67	0.01	0.05
Ten-Year U.S. Treasury Bond Rate	On Impact	0.07	0.07	1.00	0.00	0.00	0.00
	End of First Year	0.25	–0.08	3.11	0.08	0.03	0.01
	End of Second Year	0.64	–0.12	5.02	0.29	0.31	0.02
	End of Third Year	1.00	–0.18	6.31	0.45	0.62	0.03
China Real GDP Growth	On Impact	0.27	0.28	0.94	1.00	0.00	0.00
	End of First Year	0.70	–0.19	3.44	3.24	–0.27	0.04
	End of Second Year	0.83	–0.15	6.33	4.59	–0.60	0.11
	End of Third Year	1.11	0.23	8.00	5.13	–0.88	0.16
EMBI Yield	On Impact	–0.30	–0.15	0.22	–0.02	1.00	0.00
	End of First Year	–0.81	0.12	0.87	–0.21	2.84	0.00
	End of Second Year	–0.91	0.51	2.27	–0.42	4.13	–0.01
	End of Third Year	–0.57	0.42	4.22	–0.34	5.02	–0.03
Terms-of-Trade Growth[2]	On Impact	0.22	1.63	0.48	0.69	–0.24	1.00
	End of First Year	1.50	1.05	2.36	2.10	–1.11	2.28
	End of Second Year	1.43	–2.47	3.20	2.67	–0.38	1.97
	End of Third Year	–0.20	–0.35	1.20	1.64	–0.22	2.03

Source: IMF staff calculations.
Note: EMBI = J.P. Morgan Emerging Markets Bond Index.
[1]All responses are cumulated for the end of the period and normalized for a 1 percentage point shock.
[2]Averaged across country-specific shocks and responses.

China's large fiscal stimulus—increased its contribution to emerging market economies' growth from the third quarter of 2009 until 2010.[19] Of the 3¾ percentage point improvement in emerging market economies' quarterly (year-over-year) growth in 2010–11 relative to 2008–09, China accounted for ½ percentage point, other external factors 2¼ percentage points, and internal factors the remaining 1 percentage point.

However, emerging market economies' diversification toward China has also exposed them to adverse shocks from China's growth. Specifically, China's recent slowdown provided an additional setback to their growth: of the 2 percentage point shortfall in emerging market economies' quarterly (year-over-year) growth in 2012–13 relative to 2010–11, China accounted for ½ percentage point, other external factors for 1¼ percentage points, and internal factors for the remaining ¼ percentage point.[20]

Growth Effects: The Long and the Short of It

Besides growth concerns relating to the ongoing cyclical transitions in the global economy, another issue on the minds of policymakers in emerging markets is the trend growth rate of their economies. Many worry that the observed deceleration is due to declining trend growth compared with the levels recorded in the early 2000s and are concerned about the role of external factors in this trend growth. Although this chapter focuses primarily on understanding the links between emerg-

[19]China's fiscal stimulus packages during the global financial crisis are estimated to have been on the order of 3 percent of GDP in 2009 and 2¾ percent of GDP in 2010 (Dreger and Zhang, 2011).

[20]Note that to the extent domestic policies were adopted in response to the global financial crisis and subsequently unwound, they would still be accounted for by external factors rather than independent internal factors.

ing market economies' growth and external factors at shorter horizons, this section considers the potential implications for the medium term.

The analysis in the previous section suggests that the cumulated growth effects from external shocks—especially from external demand and financing conditions—linger well beyond the short term (see Figures 4.3–4.5 and 4.9). Although trend growth is likely determined by a myriad of factors, including domestic macroeconomic and structural policies, external conditions also have a persistent effect. Thus, a stronger recovery in advanced economies will likely influence emerging market economies' trend growth, as will tighter global financing conditions relative to today.

Moreover, external shocks explain about half the variance in emerging market economies' growth in the medium term (Table 4.3). For Malaysia, which is generally more integrated with trade and financial markets, and Mexico, which is integrated with the U.S. economy, these shares are in the range of 60 to 70 percent. Even for the Indian and Indonesian economies, in which variance in growth is predominantly domestically driven, the share of external factors is still in the range of 25 to 30 percent. Given the sizable share of external shocks in explaining the variation in growth over the medium term, it is reasonable to expect these shocks to have persistent effects on trend growth as well.[21]

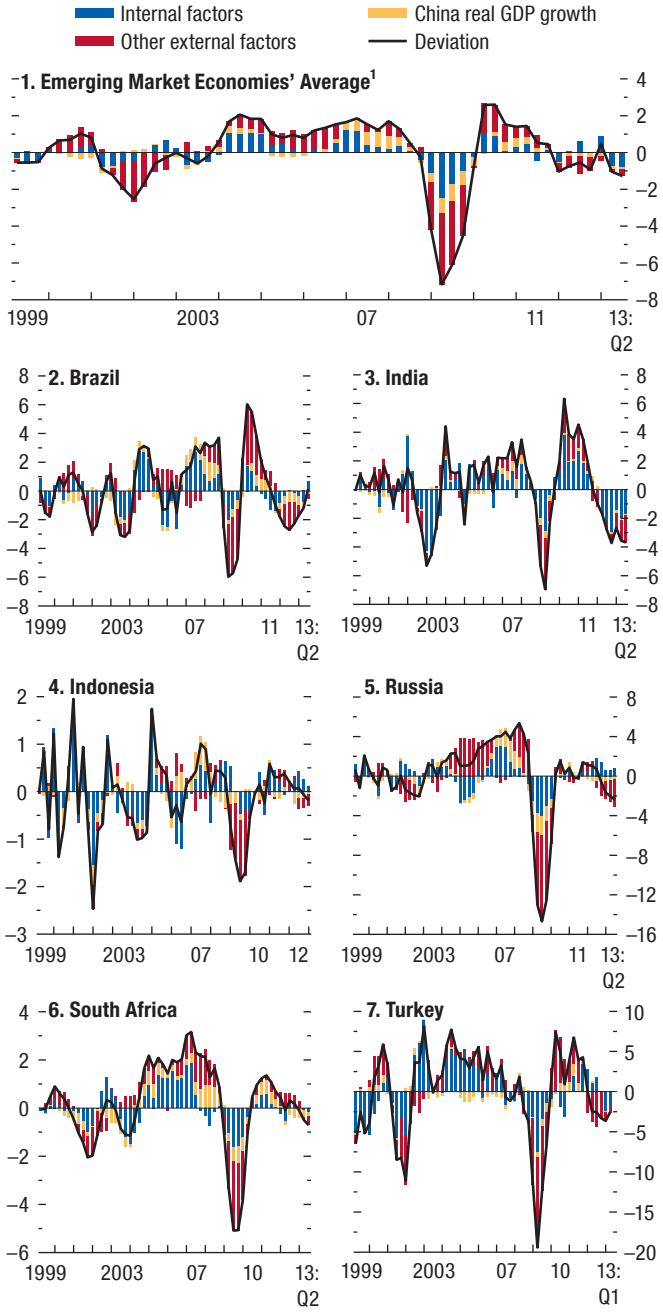
In this context, Box 4.1 revisits the relationship between external conditions and growth from a medium-term perspective. It estimates growth regressions for a broader group of emerging market economies from 1997 through 2011 to correlate five-year averages of GDP growth per capita with alternative external

[21]These findings compare well with those in the literature, although the estimated effects from this analysis are somewhat lower compared with those in some of the other studies, reflecting differences in the sample, estimation period, and methodology. Österholm and Zettelmeyer (2007) find that external shocks explain 50 to 60 percent of the volatility in growth for Latin American economies over the medium term, and the overall impact of a global or U.S. growth shock on Latin America's growth is roughly one for one over time. In comparison, the findings of this chapter show that a 1 percentage point U.S growth shock is associated with a cumulated 4 percentage point rise in U.S. growth and a corresponding 2 percentage point rise in emerging markets' average growth after two years (see panel 2 of Figure 4.3). This suggests a proportional but less than one-for-one increase in emerging market growth with the increase in U.S. growth over time. The results with regard to shocks to the EMBI yield and the U.S. high-yield spread are very similar to those of Österholm and Zettelmeyer, however. Utlaut and van Roye (2010) and Erten (2012) also find somewhat larger growth effects of real shocks from China, the euro area, and the United States.

Figure 4.10. Historical Decomposition of Real GDP Growth with China as an Explicit External Factor

(Percentage points)

China has been an important offset to other external factors in explaining changes in emerging market growth. During the global financial crisis, China's expansion provided a buffer for emerging market growth. China's recent slowdown, however, has reduced growth in these economies.



Sources: Haver Analytics; Thomson Reuters Datastream; and IMF staff calculations.

Note: The underlying vector autoregression model includes U.S. real GDP growth, U.S. inflation, 10-year U.S. Treasury bond rate, China real GDP growth, J.P. Morgan Emerging Market Bond Index yield, and terms-of-trade growth in the external block.

[1]Average for all sample economies except Argentina, China, Russia, and Venezuela.

Table 4.3. Share of Output Variance Due to External Factors
(Horizon = five years)

	ARG	BRA	CHL	CHN	COL	IDN	IND	MEX	MYS	PHL	POL	RUS	THL	TUR	VEN	ZAF	Avg.[1]
Baseline Model[2]																	
Total Contribution from External Factors	0.55	0.60	0.37	0.27	0.35	0.25	0.28	0.69	0.61	0.37	0.36	0.72	0.31	0.46	0.34	0.56	0.42
U.S. Factors[3]	0.37	0.43	0.23	0.22	0.25	0.15	0.19	0.61	0.53	0.26	0.21	0.57	0.19	0.37	0.28	0.42	0.31
EMBI Yield	0.12	0.12	0.07	0.04	0.06	0.07	0.06	0.02	0.01	0.09	0.02	0.05	0.05	0.08	0.02	0.03	0.06
Terms-of-Trade Growth	0.06	0.05	0.07	0.02	0.05	0.03	0.03	0.06	0.07	0.02	0.13	0.10	0.07	0.01	0.05	0.11	0.06
Modified Baseline Model[4]																	
Total Contribution from External Factors	0.55	0.61	0.38	. . .	0.33	0.26	0.30	0.69	0.57	0.43	0.48	0.73	0.31	0.44	0.37	0.67	0.46
U.S. Factors[3]	0.35	0.45	0.19	. . .	0.22	0.13	0.20	0.58	0.45	0.29	0.21	0.57	0.17	0.34	0.24	0.35	0.30
China Real GDP Growth	0.06	0.07	0.07	. . .	0.08	0.06	0.02	0.05	0.02	0.09	0.10	0.06	0.06	0.02	0.06	0.23	0.07
EMBI Yield	0.09	0.05	0.04	. . .	0.01	0.05	0.07	0.01	0.01	0.04	0.02	0.02	0.03	0.06	0.01	0.02	0.04
Terms-of-Trade Growth	0.04	0.04	0.09	. . .	0.01	0.02	0.01	0.04	0.09	0.01	0.15	0.08	0.05	0.02	0.06	0.08	0.05
Alternative Model[5]																	
Total Contribution from External Factors	0.50	0.60	0.40	. . .	0.30	0.24	0.34	0.73	0.57	0.41	0.49	0.75	0.27	0.46	0.36	0.68	0.46
U.S. Factors[3]	0.30	0.40	0.14	. . .	0.15	0.10	0.20	0.53	0.40	0.24	0.18	0.52	0.14	0.24	0.18	0.31	0.25
Euro Area Real GDP Growth	0.02	0.07	0.09	. . .	0.06	0.01	0.05	0.09	0.07	0.05	0.06	0.10	0.01	0.13	0.05	0.10	0.07
China Real GDP Growth	0.07	0.07	0.06	. . .	0.06	0.06	0.02	0.03	0.01	0.08	0.09	0.04	0.05	0.02	0.05	0.17	0.06
EMBI Yield	0.07	0.04	0.04	. . .	0.01	0.04	0.06	0.01	0.01	0.03	0.02	0.02	0.03	0.06	0.01	0.02	0.03
Terms-of-Trade Growth	0.03	0.02	0.08	. . .	0.01	0.02	0.01	0.07	0.07	0.01	0.13	0.06	0.04	0.01	0.06	0.08	0.05

Source: IMF staff calculations.
Note: EMBI = J.P. Morgan Emerging Markets Bond Index. Column heads use International Organization for Standardization (ISO) country codes.
[1]The numbers are the average for all sample economies except Argentina, Russia, and Venezuela.
[2]Recursive ordering of external factors is as follows: U.S. real GDP growth, U.S. inflation, 10-year U.S. Treasury bond rate, EMBI yield, and terms-of-trade growth.
[3]U.S. factors include U.S. real GDP growth, U.S. inflation, and 10-year U.S. Treasury bond rate.
[4]Recursive ordering of external factors is as follows: U.S. real GDP growth, U.S. inflation, 10-year U.S. Treasury bond rate, China real GDP growth, EMBI yield, and terms-of-trade growth.
[5]Recursive ordering of external factors is as follows: U.S. real GDP growth, euro area real GDP growth, U.S. inflation, 10-year U.S. Treasury bond rate, China real GDP growth, EMBI yield, and terms-of-trade growth.

conditions and provide a sense of average responses of the group to changes in these conditions. It finds that growth in emerging market economies is significantly associated with growth in their trading partners, including that in other large emerging markets such as the BRICS (Brazil, Russia, India, China, South Africa), and with global financing conditions. It highlights the increasing sensitivity of emerging market economies' growth to changes in these external conditions as these economies have rapidly integrated into the global economy.

In essence, although domestic economic and structural policies remain important determinants of growth over short and long horizons, the analysis in this chapter demonstrates that external conditions also deserve attention. In this regard, if impending changes in the external environment are dominated by an improvement in advanced economies' growth, emerging market economies will benefit in both the short and medium term. Conversely, if external financing conditions tighten by more than what is accounted for by an improving outlook in advanced economies, growth in emerging markets will suffer a relatively lasting effect. However, even if external conditions deteriorate, emerging markets' ability to weather such shocks will be influenced by the domestic policies they deploy to offset those shocks. The priority, now, for policymakers in some of these economies is to assess why these internal factors, cyclical or structural, are currently reducing growth to less than the averages of the past 15 years and what, if anything, can be done to reverse the situation.

Shifting Gears: Have Emerging Markets' Growth Dynamics Changed since the Global Financial Crisis?

This section assesses in what ways, if any, the behavior of growth in emerging market economies and its relationship with its underlying external and internal drivers have shifted since the onset of the global financial crisis. With the recovery in many advanced economies still anemic, it is possible that emerging markets' output and growth have also suffered in an enduring way and that their growth today responds differently to external and internal factors than it did before the crisis. This assess-

ment is an important part of understanding to what extent the past can be a guide for the future relationship between growth and its external drivers.

A number of studies have highlighted the serious real effects of financial crises for both advanced and emerging market economies.[22] Among the economies considered in this chapter, a few (for example, Russia and Venezuela) suffered serious growth setbacks as they experienced financial distress of their own (Figure 4.11, panel 3; see Laeven and Valencia, 2013). Some others experienced sharp downturns as well, likely reflecting their financial linkages to advanced economies that experienced the financial crisis (for example, South Africa). In contrast, a few weathered the crisis reasonably well (for example, Indonesia and the Philippines). What was the overall growth impact on these economies that were not at the epicenter of the global financial crisis? A starting point is an assessment of the severity of the global financial crisis for emerging market economies' growth compared with that of previous global recessions.

The post-global-financial-crisis output dynamics in emerging markets—relative to the precrisis average levels—compare favorably with those following the global recessions in 1975, 1982, and 1991.[23] Panels 1 and 2 of Figure 4.11 show that whereas the global financial crisis inflicted a sharp decline in output for advanced economies in its first year, the average output loss for noncrisis emerging market economies in the sample was less than 1½ percent. Also, unlike in advanced economies, whose four- to five-year output loss widened even more sharply to nearly 9 percent, losses for emerging markets have remained low.

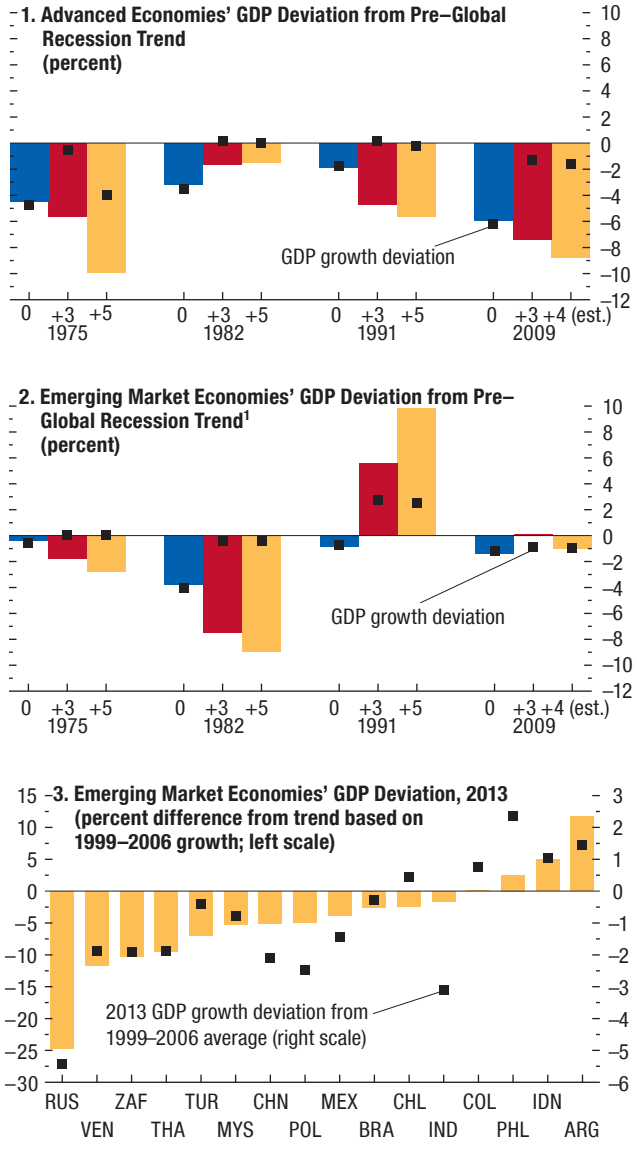
This strong performance after the global financial crisis was surpassed only by emerging markets' experience during the 1991 global recession, when economies in both emerging Asia and Latin America enjoyed rapid growth relative to the pre-1991 growth trends (the black squares in panel 2 of the figure). As for the recent crisis, countercyclical policies, undertaken by both emerging market economies and their advanced

[22]Most of these studies highlight how the path of output tends to be depressed substantially and persistently following crises, for both advanced and emerging market economies undergoing crises, with no rebound, on average, to the precrisis trend in the medium term (Abiad and others, 2014; Cerra and Saxena, 2008; Reinhart and Rogoff, 2009).

[23]The dating of global recessions draws on recent work by Kose, Loungani, and Terrones (2013), whereas the metric to compute precrisis trends draws on Abiad and others (2014).

Figure 4.11. Emerging Markets' Output and Growth Performance after Global Recessions

The output and growth dynamics in emerging market economies after the recent global financial crisis compare favorably relative to those following the global recessions in 1975, 1982, and 1991.



Source: IMF staff calculations.
Note: *X*-axis in panel 3 uses International Organization for Standardization (ISO) country codes.
[1]Average for all sample economies except Argentina, Russia, and Venezuela.

economy trading partners, likely helped maintain their growth rates very close to the precrisis trends. This is remarkable given that precrisis growth was exceptionally strong for these economies (see Figure 4.1, panel 1).

The hypothesis that the relationship between emerging market growth and external and internal factors may have changed substantially in the aftermath of the global financial crisis is examined next. To do this, the conditional out-of-sample growth forecasts of domestic growth are evaluated using the model estimated through the fourth quarter of 2007, taking as given all external variables not specific to emerging market economies.[24] The deviation of the conditional forecast from actual growth is interpreted as reflecting other, mostly internal, factors that have driven growth in these economies since 2008.

On average, the conditional forecasts track actual growth since 2008 reasonably well, suggesting that there were no major aftershocks from the global financial crisis to the relationship between emerging market growth and its underlying external factors (Figures 4.12 and 4.13). The conditional forecasts based on one of the two specifications are able to project a sharp dip during the global financial crisis, the subsequent rebound, and the slowdown since 2012. Also, as Figure 4.13 shows, the forecast errors (actual growth minus conditional forecast growth) for most economies are within 1 to 2 percent of the standard deviation of the economies' growth over the sample period. The notable exceptions are Russia and Venezuela, for which the forecast errors are significantly larger, reflecting in part the lesser suitability of the estimation method—with an underlying assumption of a linear VAR model with stable coefficients—for economies that experienced significant volatility, or many structural shocks, or both, during the sample period.

That said, forecast performances differ across the economies, and two specific periods reveal larger forecast errors for many. First, at the peak of the global financial crisis, actual growth fell more sharply than forecast growth—based on either of the two alternative models—for 7 of the 16 economies: Chile, China, Malaysia, the Philippines, Russia, South Africa, and Thailand (Figure 4.12). This possibly reflects the unusual shock embodied in the global financial crisis, which affected emerging markets' growth more deeply than is captured by the traditional external channels and identified within the linear VAR framework.

Growth since 2012 has also undershot the level predicted given current global economic conditions for 9 of the 16 economies, suggesting again the role of internal factors. This group comprises Brazil, Chile, China, Colombia, India, Russia, South Africa, Turkey, and Venezuela. In fact, for most of these economies, the forecast errors since 2012 are larger than even those for 2008–09 (see Figure 4.13). In some economies, however (for example, Indonesia, Mexico, and the Philippines), actual growth since 2012 has mostly outpaced conditional forecasts, pointing instead to the role of internal factors in boosting growth.

Note that although the forecast underperformance is interpreted here as reflecting the role of internal factors in moderating growth, other possibilities include other unidentified factors, such as common or intra-emerging-market shocks (beyond those related to China), or exogenous factors unrelated to domestic policy shocks, such as natural disasters (for example, see, in Figure 4.12, panel 14, the sharp negative deviation of Thailand's growth from its conditional forecast in the last quarter of 2011, when the country was buffeted by floods of unprecedented magnitude). In economies in which such other unidentified factors may have played a larger role, the analysis could overstate the effects of internal factors. That said, the findings do resonate with recent related work that has also underscored constraints from domestic structural factors as becoming increasingly binding for growth in many of these economies (see IMF, 2013b and 2014, for India; IMF, 2013c, for South Africa; and IMF, 2013d, for Turkey).

China is prominent among emerging markets for which growth outturns have systematically been below the level indicated by conditional forecasts in recent years. In fact, the widening of the forecast errors for China since 2011 (see Figure 4.13) suggests that the drag from internal factors has remained persistent. Indeed, China's medium-term growth forecast, as projected in the WEO (dashed line in Figure 4.12), is lower than both actual growth and the conditional forecast, reflecting the transition of the economy toward a more moderate pace of growth over the medium term.

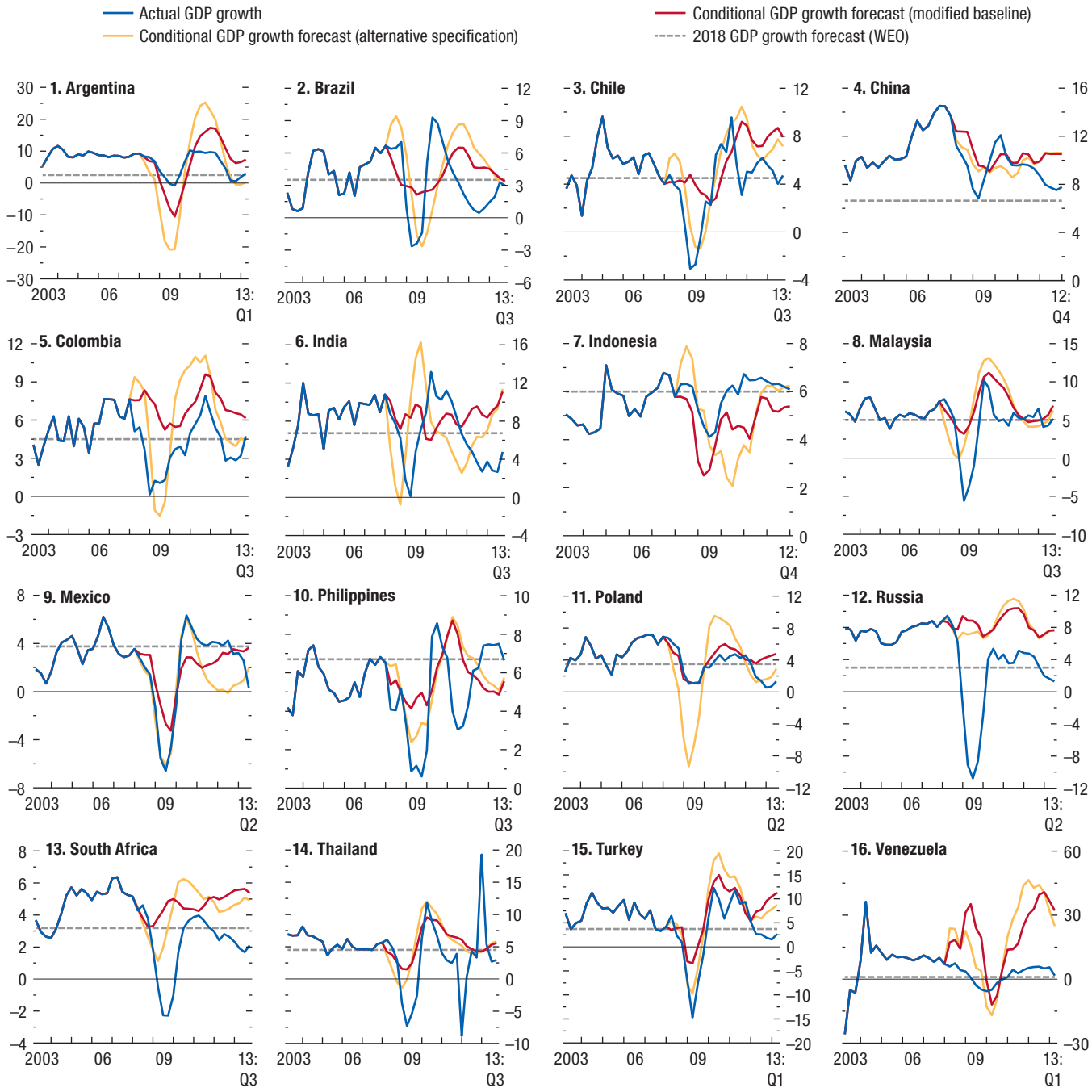
In summary, the recent systematic divergence between actual and forecast growth for a few major emerging markets suggests that internal factors may

[24]Two alternative models for the conditional forecasts are considered. The first is based on the modified baseline model that adds China's growth in the external block. An alternative model adds growth in both China and the euro area in the external block. For China, the conditional forecasts are based on the baseline model and an alternative model that includes growth in the euro area in the external block.

Figure 4.12. Out-of-Sample Growth Forecasts Conditional on External Factors, by Country

(Percent)

Although forecast performances differ across emerging market economies, two specific periods reveal larger forecast errors for many economies: first, during the peak of the global financial crisis, from the final quarter of 2008 until mid-2009; and second, since 2012.

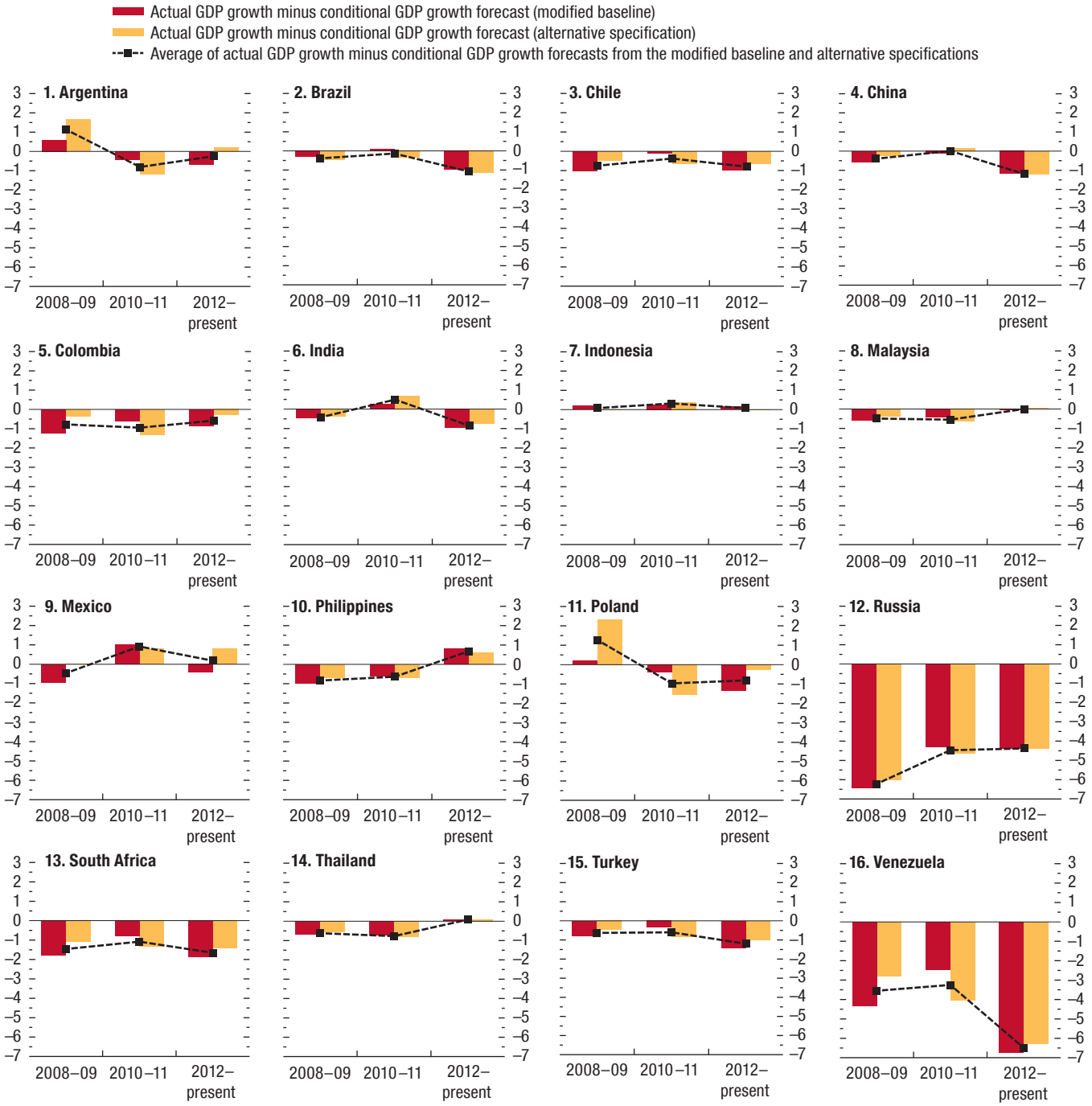


Sources: Haver Analytics; Thomson Reuters Datastream; and IMF staff calculations.
Note: For all economies except China, the modified baseline vector autoregression model includes U.S. real GDP growth, U.S. inflation, 10-year U.S. Treasury bond rate, China real GDP growth, J.P. Morgan Emerging Markets Bond Index (EMBI) yield, and terms-of-trade growth in the external block; the alternative specification includes U.S. real GDP growth, euro area real GDP growth, U.S. inflation, 10-year U.S. Treasury bond rate, China real GDP growth, EMBI yield, and terms-of-trade growth in the external block. For China, the modified baseline vector autoregression model includes U.S. real GDP growth, U.S. inflation, 10-year U.S. Treasury bond rate, EMBI yield, and terms-of-trade growth in the external block; the alternative specification includes U.S. real GDP growth, euro area real GDP growth, U.S. inflation, 10-year U.S. Treasury bond rate, EMBI yield, and terms-of-trade growth in the external block.

Figure 4.13. Conditional Forecast and Actual Growth since the Global Financial Crisis, by Country

(Percentage points)

Differences between actual growth and forecast growth conditional on external conditions are not that large for most sample economies.



Sources: Haver Analytics; Thomson Reuters Datastream; and IMF staff calculations.

Note: For all economies except China, the modified baseline vector autoregression model includes U.S. real GDP growth, U.S. inflation, 10-year U.S. Treasury bond rate, China real GDP growth, J.P. Morgan Emerging Markets Bond Index (EMBI) yield, and terms-of-trade growth in the external block; the alternative specification includes U.S. real GDP growth, euro area real GDP growth, U.S. inflation, 10-year U.S. Treasury bond rate, China real GDP growth, EMBI yield, and terms-of-trade growth in the external block. For China, the modified baseline vector autoregression model includes U.S. real GDP growth, U.S. inflation, 10-year U.S. Treasury bond rate, EMBI yield, and terms-of-trade growth in the external block; the alternative specification includes U.S. real GDP growth, euro area real GDP growth, U.S. inflation, 10-year U.S. Treasury bond rate, EMBI yield, and terms-of-trade growth in the external block. All values have been normalized using the standard deviation of country-specific real GDP growth between the first quarter of 1998 and the fourth quarter of 2007.

have become more important in determining growth for these economies. In many cases, these factors have pulled growth below the level expected under current global economic conditions. Given their persistence, these factors are likely to affect trend growth as well. Even for emerging market economies in which growth is still broadly tracking the path determined by global economic conditions, what happens to their growth will depend in large part on how growth evolves in larger economies, particularly China.

Policy Implications and Conclusions

The deceleration of emerging markets' growth in the past two years following a prolonged period of rapid growth has raised many concerns about these economies' future prospects: for instance, will growth suffer as advanced economies gain momentum and begin to raise their interest rates? What are the likely effects of a slower pace of expansion in China? Are emerging markets helplessly on the receiving end of these shocks? Has the global financial crisis changed the relationship between growth and its drivers, and has trend growth shifted to a lower plane?

This chapter sheds light on some of these concerns by analyzing the external drivers of emerging market economies' growth and assessing how this relationship has endured both before and since the global financial crisis. The findings suggest that emerging markets are facing a more complex growth environment than in the period before the crisis and provide the following broad lessons.

First, if growth in advanced economies strengthens as expected in the current WEO baseline forecasts, this, by itself, should entail net gains for emerging markets, despite the attendant higher global interest rates. Stronger growth in advanced economies will improve emerging market economies' external demand both directly and by boosting their terms of trade. Conversely, if downside risks to growth prospects in some major advanced economies were to materialize, the adverse spillovers to emerging market growth would be large. The payoffs from higher growth in advanced economies will be relatively higher for economies that are more open to advanced economies in trade and lower for economies that are financially very open.

Second, if external financing conditions tighten by more than what advanced economy growth can account for, as seen in recent bouts of sharp increases in sovereign bond yields for some emerging market economies, their growth will decline. Mounting external financing pressure without any improvement in global economic growth will harm emerging markets' growth as they attempt to stem capital outflows with higher domestic interest rates, although exchange rate flexibility will provide a buffer. Economies that are naturally prone to greater capital flow volatility and those with relatively limited policy space are likely to be affected most.

Third, China's transition into a slower, if more sustainable, pace of growth will also reduce growth in many other emerging market economies, at least temporarily. The analysis also suggests that external shocks have relatively lasting effects on emerging market economies, implying that their trend growth can be affected by the ongoing external developments as well.

Finally, although external factors have typically played an important role in emerging markets' growth, the extent to which growth has been affected has also depended on their domestic policy responses and internal factors. More recently, the influence of these internal factors in determining changes in growth has risen. However, these factors are currently more of a challenge than a boon for a number of economies. The persistence of the dampening effects of these internal factors suggests that trend growth is affected as well. Therefore, policymakers in these economies need to better understand why these factors are suppressing growth and whether growth can be strengthened without inducing imbalances. At the same time, the global economy will need to be prepared for the ripple effects from the medium-term growth transitions in these emerging markets.

Appendix 4.1. Data Definitions, Sources, and Descriptions

The chapter primarily uses the World Economic Outlook (WEO) database from October 2013. Additional data sources are listed in Table 4.4. Data are collected for all variables on a quarterly basis from the first quarter of 1998 to the latest available quarter.

Economy Characteristics

Table 4.5 lists the 16 emerging market economies included in the data set. These economies represent

Table 4.4. Data Sources

Variable	Sources	Calculations and Transformations
Ten-Year U.S. Treasury Bond Rate	Haver Analytics	
Thirty-Day Federal Funds Futures	CME Group, Thomson Reuters Datastream	
Capital Flow Volatility	IMF, Balance of Payments and International Investment Position (IIP) Statistics Database and IMF Staff Calculations	Standard deviation of net nonofficial inflows in percent of GDP, 2000–12. See Appendix 4.1 of the April 2011 *World Economic Outlook* for the methodology
China Real Investment Growth	IMF Staff Calculations	
CPI Inflation	World Economic Outlook Database	
EMBI Global Bond Spread	Thomson Reuters Datastream	
EMBI Global Bond Yield	Thomson Reuters Datastream	
Financial Openness	IMF Staff Calculations	Sum of international investment position assets and international investment position liabilities in percent of GDP (U.S. dollars), 2000–12
Global Commodity Price Index	IMF Staff Calculations	
IIP Assets and Liabilities	IMF, Balance of Payments and IIP Statistics Database	
Nominal Exchange Rate versus U.S. Dollar	IMF, International Financial Statistics Database	
Nominal Exports	World Economic Outlook Database, Direction of Trade Statistics Database	
Nominal GDP	World Economic Outlook Database	
Nominal GDP in U.S. Dollars	World Economic Outlook Database	
Nominal Imports	World Economic Outlook Database	
Nominal Short-Term Interest Rate	Thomson Reuters Datastream, Haver Analytics, Federal Reserve Economic Data (FRED, Federal Reserve Bank of St. Louis)	
Nonfuel Commodity Terms of Trade	IMF Staff Calculations	
Per Capita Output Volatility	IMF, World Economic Outlook Database	Standard deviation of per capita real GDP growth, 2000–12
Real Exchange Rate versus U.S. Dollar	IMF Staff Calculations	Nominal exchange rate versus U.S. dollar divided by the ratio of local consumer price index (CPI) inflation to U.S. CPI inflation
Real GDP	IMF, World Economic Outlook Database	
Share of Net Commodity Exports in GDP	IMF Staff Calculations	See Appendix 4.2 of the April 2012 *World Economic Outlook* for the methodology
Terms-of-Trade Growth	Haver Analytics; IMF, International Financial Statistics Database; Organization for Economic Cooperation and Development; World Bank, World Development Indicators database; and IMF Staff Calculations	China terms of trade: quarterly terms of trade for China are interpolated using a Chow-Lin procedure applied to annual terms-of-trade data (from the World Bank's World Development Indicators database) and three quarterly explanatory variables: Hong Kong import unit value, Hong Kong export unit value, and China producer price index; Venezuela terms of trade: quarterly terms of trade for Venezuela are estimated using the commodity oil price (as a proxy for export prices) and unit import values (from the IMF's International Financial Statistics database)
Trade Exposure to Advanced Economies	IMF, Direction of Trade Statistics Database and World Economic Outlook Database	Sum of exports of goods to the United States and the euro area expressed as a percent of GDP, 2000–12
Trade Openness	IMF, World Economic Outlook Database	Nominal exports plus nominal imports in percent of GDP, 2000–12
U.S. Effective Federal Funds Rate	Haver Analytics	
U.S. High-Yield Spread	Bank of America Merrill Lynch and Haver Analytics	U.S. investment grade corporate yield minus U.S. (junk bond) high yield
U.S. Inflation Expectations	Federal Reserve Bank of Philadelphia, *Survey of Professional Forecasters*	
U.S. Real Short-Term Interest Rate	Haver Analytics, Federal Reserve Bank of Philadelphia, and IMF Staff Calculations	U.S. effective federal funds rate minus U.S. inflation expectations
U.S. Term Spread	Haver Analytics and IMF Staff Calculations	Ten-year U.S. Treasury bond rate minus U.S. effective federal funds rate

Source: IMF staff compilation.
Note: EMBI = J.P. Morgan Emerging Markets Bond Index.

Table 4.5. Sample of Emerging Market Economies and International Organization for Standardization Country Codes

Africa	Asia	Europe	Latin America
South Africa (ZAF)	China (CHN) India (IND) Indonesia (IDN) Malaysia (MYS) Philippines (PHL) Thailand (THA)	Poland (POL) Russia (RUS) Turkey (TUR)	Argentina (ARG) Brazil (BRA) Chile (CHL) Colombia (COL) Mexico (MEX) Venezuela (VEN)

Source: IMF staff compilation.

75 percent of 2013 GDP (in purchasing-power-parity terms) for the group of emerging market and developing economies. China alone accounts for 31 percent, and the other 15 economies close to 45 percent. Among these, 10 economies—that is, all except China, India, the Philippines, Poland, Thailand, and Turkey—were net commodity exporters during the sample period. However, only four economies in the sample are heavily concentrated in commodities, with net commodity exports as a percentage of GDP—averaged over 2000–10—greater than or equal to 10 percent (Argentina, Chile, Russia, Venezuela). The share for Indonesia is also high, at 8.5 percent.

Real GDP growth has varied significantly over the sample period for the 16 economies. Figure 4.14 shows that year-over-year quarterly real GDP growth in China outperforms growth in nine of the sample economies since 2000. Only Argentina, India, Thailand, Turkey, and Venezuela are exceptions, typically because of very high output volatility rather than continuing outperformance. In addition, some emerging market economies were unable to post higher growth than the United States until the mid-2000s: these were largely economies in Latin America; economies in East Asia generally grew at rates above those of the United States, although below the level of China's growth.

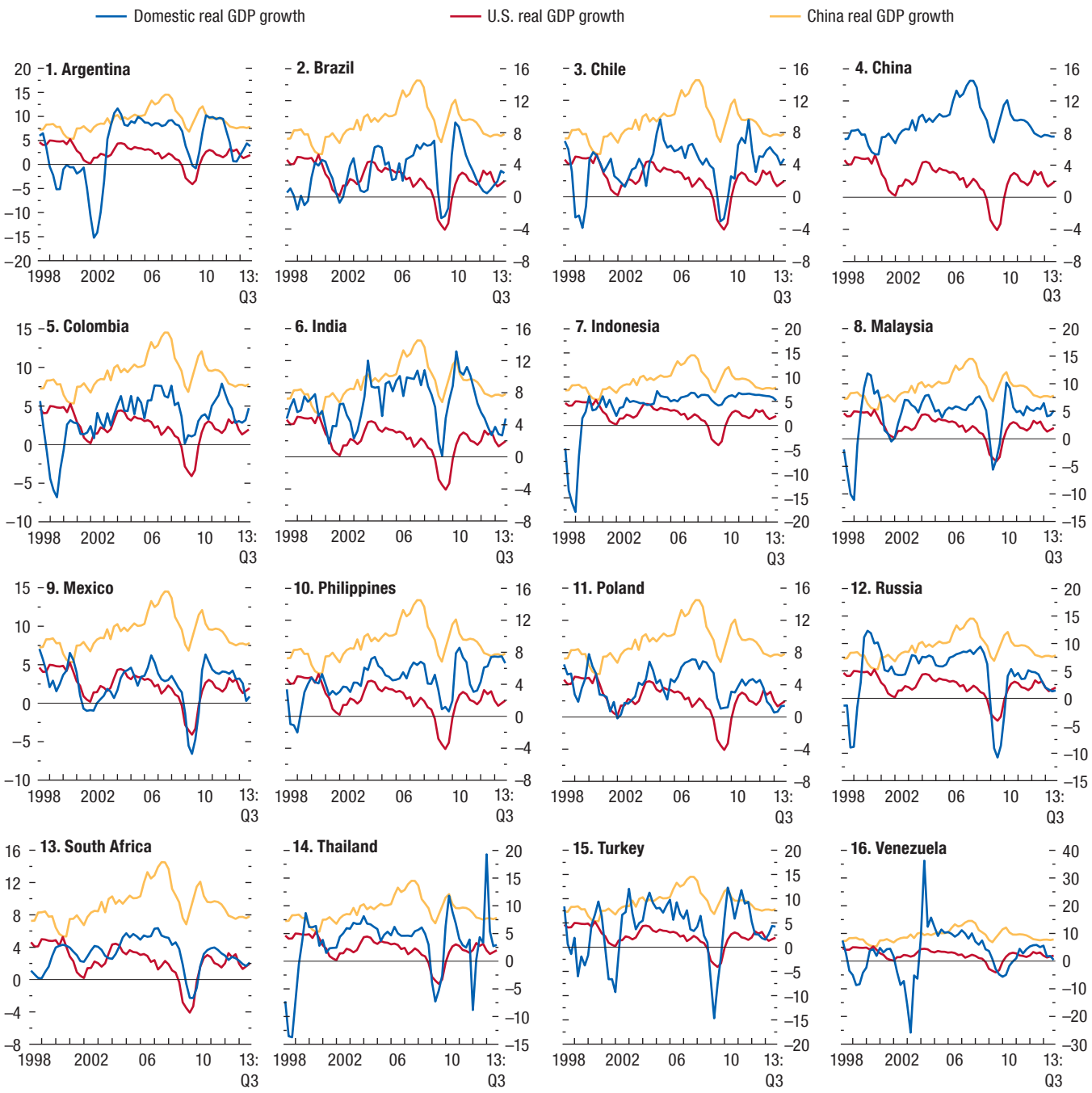
Figure 4.15 presents regional growth averages based on the economies in the sample and compares those averages with the evolution of growth in advanced economies and China. Once again, it is clear that China's growth rate dominates those of almost all other economies in the sample. In fact, with China excluded, the surge in the sample economies' average growth before the global financial crisis is much less spectacular. Among the three regional groups (emerging Asia excluding China, emerging Europe and South Africa, Latin America), emerging Asia's growth performance was the strongest both before and during the global financial crisis. Growth in the LA4 (Brazil, Chile, Colombia, Mexico) tended to trail that in other economies. Growth in emerging Europe and South Africa was close to the levels for emerging Asia before the crisis, but then fell the most during the global financial crisis. Since then, the recovery in emerging Europe and South Africa has tended to be weaker than that in emerging Asia.

Table 4.6 provides information on simple pairwise correlations between domestic real GDP growth for the sample economies and the key variables used in the statistical analysis over the sample period. There are a few items of note:

- Domestic output growth is positively correlated with output growth in China for all economies in the sample. For Argentina, Brazil, Colombia, India, Indonesia, Thailand, and Venezuela, the growth correlation with China's growth is stronger than that with the euro area or the United States. In contrast, output growth in Chile, Malaysia, Mexico, Russia, and Turkey is more correlated with growth in the United States than with growth in China. Among the economies examined, those in emerging Europe and South Africa (Poland, Russia, South Africa, Turkey) generally tend to have the highest growth correlations with growth in the advanced economies and China. Furthermore, growth in China, Colombia, and Indonesia is negatively correlated with growth in the euro area, the United States, or both.
- Interestingly, terms-of-trade growth is not always positively correlated with domestic GDP growth. In fact, for six economies (China, Indonesia, Philippines, Poland, South Africa, Turkey), the correlation is negative, whereas for two, the correlation is numerically insignificant (India, Venezuela). This may reflect the fact that increases in the terms of trade do not always reflect improvement in global demand, and to the extent that it is actually associated with supply shocks, the effect may not be positive for growth.

Figure 4.14. Domestic Real GDP Growth across Emerging Markets versus United States and China

(Percent)



Source: IMF staff calculations.

- All economies demonstrate a strong negative correlation between domestic growth and proxies for global financial conditions, such as the J.P. Morgan Emerging Markets Bond Index (EMBI) spread and yield. There is much more cross-economy heterogeneity in the correlation between domestic growth and the U.S. federal funds rate and the 10-year U.S. Treasury bond rate. On average, only half of the sample shows a negative correlation between domestic growth and U.S. interest rates.

Appendix 4.2. Estimation Approach and Robustness Checks

This appendix provides further details regarding the identification and Bayesian estimation of the structural vector autoregression (SVAR) model used in the chapter and presents alternative specifications that assess the robustness of the main results.

Model Identification

The analysis uses a standard SVAR model to estimate the growth effects of external factors. The model is estimated separately for each economy using quarterly data from the first quarter of 1998 to the latest available quarter in 2013.

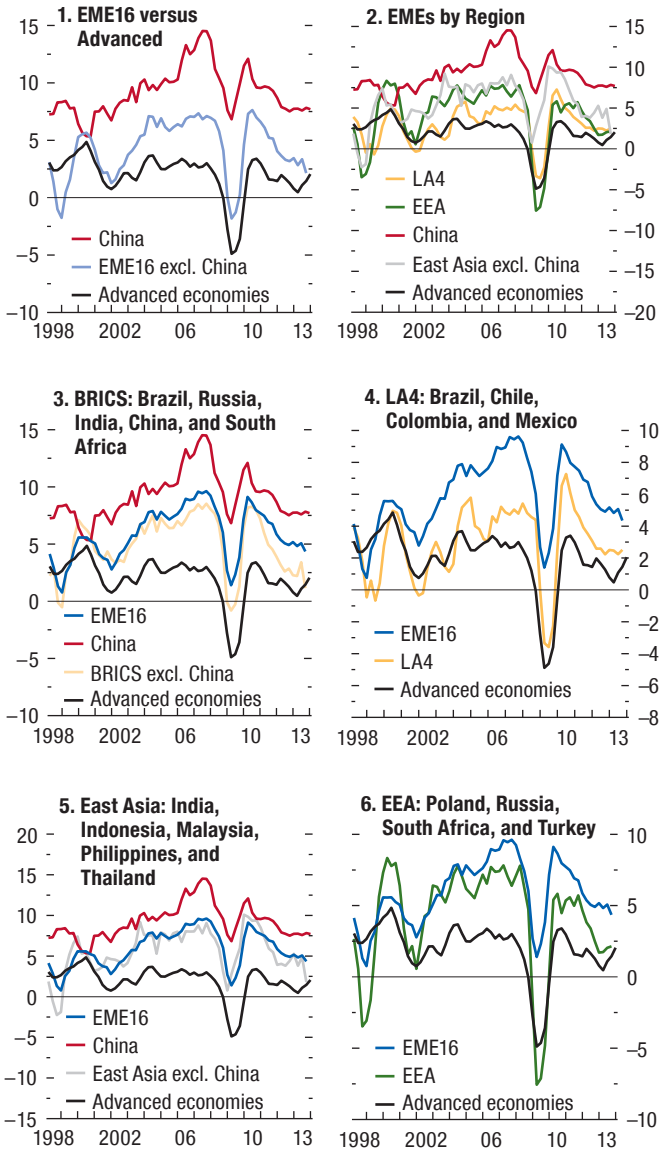
The baseline model takes the following form:

$$A(L)y_t = \varepsilon_t = A_0 u_t, \qquad (4.1)$$

in which y_t is a $k \times 1$ vector, where k is the total number of endogenous variables; $A(L)$ is a $k \times k$ matrix polynomial of lag operator L with lag length p; and ε_t is a $k \times 1$ vector of contemporaneously correlated, mean-zero reduced-form errors. The contemporaneous relationships across variables are disentangled by mapping ε_t to a $k \times 1$ vector of mutually orthogonal, mean-zero, structural shocks, u_t, through the $k \times k$ matrix A_0.

Each economy's baseline vector autoregression (VAR) consists of nine variables in the vector y_t (k = 9) ordered as follows: U.S. real GDP growth (Δy^*), U.S. inflation (π^*), the nominal 10-year U.S. government bond rate (r^*), the EMBI Global yield (r^{EMBI^*}), the economy-specific terms-of-trade growth (Δtot), domestic real GDP growth (Δy), domestic inflation (π), the rate of appreciation of the economy's real exchange rate vis-à-vis the U.S. dollar (e), and the domestic monetary policy rate or short-term interest rate (r). Note that all growth rates are calculated as

Figure 4.15. Average Growth for Regional Groups of Emerging Market Economies
(Percent)



Source : IMF staff calculations.
Note: EME = emerging market economy. EME16 denotes the 16 emerging market economies within the sample. LA4 denotes the Latin American economies within the sample, excluding Argentina and Venezuela. EEA denotes economies from emerging and developing Europe and Africa within the sample.

Table 4.6. Correlations of Domestic Real GDP Growth with Key Variables, 1998–2013

	U.S. Real GDP Growth	U.S. Federal Funds Rate	Ten-Year U.S. Treasury Bond Rate	Euro Area Real GDP Growth	China Real GDP Growth	EMBI Spread	EMBI Yield	Terms-of-Trade Growth
Argentina	0.12	–0.13	–0.28	0.15	0.56	–0.68	–0.64	0.33
Brazil	0.15	0.03	0.03	0.42	0.51	–0.51	–0.37	0.63
Chile	0.31	–0.01	–0.11	0.44	0.25	–0.62	–0.52	0.33
China	–0.10	0.05	–0.05	0.16	1.00	–0.64	–0.50	–0.27
Colombia	–0.08	–0.18	–0.28	0.15	0.53	–0.82	–0.71	0.29
India	0.27	0.10	0.19	0.42	0.66	–0.44	–0.29	0.03
Indonesia	–0.32	–0.38	–0.35	–0.15	0.27	–0.56	–0.52	–0.26
Malaysia	0.26	–0.07	0.00	0.33	0.21	–0.37	–0.26	0.29
Mexico	0.76	0.35	0.18	0.77	0.16	–0.26	–0.16	0.52
Philippines	0.18	–0.27	–0.32	0.16	0.32	–0.61	–0.58	–0.40
Poland	0.40	0.44	0.36	0.61	0.49	–0.32	–0.13	–0.20
Russia	0.45	0.30	0.31	0.66	0.21	–0.23	–0.04	0.77
South Africa	0.39	0.32	0.23	0.67	0.42	–0.38	–0.18	–0.14
Thailand	0.17	–0.15	–0.07	0.18	0.26	–0.31	–0.24	0.15
Turkey	0.44	–0.06	–0.04	0.45	0.38	–0.51	–0.41	–0.14
Venezuela	0.17	0.12	–0.02	0.24	0.26	–0.48	–0.38	0.09

Source: IMF staff calculations.
Note: Period is 1998:Q1–2013:Q2. EMBI = J.P. Morgan Emerging Markets Bond Index.

log differences of the relevant level's time series. The first five variables constitute the "external" or foreign block, and the remaining variables make up the "internal" or domestic block.

Identification (the mapping to the structural shocks) uses contemporaneous restrictions on the structure of the matrix A_0. The key restriction is that shocks to the external block are assumed to be exogenous to shocks to the internal block; in other words, the external variables do not respond to the internal variables contemporaneously. Within the external block, structural shocks are further identified using a recursive (Cholesky) scheme, defined by the ordering of the variables in the vector y_t. Therefore, U.S. real GDP growth is assumed to respond to other shocks only with a lag. U.S. inflation is affected by U.S. growth shocks contemporaneously, but by other shocks with a lag. The U.S. interest rate responds contemporaneously to U.S. real GDP growth and inflation shocks, but not to the EMBI Global yield or to any emerging market economy's terms-of-trade growth. The EMBI Global yield is placed ahead of economy-specific terms-of-trade growth, but behind all the U.S. variables. Finally, terms-of-trade growth is placed last in the recursive ordering, implying that it responds contemporaneously to all other external variables, but not to the domestic variables. Structural shocks within the internal block are unidentified.

All variables enter the model with four lags. Other than the contemporaneous restrictions on the matrix A_0, there are no restrictions on the coefficients for the lagged variables; that is, the lags of the internal block variables are allowed to affect the external block variables.

Estimation by Bayesian Methods

The number of sample observations relative to the number of parameters to be estimated in each equation of each economy's SVAR is not very large. This means that there is a danger of overfitting if the model estimation is left unrestricted. Overfitting leads to good performance of the estimated model within the sample (as it tends to follow the noise in the sample more closely), but to poor out-of-sample performance.

There are a number of ways to address this overfitting problem. One is to impose hard restrictions on the parameters, by fixing some of them to specific values. However, by taking a hard stance before the fact, such restrictions rule out potentially interesting dynamics. An alternative to such restrictions is to estimate the model using Bayesian methods, which is the approach followed in this chapter. This involves specifying restrictions on estimated parameters that are softer, such as constraining them to be more likely at some values than at others. Operationally, a prior probability distribution is imposed on the estimated parameters, pulling in additional information from outside the sample observations, to avoid overfitting. This is combined with the information in the sample to generate estimates for the parameters.

The prior used in this chapter is a so-called Minnesota prior, inspired by Litterman (1986), in which each variable is assumed to follow a first-order autoregressive (AR(1)) process with independent, normally distributed errors. Given that the variables have already been transformed to induce stationarity, a random walk, with a unit AR(1) coefficient for the prior, would not be appropriate. Simple AR(1) regressions, however, do suggest estimated AR(1) coefficients of about 0.8, which is the AR(1) coefficient used in the prior for the baseline estimation. Some of this persistence reflects the fact that all growth rates are calculated as year-over-year differences.

The weight of the prior versus the sample in the estimation is determined according to the Bayesian approach presented in Sims and Zha (1998). If twice the number of parameters to be estimated in an equation is greater than the estimation sample size, the chapter applies a rule of thumb that gives the prior a relative weight of $\left[1 - \frac{(T-p)}{2(kp+1)}\right] \in [0,1]$, in which T is the number of available sample observations and k and p are defined as above.[25]

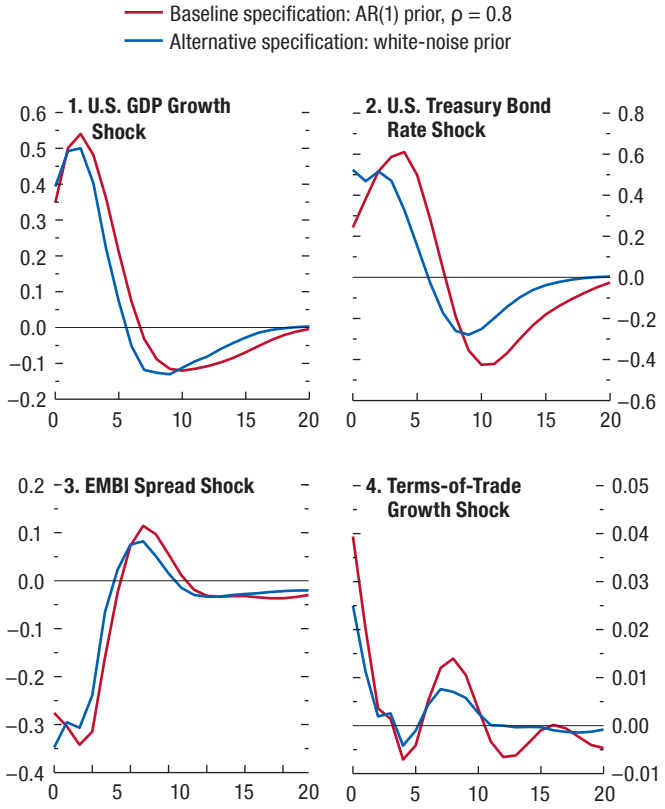
Figure 4.16 compares the average baseline SVAR results using the AR(1) priors with those from an alternative white-noise prior. As expected, with a white-noise prior, the impulse responses show lower persistence and amplitude. The conditional out-of-sample forecasts from these specifications are largely similar to those shown in Figures 4.12 and 4.13, although the forecast performance improves with a less persistent prior for some economies (for example, Malaysia, Mexico, and the Philippines).

Robustness of the Baseline Results

A variety of alternative specifications are used to assess the robustness of the main results. In particular, a number of additional variables are introduced as proxies for external demand, U.S. monetary policy, external financing conditions, and the terms of trade. The results are described in the following.

[25]In the case of China, there are 60 observations for the reduced-form VAR. With 37 coefficients to estimate, the priors receive a weight (importance) of slightly less than 0.25 in the baseline specification (and a maximum weight of 0.50 in the specification for out-of-sample forecasting reported in the chapter text).

Figure 4.16. Impact of Prior Choice on Average Impulse Responses
(Percentage points)

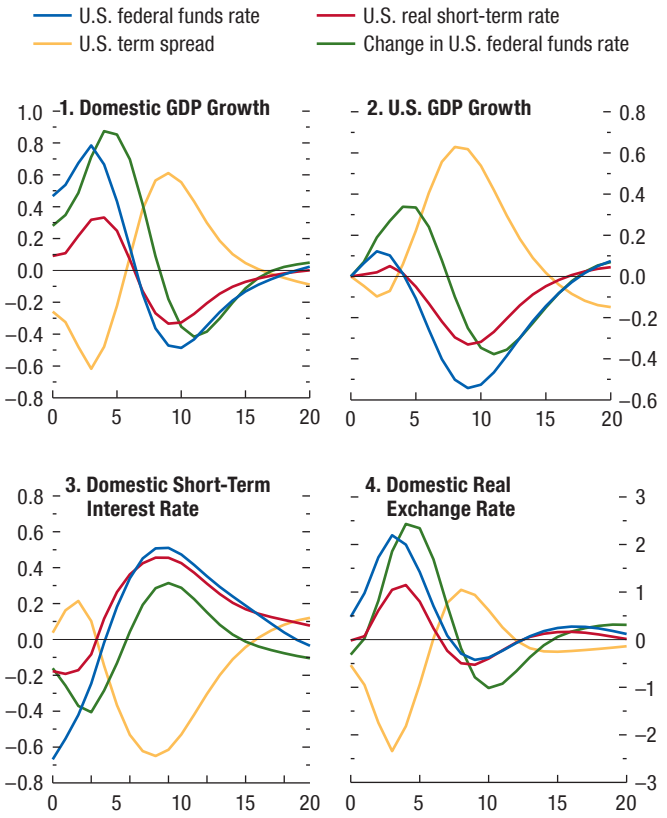


Source : IMF staff calculations.
Note: AR(1) = first-order autoregression; EMBI = J.P. Morgan Emerging Markets Bond Index. Shocks are normalized to a 1 percentage point increase. *X*-axis units are quarters; $t = 0$ denotes the quarter of the shock.

Alternative U.S. monetary policy measures

As described in the chapter, alternative proxies for global financing conditions are tried to assess the robustness of the findings: the 10-year U.S. Treasury bond rate, which is in the baseline specification (see Figure 4.16); and alternative specifications in which the 10-year U.S. Treasury bond rate is replaced by (1) the U.S. effective federal funds rate; (2) the ex ante U.S. real federal funds rate; (3) the change in the U.S. federal funds rate; (4) the U.S. term spread (defined as the 10-year U.S. Treasury bond rate minus the U.S. federal funds rate); (5) Kuttner (2001)–style unanticipated monetary policy shocks, inferred from the behavior of federal funds futures; and (6) an extension of the Romer and Romer (2004) exogenous monetary policy shock series, based on Coibion (2012).

Figure 4.17. Average Impulse Responses to Shocks from Alternative U.S. Monetary Policy Variables
(Percentage points)



Source: IMF staff calculations.
Note: Shocks are normalized to a 1 percentage point increase. *X*-axis units are quarters; $t = 0$ denotes the quarter of the shock.

Note that an increase in the U.S. federal funds or policy rate—nominal or real—negatively affects emerging market economies' growth only after a lag of six quarters just as the 10-year U.S. Treasury bond rate does (Figures 4.17 and 4.18). The impact effect is negative for very few economies (Chile, Malaysia, Thailand, Venezuela). These puzzling results may indicate that the U.S. rate increase embodies expectations of an improvement in future U.S. growth. Indeed, even U.S. growth is adversely affected with a delay (see Table 4.1). Emerging market economies' growth declines only as domestic interest rates gradually rise in response to the U.S. rate increase.

The alternative proxy using the term spread produces a more immediate negative effect (Figure 4.17). It is possible that the Federal Reserve's heavy reliance on unconventional policies to lower long-term rates over the past few years means that long-term rates are now a better measure of its stance than short-term rates. With the short-term rate at the zero lower bound, positive shocks to the term spread would indicate a tighter U.S. monetary policy (see also Ahmed and Zlate, 2013). With the exception of the U.S. term spread, emerging markets' growth responses to shocks to the alternative measures are similar to their responses to shocks to the 10-year U.S. Treasury bond rate or the U.S. policy rate.[26]

It is important to note that shocks to the 10-year U.S. Treasury bond rate may not correspond closely to unanticipated U.S. monetary policy changes unrelated to U.S. GDP growth and inflation. Because it is a long-term rate, it is much more likely that shocks to the 10-year rate reflect expectations in regard to the U.S. economy. Furthermore, since the global financial crisis, the 10-year U.S. Treasury bond rate has been suppressed by safe haven flows into U.S. Treasuries, reflecting not just the U.S. growth outlook, but also uncertainty over the global recovery. Therefore, shocks to the 10-year U.S. Treasury bond rate could occur in response to a wide range of external (non-U.S.) factors.

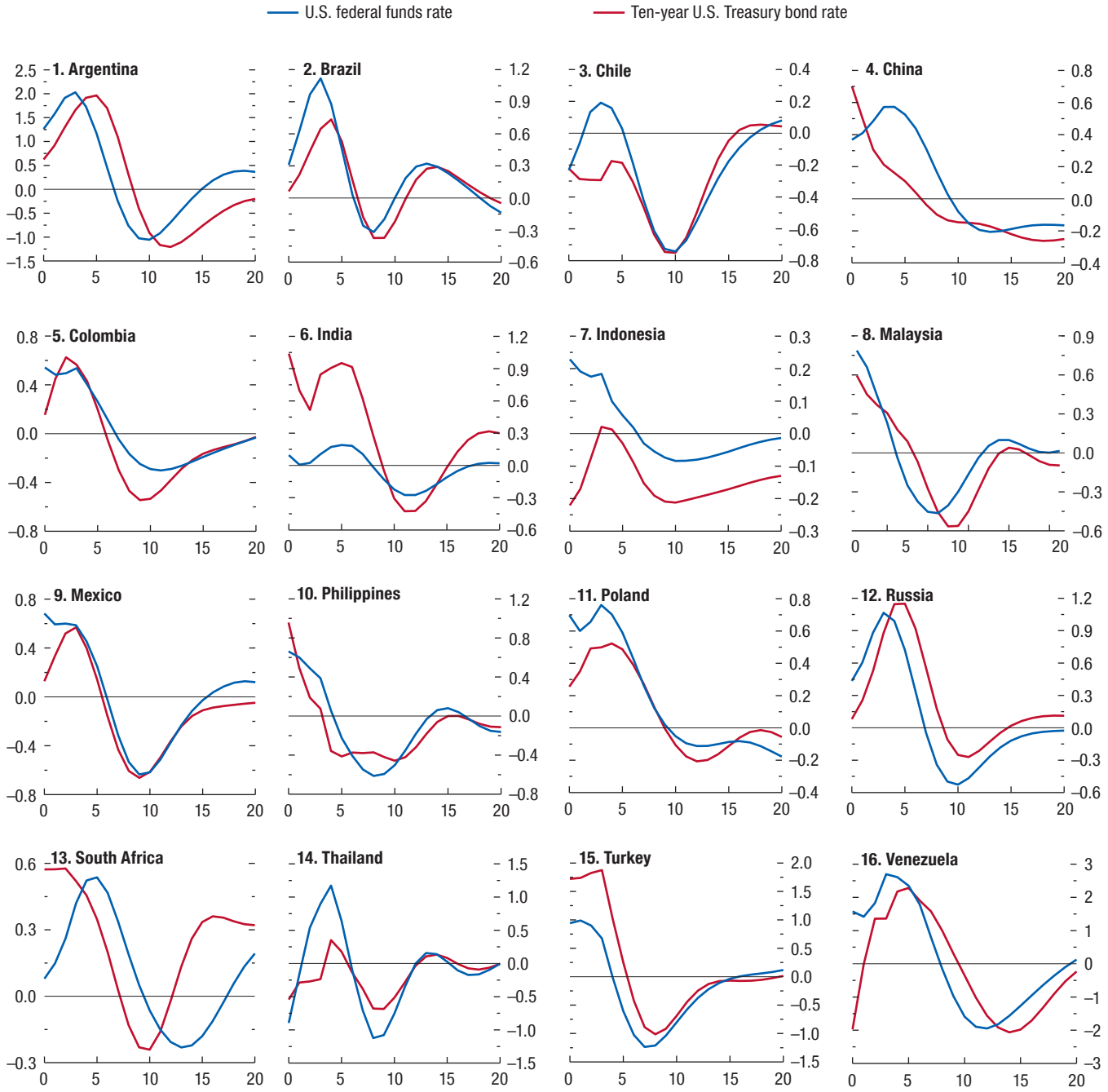
The impulse responses from specifications (5) and (6) use monetary policy measures to represent more accurately true U.S. monetary policy shocks. As shown in Figure 4.19, the sign and shape of the responses are broadly the same as for the other proxies discussed earlier. Growth in emerging market economies responds to U.S. monetary policy shocks only after one year. The reason for such responses could be that monetary policy shocks have been fairly limited and muted over the sample period. As Figure 4.20 shows, the largest shocks are shown to have occurred in the 1980s, when calculated using the technique set out in Romer and Romer (2004), and to have occurred with much less frequency, when calculated using the information contained in federal funds futures contracts, as described in Kuttner (2001).

External financing conditions

Robustness checks are also conducted for different types of external financing shocks besides the EMBI Global yield used in the baseline specification. The

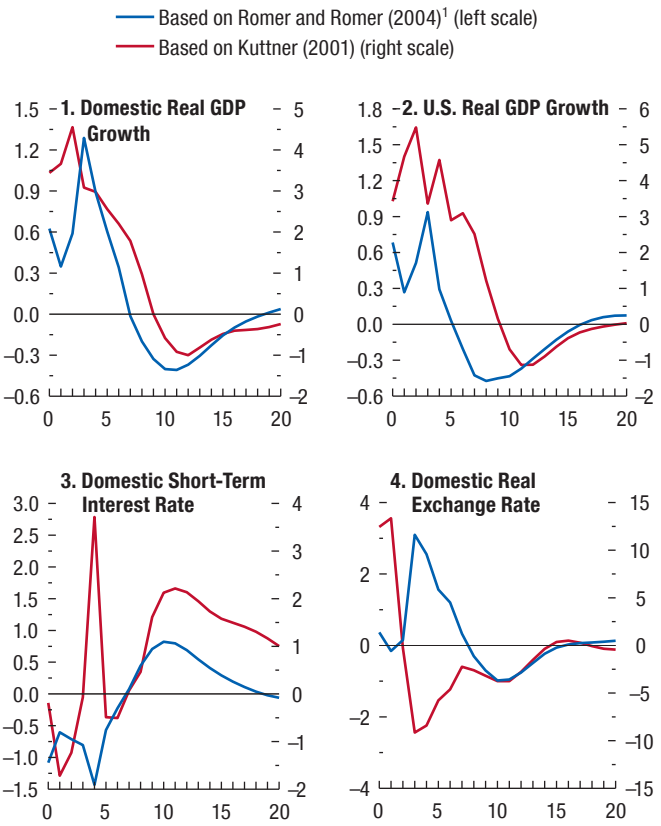
[26]Another alternative specification is also tried in which the 10-year U.S. Treasury bond rate is added after the policy rate in the external block. Shocks to either the policy rate or the 10-year rate in this expanded specification still elicit a lagged negative growth response for most emerging markets.

Figure 4.18. Domestic Real GDP Growth Response to U.S. Federal Funds Rate and 10-Year U.S. Treasury Bond Rate under Alternative Specifications
(Percentage points)



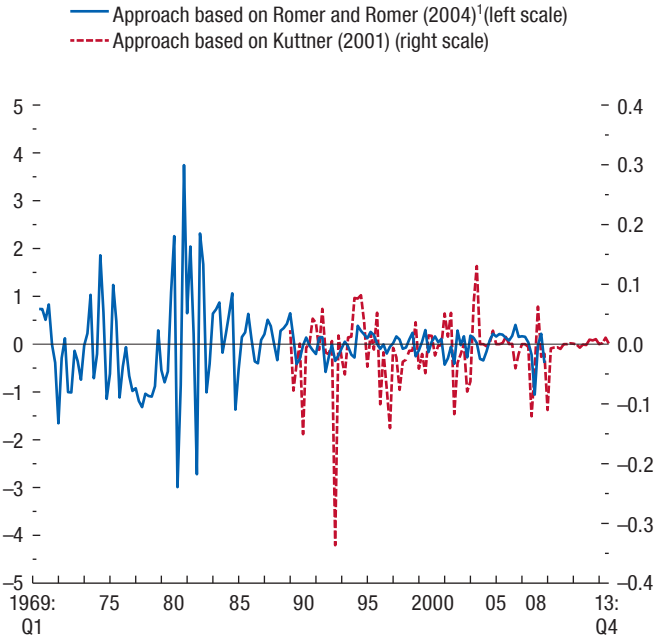
Source: IMF staff calculations.
Note: Shocks are normalized to a 1 percentage point increase. *X*-axis units are quarters; $t = 0$ denotes the quarter of the shock.

Figure 4.19. Average Impulse Responses to Alternative Measures of U.S. Monetary Policy Shock
(Percentage points)



Sources: Federal Reserve Economic Data; Haver Analytics; IMF, International Financial Statistics database; Thomson Reuters Datastream; and IMF staff calculations.
Note: Shocks are normalized to a 1 percentage point increase. *X*-axis units in panels are quarters; $t = 0$ denotes the quarter of the shock.
[1] See Coibion (2012).

Figure 4.20. Alternative Monetary Policy Shocks
(Percentage points)



Source: IMF staff calculations.
Note: *X*-axis units in panels are quarters; $t = 0$ denotes the quarter of the shock.
[1]See Coibion (2012).

variables used across the alternative specifications are (1) the EMBI Global spread and (2) the U.S. high-yield spread. As Figure 4.21 shows, the average response of domestic GDP growth in the 16 emerging market economies to all three identified shocks is very similar.

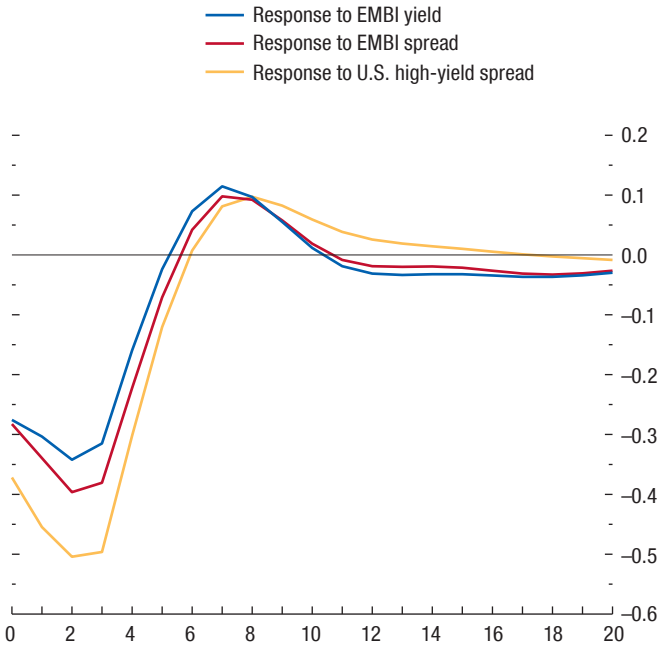
External demand conditions

The analysis assesses whether and how the effects of U.S. real GDP growth on domestic growth are affected by controlling for real GDP growth in the euro area. The euro area growth indicator enters the external block of the SVAR after U.S. real GDP growth in the recursive identification, but before the other U.S. variables. However, placing euro area growth after all the U.S. variables does not change the main results.

As shown in panel 1 of Figure 4.22, the average response of domestic growth to U.S. real GDP growth is largely unaffected by the introduction of this additional variable. Moreover, the response of domestic real GDP growth to euro area growth is also as strong as the response to U.S. real GDP growth, confirming that it is reasonable to use U.S. real GDP growth as a proxy for general advanced economy real growth shocks (Figure 4.22, panel 2). Some economy-specific differences appear in the results: for instance, economies with deeper external trade ties with the euro area (for example, Poland and South Africa) show larger growth effects with respect to euro area real GDP growth changes than with respect to U.S. real GDP growth changes, whereas growth in Mexico shows the reverse (that is, larger effects with respect to U.S. real GDP growth changes).

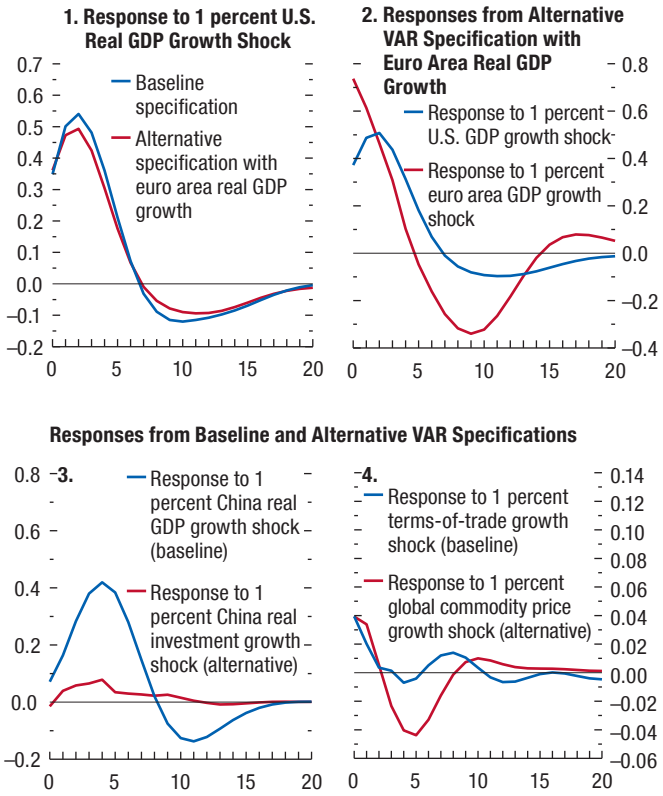
The analysis also considers China's real investment growth as an alternative proxy (instead of China's real GDP growth) for external demand shocks emanating from China (Figure 4.22, panel 3). Although the pattern of domestic growth responses to changes in China's investment growth is very similar to responses

Figure 4.21. Impulse Response of Domestic Real GDP Growth to External Financing Shocks
(Percentage points)



Sources: Bank of America Merrill Lynch; Haver Analytics; Thomson Reuters Datastream; and IMF staff calculations.
Note: Shocks are normalized to a 1 percentage point increase. *X*-axis units in panel are quarters; *t* = 0 denotes the quarter of the shock. EMBI = J.P. Morgan Emerging Markets Bond Index.

Figure 4.22. Average Impulse Responses of Domestic Real GDP Growth to Shocks under Alternative Vector Autoregression Specifications
(Percentage points)



Sources: Haver Analytics; IMF, International Financial Statistics database; Organization for Economic Cooperation and Development; and IMF staff calculations.
Note: Average for all sample economies. Shocks are normalized to a 1 percentage point increase. *X*-axis units in panels are quarters; *t*= 0 denotes the quarter of the shock. VAR = vector autoregression.

to China's real GDP growth, the elasticity is negligible on impact, building up slightly over time.

Terms-of-trade growth alternatives

As a potentially more exogenous proxy for emerging market economies' terms of trade, the exercise includes the global commodity price index in the external block, placing it in the second position within the recursive ordering for the identification of external structural shocks. Panel 4 of Figure 4.22 shows a similar pattern of response to that resulting from a positive shock to terms-of-trade growth.

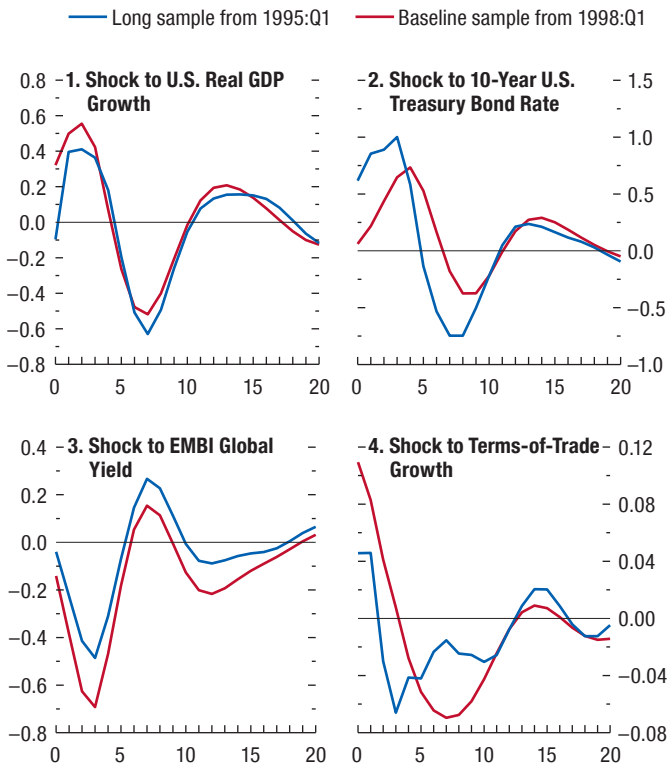
Longer time period

The economy-specific SVARs are also estimated using the longest available quarterly data. Only three economies have all baseline variables available from the first quarter of 1995: Brazil, Mexico, and South Africa. The results for those economies with additional data are not affected by the longer-sample SVAR. Figure 4.23 presents, for Brazil, a comparison of the impulse responses of domestic GDP growth to shocks from four of the key external factors. Similar results are obtained for Mexico and South Africa.

Robustness checks with panel vector autoregressions

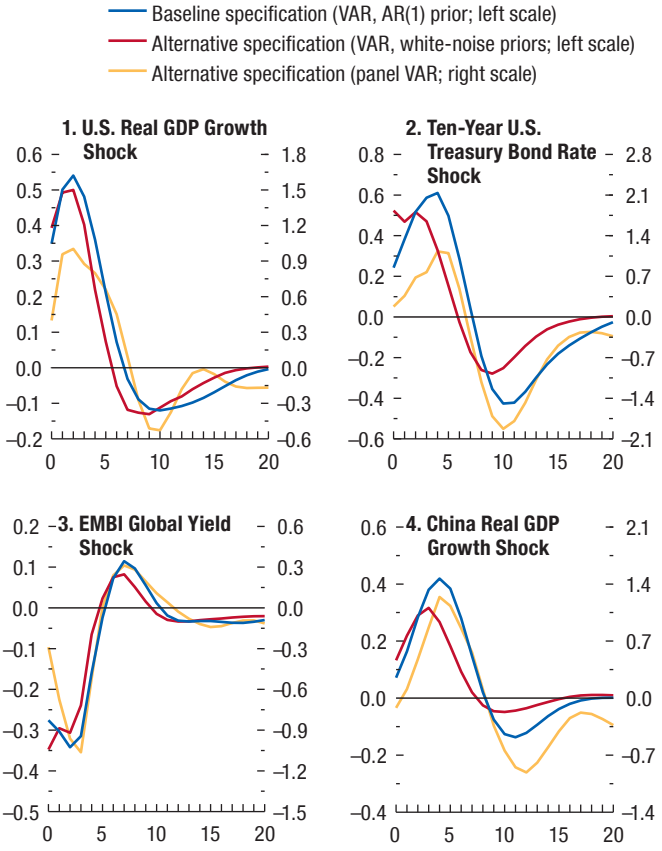
The final section of this appendix assesses how the estimated relationship between emerging market economies' growth and external conditions is affected by an alternative estimation technique in a panel setup. A panel VAR allows for many more degrees of freedom relative to the SVAR because all the economy-specific observations are pooled. As such, it provides a sense of the average behavior among the sample of economies to the alternative external shocks.

Figure 4.23. Brazil: Comparison of Responses under the Baseline Model with Responses from Model with Sample Beginning in the First Quarter of 1995
(Percentage points)



Sources: Haver Analytics; IMF, International Financial Statistics database; Organization for Economic Cooperation and Development; Thomson Reuters Datastream; and IMF staff calculations.
Note: Shocks are normalized to a 1 percentage point increase. *X*-axis units in panels are quarters; $t = 0$ denotes the quarter of the shock.

Figure 4.24. Comparison of Impulse Responses from Panel Vector Autoregression with Responses from the Baseline Model
(Percentage points)



Sources: Haver Analytics; Thomson Reuters Datastream; and IMF staff calculations.
Note: Shocks are normalized to a 1 percentage point increase. *X*-axis units in panels are quarters; $t = 0$ denotes the quarter of the shock. AR(1) = first-order autoregression; EMBI = J.P. Morgan Emerging Markets Bond Index; VAR = vector autoregression.

As Figure 4.24 illustrates, the responses of emerging market economy growth to changes in external conditions in the panel VAR are broadly similar to the average responses from the country-specific SVARs used in the chapter text. The panel VAR typically produces somewhat larger amplitudes, however, such that the cumulated effects are greater. A 1 percent rise in the U.S. growth rate results in a 0.4 percent rise in emerging market economy growth, whereas a 100 basis point rise in the EMBI yield reduces growth by 0.3 percentage point. However, an increase in China's growth has a small negative effect on impact, although the effects build up over time.

Box 4.1. The Impact of External Conditions on Medium-Term Growth in Emerging Market Economies

This box uses panel growth regressions to estimate the impact of external demand and global financial conditions on medium-term growth in emerging market economies. Thus, it complements the analysis in the chapter, which is more focused on the shorter-term growth implications of changes in external conditions. Growth regressions, which abstract from the business cycle by aggregating data over five-year periods, naturally lend themselves to addressing questions relating to the medium-term impact of a protracted period of adverse external conditions on emerging market economies' growth. Also, given wider availability of data at an annual frequency, the findings of the box are applicable to a broader group of emerging markets.

Economic theory suggests several channels through which external conditions affect long-term growth. The standard growth model is the obvious starting point. Real external shocks, such as an increase in external demand or a change in the terms of trade, directly affect the productivity of capital and therefore capital accumulation.

Financial linkages

As for financial linkages, arbitrage ensures that a small open economy with an open capital account will be in a steady state when the productivity of domestic capital is equal to the global interest rate. Although there are many reasons why this equalization may never be achieved (for example, country risk, investment costs), an increase in global real interest rates will necessarily reduce funding for marginal investment projects and negatively affect growth. This process can progress in a dramatic fashion, with an increase in international rates precipitating banking crises and the ensuing decrease in output (Eichengreen and Rose, 2004).

This box analyzes the impact of both trade and financial linkages in a single regression. The two channels operate in opposite directions: whereas a recession in advanced economies may adversely affect emerging market economies' growth (through a combination of lower external demand and weaker terms of trade), relatively lower interest rates in advanced economy downturns can boost domestic demand growth in emerging markets. Analyzing all external factors simultaneously reduces omitted-variable bias, even if it does not allow identification of the exogenous impact of each separately.

The author of this box is Alexander Culiuc.

Specification and methodology

The empirical approach estimates fixed-effects panel growth regressions—for growth averaged over consecutive five-year periods—of the following general form:

$$\Delta \ln GDPPC_{i,t} = \beta_1'(External\ Conditions)_{i,t} + \beta_2' X_{i,t} + \gamma_i + \eta_t + \varepsilon_{i,t}, \quad (4.1.1)$$

in which

$\Delta \ln GDPPC_{i,t}$ = first difference in the log of real per capita GDP;

External Conditions = variables measuring external conditions, which include

Trading partner growth, computed following Arora and Vamvakidis (2005),[1]

Change in the log of the terms of trade, and

International financing conditions (for example, the real interest rate on the 10-year U.S. Treasury bond) interacted with the degree of financial openness;

$X_{i,t}$ = standard growth regressors, such as initial level of income, population growth, and investment ratio;

γ_i = country fixed effect; and

η_t = time fixed effect to control for changes in global conditions not captured by the model.

For most specifications, the panel is estimated for the period 1997–2011[2] and includes 62 emerging market economies with populations of more than two million, of which 14 are classified as mineral commodity exporters. The emerging market economy universe is larger than the one considered in the chapter, covering a number of countries (mostly in eastern Europe) only recently reclassified as advanced economies.[3]

[1]A similar approach is also used by Drummond and Ramirez (2009) and Dabla-Norris, Espinoza, and Jahan (2012).

[2]The period is chosen to coincide roughly with the period covered in the chapter. Results, especially those concerning trade linkages, remain broadly unchanged if the period is stretched back to the mid-1980s and even the 1970s.

[3]The panel is constructed using data from IMF sources (*World Economic Outlook, International Financial Statistics, Direction of Trade Statistics, Annual Report on Exchange Arrangements and Exchange Restrictions*), as well as from the *World Development Indicators* (World Bank), Lane and Milesi-Ferretti (2007), Klein and Shambaugh (2008), and the Armed Conflict Dataset (Peace Research Institute Oslo).

Box 4.1 *(continued)*

Table 4.1.1. Growth Regressions for Emerging Markets, 1997–2011

	All Emerging Market Economies		Non-Commodity-Exporting Emerging Market Economies	
	(1)	(2)	(3)	(4)
Lagged GDP per Capita (log)	–0.053**	–0.051**	–0.083***	–0.082***
	(0.025)	(0.025)	(0.020)	(0.020)
Population Growth	1.473**	1.432**	0.128	0.235
	(0.571)	(0.542)	(0.311)	(0.305)
Gross Capital Formation/GDP	0.052	0.062	0.183***	0.178***
	(0.054)	(0.058)	(0.032)	(0.032)
War	–0.006	–0.001	0.000	0.000
	(0.005)	(0.003)	(0.003)	(0.003)
Terms-of-Trade Growth	0.121*	0.114*	0.066	0.060
	(0.068)	(0.060)	(0.070)	(0.068)
Trading Partner GDP Growth	0.910***	0.692	0.847***	0.541**
	(0.255)	(0.466)	(0.177)	(0.262)
Exports/GDP		–0.054		–0.025
		(0.043)		(0.037)
Trading Partner GDP Growth × Exports/GDP		0.685		1.072
		(1.085)		(1.078)
Time Fixed Effects	Yes	Yes	Yes	Yes
Country Fixed Effects	Yes	Yes	Yes	Yes
Number of Observations	164	164	121	121
Number of Countries	57	57	42	42
R Squared	0.505	0.486	0.685	0.668

Source: IMF staff calculations.
Note: Standard errors (in parentheses) are clustered at the country level. *, **, *** indicate that coefficients are significant at the 10, 5, and 1 percent levels, respectively.

Trade linkages

The growth regressions are estimated separately for all emerging market economies in the sample and for non–mineral commodity exporters. The regressions confirm that emerging markets' per capita GDP growth is subject to conditional convergence (negative coefficient on lagged GDP per capita), and both investment and the terms of trade have positive growth effects (Table 4.1.1, columns 1 and 2 for the full sample, and columns 3 and 4 for non-commodity-exporting emerging markets). Medium-term growth exhibits a correlation close to one vis-à-vis growth in export partner economies. This elasticity tends to increase with trade openness (column 2 of the table and Figure 4.1.1), particularly for the non-commodity-exporting economies (column 4 of the table and Figure 4.1.1). The results also suggest that the terms of trade have a limited role in determining medium-term growth, especially for non–commodity exporters.

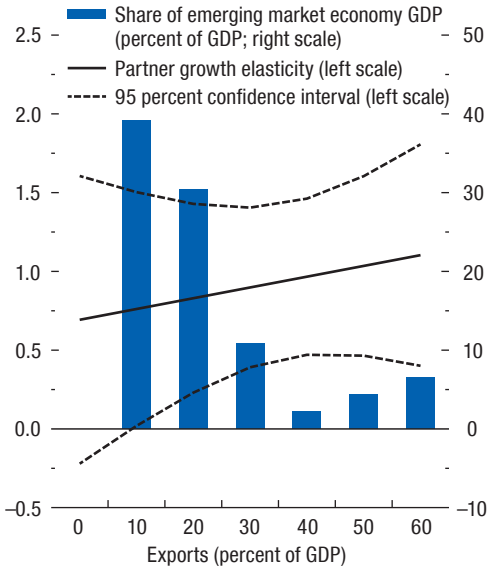
The analysis also tracks the relationship between partner growth elasticity and trade openness over time by introducing interaction effects with time dummies (Figure 4.1.2). As panel 1 of Figure 4.1.2 shows, partner growth elasticity has been increasing since the mid-1980s in line with the median export-to-GDP ratio. However, although advanced economy partner growth elasticity has been rising over time, emerging market economy partner growth elasticity started rapidly picking up (from zero) only in the early 1990s (panel 2 of Figure 4.1.2).

The increase in the growth elasticity of emerging markets with respect to growth in their emerging market partners coincides with—and is likely driven by—the growing prominence of Brazil, Russia, India, China, and South Africa (BRICS) and, particularly, the proliferation of supply chains with China. To assess this supposition, the growth regressions are reestimated for all non-BRICS emerging markets (Table 4.1.2 and panels 3 and 4 of Figure 4.1.2).[4] Panel 3 of the figure appears to corroborate the hypothesis: for the average emerging market economy, correlation with BRICS growth is fairly high (0.3)

[4]All partner growth elasticities are weighted by the share of partner countries in the export basket of each emerging market. This means, among other things, that the BRICS partner growth elasticity is heavily weighted toward China, which, for the average emerging market economy, accounts for more than one-third of exports to the BRICS.

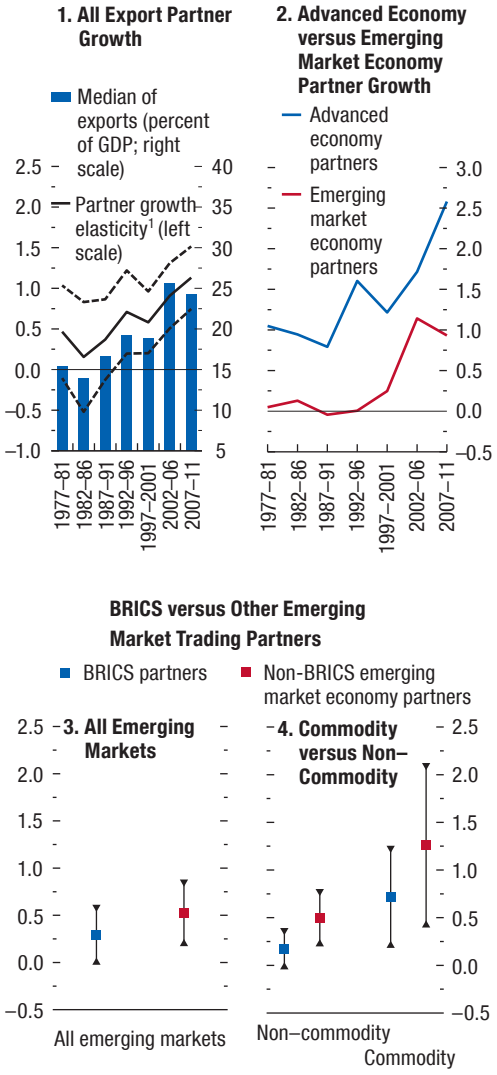
Box 4.1 *(continued)*

Figure 4.1.1. Export Partner Growth Elasticity



Source: IMF staff calculations.
Note: On the *x*-axis, 0 denotes 0–10 percent of GDP; 10 denotes 10–20 percent of GDP; and so on.

Figure 4.1.2. Export Partner Growth



Source: IMF staff calculations.
Note: BRICS = Brazil, Russia, India, China, South Africa. In panels 3 and 4, the upper and lower points of each line show the top and bottom of the 95 percent confidence interval. The estimation period is 1997–2011. "Non-commodity" and "Commodity" refer to non–commodity exporters and commodity exporters, respectively, among the emerging market economies in the sample.
[1]Dashed lines denote 95 percent confidence interval for partner growth elasticity.

and statistically significant. This result, however, hides heterogeneity across country groups. Panel 4 presents results estimated separately for commodity exporters and non–commodity exporters. For non–commodity exporters, BRICS partner growth elasticity is borderline statistically significant. Growth in commodity exporters, on the other hand, exhibits a very strong correlation with both BRICS and other emerging market economy partners, confirming the growing importance of the BRICS, and China in particular, in the global demand for mineral commodities.

Financial linkages

The role of external financial conditions in emerging markets' growth is considered next. Although for a small open economy, an increase in the global interest rate is expected to increase the opportunity cost of capital and, correspondingly, depress growth in the short term, the effect in the medium term remains an open question.

Regressions presented in Table 4.1.3 augment the model with global financing conditions proxied by the

Box 4.1 *(continued)*

Table 4.1.2. Growth Regressions for Emerging Markets: Brazil, China, India, Russia, and South Africa versus Other Emerging Market Partner Growth, 1997–2011

	All EMEs		Non–Commodity Exporter		Commodity Exporter	
	(1)	(2)	(3)	(4)	(5)	(6)
Lagged GDP per Capita (log)	–0.056*	–0.054*	–0.102***	–0.098***	0.130**	0.114**
	(–0.030)	(–0.030)	(–0.021)	(–0.021)	(–0.053)	(–0.048)
Population Growth	1.645***	1.732***	0.465	0.459	–0.911	–0.363
	(–0.515)	(–0.562)	(–0.359)	(–0.383)	(–1.066)	(–1.433)
Gross Capital Formation/GDP	0.055	0.060	0.163***	0.166***	0.178**	0.164*
	(–0.049)	(–0.049)	(–0.037)	(–0.037)	(–0.071)	(–0.078)
War	0.001	0.000	0.005	0.006	0.010	0.008
	(–0.006)	(–0.006)	(–0.004)	(–0.004)	(–0.013)	(–0.013)
Terms-of-Trade Growth	0.145*	0.152**	0.104	0.126*	0.192*	0.127
	(–0.074)	(–0.075)	(–0.073)	(–0.074)	(–0.099)	(–0.132)
AE Partner GDP Growth	–1.210	–1.395	0.859	0.738	–5.666***	–6.116***
	(–0.931)	(–0.956)	(–0.715)	(–0.729)	(–1.257)	(–1.653)
EME Partner GDP Growth	0.666***		0.545***		1.718***	
	(–0.184)		(–0.126)		(–0.382)	
BRICS Partner GDP Growth		0.295*		0.175*		0.718**
		(–0.149)		(–0.098)		(–0.260)
Non-BRICS EME Partner GDP Growth		0.527***		0.500***		1.259**
		(–0.167)		(–0.141)		(–0.427)
Time Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Country Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Number of Observations	164	164	121	121	43	43
Number of Countries	57	57	42	42	15	15
R Squared	0.505	0.486	0.685	0.668	0.818	0.790

Source: IMF staff calculations.
Note: AE = advanced economy; BRICS = Brazil, Russia, India, China, and South Africa; EME = emerging market economy. Standard errors (in parentheses) are clustered at the country level. *, **, *** indicate that coefficients are significant at the 10, 5, and 1 percent levels, respectively.

real interest rate on the 10-year U.S. Treasury bond interacted with the degree of financial integration.[5] Results confirm the negative effect of high global interest rates on medium-term growth—a 100 basis point increase in the former is associated with a 0.5 percentage point decrease in the latter for the median emerging market economy, with a degree of financial integration of 115 percent of GDP (columns 1 and 2 of the table). However, the relationship is not statistically significant for the sample since the mid-1990s. To make the results comparable to those of previous studies (Frankel and Roubini, 2001; Reinhart and others, 2001; Reinhart and Reinhart, 2001), the model is reestimated for 1997–2011 using annual data (column 3). The negative impact of the foreign interest rate is statistically significant. This suggests that the effect of international borrowing conditions on emerging market economies' growth may be shorter term in nature and cannot be reliably captured when five-year averages are considered. In a similar manner, the terms of trade also gain statistical significance in the regression using annual data.

[5]The degree of financial integration is computed from the updated and extended version of the data set constructed by Lane and Milesi-Ferretti (2007) as the sum of gross foreign assets and liabilities net of international reserves as a percentage of GDP.

Conclusion

The main messages of the analysis in this box are the following. First, the importance of partner country growth has increased dramatically as emerging market economies have integrated into the world economy. Second, as some emerging markets have gained a prominent role in the global economy, their impact on smaller peers has also increased. BRICS' growth, in particular, has become an important factor driving growth in other emerging market economies, especially those dependent on mineral commodity exports. Third, international financing conditions, which tend to affect the cyclical component of growth in emerging market economies (as also shown in the main analysis), also exercise a longer-lasting effect, especially for financially integrated countries. Although the analysis has shown that external factors are important for long-term growth, it should be noted that this finding does not diminish the critical role of appropriate domestic

Box 4.1 *(continued)*

Table 4.1.3. Growth Regressions for Emerging Markets

	1987–2011	1997–2011	1997–2011 (annual data)
	(1)	(2)	(3)
Lagged GDP per Capita (log)	–0.040**	–0.043*	–0.061**
	(0.017)	(0.025)	(0.025)
Population Growth	0.270	1.498**	–0.356
	(0.443)	(0.629)	(0.349)
Gross Capital Formation/GDP	0.087**	0.054	0.193***
	(0.039)	(0.045)	(0.050)
War	–0.010***	0.000	0.002
	(0.003)	(0.004)	(0.008)
Terms-of-Trade Growth	–0.008	0.092	0.061**
	(0.053)	(0.085)	(0.026)
Terms-of-Trade Growth × Commodity Exporter	0.105	0.051	–0.038
	(0.075)	(0.125)	(0.038)
Trading Partner GDP Growth	0.970***	0.891***	0.693***
	(0.239)	(0.263)	(0.206)
Financial Integration	–0.016***	–0.016***	–0.023***
	(0.006)	(0.005)	(0.005)
Financial Integration × Real 10-Year U.S. Treasury Bond	–0.494**	–0.409	–0.237**
	(0.226)	(0.377)	(0.109)
Country Fixed Effects	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes
Number of Observations	248	178	874
Number of Countries	62	62	62
R Squared	0.510	0.508	0.428

Source: IMF staff calculations.
Note: Standard errors (in parentheses) are clustered at the country level. *, **, *** indicate that coefficients are significant at the 10, 5, and 1 percent levels, respectively.

economic and structural policies in this area. Indeed, recent work (see Chapter 4 of the October 2012 *World Economic Outlook*) has established how improvements in domestic policy frameworks have contributed to the increased resilience of emerging market economies since the 1990s.

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ANNEX

IMF EXECUTIVE BOARD DISCUSSION OF THE OUTLOOK, MARCH 2014

The following remarks were made by the Acting Chair at the conclusion of the Executive Board's discussion of the World Economic Outlook, Global Financial Stability Report, *and* Fiscal Monitor *on March 21, 2014.*

Executive Directors welcomed the strengthening of global activity in the second half 2013. They observed that much of the impetus has come from advanced economies, but inflation in these economies continues to undershoot projections, reflecting still-large output gaps. While remaining fairly robust, growth activity in emerging market and developing economies slowed in 2013, in an environment of increased capital flow volatility and worsening external financing conditions. Directors underscored that, despite improved growth prospects, the global recovery is still fragile and significant downside risks, including geopolitical, remain.

Directors agreed that global growth will continue to improve this year and next, on the back of slower fiscal tightening and still highly accommodative monetary conditions in advanced economies. In emerging market and developing economies, growth will pick up gradually, with stronger external demand being partly offset by the dampening impact of tighter financial conditions.

Directors acknowledged that successfully transitioning from liquidity-driven to growth-driven markets will require overcoming key challenges, including strengthening policy coordination. In advanced economies, a sustained rise in corporate investment and continued efforts to strengthen bank balance sheets will be necessary, especially in the euro area. Risks to emerging market economies have increased with rising public and corporate sector leverage and greater foreign borrowing. Directors noted that the recent increase in financial volatility likely reflected renewed market concern about fundamentals, against the backdrop of early steps toward monetary policy normalization in some advanced economies. In view of possible capital flow reversals from emerging markets, Directors considered the risks related to sizable external funding needs and disorderly currency depreciations and welcomed the recent tightening of macroeconomic policies, which appears to have shored up confidence. Regarding the financial sector, Directors noted that, despite the progress made in reducing global financial vulnerabilities, the too-important-to-fail issue still remains largely unresolved.

Most Directors recommended closer monitoring of the risks to activity associated with low inflation in advanced economies, especially in the euro area. Longer-term inflation expectations could drift down, leading to higher real interest rates, an increase in private and public debt burdens, and a further slowdown in demand and output. Directors noted, however, that continued low nominal interest rates in advanced economies could also pose financial stability risks and have already led to pockets of increased leverage, sometimes accompanied by a weakening of underwriting standards.

Against this backdrop, Directors called for more policy efforts to fully restore confidence, lower downside risks, and ensure robust and sustainable global growth. In an environment of continued fiscal consolidation, still-large output gaps, and very low inflation, monetary policy should remain accommodative. Many Directors argued that in the euro area, further monetary easing, including unconventional measures, would help to sustain activity and limit the risk of very low inflation or deflation. A number of Directors thought that current monetary conditions in the euro area are already accommodative and further easing would not be justified. Some Directors also called for a more comprehensive analysis of exchange rates and global imbalances in the *World Economic Outlook*.

Directors recommended designing and implementing clear and credible medium-term fiscal consolidation plans to help mitigate fiscal risks and address the debt overhang in advanced economies, including the United States and Japan. They welcomed the expected shift from tax to expenditure consolidation measures, particularly in those advanced economies where rais-

ing tax burdens could hamper growth. Moreover, they agreed that a new impulse to structural reforms is needed to lift investment and growth prospects in advanced economies.

Directors welcomed the progress made in strengthening the banking sector in the euro area, but noted that more needs to be done to address financial fragmentation, repair bank and corporate sector balance sheets following a credible comprehensive assessment, and recapitalize weak banks in order to enhance confidence and revive credit. While acknowledging the EU Council's recent agreement on a Single Resolution Mechanism (SRM), Directors underscored the importance of completing the banking union, including through functional independence of the SRM with the capacity to undertake timely bank resolution and common backstops to sever the link between sovereigns and banks.

Directors noted that the appropriate policy measures will differ across emerging market economies, but observed that there are some common priorities. Exchange rates should be allowed to respond to changing fundamentals and facilitate external adjustment. Where international reserves are adequate, foreign exchange interventions can be used to smooth volatility and avoid financial disruption. In economies where inflationary pressures are still high, further monetary policy tightening may be necessary. If warranted, macroprudential measures can help contain the growth of corporate leverage, particularly in foreign currency. Strengthening the transparency and consistency of policy frameworks would contribute to building policy credibility.

Directors underscored the need for emerging market and low-income economies to rebuild fiscal buffers and rein in fiscal deficits (including by containing public sector contingent liabilities), particularly in the context of elevated public debt and financing vulnerabilities. Fiscal consolidation plans should be country specific and properly calibrated between tax and expenditure measures to support equitable, sustained growth. Priority social spending should be safeguarded, and the efficiency of public spending improved, through better targeting of social expenditures, rationalizing the public sector wage bill, and enhancing public investment project appraisal, selection, and audit processes.

Directors agreed that emerging market economies could enhance their resilience to global financial shocks through a deepening of their domestic financial markets and the development of a local investor base. They supported tightening prudential and regulatory oversight, including over nonbank institutions in China, removing implicit guarantees, and enhancing the role of market forces in the nonbank sector in order to mitigate financial stability risks and any negative cross-border spillovers.

Directors concurred that many emerging market and developing economies should implement other key structural reforms, designed to boost employment and prospects for diversified and sustained growth, while also promoting global rebalancing. Reforms should, among other things, encompass the removal of barriers to entry in product and services markets, improve the business climate and address key supply-side bottlenecks, and in China, support sustainable and balanced growth, including the shift from investment toward consumption.

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, General Features and Composition of Groups in the *World Economic Outlook* Classification, and Statistical Tables.

The assumptions underlying the estimates and projections for 2014–15 and the medium-term scenario for 2016–19 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 2013 issue of the *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 generally through March 24, 2014. The figures for 2014 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 January 31 to February 28, 2014. For 2014 and 2015, these assumptions imply average U.S. dollar/special drawing right (SDR) conversion rates of 1.542 and 1.557, U.S. dollar/euro conversion rates of 1.369 and 1.393, and yen/U.S. dollar conversion rates of 101.6 and 100.0, respectively.

It is assumed that the *price of oil* will average $104.17 a barrel in 2014 and $97.92 a barrel in 2015.

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 0.4 percent in 2014 and 0.8 percent in 2015, that three-month euro deposits will average 0.3 percent in 2014 and 0.4 percent in 2015, and that six-month yen deposits will average 0.2 percent in 2014 and 2015.

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 mark
	=	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 lats[4]
	=	40.3399	Luxembourg francs
	=	0.42930	Maltese lira[1]
	=	2.20371	Netherlands guilders
	=	200.482	Portuguese escudos
	=	30.1260	Slovak koruna[5]
	=	239.640	Slovenian tolars[6]
	=	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, 2009.
[6]Established on January 1, 2007.

See Box 5.4 of the October 1998 WEO for details on how the conversion rates were established.

What's New

- On January 1, 2014, Latvia became the 18th country to join the euro area. Data for Latvia are not included in the euro area aggregates, because the database has not yet been converted to euros, but are included in data aggregated for advanced economies.
- Starting with the April 2014 WEO, the Central and Eastern Europe and Emerging Europe regions have been renamed Emerging and Developing Europe. The Developing Asia region has been renamed Emerging and Developing Asia.
- Projections for Ukraine are excluded due to the ongoing crisis.
- 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.
- Korea's real GDP series is based on the reference year 2005. This does not reflect the revised national accounts released on March 26, 2014, after the WEO was finalized for publication. These comprehensive revisions include implementing the 2008 System of National Accounts and updating the reference year to 2010. As a result of these revisions, real GDP growth in 2013 was revised up to 3 percent from 2.8 percent (which is the figure included in Tables 2.3 and A2).
- Cape Verde is now called Cabo Verde.
- As in the October 2013 WEO, data for Syria are excluded for 2011 onward because of the uncertain political situation.

Data and Conventions

Data and projections for 189 economies form the statistical basis of the *World Economic Outlook* (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 and International Investment Position Manual, Sixth Edition* (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 2008 SNA.[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.

Consistent with the recommendations of the 1993 SNA, several countries have phased out their traditional *fixed-base-year* method of calculating real macroeconomic variable levels and growth by switching to a *chain-weighted* method of computing aggregate growth. The chain-weighted method frequently updates the weights of price and volume indicators. It 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. Table F indicates which countries use a chain-weighted method.

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

[1]Many other countries are implementing the 2008 SNA and will release 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. Although the conceptual standards use the BPM6, the WEO will continue to use the BPM5 presentation until a representative number of countries have moved their balance of payments accounts into the BPM6 framework.

[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,

economies group except 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 (PPP) as a share of total world or group GDP.[3]
- Composites for data relating to the domestic economy for the euro area (18 member countries throughout the entire period, unless noted otherwise) are aggregates of national source data using GDP weights. 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 reporting period 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 PPP, 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 36 advanced economies are listed in Table B. The seven largest in terms of GDP—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.

except in the case of the unemployment rate, which is based on the simple arithmetic average.

[3]See Box A2 of the April 2004 WEO for a summary of the revised PPP-based weights and Annex IV of 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* (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.

Table C lists the member countries of the European Union, not all of which are classified as advanced economies in the *World Economic Outlook*.

Emerging Market and Developing Economies

The group of emerging market and developing economies (153) 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; emerging 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 other income from abroad; a distinction between net creditor and net debtor economies; and, for the net debtors, financial criteria based on external financing sources and experience with external debt servicing. 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 by *source 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 exceeds 50 percent of total exports on average between 2008 and 2012.

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 current account balance accumulations from 1972 (or earliest data available) to 2012 are negative. Net debtor economies are further differentiated on the basis of two additional financial criteria: *official external financing* and *experience with debt servicing*.[5] Net debtors are placed in the official external financing category when 66 percent or more of their total debt, on average, between 2008 and 2012 was financed by official creditors.

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 Poverty Reduction and Growth Trust (PRGT)–eligible 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 IDA operational threshold, or US$2,390 in 2011 as measured by the World Bank's Atlas method); and Zimbabwe.

[5]During 2008–12, 34 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 2008–12.*

[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 No. 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, 2013[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	**36**	**100.0**	**49.6**	**100.0**	**61.1**	**100.0**	**14.7**
United States		38.9	19.3	16.1	9.8	30.5	4.5
Euro Area[2]	17	26.4	13.1	41.5	25.3	31.8	4.7
Germany		7.5	3.7	13.1	8.0	7.8	1.1
France		5.3	2.6	5.7	3.5	6.1	0.9
Italy		4.2	2.1	4.4	2.7	5.8	0.8
Spain		3.2	1.6	3.3	2.0	4.5	0.7
Japan		10.9	5.4	5.9	3.6	12.3	1.8
United Kingdom		5.5	2.7	5.6	3.4	6.2	0.9
Canada		3.5	1.8	3.9	2.4	3.4	0.5
Other Advanced Economies	15	14.7	7.3	27.1	16.6	15.7	2.3
Memorandum							
Major Advanced Economies	7	75.9	37.6	54.7	33.4	72.1	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	**153**	**100.0**	**50.4**	**100.0**	**38.9**	**100.0**	**85.3**
Regional Groups							
Commonwealth of Independent States[3]	12	8.3	4.2	10.0	3.9	4.8	4.0
Russia		5.8	2.9	6.6	2.6	2.4	2.0
Emerging and Developing Asia	29	51.4	25.9	44.1	17.2	57.4	49.0
China		30.5	15.4	26.9	10.5	22.7	19.3
India		11.6	5.8	5.3	2.0	20.7	17.7
Excluding China and India	27	9.3	4.7	11.9	4.6	14.0	11.9
Emerging and Developing Europe	13	6.6	3.3	8.6	3.4	3.0	2.5
Latin America and the Caribbean	32	17.1	8.6	14.0	5.4	9.9	8.4
Brazil		5.5	2.8	3.1	1.2	3.3	2.8
Mexico		4.2	2.1	4.4	1.7	2.0	1.7
Middle East, North Africa, Afghanistan, and Pakistan	22	11.4	5.7	18.1	7.1	10.4	8.9
Middle East and North Africa	20	10.0	5.0	17.7	6.9	6.8	5.8
Sub-Saharan Africa	45	5.1	2.6	5.2	2.0	14.6	12.5
Excluding Nigeria and South Africa	43	2.7	1.3	2.9	1.1	10.9	9.3
Analytical Groups[4]							
By Source of Export Earnings							
Fuel	28	17.6	8.9	28.4	11.0	11.4	9.7
Nonfuel	125	82.4	41.6	71.6	27.9	88.6	75.5
Of Which, Primary Products	28	3.6	1.8	3.5	1.4	7.1	6.1
By External Financing Source							
Net Debtor Economies	123	49.9	25.1	41.4	16.1	63.7	54.3
Of Which, Official Financing	27	4.0	2.0	3.0	1.2	9.7	8.3
Net Debtor Economies by Debt-Servicing Experience							
Economies with Arrears and/or Rescheduling during 2008–12	34	6.4	3.2	4.1	1.6	10.3	8.8
Other Net Debtor Economies	89	43.4	21.9	37.4	14.5	53.3	45.5
Other Groups							
Heavily Indebted Poor Countries	38	2.5	1.2	1.9	0.7	11.0	9.4
Low-Income Developing Countries	59	6.5	3.3	5.9	2.3	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 Latvia are not included in the euro area aggregates because the database has not yet been converted to euros.

[3]Georgia, 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.

[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	Netherlands
Belgium	Greece	Portugal
Cyprus	Ireland	Slovak Republic
Estonia	Italy	Slovenia
Finland	Luxembourg	Spain
France	Malta	
Major Advanced Economies		
Canada	Italy	United States
France	Japan	
Germany	United Kingdom	
Other Advanced Economies		
Australia	Israel	San Marino
Czech Republic	Korea	Singapore
Denmark	Latvia	Sweden
Hong Kong SAR[2]	New Zealand	Switzerland
Iceland	Norway	Taiwan Province of China

[1]Data for Latvia are not included in the euro area aggregates because the database has not yet been converted to euros.

[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		
	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	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	Central African Republic
	Equatorial Guinea	Democratic Republic of the Congo
	Gabon	Eritrea
	Nigeria	Guinea
	South Sudan	Guinea-Bissau
		Malawi
		Mali
		Mozambique
		Niger
		Sierra Leone
		South Africa
		Zambia
		Zimbabwe

Table E. Emerging Market and Developing Economies by Region, Net External Position, Status as Heavily Indebted Poor Countries, and Low-Income Developing Countries

	Net External Position		Heavily Indebted Poor Countries[2]	Low-Income Developing Countries
	Net Creditor	Net Debtor[1]		
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		*		
Lithuania		*		
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. *(concluded)*

	Net External Position		Heavily Indebted Poor Countries[2]	Low-Income Developing Countries
	Net Creditor	Net Debtor[1]		
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 instead of star indicates that the net debtor's main external finance source is official financing.
[2]Dot instead of star indicates that the country has reached the completion point.
[3]Georgia, 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.
[4]South Sudan is omitted from the net external position groups composite for lack of a fully developed database.

Table F. Key Data Documentation

		National Accounts				
Country	Currency	Historical Data Source[1]	Latest Actual Data	Base Year[2]	Reporting Period[3]	Use of Chain-Weighted Methodology[4]
Afghanistan	Afghan Afghani	NSO	2011/12	2002/03		
Albania	Albanian lek	IMF staff	2012	1996		From 1996
Algeria	Algerian dinar	NSO	2011	2001		From 2005
Angola	Angolan kwanza	NSO	2011	2002		
Antigua and Barbuda	Eastern Caribbean dollar	CB	2013	2006[5]		
Argentina	Argentine peso	MEP	2012	1993		
Armenia	Armenian dram	NSO	2012	2005		
Australia	Australian dollar	NSO	2013	2011/12		From 1980
Austria	Euro	NSO	2013	2005		From 1988
Azerbaijan	Azerbaijan manat	NSO	2013	2003		From 1994
The Bahamas	Bahamian dollar	NSO	2012	2006		
Bahrain	Bahrain dinar	MoF	2012	2010		
Bangladesh	Bangladesh taka	NSO	2012	2005		
Barbados	Barbados dollar	NSO and CB	2012	1974[5]		
Belarus	Belarusian rubel	NSO	2012	2009		From 2005
Belgium	Euro	CB	2013	2011		From 1995
Belize	Belize dollar	NSO	2012	2000		
Benin	CFA franc	NSO	2011	2000		
Bhutan	Bhutanese ngultrum	NSO	2006/07	2000[5]	Jul/Jun	
Bolivia	Bolivian boliviano	NSO	2012	1990		
Bosnia and Herzegovina	Convertible marka	NSO	2012	2010		From 2000
Botswana	Botswana pula	NSO	2010	2006		
Brazil	Brazilian real	NSO	2013	1995		
Brunei Darussalam	Brunei dollar	NSO	2012	2000		
Bulgaria	Bulgarian lev	NSO	2013	2005		From 2005
Burkina Faso	CFA franc	NSO and MEP	2011	1999		
Burundi	Burundi franc	NSO	2010	2005		
Cabo Verde	Cabo Verde escudo	NSO	2011	2007		From 2011
Cambodia	Cambodian riel	NSO	2012	2000		
Cameroon	CFA franc	NSO	2010	2000		
Canada	Canadian dollar	NSO	2013	2007		From 1980
Central African Republic	CFA franc	NSO	2012	2005		
Chad	CFA franc	CB	2010	2005		
Chile	Chilean peso	CB	2013	2008		From 2003
China	Chinese yuan	NSO	2012	1990[5]		
Colombia	Colombian peso	NSO	2012	2005		From 2000
Comoros	Comorian franc	NSO	2012	2000		
Democratic Republic of the Congo	Congo franc	NSO	2006	2005		
Republic of Congo	CFA franc	NSO	2009	1990		
Costa Rica	Costa Rican colón	CB	2012	1991		
Côte d'Ivoire	CFA franc	MEP	2011	2000		
Croatia	Croatian kuna	NSO	2012	2005		
Cyprus	Euro	Eurostat	2012	2005		From 1995
Czech Republic	Czech koruna	NSO	2013	2005		From 1995
Denmark	Danish krone	NSO	2013	2005		From 1980
Djibouti	Djibouti franc	NSO	1999	1990		

Country	Government Finance			Prices (CPI)		Balance of Payments	
	Historical Data Source[1]	Latest Actual Data	Reporting Period[3]	Historical Data Source[1]	Latest Actual Data	Historical Data Source[1]	Latest Actual Data
Afghanistan	MoF	2012/13	Solar year[6]	NSO	2013	NSO	2012
Albania	IMF staff	2012		NSO	2013	CB	2012
Algeria	CB	2012		NSO	2012	CB	2012
Angola	MoF	2012		CB	2013	CB	2012
Antigua and Barbuda	MoF	2013		NSO	2013	CB	2013
Argentina	MEP	2012		NSO	2012	MEP	2012
Armenia	MoF	2012		NSO	2013	CB	2012
Australia	MoF	2012/13		NSO	2013	NSO	2013
Austria	NSO	2013		NSO	2013	NSO	2013
Azerbaijan	MoF	2012		NSO	2013	CB	2012
The Bahamas	MoF	2012/13	Jul/Jun	NSO	2012	CB	2012
Bahrain	MoF	2012		NSO	2012	CB	2012
Bangladesh	MoF	2011/12	Jul/Jun	NSO	2013	CB	2011
Barbados	MoF	2012/13	Apr/Mar	CB	2012	CB	2012
Belarus	MoF	2013		NSO	2013	CB	2012
Belgium	CB	2012		CB	2013	CB	2012
Belize	MoF	2012/13	Apr/Mar	NSO	2012	CB	2012
Benin	MoF	2011		NSO	2011	CB	2010
Bhutan	MoF	2010/11	Jul/Jun	CB	2008	CB	2007/08
Bolivia	MoF	2013		NSO	2013	CB	2012
Bosnia and Herzegovina	MoF	2013		NSO	2013	CB	2012
Botswana	MoF	2008/09	Apr/Mar	NSO	2010	CB	2009
Brazil	MoF	2013		NSO	2013	CB	2013
Brunei Darussalam	MoF	2013		NSO	2013	MEP	2011
Bulgaria	MoF	2012		NSO	2013	CB	2013
Burkina Faso	MoF	2013		NSO	2013	CB	2011
Burundi	MoF	2012		NSO	2012	CB	2011
Cabo Verde	MoF	2013		NSO	2013	CB	2013
Cambodia	MoF	2012		NSO	2013	CB	2012
Cameroon	MoF	2012		NSO	2012	MoF	2010
Canada	NSO and OECD	2013		NSO	2013	NSO	2013
Central African Republic	MoF	2012		NSO	2012	CB	2012
Chad	MoF	2012		NSO	2013	CB	2010
Chile	MoF	2013		NSO	2013	CB	2013
China	MoF	2013		NSO	2013	State Admin. of Foreign Exchange	2012
Colombia	MoF	2012		NSO	2012	CB and NSO	2012
Comoros	MoF	2012		NSO	2012	CB and IMF staff	2012
Democratic Republic of the Congo	MoF	2013		CB	2013	CB	2013
Republic of Congo	MoF	2012		NSO	2013	CB	2008
Costa Rica	MoF and CB	2012		CB	2013	CB	2012
Côte d'Ivoire	MoF	2011		MoF	2011	CB	2009
Croatia	MoF	2013		NSO	2012	CB	2013
Cyprus	Eurostat	2013		Eurostat	2013	Eurostat	2012
Czech Republic	MoF	2013		NSO	2013	NSO	2013
Denmark	NSO	2013		NSO	2013	NSO	2013
Djibouti	MoF	2012		NSO	2012	CB	2012

Table F. Key Data Documentation *(continued)*

Country	Currency	National Accounts				
		Historical Data Source[1]	Latest Actual Data	Base Year[2]	Reporting Period[3]	Use of Chain-Weighted Methodology[4]
Dominica	Eastern Caribbean dollar	NSO	2013	2006		
Dominican Republic	Dominican peso	CB	2013	1991		
Ecuador	U.S. dollar	CB	2012	2007		
Egypt	Egyptian pound	Other	2012/13	2001/02	Jul/Jun	
El Salvador	U.S. dollar	CB	2012	1990		
Equatorial Guinea	CFA franc	MEP and CB	2006	2006		
Eritrea	Eritrean nakfa	IMF staff	2006	2000		
Estonia	Euro	NSO	2013	2005		From 1995
Ethiopia	Ethiopian birr	NSO	2012/13	2010/11	Jul/Jun	
Fiji	Fiji dollar	NSO	2012	2008[5]		
Finland	Euro	NSO	2013	2000		From 1980
France	Euro	NSO	2013	2005		From 1980
Gabon	CFA franc	MoF	2010	2001		
The Gambia	Gambian dalasi	NSO	2012	2004		
Georgia	Georgian lari	NSO	2012	2000		From 1996
Germany	Euro	NSO	2013	2005		From 1991
Ghana	Ghanaian cedi	NSO	2011	2006		
Greece	Euro	NSO	2013	2005		From 2000
Grenada	Eastern Caribbean dollar	NSO	2013	2006		
Guatemala	Guatemalan quetzal	CB	2012	2001		From 2001
Guinea	Guinean franc	NSO	2009	2003		
Guinea-Bissau	CFA franc	NSO	2011	2005		
Guyana	Guyana dollar	NSO	2012	2006[5]		
Haiti	Haitian gourde	NSO	2012/13	1986/87	Oct/Sep	
Honduras	Honduran lempira	CB	2012	2000		
Hong Kong SAR	Hong Kong dollar	NSO	2013	2011		From 1980
Hungary	Hungarian forint	NSO	2012	2005		From 2005
Iceland	Icelandic króna	NSO	2013	2000		From 1990
India	Indian rupee	NSO	2012/13	2004/05	Apr/Mar	
Indonesia	Indonesian rupiah	NSO	2013	2000		
Iran	Iranian rial	CB	2011/12	1997/98	Apr/Mar	
Iraq	Iraqi dinar	NSO	2013	1988		
Ireland	Euro	NSO	2012	2011		From 2011
Israel	Israeli shekel	NSO	2012	2010		From 1995
Italy	Euro	NSO	2012	2005		From 1980
Jamaica	Jamaica dollar	NSO	2012	2007		
Japan	Japanese yen	NSO and Nomura	2013	2005		From 1980
Jordan	Jordanian dinar	NSO	2013	1994		
Kazakhstan	Kazakhstani tenge	NSO	2012	2007		From 1994
Kenya	Kenya shilling	NSO	2013	2000		
Kiribati	Australian dollar	NSO	2009	2006		
Korea	Korean won	CB	2012	2005		From 1980
Kosovo	Euro	NSO	2012	2012		
Kuwait	Kuwaiti dinar	MEP and NSO	2012	2000		

Country	Government Finance			Prices (CPI)		Balance of Payments	
	Historical Data Source[1]	Latest Actual Data	Reporting Period[3]	Historical Data Source[1]	Latest Actual Data	Historical Data Source[1]	Latest Actual Data
Dominica	MoF	2012/13	Jul/Jun	NSO	2013	CB	2013
Dominican Republic	MoF	2013		CB	2013	CB	2013
Ecuador	CB and MoF	2012		NSO and CB	2012	CB	2012
Egypt	MoF	2012/13	Jul/Jun	NSO	2012/13	CB	2012/13
El Salvador	MoF	2013		NSO	2013	CB	2012
Equatorial Guinea	MoF	2012		MEP	2012	CB	2006
Eritrea	MoF	2008		NSO	2009	CB	2008
Estonia	MoF	2013		NSO	2013	CB	2013
Ethiopia	MoF	2012/13	Jul/Jun	NSO	2012	CB	2012/13
Fiji	MoF	2011		NSO	2013	CB	2012
Finland	MoF	2012		NSO and Eurostat	2013	CB	2012
France	NSO	2012		NSO	2013	CB	2013
Gabon	IMF staff	2013		MoF	2013	CB	2006
The Gambia	MoF	2013		NSO	2013	CB and IMF staff	2012
Georgia	MoF	2013		NSO	2013	NSO and CB	2012
Germany	NSO and Eurostat	2013		NSO	2013	CB	2013
Ghana	MoF	2011		NSO	2011	CB	2011
Greece	MoF	2012		NSO	2013	CB	2013
Grenada	MoF	2013		NSO	2013	CB	2013
Guatemala	MoF	2012		NSO	2013	CB	2012
Guinea	MoF	2012		NSO	2013	CB and MEP	IMF staff estimates
Guinea-Bissau	MoF	2011		NSO	2011	CB	2011
Guyana	MoF	2012		NSO	2012	CB	2012
Haiti	MoF	2012/13	Oct/Sep	NSO	2013	CB	2013
Honduras	MoF	2012		CB	2013	CB	2012
Hong Kong SAR	NSO	2012/13	Apr/Mar	NSO	2013	NSO	2011
Hungary	MEP and Eurostat	2012		NSO	2013	CB	2012
Iceland	NSO	2013		NSO	2013	CB	2013
India	MoF	2012/13	Apr/Mar	NSO	2012/13	CB	2012/13
Indonesia	MoF	2013		CEIC	2013	CEIC	2013
Iran	MoF	2011/12	Apr/Mar	CB	2013	CB	2012
Iraq	MoF	2013		NSO	2013	CB	2012
Ireland	MoF	2012		NSO	2012	NSO	2012
Israel	MoF	2012		Haver Analytics	2013	Haver Analytics	2012
Italy	NSO	2012		NSO	2012	NSO	2012
Jamaica	MoF	2012/13	Apr/Mar	NSO	2013	CB	2012
Japan	Cabinet Office of Japan	2012		NSO and Nomura	2013	NSO and Nomura	2013
Jordan	MoF	2013		NSO	2013	CB	2012
Kazakhstan	IMF staff	2012		CB	2012	CB	2012
Kenya	MoF	2013		NSO	2013	CB	2013
Kiribati	MoF	2010		NSO	2010	NSO	2009
Korea	MoF	2012		CB	2013	CB	2013
Kosovo	MoF	2012		NSO	2012	CB	2011
Kuwait	MoF	2012		MEP and NSO	2012	CB	2012

Table F. Key Data Documentation *(continued)*

Country	Currency	National Accounts				
		Historical Data Source[1]	Latest Actual Data	Base Year[2]	Reporting Period[3]	Use of Chain-Weighted Methodology[4]
Kyrgyz Republic	Kyrgyz som	NSO	2013	1995		
Lao P.D.R.	Lao kip	NSO	2011	2002		
Latvia	Latvian lats	NSO	2013	2010		From 1995
Lebanon	Lebanese pound	NSO	2011	2000		From 2010
Lesotho	Lesotho loti	NSO	2012	2004		
Liberia	U.S. dollar	CB	2011	1992		
Libya	Libyan dinar	MEP	2009	2003		
Lithuania	Lithuanian litas	NSO	2013	2005		From 2005
Luxembourg	Euro	NSO	2012	2005		From 1995
FYR Macedonia	Macedonian denar	NSO	2013	2005		
Madagascar	Malagasy ariary	NSO	2012	2000		
Malawi	Malawi kwacha	NSO	2009	2007		
Malaysia	Malaysian ringgit	NSO	2013	2005		
Maldives	Maldivian rufiyaa	MEP	2012	2003		
Mali	CFA franc	MoF	2011	1987		
Malta	Euro	Eurostat	2012	2005		From 2000
Marshall Islands	U.S. dollar	NSO	2011/12	2003/04	Oct/Sep	
Mauritania	Mauritanian ouguiya	NSO	2009	1998		
Mauritius	Mauritian rupee	NSO	2013	2000		From 1999
Mexico	Mexican peso	NSO	2013	2008		
Micronesia	U.S. dollar	NSO	2012	2004	Oct/Sept	
Moldova	Moldovan leu	NSO	2013	1995		
Mongolia	Mongolian togrog	NSO	2012	2005		
Montenegro	Euro	NSO	2011	2006		
Morocco	Moroccan dirham	NSO	2013	1998		From 1998
Mozambique	Mozambican metical	NSO	2012	2000		
Myanmar	Myanmar kyat	MEP	2010/11	2010/11	Apr/Mar	
Namibia	Namibia dollar	NSO	2009	2000		
Nepal	Nepalese rupee	NSO	2011/12	2000/01	Aug/Jul	
Netherlands	Euro	NSO	2013	2005		From 1980
New Zealand	New Zealand dollar	NSO	2011/12	1995/96		From 1987
Nicaragua	Nicaraguan córdoba	IMF staff	2012	2006		From 1994
Niger	CFA franc	NSO	2010	2000		
Nigeria	Nigerian naira	NSO	2012	2000		
Norway	Norwegian krone	NSO	2013	2011		From 1980
Oman	Omani rial	NSO	2012	2000		
Pakistan	Pakistan rupee	MoF	2012/13	2005/06	Jul/Jun	
Palau	U.S. dollar	MoF	2012	2005	Oct/Sep	
Panama	U.S. dollar	NSO	2012	1996		
Papua New Guinea	Papua New Guinea kina	NSO and MOF	2012	1998		
Paraguay	Paraguayan guaraní	CB	2012	1994		
Peru	Peruvian nuevo sol	CB	2013	1994		
Philippines	Philippine peso	NSO	2013	2000		
Poland	Polish zloty	NSO	2013	2005		From 1995
Portugal	Euro	NSO	2012	2006		From 1980
Qatar	Qatari riyal	NSO and MEP	2012	2004		
Romania	Romanian leu	NSO and Eurostat	2013	2005		From 2000

Country	Government Finance			Prices (CPI)		Balance of Payments	
	Historical Data Source[1]	Latest Actual Data	Reporting Period[3]	Historical Data Source[1]	Latest Actual Data	Historical Data Source[1]	Latest Actual Data
Kyrgyz Republic	MoF	2013		NSO	2013	MoF	2012
Lao P.D.R.	MoF	2012/13	Oct/Sep	NSO	2013	CB	2011
Latvia	MoF	2013		Eurostat	2013	CB	2013
Lebanon	MoF	2013		NSO	2013	CB	2012
Lesotho	MoF	2012/13	Apr/Mar	NSO	2013	CB	2012
Liberia	MoF	2012		CB	2013	CB	2012
Libya	MoF	2011		NSO	2009	CB	2010
Lithuania	MoF	2013		NSO	2013	CB	2013
Luxembourg	MoF	2012		NSO	2013	NSO	2012
FYR Macedonia	MoF	2012		NSO	2013	CB	2013
Madagascar	MoF	2012		NSO	2012	CB	2011
Malawi	MoF	2012/13	Jul/Jun	NSO	2013	NSO	2012
Malaysia	MoF	2012		NSO	2013	NSO	2013
Maldives	MoF and Treasury	2011		CB	2010	CB	2009
Mali	MoF	2012		MoF	2012	CB	2011
Malta	Eurostat	2012		Eurostat	2012	NSO	2012
Marshall Islands	MoF	2011/12	Oct/Sep	NSO	2013	NSO	2012
Mauritania	MoF	2012		NSO	2012	CB	2009
Mauritius	MoF	2013		NSO	2013	CB	2013
Mexico	MoF	2013		NSO	2013	CB	2013
Micronesia	MoF	2011/12	Oct/Sep	NSO	2012	NSO	2012
Moldova	MoF	2013		NSO	2013	CB	2012
Mongolia	MoF	2013		NSO	2013	CB	2013
Montenegro	MoF	2013		NSO	2013	CB	2012
Morocco	MEP	2013		NSO	2013	Foreign Exchange Office	2013
Mozambique	MoF	2012		NSO	2012	CB	2011
Myanmar	MoF	2011/12	Apr/Mar	NSO	2012	IMF staff	2012
Namibia	MoF	2008/09	Apr/Mar	NSO	2009	CB	2009
Nepal	MoF	2011/12	Aug/Jul	CB	2011/12	CB	2010/11
Netherlands	MoF	2013		NSO	2013	CB	2012
New Zealand	MoF	2012/13		NSO	2013	NSO	2012
Nicaragua	MoF	2012		CB	2012	IMF staff	2012
Niger	MoF	2011		NSO	2011	CB	2010
Nigeria	MoF	2012		NSO	2013	CB	2012
Norway	NSO and MoF	2012		NSO	2013	NSO	2012
Oman	MoF	2011		NSO	2012	CB	2011
Pakistan	MoF	2012/13	Jul/Jun	MoF	2012/13	CB	2012/13
Palau	MoF	2012	Oct/Sep	MoF	2011/12	MoF	2012
Panama	MEP	2012		NSO	2012	NSO	2012
Papua New Guinea	MoF	2012		NSO	2012	CB	2012
Paraguay	MoF	2012		CB	2012	CB	2012
Peru	MoF	2012		CB	2013	CB	2013
Philippines	MoF	2013		NSO	2013	CB	2012
Poland	Eurostat	2013		NSO	2013	CB	2013
Portugal	NSO	2012		NSO	2012	CB	2012
Qatar	MoF	2012/13	Apr/Mar	NSO	2013	CB and IMF staff	2012
Romania	MoF	2013		NSO	2013	CB	2013

Table F. Key Data Documentation *(continued)*

Country	Currency	National Accounts				
		Historical Data Source[1]	Latest Actual Data	Base Year[2]	Reporting Period[3]	Use of Chain-Weighted Methodology[4]
Russia	Russian ruble	NSO	2013	2008		From 1995
Rwanda	Rwanda franc	MoF	2012	2006		
Samoa	Samoa tala	NSO	2012/13	2002	Jul/Jun	
San Marino	Euro	NSO	2011	2007		
São Tomé and Príncipe	São Tomé and Príncipe dobra	NSO	2010	2000		
Saudi Arabia	Saudi Arabian riyal	NSO and MEP	2013	1999		
Senegal	CFA franc	NSO	2011	2000		
Serbia	Serbian dinar	NSO	2012	2010		From 2010
Seychelles	Seychelles rupee	NSO	2011	2006		
Sierra Leone	Sierra Leonean leone	NSO	2012	2006		From 2010
Singapore	Singapore dollar	NSO	2013	2005		From 2005
Slovak Republic	Euro	Haver Analytics	2013	2005		From 1993
Slovenia	Euro	NSO	2013	2000		From 2000
Solomon Islands	Solomon Islands dollar	CB	2011	2004		
South Africa	South African rand	CB	2012	2005		
South Sudan	South Sudanese pound	NSO	2011	2010		
Spain	Euro	NSO	2013	2008		From 1995
Sri Lanka	Sri Lanka rupee	CB	2012	2002		
St. Kitts and Nevis	Eastern Caribbean dollar	NSO	2013	2006[5]		
St. Lucia	Eastern Caribbean dollar	NSO	2013	2006		
St. Vincent and the Grenadines	Eastern Caribbean dollar	NSO	2013	2006[5]		
Sudan	Sudanese pound	NSO	2010	2008		
Suriname	Surinamese dollar	NSO	2011	2007		
Swaziland	Swaziland lilangeni	NSO	2009	2000		
Sweden	Swedish krona	NSO	2012	2012		From 1993
Switzerland	Swiss franc	NSO	2013	2005		From 1980
Syria	Syrian pound	NSO	2010	2000		
Taiwan Province of China	New Taiwan dollar	NSO	2013	2006		
Tajikistan	Tajik somoni	NSO	2012	1995		
Tanzania	Tanzania shilling	NSO	2012	2001		
Thailand	Thai baht	NSO	2013	1988		
Timor-Leste	U.S. dollar	MoF	2011	2010[5]		
Togo	CFA franc	NSO	2012	2000		
Tonga	Tongan pa'anga	CB	2012	2010/11	Jul/Jun	
Trinidad and Tobago	Trinidad and Tobago dollar	NSO	2011	2000		
Tunisia	Tunisian dinar	NSO	2012	2005		From 2009
Turkey	Turkish lira	NSO	2012	1998		
Turkmenistan	New Turkmen manat	NSO and IMF staff	2012	2005		From 2000
Tuvalu	Australian dollar	PFTAC advisors	2012	2005		
Uganda	Uganda shilling	NSO	2013	2002		
Ukraine	Ukrainian hryvnia	State Statistics Committee	2013	2007		From 2005
United Arab Emirates	U.A.E. dirham	NSO	2012	2007		
United Kingdom	Pound sterling	NSO	2013	2010		From 1980

Country	Government Finance			Prices (CPI)		Balance of Payments	
	Historical Data Source[1]	Latest Actual Data	Reporting Period[3]	Historical Data Source[1]	Latest Actual Data	Historical Data Source[1]	Latest Actual Data
Russia	MoF	2013		NSO	2013	CB	2013
Rwanda	MoF	2012		MoF	2012	CB	2012
Samoa	MoF	2010/11	Jul/Jun	NSO	2013	CB	2011/12
San Marino	MoF	2012		NSO	2012	. . .	. . .
São Tomé and Príncipe	MoF and Customs	2012		NSO	2013	CB	2012
Saudi Arabia	MoF	2013		NSO	2013	CB	2012
Senegal	MoF	2011		NSO	2011	CB and IMF staff	2011
Serbia	MoF	2013		NSO	2013	CB	2012
Seychelles	MoF	2012		NSO	2012	CB	2012
Sierra Leone	MoF	2012		NSO	2012	CB	2012
Singapore	MoF	2011/12	Apr/Mar	NSO	2013	NSO	2013
Slovak Republic	Haver Analytics	2013		Haver Analytics	2013	IFS	2013
Slovenia	MoF	2013		NSO	2013	NSO	2013
Solomon Islands	MoF	2012		NSO	2012	CB	2012
South Africa	MoF	2012/13		NSO	2013	CB	2012
South Sudan	MoF	2012		NSO	2013	Other	2011
Spain	MoF and Eurostat	2012		NSO	2013	CB	2013
Sri Lanka	MoF	2011		NSO	2012	CB	2011
St. Kitts and Nevis	MoF	2013		NSO	2013	CB	2013
St. Lucia	MoF	2012/13	Apr/Mar	NSO	2013	CB	2013
St. Vincent and the Grenadines	MoF	2013		NSO	2013	CB	2013
Sudan	MoF	2011		NSO	2010	CB	2011
Suriname	MoF	2012		NSO	2013	CB	2012
Swaziland	MoF	2011/12	Apr/Mar	NSO	2012	CB	2010
Sweden	MoF	2012		NSO	2013	NSO	2012
Switzerland	MoF	2011		NSO	2013	CB	2012
Syria	MoF	2009		NSO	2011	CB	2009
Taiwan Province of China	MoF	2012		NSO	2013	CB	2013
Tajikistan	MoF	2012		NSO	2012	CB	2011
Tanzania	MoF	2012/13	Jul/Jun	NSO	2013	CB	2011
Thailand	MoF	2012/13	Oct/Sep	NSO	2013	CB	2013
Timor-Leste	MoF	2012		NSO	2012	CB	2012
Togo	MoF	2013		NSO	2013	CB	2012
Tonga	CB and MoF	2012	Jul/Jun	CB	2012	CB and NSO	2012
Trinidad and Tobago	MoF	2012/13	Oct/Sep	NSO	2013	CB and NSO	2011
Tunisia	MoF	2012		NSO	2012	CB	2012
Turkey	MoF	2013		NSO	2013	CB	2013
Turkmenistan	MoF	2012		NSO	2012	NSO and IMF staff	2012
Tuvalu	IMF staff	2012		NSO	2012	PFTAC advisors	2012
Uganda	MoF	2013		CB	2013/14	CB	2013
Ukraine	MoF	2013		NSO	2013	CB	2013
United Arab Emirates	MoF	2012		NSO	2012	CB	2012
United Kingdom	NSO	2012		NSO	2013	NSO	2013

Table F. Key Data Documentation *(concluded)*

		National Accounts				
Country	Currency	Historical Data Source[1]	Latest Actual Data	Base Year[2]	Reporting Period[3]	Use of Chain-Weighted Methodology[4]
United States	U.S. dollar	NSO	2013	2009		From 1980
Uruguay	Uruguayan peso	CB	2012	2005		
Uzbekistan	Uzbek sum	NSO	2012	1995		
Vanuatu	Vanuatu vatu	NSO	2012	2006		
Venezuela	Venezuelan bolívar fuerte	CB	2010	1997		
Vietnam	Vietnamese dong	NSO	2013	2010		
Yemen	Yemeni rial	IMF staff	2008	1990		
Zambia	Zambian kwacha	NSO	2013	2000		
Zimbabwe	U.S. dollar	NSO	2012	2009		

Source: IMF staff.

Note: CPI = consumer price index.

[1]BEA = U.S. Bureau of Economic Analysis; CB = Central Bank; IFS = IMF, *International Financial Statistics;* MEP = Ministry of Economy and/or Planning; MoC = Ministry of Commerce; MoF = Ministry of Finance; NSO = National Statistics Office; OECD = Organization for Economic Cooperation and Development; PFTAC = Pacific Financial Technical Assistance Centre.

[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]Reporting period is calendar year unless a fiscal year is indicated.

[4]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 component using weights from a year in the moderately distant past.

[5]Nominal GDP is not measured in the same way as real GDP.

[6]Before 2012, based on March 21 to March 20; therafter, from December 21 to December 20.

Country	Government Finance			Prices (CPI)		Balance of Payments	
	Historical Data Source[1]	Latest Actual Data	Reporting Period[3]	Historical Data Source[1]	Latest Actual Data	Historical Data Source[1]	Latest Actual Data
United States	BEA	2013		NSO	2013	NSO	2013
Uruguay	MoF	2012		NSO	2013	CB	2012
Uzbekistan	MoF	2012		NSO	2012	MEP	2012
Vanuatu	MoF	2012		NSO	2012	CB	2012
Venezuela	MoF	2010		CB	2010	CB	2012
Vietnam	MoF	2013		NSO	2013	CB	2012
Yemen	MoF	2009		NSO and CB	2009	IMF staff	2009
Zambia	MoF	2013		NSO	2013	CB	2013
Zimbabwe	MoF	2012		NSO	2013	CB and MoF	2012

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 2012 estimates are based on actual data on outturns and IMF staff estimates. For the outer years, the fiscal balance is projected to remain roughly at the current level.

Australia: Fiscal projections are based on the 2013–14 Mid-Year Economic and Fiscal Outlook, Australian Bureau of Statistics, and IMF staff projections.

Austria: Projections take into account the authorities' medium-term fiscal framework, as well as associated further implementation needs and risks. 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 1.2 percentage points.

Belgium: IMF staff projections for 2014 and beyond are based on unchanged policies.

Brazil: For 2013, preliminary outturn estimates are based on the information available as of January 2014. Projections for 2014 take into account the latest adjustments to the original budget, as per the Presidential Decree of February 2014. In outer years, the IMF staff assumes adherence to the announced primary target.

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 some 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 2013.

Chile: Projections are based on the authorities' budget projections, adjusted to reflect the IMF staff's projections for GDP and copper prices.

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 2013–15 are aligned with the latest official budget estimates and the underlying economic projections, adjusted where appropriate for the IMF staff's macroeconomic assumptions. For 2016–19, the projections incorporate key features of the medium-term fiscal plan as embodied in the authorities' 2013 Convergence Program submitted to the European Union (EU).

France: Projections for 2014 reflect the budget law. For 2015–17, they are based on the 2013–17 multiyear budget, the April 2013 stability plan, and the medium-term projection annexed to the 2014 budget adjusted for differences in assumptions on macro and financial variables, and revenue projections. The fiscal data for 2011 were revised following a May 15, 2013, revision by the statistical institute of both national accounts and fiscal accounts. Fiscal data for 2012 reflect the preliminary outturn published by the statistical institute in May 2013. Projections for 2013 reflect discussion with the authorities on monthly developments on spending and revenue.

Germany: The estimates for 2013 are preliminary estimates from the Federal Statistical Office of Germany. The IMF staff's projections for 2014 and

[1] The output gap is actual minus potential output, as a percent of potential output. Structural balances are expressed as a percent 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)*

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 2013 and the medium term are consistent with the policies discussed between the IMF staff and the authorities in the context of the Extended Fund Facility.

Hong Kong SAR: Projections are based on the authorities' medium-term fiscal projections on expenditures. The fiscal year 2015/16 balance is adjusted to include HK$50 billion for health care reform expenditure.

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 for 2013–18 are based on a gradual increase in administrative fuel prices, the introduction beginning in 2014 of new social protections, and moderate tax policy and administration reforms.

Ireland: Fiscal projections are based on the 2014 budget. The fiscal projections are 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 2014 Budgetary Plan, adjusted for different growth outlooks and estimated impact of measures. Estimates of the cyclically adjusted balance include the expenditure 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. Fiscal proposals by the new government were announced after the finalization of the WEO projections and are not included in the figures.

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 2012–18 are based on the authorities' Bureau for Economic Policy Analysis budget projections, after adjusting for differences in macroeconomic assumptions.

New Zealand: Fiscal projections are based on the authorities' 2013 Half Year Economic and Fiscal Update and on IMF staff estimates.

Portugal: Projections for 2013–14 reflect the authorities' commitments under the EU- and IMF-supported program; projections thereafter are based on IMF staff estimates.

Russia: Projections for 2013–19 are based on the oil-price-based fiscal price 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 exceed budgeted amounts. 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; capital spending estimates over the medium term are in line with the authorities' priorities established in the National Development Plans.

Singapore: For fiscal year 2013/14, 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' Medium Term Budget Policy Statement, released on October 23, 2013.

Spain: For 2013 and beyond, fiscal projections are based on the measures specified in the Stability Pro-

Box A1. *(continued)*

gram Update 2013–16; the revised fiscal policy recommendations by the European Council in June 2013; the 2014 budget plan issued in October 2013; and the 2014 budget, approved in December 2013.

Sweden: Fiscal projections are broadly in line with the authorities' projections based on the 2014 Budget Bill. The impact of cyclical developments on the fiscal accounts is calculated using the Organization for Economic Cooperation and Development's latest semi-elasticity.

Switzerland: Projections for 2012–18 are based on IMF staff calculations, which incorporate measures to restore balance in the federal accounts and strengthen social security finances.

Turkey: Fiscal projections assume that both current and capital spending will be in line with the authorities' 2013–15 Medium-Term Program based on current trends and policies.

United Kingdom: Fiscal projections are based on the U.K. Treasury's 2014 budget, published in March 2014. 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. In addition, IMF staff projections exclude the temporary effects of financial sector interventions and the effect on public sector net investment during 2012–13 of transferring assets from the Royal Mail Pension Plan to the public sector. 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 that projected by the U.K. Office for Budget Responsibility. Transfers of profits from the Bank of England's Asset Purchases Facility affect general government net interest payments. The timing of these payments can create differences between fiscal year primary balances published by the authorities and calendar year balances shown in the WEO.

United States: Fiscal projections are based on the February 2014 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 portions similar to the case in 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 Congress will continue to make regular adjustments to Medicare payments ("DocFix") and will extend certain traditional programs (such as the research and development tax credit). The 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 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* (GFSM2001) 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 0.4 percent in 2014 and 0.8 percent in 2015 (see Table 1.1). The rate on three-month euro deposits is assumed to average 0.3 percent in 2014 and 0.4 percent in 2015. The interest rate on six-month Japanese yen deposits is assumed to average 0.2 percent in 2014 and 2015.

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.

Box A1. *(concluded)*

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 based on the average of market forecasts.

Indonesia: Monetary policy assumptions are in line with market expectations and reduction of inflation by 2014 to within the central bank's targeted band.

Japan: The current monetary policy conditions are maintained for the projection period, and no further tightening or loosening is assumed.

Korea: Normalization is assumed to commence in the second half of 2014, with policy rates rising through 2015.

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: On monetary policy, the projections assume no changes to the policy rate or the level of asset purchases through 2014.

United States: Given the outlook for sluggish growth and inflation, the IMF staff expects the federal funds target to remain near zero until late 2014. This assumption is consistent with the Federal Open Market Committee's statement following its January 2013 meeting (and reaffirmed in subsequent meetings) that economic conditions are likely to warrant an exceptionally low federal funds rate at least through late 2014.

List of Tables

Table A1. Summary of World Output[1]

(Annual percent change)

	Average									Projections		
	1996–2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2019
World	**3.7**	**5.2**	**5.3**	**2.7**	**–0.4**	**5.2**	**3.9**	**3.2**	**3.0**	**3.6**	**3.9**	**3.9**
Advanced Economies	**2.8**	**3.0**	**2.7**	**0.1**	**–3.4**	**3.0**	**1.7**	**1.4**	**1.3**	**2.2**	**2.3**	**2.1**
United States	3.4	2.7	1.8	–0.3	–2.8	2.5	1.8	2.8	1.9	2.8	3.0	2.2
Euro Area[2]	2.1	3.3	3.0	0.4	–4.4	2.0	1.6	–0.7	–0.5	1.2	1.5	1.5
Japan	1.0	1.7	2.2	–1.0	–5.5	4.7	–0.5	1.4	1.5	1.4	1.0	1.1
Other Advanced Economies[3]	3.6	4.0	4.2	1.0	–2.4	4.5	2.7	1.5	2.1	2.9	2.9	3.0
Emerging Market and Developing Economies	**5.2**	**8.2**	**8.7**	**5.9**	**3.1**	**7.5**	**6.3**	**5.0**	**4.7**	**4.9**	**5.3**	**5.3**
Regional Groups												
Commonwealth of Independent States[4]	4.2	8.8	8.9	5.3	–6.4	4.9	4.8	3.4	2.1	2.3	3.1	3.2
Emerging and Developing Asia	7.1	10.3	11.5	7.3	7.7	9.7	7.9	6.7	6.5	6.7	6.8	6.5
Emerging and Developing Europe	4.0	6.4	5.3	3.3	–3.4	4.7	5.4	1.4	2.8	2.4	2.9	3.4
Latin America and the Caribbean	2.9	5.6	5.8	4.3	–1.3	6.0	4.6	3.1	2.7	2.5	3.0	3.6
Middle East, North Africa, Afghanistan, and Pakistan	4.9	6.7	6.0	5.1	2.8	5.2	3.9	4.2	2.4	3.2	4.4	4.5
Middle East and North Africa	4.9	6.8	6.0	5.1	3.0	5.5	3.9	4.1	2.2	3.2	4.5	4.4
Sub-Saharan Africa	4.7	6.3	7.1	5.7	2.6	5.6	5.5	4.9	4.9	5.4	5.5	5.4
Memorandum												
European Union	2.5	3.6	3.4	0.6	–4.4	2.0	1.7	–0.3	0.2	1.6	1.8	1.9
Analytical Groups												
By Source of Export Earnings												
Fuel	4.6	7.9	7.5	5.3	–1.2	5.1	4.8	4.4	2.4	3.0	3.9	3.9
Nonfuel	5.3	8.3	9.0	6.0	4.1	8.1	6.6	5.2	5.2	5.3	5.6	5.6
Of Which, Primary Products	4.0	5.8	6.0	4.3	1.0	5.2	4.8	4.2	4.1	4.0	4.5	4.5
By External Financing Source												
Net Debtor Economies	4.1	6.5	6.6	4.3	1.6	6.8	5.1	3.7	3.6	3.8	4.5	5.0
Of Which, Official Financing	4.7	5.9	5.0	4.9	1.9	4.1	5.0	4.1	4.6	4.4	4.7	5.2
Net Debtor Economies by Debt-Servicing Experience												
Economies with Arrears and/or Rescheduling during 2008–12	4.2	6.9	6.7	6.1	1.9	5.7	5.0	3.0	3.8	2.7	3.4	4.1
Memorandum												
Median Growth Rate												
Advanced Economies	3.4	4.0	4.0	0.8	–3.7	2.3	1.9	0.9	0.9	1.9	2.2	2.2
Emerging Market and Developing Economies	4.3	5.7	6.3	5.1	1.8	4.5	4.4	4.0	3.8	4.1	4.5	4.3
Output per Capita												
Advanced Economies	2.1	2.3	2.0	–0.6	–4.1	2.5	1.2	0.9	0.8	1.7	1.8	1.6
Emerging Market and Developing Economies	3.9	6.9	7.4	4.5	2.0	6.4	5.2	4.0	3.6	3.8	4.3	4.3
World Growth Rate Based on Market Exchange	**3.0**	**4.0**	**3.9**	**1.5**	**–2.1**	**4.1**	**3.0**	**2.5**	**2.4**	**3.1**	**3.3**	**3.3**
Value of World Output (billions of U.S. dollars)												
At Market Exchange Rates	35,002	50,059	56,440	61,848	58,623	64,020	70,896	72,106	73,982	76,776	81,009	100,847
At Purchasing Power Parities	44,472	62,474	67,466	70,558	70,627	75,099	79,381	83,258	86,995	91,093	96,256	121,265

[1]Real GDP.
[2]Excludes Latvia.
[3]In this table, Other Advanced Economies means advanced economies excluding the United States, Euro Area countries, and Japan but including Latvia.
[4]Georgia, 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 A2. Advanced Economies: Real GDP and Total Domestic Demand[1]

(Annual percent change)

	Average									Projections			Fourth Quarter[2]	Projections	
	1996–2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2019	2013:Q4	2014:Q4	2015:Q4
Real GDP															
Advanced Economies	**2.8**	**3.0**	**2.7**	**0.1**	**–3.4**	**3.0**	**1.7**	**1.4**	**1.3**	**2.2**	**2.3**	**2.1**	**2.1**	**2.1**	**2.4**
United States	3.4	2.7	1.8	–0.3	–2.8	2.5	1.8	2.8	1.9	2.8	3.0	2.2	2.6	2.7	3.0
Euro Area[3]	2.1	3.3	3.0	0.4	–4.4	2.0	1.6	–0.7	–0.5	1.2	1.5	1.5	0.5	1.3	1.5
Germany	1.2	3.9	3.4	0.8	–5.1	3.9	3.4	0.9	0.5	1.7	1.6	1.3	1.4	1.6	1.7
France	2.2	2.5	2.3	–0.1	–3.1	1.7	2.0	0.0	0.3	1.0	1.5	1.9	0.8	1.2	1.6
Italy	1.4	2.2	1.7	–1.2	–5.5	1.7	0.4	–2.4	–1.9	0.6	1.1	0.9	–0.9	0.7	1.4
Spain	3.7	4.1	3.5	0.9	–3.8	–0.2	0.1	–1.6	–1.2	0.9	1.0	1.3	–0.2	1.1	0.9
Netherlands	2.7	3.4	3.9	1.8	–3.7	1.5	0.9	–1.2	–0.8	0.8	1.6	2.1	0.8	0.6	1.7
Belgium	2.2	2.7	2.9	1.0	–2.8	2.3	1.8	–0.1	0.2	1.2	1.2	1.5	1.0	1.1	1.3
Austria	2.4	3.7	3.7	1.4	–3.8	1.8	2.8	0.9	0.4	1.7	1.7	1.4	0.5	2.3	1.3
Greece	3.7	5.5	3.5	–0.2	–3.1	–4.9	–7.1	–7.0	–3.9	0.6	2.9	2.8	–2.5	2.3	3.2
Portugal	2.5	1.4	2.4	0.0	–2.9	1.9	–1.3	–3.2	–1.4	1.2	1.5	1.8	1.6	0.7	2.0
Finland	3.7	4.4	5.3	0.3	–8.5	3.4	2.8	–1.0	–1.4	0.3	1.1	1.8	–0.5	2.1	0.0
Ireland	7.6	5.5	5.0	–2.2	–6.4	–1.1	2.2	0.2	–0.3	1.7	2.5	2.5	–0.6	–1.3	0.5
Slovak Republic	4.2	8.3	10.5	5.8	–4.9	4.4	3.0	1.8	0.9	2.3	3.0	3.6	1.4	2.9	3.0
Slovenia	4.0	5.8	7.0	3.4	–7.9	1.3	0.7	–2.5	–1.1	0.3	0.9	1.9	1.9	–0.9	1.5
Luxembourg	4.8	4.9	6.6	–0.7	–5.6	3.1	1.9	–0.2	2.0	2.1	1.9	2.2	1.8	2.1	1.7
Latvia	6.9	11.0	10.0	–2.8	–17.7	–1.3	5.3	5.2	4.1	3.8	4.4	4.0	3.9	4.2	4.0
Estonia	6.9	10.1	7.5	–4.2	–14.1	2.6	9.6	3.9	0.8	2.4	3.2	3.7	0.9	6.1	3.3
Cyprus[4]	3.5	4.1	5.1	3.6	–1.9	1.3	0.4	–2.4	–6.0	–4.8	0.9	1.9	. . .	. . .	. . .
Malta	. . .	2.6	4.1	3.9	–2.8	3.3	1.7	0.9	2.4	1.8	1.8	1.7	2.9	2.0	1.1
Japan	1.0	1.7	2.2	–1.0	–5.5	4.7	–0.5	1.4	1.5	1.4	1.0	1.1	2.5	1.2	0.5
United Kingdom	3.4	2.8	3.4	–0.8	–5.2	1.7	1.1	0.3	1.8	2.9	2.5	2.4	2.7	3.0	1.9
Canada	3.3	2.6	2.0	1.2	–2.7	3.4	2.5	1.7	2.0	2.3	2.4	2.0	2.7	2.1	2.4
Korea[5]	4.8	5.2	5.1	2.3	0.3	6.3	3.7	2.0	2.8	3.7	3.8	3.8	4.0	3.3	4.1
Australia	3.7	2.7	4.5	2.7	1.5	2.2	2.6	3.6	2.4	2.6	2.7	3.0	2.8	2.4	3.1
Taiwan Province of China	4.4	5.4	6.0	0.7	–1.8	10.8	4.2	1.5	2.1	3.1	3.9	4.5	2.3	2.2	5.9
Sweden	3.1	4.3	3.3	–0.6	–5.0	6.6	2.9	0.9	1.5	2.8	2.6	2.4	3.1	2.1	2.6
Hong Kong SAR	3.4	7.0	6.5	2.1	–2.5	6.8	4.8	1.5	2.9	3.7	3.8	4.0	2.9	3.9	3.8
Switzerland	1.7	3.8	3.8	2.2	–1.9	3.0	1.8	1.0	2.0	2.1	2.2	1.7	1.9	2.6	2.0
Singapore	5.3	8.9	9.0	1.9	–0.6	15.1	6.0	1.9	4.1	3.6	3.6	3.8	5.5	2.6	4.2
Czech Republic	3.0	7.0	5.7	3.1	–4.5	2.5	1.8	–1.0	–0.9	1.9	2.0	2.4	1.3	1.1	2.0
Norway	2.9	2.3	2.7	0.0	–1.4	0.6	1.1	2.8	0.8	1.8	1.9	2.1	1.3	2.0	1.7
Israel	3.6	5.8	6.9	4.5	1.2	5.7	4.6	3.4	3.3	3.2	3.4	3.5	3.2	3.3	3.3
Denmark	2.1	3.4	1.6	–0.8	–5.7	1.4	1.1	–0.4	0.4	1.5	1.7	1.8	0.6	2.0	1.8
New Zealand	3.5	2.8	3.4	–0.8	–1.4	2.1	1.9	2.6	2.4	3.3	3.0	2.5	1.6	4.7	1.9
Iceland	4.6	4.7	6.0	1.2	–6.6	–4.1	2.7	1.4	2.9	2.7	3.1	2.3	2.3	3.2	1.9
San Marino	. . .	3.8	7.1	3.4	–9.5	–5.0	–8.5	–5.1	–3.2	0.0	2.2	2.9	. . .	. . .	. . .
Memorandum															
Major Advanced Economies	2.6	2.6	2.2	–0.3	–3.8	2.8	1.6	1.7	1.4	2.2	2.3	1.9	2.2	2.1	2.2
Real Total Domestic Demand															
Advanced Economies	**2.9**	**2.8**	**2.3**	**–0.4**	**–3.8**	**2.9**	**1.4**	**1.1**	**1.0**	**2.0**	**2.2**	**2.0**	**1.9**	**1.8**	**2.3**
United States	3.9	2.6	1.1	–1.3	–3.8	2.9	1.7	2.6	1.7	2.6	3.1	2.2	2.3	2.8	3.2
Euro Area	2.0	3.1	2.8	0.3	–3.7	1.2	0.7	–2.2	–1.0	0.9	1.0	1.4	0.1	1.0	1.1
Germany	0.6	2.8	2.0	1.0	–2.3	2.3	2.8	–0.2	0.5	1.4	1.3	1.3	0.5	2.1	1.3
France	2.3	2.4	3.2	0.3	–2.6	1.8	2.0	–0.9	0.4	1.0	1.0	1.7	1.2	0.8	1.1
Italy	1.8	2.1	1.4	–1.2	–4.4	2.1	–0.9	–5.1	–3.0	0.5	0.7	0.9	–1.0	0.2	1.1
Spain	4.4	5.2	4.1	–0.5	–6.3	–0.6	–2.0	–4.1	–2.7	0.5	0.3	0.7	–0.6	0.6	0.4
Japan	0.7	0.9	1.1	–1.3	–4.0	2.9	0.4	2.3	1.8	1.5	0.6	1.1	3.0	0.5	0.2
United Kingdom	3.8	2.4	3.4	–1.6	–6.3	2.4	–0.1	1.2	1.9	2.8	2.3	2.3	2.7	2.5	2.0
Canada	3.4	3.9	3.4	2.8	–2.7	5.2	2.9	2.2	1.8	2.0	2.0	1.9	2.3	1.6	2.1
Other Advanced Economies[6]	3.3	4.2	5.0	1.5	–2.9	5.7	2.9	2.0	1.9	2.5	2.7	3.2	2.6	1.4	3.6
Memorandum															
Major Advanced Economies	2.8	2.4	1.7	–0.8	–3.8	2.8	1.4	1.5	1.3	2.1	2.2	1.9	2.0	2.0	2.2

[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 Latvia.
[4]Owing to the unusually large macroeconomic uncertainty, projections for this variable are not available. The national accounts data for 2013 refer to staff estimates at the time of the third review of the program and are subject to revision.
[5]Korea's real GDP series is based on the reference year 2005. This does not reflect the revised national accounts released on March 26, 2014, after the WEO was finalized for publication. These comprehensive revisions include implementing the 2008 System of National Accounts and updating of the reference year to 2010. As a result of these revisions, real GDP growth in 2013 was revised up to 3 percent from 2.8 percent.
[6]In this table, Other Advanced Economies means advanced economies excluding the G7 (Canada, France, Germany, Italy, Japan, United Kingdom, United States) and Euro Area countries but including Latvia.

Table A3. Advanced Economies: Components of Real GDP

(Annual percent change)

	Averages										Projections	
	1996–2005	2006–15	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Private Consumer Expenditure												
Advanced Economies	**3.0**	**1.4**	**2.6**	**2.4**	**0.1**	**–1.1**	**2.0**	**1.5**	**1.2**	**1.3**	**1.9**	**2.1**
United States	3.9	1.8	3.0	2.2	–0.4	–1.6	2.0	2.5	2.2	2.0	2.7	2.9
Euro Area[1]	2.0	0.4	2.1	1.7	0.4	–1.0	1.0	0.3	–1.4	–0.7	0.6	1.0
Germany	0.9	0.9	1.6	–0.2	0.7	0.3	1.0	2.3	0.7	1.0	1.0	1.1
France	2.3	0.9	2.2	2.4	0.2	0.3	1.6	0.6	–0.3	0.4	0.9	1.0
Italy	1.6	–0.5	1.4	1.1	–0.8	–1.6	1.5	–0.3	–4.0	–2.6	–0.2	0.5
Spain	3.8	–0.1	4.0	3.5	–0.6	–3.7	0.2	–1.2	–2.8	–2.1	1.2	0.9
Japan	1.0	0.9	1.1	0.9	–0.9	–0.7	2.8	0.3	2.0	1.9	0.7	0.6
United Kingdom	4.1	0.9	1.8	2.7	–1.0	–3.6	1.0	–0.4	1.5	2.3	2.4	2.6
Canada	3.4	2.5	4.1	4.2	2.9	0.3	3.4	2.3	1.9	2.2	2.2	2.1
Other Advanced Economies[2]	3.6	2.6	3.9	4.8	1.1	0.1	3.8	2.8	2.1	2.1	2.6	2.8
Memorandum												
Major Advanced Economies	2.8	1.3	2.4	1.9	–0.2	–1.2	1.9	1.7	1.4	1.6	1.9	2.1
Public Consumption												
Advanced Economies	**2.2**	**1.0**	**1.7**	**1.8**	**2.3**	**3.1**	**0.9**	**–0.7**	**0.3**	**–0.1**	**0.4**	**0.4**
United States	2.0	0.4	1.1	1.4	2.5	3.7	0.1	–2.7	–0.2	–2.0	–0.6	0.1
Euro Area[1]	1.8	0.9	2.1	2.2	2.3	2.6	0.6	–0.1	–0.5	0.2	0.3	–0.2
Germany	0.9	1.4	0.9	1.4	3.2	3.0	1.3	1.0	1.0	0.7	0.9	0.9
France	1.4	1.2	1.4	1.5	1.3	2.5	1.8	0.4	1.4	1.7	0.4	–0.1
Italy	1.8	–0.3	0.5	1.0	0.6	0.8	–0.4	–1.3	–2.6	–0.8	–0.1	–0.4
Spain	4.2	0.9	4.6	5.6	5.9	3.7	1.5	–0.5	–4.8	–2.3	–1.7	–2.2
Japan	2.4	1.3	0.0	1.1	–0.1	2.3	1.9	1.2	1.7	2.2	1.7	1.0
United Kingdom	2.8	0.9	2.2	0.7	2.1	0.7	0.5	0.0	1.6	0.9	1.2	–0.5
Canada	1.7	2.1	3.1	2.8	4.6	3.3	2.7	0.8	1.1	0.8	1.0	1.0
Other Advanced Economies[2]	2.8	2.5	3.0	3.0	2.8	3.5	2.5	1.7	2.0	2.4	2.0	1.7
Memorandum												
Major Advanced Economies	2.0	0.7	1.1	1.3	2.1	2.9	0.7	–1.1	0.4	–0.5	0.2	0.4
Gross Fixed Capital Formation												
Advanced Economies	**3.5**	**0.5**	**3.9**	**2.5**	**–3.0**	**–11.9**	**1.8**	**2.5**	**1.9**	**0.9**	**3.4**	**4.0**
United States	5.1	0.5	2.2	–1.2	–4.8	–13.1	1.1	3.4	5.5	2.9	4.0	6.3
Euro Area[1]	2.7	–0.6	5.6	5.2	–1.4	–12.8	–0.4	1.6	–4.1	–3.0	2.2	2.6
Germany	0.0	1.7	8.9	5.1	0.7	–12.2	5.4	7.0	–1.4	–0.6	3.2	2.5
France	3.3	0.5	4.0	6.3	0.4	–10.6	1.5	3.0	–1.2	–2.1	1.9	2.7
Italy	2.6	–2.1	3.4	1.8	–3.7	–11.7	0.6	–2.2	–8.0	–4.7	1.9	2.6
Spain	6.2	–3.5	7.1	4.5	–4.7	–18.0	–5.5	–5.4	–7.0	–5.1	0.6	1.2
Japan	–0.8	–0.4	1.5	0.3	–4.1	–10.6	–0.2	1.4	3.4	2.6	2.6	–0.2
United Kingdom	4.5	0.0	5.6	7.5	–6.9	–16.7	2.8	–2.4	0.7	–0.5	7.7	5.2
Canada	5.9	2.2	6.2	3.2	1.6	–12.0	11.3	4.2	4.3	0.0	1.6	3.0
Other Advanced Economies[2]	3.4	2.6	5.6	6.3	0.1	–6.3	6.6	3.7	1.9	2.2	2.8	3.2
Memorandum												
Major Advanced Economies	3.4	0.4	3.4	1.2	–3.6	–12.6	1.9	2.7	2.9	1.4	3.6	4.3

Table A3. Advanced Economies: Components of Real GDP *(concluded)*

(Annual percent change)

	Averages										Projections	
	1996–2005	2006–15	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Final Domestic Demand												
Advanced Economies	**2.9**	**1.2**	**2.7**	**2.3**	**–0.2**	**–2.7**	**1.8**	**1.4**	**1.2**	**1.0**	**1.9**	**2.2**
United States	3.9	1.3	2.6	1.4	–0.9	–3.0	1.5	1.8	2.4	1.6	2.5	3.2
Euro Area[1]	2.1	0.3	2.8	2.5	0.4	–2.8	0.6	0.4	–1.7	–0.9	0.8	1.0
Germany	0.7	1.2	2.8	1.2	1.1	–1.6	1.8	2.9	0.4	0.6	1.4	1.3
France	2.2	0.9	2.4	3.0	0.5	–1.4	1.6	1.0	–0.1	0.3	0.9	1.0
Italy	1.9	–0.8	1.6	1.2	–1.2	–3.2	0.9	–0.9	–4.5	–2.6	0.2	0.7
Spain	4.5	–0.7	5.0	4.1	–0.7	–6.2	–0.9	–2.0	–4.1	–2.7	0.5	0.3
Japan	0.8	0.7	1.0	0.8	–1.6	–2.3	2.0	0.7	2.2	2.1	1.3	0.5
United Kingdom	3.9	0.8	2.5	3.1	–1.4	–4.8	1.2	–0.6	1.4	1.6	2.9	2.3
Canada	3.6	2.4	4.4	3.7	2.9	–1.9	5.0	2.4	2.3	1.4	1.8	2.1
Other Advanced Economies[2]	3.3	2.5	4.0	4.9	1.1	–0.9	4.2	2.8	2.0	2.1	2.6	2.7
Memorandum												
Major Advanced Economies	2.8	1.1	2.3	1.6	–0.6	–2.8	1.7	1.4	1.5	1.2	2.0	2.2
Stock Building[3]												
Advanced Economies	**0.0**	**0.0**	**0.1**	**0.0**	**–0.2**	**–1.1**	**1.1**	**0.0**	**–0.1**	**0.0**	**0.1**	**0.0**
United States	0.0	0.0	0.0	–0.2	–0.5	–0.8	1.5	–0.2	0.2	0.2	0.1	0.0
Euro Area[1]	0.0	0.0	0.3	0.3	–0.1	–1.0	0.6	0.3	–0.5	–0.1	0.1	0.0
Germany	–0.1	0.0	0.1	0.8	–0.1	–0.6	0.5	0.0	–0.5	–0.1	0.0	0.0
France	0.1	–0.1	0.1	0.2	–0.2	–1.2	0.2	1.1	–0.9	0.1	0.0	0.0
Italy	–0.1	0.0	0.5	0.2	0.0	–1.2	1.1	–0.1	–0.7	–0.4	0.3	0.0
Spain	0.0	0.0	0.3	–0.1	0.2	0.0	0.0	0.1	0.0	0.0	0.0	0.0
Japan	0.0	0.0	–0.1	0.3	0.2	–1.5	0.9	–0.2	0.1	–0.3	0.1	0.1
United Kingdom	0.0	0.0	–0.1	0.3	–0.2	–1.5	1.2	0.4	–0.2	0.3	0.0	0.0
Canada	0.0	0.0	–0.1	–0.1	0.0	–0.8	0.2	0.5	0.0	0.4	0.0	–0.1
Other Advanced Economies[2]	0.0	0.0	0.1	0.1	0.3	–1.9	1.4	0.1	0.0	–0.2	–0.1	0.0
Memorandum												
Major Advanced Economies	0.0	0.0	0.0	0.1	–0.3	–1.0	1.1	0.0	–0.1	0.1	0.1	0.0
Foreign Balance[3]												
Advanced Economies	**–0.1**	**0.3**	**0.2**	**0.4**	**0.5**	**0.3**	**0.2**	**0.4**	**0.4**	**0.3**	**0.3**	**0.2**
United States	–0.6	0.2	–0.1	0.6	1.1	1.1	–0.5	0.1	0.1	0.1	0.1	–0.3
Euro Area[1]	0.1	0.4	0.2	0.2	0.1	–0.7	0.7	0.9	1.5	0.5	0.4	0.4
Germany	0.5	0.4	1.2	1.5	–0.1	–3.0	1.7	0.7	1.1	0.0	0.4	0.3
France	–0.1	0.0	0.0	–0.9	–0.3	–0.5	–0.1	–0.1	1.0	–0.1	0.0	0.5
Italy	–0.3	0.5	0.1	0.3	0.0	–1.2	–0.4	1.5	2.6	0.8	0.6	0.4
Spain	–0.7	1.0	–1.4	–0.8	1.5	2.9	0.4	2.1	2.5	1.5	0.4	0.6
Japan	0.2	0.0	0.8	1.0	0.2	–2.0	2.0	–0.8	–0.7	–0.2	–0.2	0.3
United Kingdom	–0.6	0.2	0.2	–0.1	0.9	0.9	–0.5	1.2	–0.7	0.1	0.0	0.1
Canada	–0.2	–0.7	–1.4	–1.5	–1.9	0.0	–2.0	–0.4	–0.6	0.3	0.4	0.4
Other Advanced Economies[2]	0.6	0.7	0.9	0.7	0.4	1.6	0.6	0.6	0.2	0.6	0.9	0.8
Memorandum												
Major Advanced Economies	–0.3	0.2	0.2	0.5	0.5	0.0	0.0	0.2	0.2	0.1	0.1	0.0

[1]Excludes Latvia.
[2]In this table, Other Advanced Economies means advanced economies excluding the G7 (Canada, France, Germany, Italy, Japan, United Kingdom, United States) and Euro Area countries but including Latvia.
[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		
	1996–2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2019
Commonwealth of Independent States[1,2]	**4.2**	**8.8**	**8.9**	**5.3**	**–6.4**	**4.9**	**4.8**	**3.4**	**2.1**	**2.3**	**3.1**	**3.2**
Russia	3.8	8.2	8.5	5.2	–7.8	4.5	4.3	3.4	1.3	1.3	2.3	2.5
Excluding Russia	5.0	10.6	9.9	5.6	–3.1	6.0	6.1	3.3	3.9	5.3	5.7	5.0
Armenia	8.6	13.2	13.7	6.9	–14.1	2.2	4.7	7.1	3.2	4.3	4.5	5.0
Azerbaijan	9.5	34.5	25.0	10.8	9.3	5.0	0.1	2.2	5.8	5.0	4.6	4.2
Belarus	6.9	10.0	8.7	10.3	0.1	7.7	5.5	1.7	0.9	1.6	2.5	2.8
Georgia	6.5	9.4	12.3	2.3	–3.8	6.3	7.2	6.2	3.2	5.0	5.0	5.0
Kazakhstan	6.4	10.7	8.9	3.3	1.2	7.3	7.5	5.0	6.0	5.7	6.1	5.4
Kyrgyz Republic	4.7	3.1	8.5	7.6	2.9	–0.5	6.0	–0.9	10.5	4.4	4.9	5.2
Moldova	2.2	4.8	3.0	7.8	–6.0	7.1	6.8	–0.7	8.9	3.5	4.5	4.0
Tajikistan	6.0	7.0	7.8	7.9	3.9	6.5	7.4	7.5	7.4	6.2	5.7	5.8
Turkmenistan	9.9	11.0	11.1	14.7	6.1	9.2	14.7	11.1	10.2	10.7	12.5	8.3
Ukraine[3]	2.8	7.4	7.6	2.3	–14.8	4.1	5.2	0.2	0.0	. . .	. . .	. . .
Uzbekistan	4.6	7.5	9.5	9.0	8.1	8.5	8.3	8.2	8.0	7.0	6.5	5.5
Emerging and Developing Asia	**7.1**	**10.3**	**11.5**	**7.3**	**7.7**	**9.7**	**7.9**	**6.7**	**6.5**	**6.7**	**6.8**	**6.5**
Bangladesh	5.4	6.5	6.3	6.0	5.9	6.4	6.5	6.1	5.8	6.0	6.5	7.0
Bhutan	6.9	7.0	12.6	10.8	5.7	9.3	10.1	6.5	5.0	6.4	7.6	8.0
Brunei Darussalam	1.7	4.4	0.2	–1.9	–1.8	2.6	3.4	0.9	–1.2	5.4	3.0	3.5
Cambodia	8.3	10.8	10.2	6.7	0.1	6.1	7.1	7.3	7.0	7.2	7.3	7.5
China	9.2	12.7	14.2	9.6	9.2	10.4	9.3	7.7	7.7	7.5	7.3	6.5
Fiji	2.5	1.9	–0.9	1.0	–1.4	3.0	2.7	1.7	3.0	2.3	2.3	2.4
India	6.4	9.3	9.8	3.9	8.5	10.3	6.6	4.7	4.4	5.4	6.4	6.8
Indonesia	2.6	5.5	6.3	6.0	4.6	6.2	6.5	6.3	5.8	5.4	5.8	6.0
Kiribati	2.3	–4.5	7.5	2.8	–0.7	–0.5	2.7	2.8	2.9	2.7	2.0	2.0
Lao P.D.R.	6.0	8.6	7.8	7.8	7.5	8.1	8.0	7.9	8.2	7.5	7.8	7.5
Malaysia	4.7	5.6	6.3	4.8	–1.5	7.4	5.1	5.6	4.7	5.2	5.0	5.0
Maldives	6.7	19.6	10.6	12.2	–3.6	7.1	6.5	0.9	3.7	4.2	4.5	4.8
Marshall Islands	. . .	1.9	3.8	–2.0	–1.8	5.9	0.6	3.2	0.8	3.2	1.7	1.5
Micronesia	0.2	–0.2	–2.1	–2.6	1.0	2.5	2.1	0.4	0.6	0.6	0.6	0.7
Mongolia	4.6	8.6	10.2	8.9	–1.3	6.4	17.5	12.4	11.7	12.9	7.7	8.8
Myanmar	. . .	13.1	12.0	3.6	5.1	5.3	5.9	7.3	7.5	7.8	7.8	7.7
Nepal	4.2	3.4	3.4	6.1	4.5	4.8	3.4	4.9	3.6	4.5	4.5	5.0
Palau	. . .	–1.4	1.7	–5.5	–10.7	3.2	5.2	5.5	–0.2	1.8	2.2	2.2
Papua New Guinea	1.5	2.3	7.2	6.6	6.1	7.7	10.7	8.1	4.6	6.0	21.6	3.7
Philippines	4.1	5.2	6.6	4.2	1.1	7.6	3.6	6.8	7.2	6.5	6.5	6.0
Samoa	4.2	2.1	1.8	4.3	–5.1	0.5	1.4	2.9	–0.3	1.6	1.9	2.0
Solomon Islands	0.1	4.0	6.4	7.1	–4.7	7.8	10.7	4.9	2.9	4.0	3.6	3.6
Sri Lanka	4.3	7.7	6.8	6.0	3.5	8.0	8.2	6.3	7.3	7.0	6.5	6.5
Thailand	2.7	5.1	5.0	2.5	–2.3	7.8	0.1	6.5	2.9	2.5	3.8	4.5
Timor-Leste[4]	. . .	–3.2	11.6	14.6	12.8	9.5	12.0	9.3	8.4	9.0	8.8	9.1
Tonga	1.2	–2.8	–1.4	2.6	3.3	3.1	1.9	0.7	1.0	1.6	1.7	1.7
Tuvalu	. . .	2.1	6.4	8.0	–4.4	–2.7	8.5	0.2	1.1	1.6	1.9	1.9
Vanuatu	1.9	8.5	5.2	6.5	3.3	1.6	1.2	1.8	2.8	3.5	4.5	4.0
Vietnam	7.1	7.0	7.1	5.7	5.4	6.4	6.2	5.2	5.4	5.6	5.7	6.0
Emerging and Developing Europe	**4.0**	**6.4**	**5.3**	**3.3**	**–3.4**	**4.7**	**5.4**	**1.4**	**2.8**	**2.4**	**2.9**	**3.4**
Albania	5.7	5.4	5.9	7.5	3.3	3.8	3.1	1.3	0.7	2.1	3.3	4.7
Bosnia and Herzegovina	. . .	5.7	6.0	5.6	–2.7	0.8	1.0	–1.2	1.2	2.0	3.2	4.0
Bulgaria	2.4	6.5	6.4	6.2	–5.5	0.4	1.8	0.6	0.9	1.6	2.5	3.0
Croatia	3.9	4.9	5.1	2.1	–6.9	–2.3	–0.2	–1.9	–1.0	–0.6	0.4	2.0
Hungary	3.6	3.9	0.1	0.9	–6.8	1.1	1.6	–1.7	1.1	2.0	1.7	1.7
Kosovo	. . .	3.4	8.3	7.2	3.5	3.2	4.4	2.5	2.5	3.9	4.5	4.5
Lithuania	6.2	7.8	9.8	2.9	–14.8	1.6	6.0	3.7	3.3	3.3	3.5	3.8
FYR Macedonia	2.3	5.0	6.1	5.0	–0.9	2.9	2.8	–0.4	3.1	3.2	3.4	4.0
Montenegro	. . .	8.6	10.7	6.9	–5.7	2.5	3.2	–2.5	3.4	2.8	2.9	3.1
Poland	4.2	6.2	6.8	5.1	1.6	3.9	4.5	1.9	1.6	3.1	3.3	3.6
Romania	2.2	7.9	6.3	7.3	–6.6	–1.1	2.2	0.7	3.5	2.2	2.5	3.5
Serbia	. . .	3.6	5.4	3.8	–3.5	1.0	1.6	–1.5	2.5	1.0	1.5	4.0
Turkey	4.3	6.9	4.7	0.7	–4.8	9.2	8.8	2.2	4.3	2.3	3.1	3.5

Table A4. Emerging Market and Developing Economies: Real GDP *(continued)*

(Annual percent change)

	Average									Projections		
	1996–2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2019
Latin America and the Caribbean	**2.9**	**5.6**	**5.8**	**4.3**	**–1.3**	**6.0**	**4.6**	**3.1**	**2.7**	**2.5**	**3.0**	**3.6**
Antigua and Barbuda	3.9	12.7	7.1	1.5	–10.7	–8.6	–2.1	2.8	0.5	1.6	1.9	2.2
Argentina[5]	2.3	8.5	8.7	6.8	0.9	9.2	8.9	1.9	4.3	0.5	1.0	2.0
The Bahamas	4.0	2.5	1.4	–2.3	–4.2	1.0	1.7	1.8	1.9	2.3	2.8	2.3
Barbados	2.0	5.7	1.7	0.3	–4.1	0.2	0.8	0.0	–0.7	–1.2	0.9	2.3
Belize	5.7	4.7	1.2	3.8	0.3	3.1	2.1	4.0	1.6	2.5	2.5	2.5
Bolivia	3.3	4.8	4.6	6.1	3.4	4.1	5.2	5.2	6.8	5.1	5.0	5.0
Brazil	2.4	4.0	6.1	5.2	–0.3	7.5	2.7	1.0	2.3	1.8	2.7	3.5
Chile	4.3	5.8	5.2	3.2	–0.9	5.7	5.7	5.4	4.2	3.6	4.1	4.5
Colombia	2.3	6.7	6.9	3.5	1.7	4.0	6.6	4.2	4.3	4.5	4.5	4.5
Costa Rica	4.5	8.8	7.9	2.7	–1.0	5.0	4.5	5.1	3.5	3.8	4.1	4.5
Dominica	1.9	4.6	6.0	7.8	–1.1	1.2	0.2	–1.1	0.8	1.7	1.7	1.9
Dominican Republic	5.2	10.7	8.5	5.3	3.5	7.8	4.5	3.9	4.1	4.5	4.1	4.0
Ecuador	3.0	4.4	2.2	6.4	0.6	3.5	7.8	5.1	4.2	4.2	3.5	3.5
El Salvador	2.7	3.9	3.8	1.3	–3.1	1.4	2.2	1.9	1.6	1.6	1.7	2.0
Grenada	5.9	–4.0	6.1	0.9	–6.6	–0.5	0.8	–1.8	1.5	1.1	1.2	2.5
Guatemala	3.3	5.4	6.3	3.3	0.5	2.9	4.2	3.0	3.5	3.5	3.5	3.5
Guyana	1.6	5.1	7.0	2.0	3.3	4.4	5.4	4.8	4.8	4.3	4.0	3.3
Haiti	1.0	2.2	3.3	0.8	3.1	–5.5	5.5	2.9	4.3	4.0	4.0	4.0
Honduras	3.8	6.6	6.2	4.2	–2.4	3.7	3.8	3.9	2.6	3.0	3.1	3.0
Jamaica	0.6	2.9	1.4	–0.8	–3.4	–1.4	1.4	–0.5	0.5	1.3	1.7	2.7
Mexico	3.4	5.0	3.1	1.4	–4.7	5.1	4.0	3.9	1.1	3.0	3.5	3.8
Nicaragua	4.1	4.2	5.0	4.0	–2.2	3.6	5.4	5.2	4.2	4.0	4.0	4.0
Panama	4.9	8.5	12.1	10.1	3.9	7.5	10.9	10.8	8.0	7.2	6.9	5.8
Paraguay	1.2	4.8	5.4	6.4	–4.0	13.1	4.3	–1.2	13.0	4.8	4.5	4.5
Peru	3.3	7.7	8.9	9.8	0.9	8.8	6.9	6.3	5.0	5.5	5.8	5.8
St. Kitts and Nevis	3.9	4.6	4.8	3.4	–3.8	–3.8	–1.9	–0.9	1.7	2.7	3.0	3.1
St. Lucia	2.0	7.2	1.4	4.7	–0.1	–0.7	1.4	–1.3	–1.5	0.3	1.0	2.2
St. Vincent and the Grenadines	3.8	6.0	3.0	–0.5	–2.0	–2.3	0.3	1.5	2.1	2.3	2.9	3.3
Suriname	3.4	5.8	5.1	4.1	3.0	4.2	5.3	4.8	4.7	4.0	4.0	4.3
Trinidad and Tobago	7.9	13.2	4.8	3.4	–4.4	0.2	–2.6	1.2	1.6	2.2	2.2	1.6
Uruguay	1.2	4.1	6.5	7.2	2.2	8.9	6.5	3.9	4.2	2.8	3.0	3.8
Venezuela	1.6	9.9	8.8	5.3	–3.2	–1.5	4.2	5.6	1.0	–0.5	–1.0	1.0
Middle East, North Africa, Afghanistan, and Pakistan	**4.9**	**6.7**	**6.0**	**5.1**	**2.8**	**5.2**	**3.9**	**4.2**	**2.4**	**3.2**	**4.4**	**4.5**
Afghanistan	. . .	5.4	13.3	3.9	20.6	8.4	6.5	14.0	3.6	3.2	4.5	5.6
Algeria	4.3	1.7	3.4	2.4	1.6	3.6	2.8	3.3	2.7	4.3	4.1	4.3
Bahrain	4.9	6.5	8.3	6.2	2.5	4.3	2.1	3.4	4.9	4.7	3.3	3.5
Djibouti	1.2	4.8	5.1	5.8	5.0	3.5	4.5	4.8	5.0	6.0	6.5	5.8
Egypt	4.8	6.8	7.1	7.2	4.7	5.1	1.8	2.2	2.1	2.3	4.1	4.0
Iran	5.1	6.2	6.4	0.6	3.9	5.9	2.7	–5.6	–1.7	1.5	2.3	2.4
Iraq	. . .	10.2	1.4	6.6	5.8	5.5	10.2	10.3	4.2	5.9	6.7	9.2
Jordan	4.8	8.1	8.2	7.2	5.5	2.3	2.6	2.7	3.3	3.5	4.0	4.5
Kuwait	5.0	7.5	6.0	2.5	–7.1	–2.4	6.3	6.2	0.8	2.6	3.0	3.9
Lebanon	3.5	1.6	9.4	9.1	10.3	8.0	2.0	1.5	1.0	1.0	2.5	4.0
Libya	3.1	6.5	6.4	2.7	–0.8	5.0	–62.1	104.5	–9.4	–7.8	29.8	3.5
Mauritania	3.3	11.4	1.0	3.5	–1.2	4.3	4.0	7.0	6.7	6.8	6.5	10.7
Morocco	4.4	7.8	2.7	5.6	4.8	3.6	5.0	2.7	4.5	3.9	4.9	5.6
Oman	3.1	5.5	6.7	13.2	3.3	5.6	4.5	5.0	5.1	3.4	3.4	3.7
Pakistan	4.6	5.8	5.5	5.0	0.4	2.6	3.7	4.4	3.6	3.1	3.7	5.0
Qatar	9.7	26.2	18.0	17.7	12.0	16.7	13.0	6.2	6.1	5.9	7.1	6.4
Saudi Arabia	3.3	5.6	6.0	8.4	1.8	7.4	8.6	5.8	3.8	4.1	4.2	4.3
Sudan[6]	15.5	8.9	8.5	3.0	4.7	3.0	–1.2	–3.0	3.4	2.7	4.6	4.3
Syria[7]	2.7	5.0	5.7	4.5	5.9	3.4	. . .	. . .	. . .	. . .	. . .	. . .
Tunisia	5.0	5.7	6.3	4.5	3.1	2.9	–1.9	3.6	2.7	3.0	4.5	4.5
United Arab Emirates	5.8	9.8	3.2	3.2	–4.8	1.7	3.9	4.4	4.8	4.4	4.2	4.2
Yemen	4.7	3.2	3.3	3.6	3.9	7.7	–12.7	2.4	4.4	5.1	4.4	4.7

Table A4. Emerging Market and Developing Economies: Real GDP *(concluded)*

(Annual percent change)

	Average									Projections		
	1996–2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2019
Sub-Saharan Africa	**4.7**	**6.3**	**7.1**	**5.7**	**2.6**	**5.6**	**5.5**	**4.9**	**4.9**	**5.4**	**5.5**	**5.4**
Angola	8.2	20.7	22.6	13.8	2.4	3.4	3.9	5.2	4.1	5.3	5.5	6.7
Benin	4.5	3.8	4.6	5.0	2.7	2.6	3.3	5.4	5.6	5.5	5.2	4.8
Botswana	5.8	8.0	8.7	3.9	–7.8	8.6	6.1	4.2	3.9	4.1	4.4	3.8
Burkina Faso	6.6	6.3	4.1	5.8	3.0	8.4	5.0	9.0	6.8	6.0	7.0	7.0
Burundi	0.9	5.4	3.4	4.9	3.8	5.1	4.2	4.0	4.5	4.7	4.8	5.4
Cabo Verde	7.1	9.1	9.2	6.7	–1.3	1.5	4.0	1.0	0.5	3.0	3.5	4.0
Cameroon	4.2	3.2	2.8	3.6	1.9	3.3	4.1	4.6	4.6	4.8	5.1	5.4
Central African Republic	0.7	4.8	4.6	2.1	1.7	3.0	3.3	4.1	–36.0	1.5	5.3	5.7
Chad	8.6	0.6	3.3	3.1	4.2	13.6	0.1	8.9	3.6	10.8	7.3	3.5
Comoros	2.1	1.2	0.5	1.0	1.8	2.1	2.2	3.0	3.5	4.0	4.0	4.0
Democratic Republic of the Congo	–0.1	5.3	6.3	6.2	2.9	7.1	6.9	7.2	8.5	8.7	8.5	5.6
Republic of Congo	3.2	6.2	–1.6	5.6	7.5	8.7	3.4	3.8	4.5	8.1	5.8	2.6
Côte d'Ivoire	1.5	0.7	1.6	2.3	3.7	2.4	–4.7	9.8	8.1	8.2	7.7	5.7
Equatorial Guinea	38.4	1.3	13.1	12.3	–8.1	–1.3	5.0	3.2	–4.9	–2.4	–8.3	–9.4
Eritrea	1.8	–1.0	1.4	–9.8	3.9	2.2	8.7	7.0	1.3	2.3	1.9	3.6
Ethiopia	5.4	11.5	11.8	11.2	10.0	10.6	11.4	8.5	9.7	7.5	7.5	6.5
Gabon	0.5	–1.9	6.3	1.7	–2.3	6.2	6.9	5.5	5.9	5.7	6.3	5.8
The Gambia	4.4	1.1	3.6	5.7	6.4	6.5	–4.3	5.3	6.3	7.4	7.0	5.5
Ghana	4.9	6.1	6.5	8.4	4.0	8.0	15.0	7.9	5.4	4.8	5.4	3.8
Guinea	3.7	2.5	1.8	4.9	–0.3	1.9	3.9	3.8	2.5	4.5	5.0	17.6
Guinea-Bissau	0.2	2.1	3.2	3.2	3.0	3.5	5.3	–1.5	0.3	3.0	3.9	4.3
Kenya	2.9	6.3	7.0	1.5	2.7	5.8	4.4	4.6	5.6	6.3	6.3	6.5
Lesotho	3.4	4.1	4.9	5.1	4.5	5.6	4.3	6.0	5.8	5.6	5.5	5.1
Liberia	. . .	8.4	12.9	6.0	5.1	6.1	7.9	8.3	8.0	7.0	8.7	7.4
Madagascar	3.1	5.4	6.5	7.2	–3.5	0.1	1.5	2.5	2.4	3.0	4.0	5.1
Malawi	3.2	2.1	9.5	8.3	9.0	6.5	4.3	1.9	5.0	6.1	6.5	5.9
Mali	5.1	5.3	4.3	5.0	4.5	5.8	2.7	0.0	1.7	6.5	5.0	4.4
Mauritius	4.1	4.5	5.9	5.5	3.0	4.1	3.8	3.3	3.1	3.7	4.0	4.0
Mozambique	9.1	8.7	7.3	6.8	6.3	7.1	7.3	7.2	7.1	8.3	7.9	7.8
Namibia	4.2	7.1	5.4	3.4	–1.1	6.3	5.7	5.0	4.3	4.3	4.5	4.7
Niger	4.4	5.8	3.2	9.6	–0.7	8.4	2.3	11.1	3.6	6.5	5.9	8.3
Nigeria	7.1	6.2	7.0	6.0	7.0	8.0	7.4	6.6	6.3	7.1	7.0	6.7
Rwanda	8.7	9.2	7.6	11.2	6.2	7.2	8.2	8.0	5.0	7.5	7.5	7.5
São Tomé and Príncipe	2.6	12.6	2.0	9.1	4.0	4.5	4.9	4.0	4.0	5.0	5.5	6.0
Senegal	4.4	2.5	4.9	3.7	2.4	4.3	2.1	3.5	4.0	4.6	4.8	5.2
Seychelles	2.8	9.4	10.4	–2.1	–1.1	5.9	7.9	2.8	3.6	3.7	3.8	3.4
Sierra Leone	0.7	4.2	8.0	5.2	3.2	5.3	6.0	15.2	16.3	13.9	10.8	5.0
South Africa	3.3	5.6	5.5	3.6	–1.5	3.1	3.6	2.5	1.9	2.3	2.7	3.0
South Sudan	. . .	. . .	. . .	. . .	. . .	. . .	. . .	–47.6	24.4	7.1	17.6	5.8
Swaziland	2.5	3.3	3.5	2.4	1.2	1.9	–0.6	1.9	2.8	2.1	2.1	2.1
Tanzania	5.5	6.7	7.1	7.4	6.0	7.0	6.4	6.9	7.0	7.2	7.0	6.9
Togo	1.6	4.1	2.3	2.4	3.5	4.1	4.8	5.9	5.6	6.0	6.0	5.2
Uganda	7.0	7.0	8.1	10.4	4.1	6.2	6.2	2.8	6.0	6.4	6.8	7.4
Zambia	3.8	6.2	6.2	5.7	6.4	7.6	6.8	7.2	6.0	7.3	7.1	6.0
Zimbabwe[8]	. . .	–3.6	–3.3	–16.4	8.2	11.4	11.9	10.6	3.0	4.2	4.5	4.0

[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, 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.

[3]Projections for Ukraine are excluded due to the ongoing crisis.

[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. The IMF has, however, issued a declaration of censure and called on Argentina to adopt remedial measures to address the quality of the official GDP data. Alternative data sources have shown significantly lower real growth than the official data since 2008. In this context, the Fund is also using alternative estimates of GDP growth for the surveillance of macroeconomic developments in Argentina.

[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 due to the uncertain political situation.

[8]The Zimbabwe 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		
	1996–2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2019
GDP Deflators												
Advanced Economies	**1.7**	**2.1**	**2.2**	**1.9**	**0.8**	**1.0**	**1.3**	**1.2**	**1.2**	**1.5**	**1.5**	**1.8**
United States	2.0	3.1	2.7	2.0	0.8	1.2	2.0	1.7	1.5	1.5	1.8	2.0
Euro Area[1]	1.7	1.8	2.4	2.0	1.0	0.8	1.2	1.3	1.4	1.2	1.4	1.6
Japan	–1.0	–1.1	–0.9	–1.3	–0.5	–2.2	–1.9	–0.9	–0.6	1.6	1.0	1.3
Other Advanced Economies[2]	2.1	2.2	2.6	3.1	1.1	2.4	2.0	1.4	1.5	1.6	1.6	2.0
Consumer Prices												
Advanced Economies	**2.0**	**2.4**	**2.2**	**3.4**	**0.1**	**1.5**	**2.7**	**2.0**	**1.4**	**1.5**	**1.6**	**2.0**
United States	2.5	3.2	2.9	3.8	–0.3	1.6	3.1	2.1	1.5	1.4	1.6	2.0
Euro Area[1,3]	1.9	2.2	2.2	3.3	0.3	1.6	2.7	2.5	1.3	0.9	1.2	1.6
Japan	–0.1	0.2	0.1	1.4	–1.3	–0.7	–0.3	0.0	0.4	2.8	1.7	2.0
Other Advanced Economies[2]	2.0	2.1	2.2	3.9	1.4	2.4	3.4	2.1	1.7	1.7	2.2	2.3
Emerging Market and Developing Economies	**10.0**	**5.8**	**6.5**	**9.2**	**5.4**	**5.9**	**7.3**	**6.0**	**5.8**	**5.5**	**5.2**	**4.6**
Regional Groups												
Commonwealth of Independent States[4]	24.8	9.5	9.7	15.6	11.2	7.2	10.1	6.5	6.4	6.6	6.1	5.8
Emerging and Developing Asia	4.1	4.3	5.3	7.4	3.2	5.3	6.5	4.6	4.5	4.5	4.3	3.9
Emerging and Developing Europe	27.0	5.9	6.0	7.9	4.7	5.4	5.4	5.8	4.1	4.0	4.1	4.0
Latin America and the Caribbean[5]	10.1	5.3	5.4	7.9	5.9	6.0	6.6	5.9	6.8	. . .	. . .	. . .
Middle East, North Africa, Afghanistan, and Pakistan	6.0	8.2	10.2	12.2	7.4	6.9	9.8	10.6	10.1	8.5	8.3	7.4
Middle East and North Africa	5.9	8.2	10.6	12.3	6.3	6.5	9.3	10.5	10.5	8.4	8.3	7.6
Sub-Saharan Africa	14.2	7.2	6.2	13.0	9.7	7.5	9.4	9.0	6.3	6.1	5.9	5.5
Memorandum												
European Union	3.5	2.3	2.4	3.7	0.9	2.0	3.1	2.6	1.5	1.1	1.4	1.8
Analytical Groups												
By Source of Export Earnings												
Fuel	17.0	9.4	10.4	14.3	9.0	7.8	9.8	9.0	10.2	9.0	8.1	7.2
Nonfuel	8.4	4.9	5.5	8.0	4.5	5.5	6.7	5.3	4.8	4.7	4.6	4.1
Of Which, Primary Products	10.4	6.2	6.2	12.1	7.0	5.4	7.0	7.2	6.8	6.5	5.9	5.1
By External Financing Source												
Net Debtor Economies	10.9	6.4	6.0	9.1	7.4	6.7	7.6	7.1	6.3	5.9	5.7	5.0
Of Which, Official Financing	8.9	7.2	8.1	12.5	9.1	7.5	11.3	10.2	7.5	6.8	6.9	5.3
Net Debtor Economies by Debt-Servicing Experience												
Economies with Arrears and/or Rescheduling during 2008–12[5]	8.8	7.5	7.6	11.2	10.9	9.2	12.6	12.0	8.8	. . .	. . .	. . .
Memorandum												
Median Inflation Rate												
Advanced Economies	2.1	2.3	2.2	4.0	0.7	1.9	3.2	2.5	1.4	1.4	1.7	2.0
Emerging Market and Developing Economies	5.2	6.1	6.1	10.3	4.2	4.2	5.7	4.6	3.9	3.9	4.0	4.0

[1]Excludes Latvia.
[2]In this table, Other Advanced Economies means advanced economies excluding the United States, Euro Area countries, and Japan but including Latvia.
[3]Based on Eurostat's harmonized index of consumer prices.
[4]Georgia, 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.
[5]See note 6 to Table A7.

Table A6. Advanced Economies: Consumer Prices[1]

(Annual percent change)

	Average									Projections			End of Period[2]	Projections	
	1996–2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2019	2013	2014	2015
Advanced Economies	**2.0**	**2.4**	**2.2**	**3.4**	**0.1**	**1.5**	**2.7**	**2.0**	**1.4**	**1.5**	**1.6**	**2.0**	**1.2**	**1.6**	**1.7**
United States	2.5	3.2	2.9	3.8	–0.3	1.6	3.1	2.1	1.5	1.4	1.6	2.0	1.2	1.5	1.7
Euro Area[3,4]	1.9	2.2	2.2	3.3	0.3	1.6	2.7	2.5	1.3	0.9	1.2	1.6	0.8	1.0	1.1
Germany	1.3	1.8	2.3	2.7	0.2	1.2	2.5	2.1	1.6	1.4	1.4	1.7	1.2	1.4	1.4
France	1.7	1.9	1.6	3.2	0.1	1.7	2.3	2.2	1.0	1.0	1.2	1.6	0.0	1.0	1.2
Italy	2.4	2.2	2.0	3.5	0.8	1.6	2.9	3.3	1.3	0.7	1.0	1.6	0.7	0.7	1.0
Spain	2.9	3.6	2.8	4.1	–0.2	2.0	3.1	2.4	1.5	0.3	0.8	1.1	0.3	0.5	0.8
Netherlands	2.3	1.7	1.6	2.2	1.0	0.9	2.5	2.8	2.6	0.8	1.0	1.5	1.7	0.9	1.1
Belgium	1.8	2.3	1.8	4.5	0.0	2.3	3.4	2.6	1.2	1.0	1.1	1.4	1.2	0.8	1.1
Austria	1.6	1.7	2.2	3.2	0.4	1.7	3.6	2.6	2.1	1.8	1.7	1.7	2.0	1.8	1.7
Greece	4.1	3.2	2.9	4.2	1.2	4.7	3.3	1.5	–0.9	–0.4	0.3	1.6	–1.7	0.0	0.7
Portugal	2.8	3.0	2.4	2.7	–0.9	1.4	3.6	2.8	0.4	0.7	1.2	1.5	0.2	2.5	–1.9
Finland	1.5	1.3	1.6	3.9	1.6	1.7	3.3	3.2	2.2	1.7	1.5	2.0	1.9	1.4	1.5
Ireland	3.0	2.7	2.9	3.1	–1.7	–1.6	1.2	1.9	0.5	0.6	1.1	1.7	1.8	0.2	0.9
Slovak Republic	7.0	4.3	1.9	3.9	0.9	0.7	4.1	3.7	1.5	0.7	1.6	2.2	0.4	1.6	1.6
Slovenia	6.8	2.5	3.6	5.7	0.9	1.8	1.8	2.6	1.6	1.2	1.6	2.0	0.7	1.3	1.8
Luxembourg	2.2	3.0	2.7	4.1	0.0	2.8	3.7	2.9	1.7	1.6	1.8	1.9	1.5	1.7	1.8
Latvia	5.4	6.6	10.1	15.3	3.3	–1.2	4.2	2.3	0.0	1.5	2.5	2.3	–0.4	2.4	2.5
Estonia	6.6	4.4	6.7	10.6	0.2	2.7	5.1	4.2	3.5	3.2	2.8	2.2	3.2	2.8	2.5
Cyprus[4]	2.7	2.3	2.2	4.4	0.2	2.6	3.5	3.1	0.4	0.4	1.4	1.9	–1.2	0.4	1.4
Malta	2.7	2.6	0.7	4.7	1.8	2.0	2.5	3.2	1.0	1.2	2.6	1.8	1.0	4.1	1.2
Japan	–0.1	0.2	0.1	1.4	–1.3	–0.7	–0.3	0.0	0.4	2.8	1.7	2.0	1.4	2.9	1.9
United Kingdom[4]	1.5	2.3	2.3	3.6	2.2	3.3	4.5	2.8	2.6	1.9	1.9	2.0	2.1	1.9	1.9
Canada	2.0	2.0	2.1	2.4	0.3	1.8	2.9	1.5	1.0	1.5	1.9	2.0	1.0	1.8	2.0
Korea	3.6	2.2	2.5	4.7	2.8	2.9	4.0	2.2	1.3	1.8	3.0	3.0	1.1	2.5	3.0
Australia	2.5	3.6	2.3	4.4	1.8	2.9	3.3	1.8	2.4	2.3	2.4	2.5	2.7	1.8	2.5
Taiwan Province of China	1.0	0.6	1.8	3.5	–0.9	1.0	1.4	1.9	0.8	1.4	2.0	2.0	0.3	1.7	2.0
Sweden	1.0	1.4	2.2	3.4	–0.5	1.2	3.0	0.9	0.0	0.4	1.6	2.0	0.1	0.8	2.0
Hong Kong SAR	0.0	2.0	2.0	4.3	0.6	2.3	5.3	4.1	4.3	4.0	3.8	3.5	4.3	4.0	3.8
Switzerland	0.8	1.1	0.7	2.4	–0.5	0.7	0.2	–0.7	–0.2	0.2	0.5	1.0	0.0	1.0	1.0
Singapore	0.8	1.0	2.1	6.6	0.6	2.8	5.2	4.6	2.4	2.3	2.6	2.4	2.0	2.3	2.7
Czech Republic	4.5	2.5	2.9	6.3	1.0	1.5	1.9	3.3	1.4	1.0	1.9	2.0	1.4	1.2	2.0
Norway	2.0	2.3	0.7	3.8	2.2	2.4	1.3	0.7	2.1	2.0	2.0	2.5	2.0	2.0	2.0
Israel	4.0	2.1	0.5	4.6	3.3	2.7	3.5	1.7	1.5	1.6	2.0	2.0	1.8	1.7	2.0
Denmark	2.1	1.9	1.7	3.4	1.3	2.3	2.8	2.4	0.8	1.5	1.8	2.2	0.8	1.6	2.2
New Zealand	2.0	3.4	2.4	4.0	2.1	2.3	4.0	1.1	1.1	2.2	2.2	2.0	1.6	2.5	2.1
Iceland	3.5	6.7	5.1	12.7	12.0	5.4	4.0	5.2	3.9	2.9	3.4	2.5	3.3	3.3	3.1
San Marino	. . .	2.1	2.5	4.1	2.4	2.6	2.0	2.8	1.3	1.0	1.2	1.7	1.3	1.0	1.2
Memorandum															
Major Advanced Economies	1.8	2.4	2.2	3.2	–0.1	1.4	2.6	1.9	1.3	1.6	1.6	1.9	1.2	1.7	1.6

[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]Excludes Latvia.
[4]Based on Eurostat's harmonized index of consumer prices.

Table A7. Emerging Market and Developing Economies: Consumer Prices[1]

(Annual percent change)

	Average									Projections			End of Period[2]	Projections	
	1996–2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2019	2013	2014	2015
Commonwealth of Independent States[3,4]	**24.8**	**9.5**	**9.7**	**15.6**	**11.2**	**7.2**	**10.1**	**6.5**	**6.4**	**6.6**	**6.1**	**5.8**	**6.2**	**6.3**	**6.1**
Russia	25.5	9.7	9.0	14.1	11.7	6.9	8.4	5.1	6.8	5.8	5.3	5.0	6.5	5.3	5.3
Excluding Russia	22.9	8.9	11.6	19.4	10.2	7.9	14.1	9.9	5.6	9.3	8.6	8.0	5.4	9.5	8.8
Armenia	5.6	3.0	4.6	9.0	3.5	7.3	7.7	2.5	5.8	5.0	4.0	4.0	5.6	4.0	4.0
Azerbaijan	3.7	8.4	16.6	20.8	1.6	5.7	7.9	1.0	2.4	3.5	4.0	4.9	3.6	3.4	4.5
Belarus	67.7	7.0	8.4	14.8	13.0	7.7	53.2	59.2	18.3	16.8	15.8	16.5	16.5	16.3	15.4
Georgia	9.7	9.2	9.2	10.0	1.7	7.1	8.5	–0.9	–0.5	4.0	4.6	5.0	2.3	4.0	5.0
Kazakhstan	11.7	8.6	10.8	17.1	7.3	7.1	8.3	5.1	5.8	9.2	7.5	5.4	4.8	10.1	7.5
Kyrgyz Republic	13.5	5.6	10.2	24.5	6.8	7.8	16.6	2.8	6.6	6.1	6.6	5.5	4.0	7.0	6.0
Moldova	16.0	12.7	12.4	12.7	0.0	7.4	7.6	4.6	4.6	5.5	5.9	5.0	5.2	5.2	6.5
Tajikistan	47.6	10.0	13.2	20.4	6.5	6.5	12.4	5.8	5.0	5.4	5.9	6.0	3.7	5.3	6.5
Turkmenistan	47.0	8.2	6.3	14.5	–2.7	4.4	5.3	5.3	6.6	5.7	6.0	6.0	5.5	6.0	6.0
Ukraine[5]	18.2	9.1	12.8	25.2	15.9	9.4	8.0	0.6	–0.3	. . .	. . .	. . .	0.5	. . .	. . .
Uzbekistan	27.8	14.2	12.3	12.7	14.1	9.4	12.8	12.1	11.2	11.0	11.0	11.0	10.2	11.5	11.6
Emerging and Developing Asia	**4.1**	**4.3**	**5.3**	**7.4**	**3.2**	**5.3**	**6.5**	**4.6**	**4.5**	**4.5**	**4.3**	**3.9**	**4.3**	**4.4**	**4.3**
Bangladesh	4.9	6.8	9.1	8.9	5.4	8.1	10.7	6.2	7.5	7.3	6.7	5.7	7.3	7.0	6.4
Bhutan	5.7	4.9	5.2	6.3	7.1	4.8	8.6	10.1	8.7	10.2	8.8	6.7	10.0	9.6	8.4
Brunei Darussalam	0.5	0.2	1.0	2.1	1.0	0.2	0.1	0.1	0.4	0.5	0.5	0.6	0.1	0.5	0.5
Cambodia	4.2	6.1	7.7	25.0	–0.7	4.0	5.5	2.9	3.0	3.8	3.2	3.0	4.6	3.0	3.0
China	1.6	1.5	4.8	5.9	–0.7	3.3	5.4	2.6	2.6	3.0	3.0	3.0	2.5	3.0	3.0
Fiji	2.9	2.5	4.8	7.7	3.7	3.7	7.3	3.4	2.9	3.0	3.0	2.9	3.4	3.0	3.0
India	5.7	7.3	6.1	8.9	13.0	10.5	9.6	10.2	9.5	8.0	7.5	6.1	8.1	8.0	7.4
Indonesia	13.5	13.1	6.7	9.8	5.0	5.1	5.3	4.0	6.4	6.3	5.5	5.0	8.1	5.5	5.4
Kiribati	1.6	–1.0	3.6	13.7	9.8	–3.9	1.5	–3.0	2.0	2.5	2.5	2.5	2.0	2.5	2.5
Lao P.D.R.	28.7	6.8	4.5	7.6	0.0	6.0	7.6	4.3	6.4	7.5	7.5	5.7	6.6	7.7	7.3
Malaysia	2.4	3.6	2.0	5.4	0.6	1.7	3.2	1.7	2.1	3.3	3.9	2.7	3.2	3.3	3.9
Maldives	2.1	3.5	6.8	12.0	4.5	6.1	11.3	10.9	4.0	3.3	4.4	4.4	3.1	4.4	4.4
Marshall Islands	. . .	5.3	2.6	14.7	0.5	2.2	4.9	4.5	1.4	1.6	1.8	2.2	1.4	1.6	1.8
Micronesia	. . .	4.6	3.3	8.3	6.2	3.9	5.4	4.6	4.0	3.3	2.7	2.0	4.5	3.3	2.7
Mongolia	13.7	4.5	8.2	26.8	6.3	10.2	7.7	15.0	9.6	12.0	11.0	6.5	12.3	13.3	8.1
Myanmar	. . .	26.3	30.9	11.5	2.2	8.2	2.8	2.8	5.8	6.6	6.9	4.7	6.7	7.0	6.7
Nepal	5.7	8.0	6.2	6.7	12.6	9.5	9.6	8.3	9.9	9.8	7.0	5.5	7.7	9.3	7.3
Palau	. . .	4.8	3.0	10.0	4.7	1.1	2.6	5.4	2.8	3.0	3.5	2.0	3.0	3.5	3.0
Papua New Guinea	9.8	2.4	0.9	10.8	6.9	6.0	8.4	2.2	3.8	6.0	5.0	5.0	5.5	6.0	5.0
Philippines	5.8	5.5	2.9	8.2	4.2	3.8	4.7	3.2	2.9	4.4	3.6	3.5	4.1	4.0	3.5
Samoa	4.7	3.5	4.7	6.3	14.6	–0.2	2.9	6.2	–0.2	–1.0	3.0	2.5	–1.7	1.0	3.5
Solomon Islands	8.8	11.2	7.7	17.3	7.1	0.9	7.4	5.9	6.1	5.9	5.6	5.5	6.3	6.0	5.6
Sri Lanka	9.8	10.0	15.8	22.4	3.5	6.2	6.7	7.5	6.9	4.7	6.4	5.5	4.7	6.0	6.2
Thailand	3.2	4.6	2.2	5.5	–0.9	3.3	3.8	3.0	2.2	2.3	2.1	2.0	1.7	2.4	2.3
Timor-Leste	. . .	4.1	9.0	7.6	0.1	4.5	11.7	13.1	10.6	9.5	8.1	6.0	10.4	8.5	7.6
Tonga	6.7	6.1	7.4	7.5	3.5	3.9	4.6	3.1	3.2	3.9	4.6	5.9	3.5	4.4	4.9
Tuvalu	. . .	4.2	2.3	10.4	–0.3	–1.9	0.5	1.4	2.6	2.6	2.8	2.6	2.7	2.7	2.7
Vanuatu	2.3	2.0	3.8	4.2	5.2	2.7	0.7	1.4	1.3	1.8	2.4	2.7	1.5	2.0	2.7
Vietnam	4.2	7.5	8.3	23.1	6.7	9.2	18.7	9.1	6.6	6.3	6.2	5.1	6.0	6.3	6.1
Emerging and Developing Europe	**27.0**	**5.9**	**6.0**	**7.9**	**4.7**	**5.4**	**5.4**	**5.8**	**4.1**	**4.0**	**4.1**	**4.0**	**3.4**	**4.6**	**3.9**
Albania	7.8	2.4	2.9	3.4	2.3	3.5	3.4	2.0	1.9	2.7	2.8	3.0	1.9	2.6	3.0
Bosnia and Herzegovina	. . .	6.1	1.5	7.4	–0.4	2.1	3.7	2.0	–0.1	1.1	1.5	2.1	–0.1	1.1	1.5
Bulgaria	46.5	7.4	7.6	12.0	2.5	3.0	3.4	2.4	0.4	–0.4	0.9	2.2	–0.9	0.5	1.3
Croatia	3.5	3.2	2.9	6.1	2.4	1.0	2.3	3.4	2.2	0.5	1.1	2.5	0.3	1.0	1.4
Hungary	10.4	3.9	7.9	6.1	4.2	4.9	4.0	5.7	1.7	0.9	3.0	3.0	0.4	2.9	3.0
Kosovo	. . .	0.6	4.4	9.4	–2.4	3.5	7.3	2.5	1.9	1.8	1.5	1.5	1.5	1.5	1.5
Lithuania	. . .	3.8	5.8	11.1	4.2	1.2	4.1	3.2	1.2	1.0	1.8	2.2	0.5	1.7	1.8
FYR Macedonia	2.1	3.2	2.3	8.4	–0.8	1.5	3.9	3.3	2.8	1.8	2.3	2.3	1.4	2.3	2.3
Montenegro	. . .	2.1	3.5	9.0	3.6	0.7	3.1	3.6	2.2	0.2	1.1	1.4	0.3	0.9	1.1
Poland	7.6	1.0	2.5	4.2	3.4	2.6	4.3	3.7	0.9	1.5	2.4	2.5	0.7	2.1	2.5
Romania	39.3	6.6	4.8	7.8	5.6	6.1	5.8	3.3	4.0	2.2	3.1	2.7	1.6	3.5	3.1
Serbia	. . .	10.7	6.9	12.4	8.1	6.2	11.1	7.3	7.7	4.0	4.0	4.0	2.2	5.3	4.0
Turkey	48.5	9.6	8.8	10.4	6.3	8.6	6.5	8.9	7.5	7.8	6.5	6.0	7.4	8.0	6.0

Table A7. Emerging Market and Developing Economies: Consumer Prices[1] *(continued)*

(Annual percent change)

	Average									Projections			End of Period[2]	Projections	
	1996–2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2019	2013	2014	2015
Latin America and the Caribbean[6]	**10.1**	**5.3**	**5.4**	**7.9**	**5.9**	**6.0**	**6.6**	**5.9**	**6.8**	. . .	. . .	. . .	**7.4**	. . .	. . .
Antigua and Barbuda	1.8	1.8	1.4	5.3	–0.6	3.4	3.5	3.4	1.1	1.0	1.7	2.5	1.1	1.1	2.0
Argentina[6]	4.9	10.9	8.8	8.6	6.3	10.5	9.8	10.0	10.6	. . .	. . .	. . .	10.9	. . .	. . .
The Bahamas	1.6	2.1	2.5	4.7	1.9	1.3	3.2	2.0	0.3	2.0	2.5	1.3	0.3	5.5	2.5
Barbados	2.3	7.3	4.0	8.1	3.7	5.8	9.4	4.5	2.3	2.0	1.7	2.6	2.2	1.8	1.6
Belize	1.8	4.2	2.3	6.4	–1.1	0.9	1.5	1.4	0.5	1.2	2.0	2.0	0.4	2.0	2.0
Bolivia	4.7	4.3	6.7	14.0	3.3	2.5	9.9	4.5	5.7	6.8	5.3	5.0	6.5	5.5	5.2
Brazil	8.1	4.2	3.6	5.7	4.9	5.0	6.6	5.4	6.2	5.9	5.5	4.7	5.9	5.8	5.4
Chile	3.9	3.4	4.4	8.7	1.5	1.4	3.3	3.0	1.8	3.5	2.9	3.0	3.0	3.0	3.0
Colombia	10.9	4.3	5.5	7.0	4.2	2.3	3.4	3.2	2.0	1.9	2.9	3.0	1.9	2.7	3.0
Costa Rica	11.9	11.5	9.4	13.4	7.8	5.7	4.9	4.5	5.2	2.9	4.5	4.5	3.7	4.5	4.5
Dominica	1.4	2.6	3.2	6.4	0.0	2.8	1.3	1.5	–0.4	1.8	1.8	1.8	–0.9	2.3	1.7
Dominican Republic	12.2	7.6	6.1	10.6	1.4	6.3	8.5	3.7	4.8	3.9	4.2	4.0	3.9	4.5	4.0
Ecuador	27.8	3.3	2.3	8.4	5.2	3.6	4.5	5.1	2.7	2.8	2.6	2.5	2.7	2.7	2.5
El Salvador	3.6	4.0	4.6	7.3	0.5	1.2	5.1	1.7	0.8	1.8	2.6	2.6	0.8	2.0	2.6
Grenada	1.6	4.3	3.9	8.0	–0.3	3.4	3.0	2.4	0.0	1.6	1.7	2.3	–1.2	1.7	1.6
Guatemala	7.6	6.6	6.8	11.4	1.9	3.9	6.2	3.8	4.3	4.0	4.1	4.0	4.4	4.3	4.2
Guyana	5.4	6.7	12.2	8.1	3.0	3.7	5.0	2.4	3.5	3.9	4.3	3.8	3.5	4.3	4.3
Haiti	16.5	14.2	9.0	14.4	3.4	4.1	7.4	6.8	6.8	4.1	5.8	5.0	4.5	5.7	5.0
Honduras	12.1	5.6	6.9	11.4	5.5	4.7	6.8	5.2	5.2	5.5	6.5	5.5	4.9	7.0	6.0
Jamaica	11.0	8.9	9.2	22.0	9.6	12.6	7.5	6.9	9.4	9.1	8.2	6.9	9.7	8.5	8.0
Mexico	11.8	3.6	4.0	5.1	5.3	4.2	3.4	4.1	3.8	4.0	3.5	3.0	4.0	4.0	3.7
Nicaragua	8.5	9.1	11.1	19.8	3.7	5.5	8.1	7.2	7.4	7.0	7.0	7.0	6.9	7.0	7.0
Panama	1.1	2.5	4.2	8.8	2.4	3.5	5.9	5.7	4.0	3.8	3.6	2.5	3.7	3.6	3.5
Paraguay	8.7	9.6	8.1	10.2	2.6	4.7	8.3	3.7	2.7	4.7	5.0	5.0	3.7	5.0	5.0
Peru	4.4	2.0	1.8	5.8	2.9	1.5	3.4	3.7	2.8	2.5	2.1	2.0	2.9	2.3	2.0
St. Kitts and Nevis	3.2	8.5	4.5	5.3	2.1	0.6	7.1	1.4	0.7	0.7	1.8	2.5	0.4	1.5	2.0
St. Lucia	2.3	3.6	2.8	5.5	–0.2	3.3	2.8	4.2	1.5	1.1	2.4	3.1	–1.4	2.4	1.8
St. Vincent and the Grenadines	1.6	3.0	7.0	10.1	0.4	0.8	3.2	2.6	0.9	0.9	1.1	2.0	0.2	1.7	1.7
Suriname	25.2	11.1	6.6	15.0	0.0	6.9	17.7	5.0	1.9	1.7	3.1	3.7	0.6	2.2	3.3
Trinidad and Tobago	4.4	8.3	7.9	12.0	7.6	10.5	5.1	9.3	5.2	4.8	4.0	4.0	5.6	4.0	4.0
Uruguay	11.8	6.4	8.1	7.9	7.1	6.7	8.1	8.1	8.6	8.3	8.0	6.5	8.5	8.5	7.6
Venezuela	31.0	13.7	18.7	30.4	27.1	28.2	26.1	21.1	40.7	50.7	38.0	30.0	56.1	75.0	75.0
Middle East, North Africa, Afghanistan, and Pakistan	**6.0**	**8.2**	**10.2**	**12.2**	**7.4**	**6.9**	**9.8**	**10.6**	**10.1**	**8.5**	**8.3**	**7.4**	**7.9**	**9.0**	**7.9**
Afghanistan	. . .	6.8	8.7	26.4	–6.8	2.2	11.8	6.4	7.4	6.1	5.5	5.0	7.2	4.0	6.4
Algeria	4.6	2.3	3.7	4.9	5.7	3.9	4.5	8.9	3.3	4.0	4.0	4.0	1.1	5.3	4.0
Bahrain	0.7	2.0	3.3	3.5	2.8	2.0	–0.4	2.8	3.3	2.5	2.4	2.6	3.9	2.6	2.2
Djibouti	2.0	3.5	5.0	12.0	1.7	4.0	5.1	3.7	2.5	2.5	2.5	2.5	1.1	2.3	2.3
Egypt	4.7	4.2	11.0	11.7	16.2	11.7	11.1	8.6	6.9	10.7	11.2	12.2	9.8	11.3	11.5
Iran	15.9	11.9	18.4	25.3	10.8	12.4	21.5	30.5	35.2	23.0	22.0	20.0	22.0	24.0	20.0
Iraq	. . .	53.2	30.8	2.7	–2.2	2.4	5.6	6.1	1.9	1.9	3.0	3.0	3.1	2.3	3.0
Jordan	2.6	6.3	4.7	13.9	–0.7	5.0	4.4	4.6	5.5	3.0	2.4	1.8	3.0	2.4	2.2
Kuwait	1.8	3.1	5.5	6.3	4.6	4.5	4.9	3.2	2.7	3.4	4.0	4.0	2.7	3.4	4.0
Lebanon	2.4	5.6	4.1	10.8	1.2	5.1	7.2	5.9	3.2	2.0	2.0	2.5	1.3	2.0	2.0
Libya	–0.7	1.5	6.2	10.4	2.4	2.5	15.9	6.1	2.6	4.8	6.3	2.5	1.7	7.5	5.4
Mauritania	6.1	6.2	7.3	7.5	2.1	6.3	5.7	4.9	4.1	4.7	5.2	5.5	4.5	5.0	5.5
Morocco	1.6	3.3	2.0	3.9	1.0	1.0	0.9	1.3	1.9	2.5	2.5	2.5	0.4	2.5	2.5
Oman	0.1	3.4	5.9	12.6	3.5	3.3	4.0	2.9	1.3	2.7	3.1	3.4	1.3	2.7	3.1
Pakistan	6.3	8.0	7.8	10.8	17.6	10.1	13.7	11.0	7.4	8.8	9.0	6.0	5.9	10.0	8.0
Qatar	3.6	11.9	13.6	15.2	–4.9	–2.4	1.9	1.9	3.1	3.6	3.5	3.4	3.1	3.6	3.5
Saudi Arabia	–0.3	1.9	5.0	6.1	4.1	3.8	3.7	2.9	3.5	3.0	3.2	3.5	3.0	3.3	3.4
Sudan[7]	21.8	7.2	8.0	14.3	11.3	13.0	18.1	35.5	36.5	20.4	14.3	5.5	41.9	18.1	12.0
Syria[8]	2.2	10.4	4.7	15.2	2.8	4.4	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Tunisia	2.8	4.1	3.4	4.9	3.5	4.4	3.5	5.6	6.1	5.5	5.0	4.0	6.0	5.3	4.5
United Arab Emirates	3.1	9.3	11.1	12.3	1.6	0.9	0.9	0.7	1.1	2.2	2.5	3.9	1.7	2.4	2.7
Yemen	12.8	10.8	7.9	19.0	3.7	11.2	19.5	9.9	11.1	10.4	9.8	7.7	9.8	10.0	9.5

Table A7. Emerging Market and Developing Economies: Consumer Prices[1] *(concluded)*

(Annual percent change)

	Average									Projections			End of Period[2]	Projections	
	1996–2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2019	2013	2014	2015
Sub-Saharan Africa	**14.2**	**7.2**	**6.2**	**13.0**	**9.7**	**7.5**	**9.4**	**9.0**	**6.3**	**6.1**	**5.9**	**5.5**	**5.9**	**6.2**	**5.8**
Angola	208.2	13.3	12.2	12.5	13.7	14.5	13.5	10.3	8.8	7.7	7.7	6.5	7.7	8.0	7.5
Benin	3.3	3.8	1.3	7.4	0.9	2.2	2.7	6.7	1.0	1.7	2.8	2.8	–1.8	4.0	2.8
Botswana	8.1	11.6	7.1	12.6	8.1	6.9	8.5	7.5	5.8	3.8	3.4	3.2	4.1	3.5	3.3
Burkina Faso	2.7	2.4	–0.2	10.7	2.6	–0.6	2.8	3.8	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Burundi	12.4	9.1	14.4	26.0	4.6	4.1	14.9	12.0	8.8	5.9	6.0	4.5	8.8	5.9	6.0
Cabo Verde	2.6	4.8	4.4	6.8	1.0	2.1	4.5	2.5	1.5	1.7	2.0	2.0	0.1	2.0	2.0
Cameroon	2.5	4.9	1.1	5.3	3.0	1.3	2.9	2.4	2.1	2.5	2.5	2.5	1.7	2.5	2.5
Central African Republic	1.6	6.7	0.9	9.3	3.5	1.5	1.2	5.9	6.6	4.5	4.2	2.0	5.9	3.9	2.3
Chad	2.9	7.7	–7.4	8.3	10.1	–2.1	1.9	7.7	0.2	2.4	3.0	3.0	0.9	3.2	3.0
Comoros	3.2	3.4	4.5	4.8	4.8	3.9	6.8	6.3	2.3	3.2	3.2	3.1	3.2	3.2	3.2
Democratic Republic of the Congo	137.3	13.2	16.7	18.0	46.2	23.5	15.5	2.1	0.8	2.4	4.1	5.5	1.0	3.7	4.5
Republic of Congo	3.7	4.7	2.6	6.0	4.3	5.0	1.8	5.0	4.6	2.4	2.4	2.2	2.1	2.7	2.3
Côte d'Ivoire	3.1	2.5	1.9	6.3	1.0	1.4	4.9	1.3	2.6	1.2	2.5	2.5	0.4	0.0	2.5
Equatorial Guinea	5.4	4.5	2.8	4.7	5.7	5.3	4.8	3.4	3.2	3.9	3.7	3.0	4.9	3.7	3.4
Eritrea	14.2	15.1	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
Ethiopia	3.3	13.6	17.2	44.4	8.5	8.1	33.2	24.1	8.0	6.2	7.8	8.0	7.7	7.0	8.0
Gabon	1.1	–1.4	–1.0	5.3	1.9	1.4	1.3	2.7	0.5	5.6	2.5	2.5	3.3	2.5	2.5
The Gambia	5.8	2.1	5.4	4.5	4.6	5.0	4.8	4.6	5.2	5.3	5.0	5.0	5.6	5.0	5.0
Ghana	22.4	10.2	10.7	16.5	20.6	11.7	8.7	9.2	11.7	13.0	11.1	8.1	13.5	12.3	9.8
Guinea	8.6	34.7	22.9	18.4	4.7	15.5	21.4	15.2	12.0	10.2	8.5	6.0	11.0	8.5	7.8
Guinea-Bissau	10.7	0.7	4.6	10.4	–1.6	1.1	5.1	2.1	0.6	2.5	2.0	2.0	1.7	2.8	2.0
Kenya	7.3	6.0	4.3	15.1	10.6	4.3	14.0	9.4	5.7	6.6	5.5	5.0	7.1	6.6	5.1
Lesotho	7.5	6.1	8.0	10.7	7.4	3.6	5.0	6.2	5.3	4.7	4.6	4.0	4.6	4.6	4.6
Liberia	. . .	9.5	11.4	17.5	7.4	7.3	8.5	6.8	7.6	8.1	7.5	5.8	8.5	7.9	7.0
Madagascar	10.2	10.8	10.4	9.2	9.0	9.3	10.0	5.8	5.8	6.2	6.0	5.0	6.3	6.5	6.0
Malawi	21.9	13.9	8.0	8.7	8.4	7.4	7.6	21.3	27.7	15.1	6.9	5.2	20.1	9.7	5.8
Mali	2.0	1.5	1.5	9.1	2.2	1.3	3.1	5.3	–0.6	3.9	2.5	2.2	0.0	8.1	3.3
Mauritius	5.5	8.9	8.8	9.7	2.5	2.9	6.5	3.9	3.5	3.8	4.5	5.0	3.5	4.5	5.0
Mozambique	12.5	13.2	8.2	10.3	3.3	12.7	10.4	2.1	4.2	5.6	5.6	5.6	3.0	6.0	5.6
Namibia	7.5	5.1	6.7	10.4	8.8	4.5	5.0	6.5	6.2	5.9	5.7	5.5	6.0	5.8	5.7
Niger	2.6	0.1	0.1	11.3	4.3	–2.8	2.9	0.5	2.3	2.5	2.1	–0.8	1.1	2.6	1.2
Nigeria	13.8	8.2	5.4	11.6	12.5	13.7	10.8	12.2	8.5	7.3	7.0	7.0	7.9	7.0	7.0
Rwanda	6.6	8.8	9.1	15.4	10.3	2.3	5.7	6.3	4.2	4.1	4.8	5.0	3.6	4.5	5.0
São Tomé and Príncipe	22.1	23.1	18.6	32.0	17.0	13.3	14.3	10.6	8.1	6.6	4.9	3.0	7.1	6.0	4.0
Senegal	1.5	2.1	5.9	5.8	–1.7	1.2	3.4	1.4	0.8	1.4	1.7	1.9	1.2	1.7	1.7
Seychelles	2.9	–1.9	–8.6	37.0	31.7	–2.4	2.6	7.1	4.3	3.5	3.3	3.0	3.4	3.5	3.2
Sierra Leone	13.2	9.5	11.6	14.8	9.2	17.8	18.5	13.8	9.8	7.8	6.7	5.4	8.5	7.5	6.0
South Africa	5.9	4.7	7.1	11.5	7.1	4.3	5.0	5.7	5.8	6.0	5.6	5.2	5.4	6.3	5.6
South Sudan	. . .	. . .	. . .	. . .	. . .	. . .	. . .	45.1	0.0	11.2	9.0	5.0	–8.8	14.2	5.0
Swaziland	6.5	5.2	8.1	12.7	7.4	4.5	6.1	8.9	5.6	5.5	5.2	5.2	4.4	5.6	5.2
Tanzania	8.4	7.3	7.0	10.3	12.1	7.2	12.7	16.0	7.9	5.2	5.0	5.0	5.6	5.0	5.0
Togo	2.6	2.2	0.9	8.7	3.7	1.4	3.6	2.6	2.0	3.0	2.7	2.5	2.2	2.8	2.7
Uganda	4.8	7.2	6.1	12.0	13.1	4.0	18.7	14.0	5.4	6.3	6.3	5.0	5.6	7.0	5.6
Zambia	24.4	9.0	10.7	12.4	13.4	8.5	8.7	6.6	7.0	7.0	6.0	5.0	7.1	6.5	5.5
Zimbabwe[9]	. . .	33.0	–72.7	157.0	6.2	3.0	3.5	3.7	1.6	1.5	1.7	2.5	0.3	2.0	2.0

[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, 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.
[5]Projections for Ukraine are excluded due to the ongoing crisis.
[6]The data for Argentina are officially reported data. Consumer price data from January 2014 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, staff forecasts for CPI inflation are not reported in the Spring 2014 *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. 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 due to the uncertain political situation.
[9]The Zimbabwe 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		
	1998–2007	2008	2009	2010	2011	2012	2013	2014	2015	2019
Major Advanced Economies										
Net Lending/Borrowing	–3.9	–5.1	–10.8	–9.6	–8.2	–7.3	–5.9	–5.1	–4.4	–3.5
Output Gap[2]	0.0	–1.2	–5.7	–3.9	–3.5	–3.2	–3.1	–2.4	–1.7	0.0
Structural Balance[2]	–4.0	–4.5	–7.0	–7.8	–6.7	–5.8	–4.3	–3.9	–3.6	–3.5
United States										
Net Lending/Borrowing[3]	–4.4	–7.8	–14.7	–12.5	–11.0	–9.7	–7.3	–6.4	–5.6	–5.7
Output Gap[2,3]	–0.5	–3.1	–7.1	–5.6	–5.2	–4.3	–4.1	–3.3	–2.2	0.0
Structural Balance[2]	–3.9	–5.7	–8.8	–10.0	–8.7	–7.7	–5.4	–5.0	–4.6	–5.7
Net Debt	41.7	50.4	62.1	69.7	76.2	80.1	81.3	82.3	82.7	84.5
Gross Debt	60.7	72.8	86.1	94.8	99.0	102.4	104.5	105.7	105.7	106.7
Euro Area[4]										
Net Lending/Borrowing	–1.9	–2.1	–6.4	–6.2	–4.2	–3.7	–3.0	–2.6	–2.0	–0.3
Output Gap[2]	0.9	2.3	–2.8	–1.6	–0.6	–1.7	–2.6	–2.2	–1.7	–0.2
Structural Balance[2]	–2.6	–3.4	–4.8	–4.8	–3.8	–2.3	–1.3	–1.2	–1.0	–0.1
Net Debt	54.4	54.1	60.2	64.3	66.5	70.2	72.4	73.2	72.6	65.5
Gross Debt	69.4	70.3	80.1	85.7	88.1	92.8	95.2	95.6	94.5	85.5
Germany[5]										
Net Lending/Borrowing	–2.2	–0.1	–3.1	–4.2	–0.8	0.1	0.0	0.0	–0.1	0.4
Output Gap[2]	0.0	2.3	–3.7	–1.4	0.8	0.5	–0.4	–0.1	0.0	–0.1
Structural Balance[2,6]	–2.4	–1.0	–1.1	–2.6	–1.1	–0.1	0.3	0.2	–0.1	0.4
Net Debt	46.8	50.0	56.5	58.2	56.5	58.1	55.7	52.9	49.9	40.2
Gross Debt	63.4	66.8	74.5	82.5	80.0	81.0	78.1	74.6	70.8	58.7
France										
Net Lending/Borrowing	–2.7	–3.3	–7.6	–7.1	–5.3	–4.8	–4.2	–3.7	–3.0	0.0
Output Gap[2]	1.4	1.1	–3.0	–2.2	–1.0	–1.8	–2.4	–2.4	–2.0	0.1
Structural Balance[2,6]	–3.6	–4.1	–5.7	–5.7	–4.6	–3.5	–2.4	–1.9	–1.5	0.0
Net Debt	55.5	62.3	72.0	76.1	78.6	84.0	87.6	89.5	89.8	81.4
Gross Debt	61.5	68.2	79.2	82.4	85.8	90.2	93.9	95.8	96.1	87.7
Italy										
Net Lending/Borrowing	–2.9	–2.7	–5.4	–4.4	–3.7	–2.9	–3.0	–2.7	–1.8	–0.2
Output Gap[2]	1.7	1.9	–3.4	–1.6	–1.3	–2.8	–4.2	–3.5	–2.4	–0.4
Structural Balance[2,7]	–4.4	–4.0	–4.2	–3.8	–3.8	–1.6	–0.3	–0.8	–0.3	0.0
Net Debt	91.6	89.3	97.9	100.0	102.5	106.1	110.7	112.4	111.2	101.7
Gross Debt	107.3	106.1	116.4	119.3	120.7	127.0	132.5	134.5	133.1	121.7
Japan										
Net Lending/Borrowing	–5.8	–4.1	–10.4	–9.3	–9.8	–8.7	–8.4	–7.2	–6.4	–5.4
Output Gap[2]	–1.1	–1.4	–7.1	–3.1	–3.9	–3.1	–2.1	–1.4	–1.0	0.0
Structural Balance[2]	–5.5	–3.5	–7.4	–7.8	–8.3	–7.6	–7.8	–6.9	–6.1	–5.4
Net Debt	70.0	95.3	106.2	113.1	127.3	129.5	134.1	137.1	140.0	143.8
Gross Debt[8]	162.4	191.8	210.2	216.0	229.8	237.3	243.2	243.5	245.1	245.0
United Kingdom										
Net Lending/Borrowing	–1.3	–5.0	–11.3	–10.0	–7.8	–8.0	–5.8	–5.3	–4.1	–0.2
Output Gap[2]	1.9	1.7	–2.2	–1.9	–2.5	–3.0	–2.7	–1.7	–1.1	0.0
Structural Balance[2]	–2.6	–6.7	–10.2	–8.4	–5.9	–5.7	–3.7	–3.8	–3.1	–0.1
Net Debt	36.4	48.0	62.4	72.2	76.8	81.4	83.1	84.4	85.7	77.6
Gross Debt	41.1	51.9	67.1	78.5	84.3	88.6	90.1	91.5	92.7	84.6
Canada										
Net Lending/Borrowing	1.2	–0.3	–4.5	–4.9	–3.7	–3.4	–3.0	–2.5	–2.0	–0.6
Output Gap[2]	1.3	0.7	–3.5	–2.0	–1.3	–1.5	–1.3	–0.9	–0.6	0.0
Structural Balance[2]	0.4	–0.8	–2.3	–3.7	–2.9	–2.5	–2.2	–1.9	–1.6	–0.6
Net Debt	40.4	22.4	27.6	29.7	32.4	36.7	38.5	39.5	39.9	37.6
Gross Debt	78.9	71.3	81.3	83.1	83.5	88.1	89.1	87.4	86.6	81.9

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, 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]Data have been revised as a result of the Bureau of Economic Analysis's recent comprehensive revision of the National Income and Product Accounts (NIPA).

[4]Excludes Latvia.

[5]Beginning in 1995, the debt and debt-services obligations of the Treuhandanstalt (and of various other agencies) were taken over by the general government. This debt is equivalent to 8 percent of GDP, and the associated debt service to 0.5 to 1 percent of GDP.

[6]Excludes sizable one-time receipts from the sale of assets, including licenses.

[7]Excludes one-time measures based on the authorities' data and, in the absence of the latter, receipts from the sale of assets.

[8]Includes equity shares.

Table A9. Summary of World Trade Volumes and Prices

(Annual percent change)

	Averages										Projections	
	1996–2005	2006–15	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Trade in Goods and Services												
World Trade[1]												
Volume	6.7	4.2	9.3	7.9	2.8	–10.6	12.8	6.2	2.8	3.0	4.3	5.3
Price Deflator												
In U.S. Dollars	0.7	2.5	5.0	7.7	11.4	–10.3	5.6	11.1	–1.8	–0.8	–0.2	–0.4
In SDRs	0.9	2.0	5.5	3.5	7.9	–8.1	6.8	7.4	1.2	0.0	–1.6	–1.3
Volume of Trade												
Exports												
Advanced Economies	5.9	3.6	8.9	6.9	2.1	–11.7	12.4	5.7	2.1	2.3	4.2	4.8
Emerging Market and Developing Economies	8.7	5.6	11.2	9.4	4.3	–7.9	13.9	7.0	4.2	4.4	5.0	6.2
Imports												
Advanced Economies	6.5	2.7	7.8	5.4	0.5	–12.2	11.7	4.8	1.1	1.4	3.5	4.5
Emerging Market and Developing Economies	8.0	7.2	12.2	14.9	8.5	–8.0	14.4	9.2	5.8	5.6	5.2	6.3
Terms of Trade												
Advanced Economies	–0.1	–0.3	–1.2	0.3	–2.1	2.5	–1.0	–1.5	–0.7	0.7	0.0	–0.2
Emerging Market and Developing Economies	1.3	0.8	3.0	1.7	3.3	–4.9	2.1	3.4	0.6	–0.3	–0.2	–0.7
Trade in Goods												
World Trade[1]												
Volume	6.8	4.0	9.3	7.1	2.2	–11.7	14.0	6.6	2.6	2.7	4.3	5.3
Price Deflator												
In U.S. Dollars	0.5	2.7	5.6	7.9	12.4	–11.6	6.7	12.2	–1.9	–1.1	–0.3	–0.6
In SDRs	0.8	2.2	6.0	3.7	8.9	–9.4	7.8	8.4	1.1	–0.3	–1.8	–1.5
World Trade Prices in U.S. Dollars[2]												
Manufactures	–0.3	1.4	2.4	5.4	6.3	–6.5	2.5	6.1	0.2	–1.1	–0.3	–0.4
Oil	12.0	6.3	20.5	10.7	36.4	–36.3	27.9	31.6	1.0	–0.9	0.1	–6.0
Nonfuel Primary Commodities	0.0	4.6	23.1	13.9	7.9	–15.8	26.5	17.9	–10.0	–1.2	–3.5	–3.9
Food	–0.4	4.7	10.2	14.8	24.5	–14.8	11.9	19.9	–2.4	1.1	–5.3	–5.9
Beverages	–2.3	5.5	8.4	13.8	23.3	1.6	14.1	16.6	–18.6	–11.9	15.1	0.8
Agricultural Raw Materials	–1.8	3.2	8.7	5.0	–0.7	–17.1	33.2	22.7	–12.7	1.5	0.5	–0.3
Metal	2.8	5.2	56.2	17.4	–7.8	–19.2	48.2	13.5	–16.8	–4.3	–5.4	–3.9
World Trade Prices in SDRs[2]												
Manufactures	–0.1	0.9	2.8	1.3	3.0	–4.1	3.7	2.5	3.3	–0.3	–1.7	–1.4
Oil	12.3	5.7	21.0	6.4	32.1	–34.8	29.3	27.2	4.1	–0.1	–1.3	–6.9
Nonfuel Primary Commodities	0.2	4.0	23.6	9.5	4.5	–13.7	27.9	13.9	–7.3	–0.4	–4.9	–4.9
Food	–0.1	4.2	10.7	10.3	20.5	–12.7	13.1	15.8	0.6	1.9	–6.6	–6.8
Beverages	–2.1	5.0	8.8	9.4	19.4	4.1	15.4	12.7	–16.1	–11.2	13.5	–0.2
Agricultural Raw Materials	–1.6	2.6	9.2	0.9	–3.8	–15.1	34.6	18.6	–10.0	2.3	–0.9	–1.3
Metal	3.1	4.7	56.9	12.8	–10.7	–17.2	49.8	9.7	–14.3	–3.5	–6.8	–4.8
World Trade Prices in Euros[2]												
Manufactures	0.2	0.3	1.6	–3.4	–1.0	–1.2	7.6	1.2	8.4	–4.3	–3.2	–2.2
Oil	12.5	5.1	19.5	1.4	27.1	–32.7	34.3	25.5	9.3	–4.1	–2.9	–7.7
Nonfuel Primary Commodities	0.5	3.4	22.1	4.3	0.5	–11.0	32.8	12.4	–2.6	–4.4	–6.3	–5.6
Food	0.1	3.5	9.3	5.1	15.9	–9.9	17.4	14.3	5.7	–2.1	–8.1	–7.5
Beverages	–1.8	4.3	7.5	4.2	14.8	7.3	19.8	11.2	–11.9	–14.8	11.7	–1.0
Agricultural Raw Materials	–1.3	2.0	7.9	–3.8	–7.5	–12.5	39.8	17.0	–5.5	–1.7	–2.5	–2.1
Metal	3.3	4.0	55.0	7.5	–14.1	–14.6	55.5	8.3	–10.0	–7.3	–8.2	–5.5

Table A9. Summary of World Trade Volumes and Prices *(concluded)*

(Annual percent change)

	Averages										Projections	
	1996–2005	2006–15	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Trade in Goods												
Volume of Trade												
Exports												
Advanced Economies	5.8	3.3	8.8	5.8	1.5	–13.4	14.3	6.0	1.8	1.8	4.2	4.6
Emerging Market and Developing Economies	8.9	5.4	10.7	8.7	3.4	–8.1	13.8	6.9	4.8	4.0	5.1	6.2
Fuel Exporters	4.9	2.5	4.3	4.2	3.1	–7.3	3.6	5.0	6.0	1.1	1.4	4.2
Nonfuel Exporters	10.3	6.6	13.4	10.6	3.5	–8.5	17.7	7.6	4.3	5.4	6.7	7.0
Imports												
Advanced Economies	6.7	2.6	8.1	4.8	–0.1	–13.1	13.5	5.2	0.5	1.2	3.2	4.5
Emerging Market and Developing Economies	8.3	7.0	11.7	14.4	7.9	–9.6	14.9	10.0	5.4	5.3	5.4	6.5
Fuel Exporters	8.0	8.0	12.4	23.8	14.0	–12.7	6.2	10.2	10.8	7.0	5.1	6.5
Nonfuel Exporters	8.4	6.8	11.6	12.4	6.4	–8.9	17.1	10.0	4.3	4.9	5.5	6.5
Price Deflators in SDRs												
Exports												
Advanced Economies	0.1	1.4	3.9	3.4	5.7	–6.7	4.5	6.0	–0.2	0.4	–1.4	–0.8
Emerging Market and Developing Economies	3.6	3.7	11.0	5.7	14.4	–13.5	14.2	13.0	2.4	–0.9	–2.6	–3.1
Fuel Exporters	8.8	5.6	18.4	8.0	25.8	–25.9	24.5	23.9	3.2	–1.8	–2.6	–4.9
Nonfuel Exporters	1.7	2.8	7.8	4.7	9.6	–7.5	10.2	8.7	2.0	–0.4	–2.7	–2.3
Imports												
Advanced Economies	0.2	1.8	5.4	3.0	8.4	–10.1	5.7	7.9	1.0	–0.2	–1.1	–0.8
Emerging Market and Developing Economies	2.1	2.8	7.2	4.0	10.2	–8.1	11.4	8.5	2.1	–0.7	–2.3	–2.2
Fuel Exporters	1.3	2.9	8.8	4.0	8.8	–4.8	9.3	6.3	1.9	0.1	–2.4	–1.8
Nonfuel Exporters	2.3	2.8	6.8	4.0	10.5	–8.9	11.9	9.0	2.1	–0.9	–2.3	–2.3
Terms of Trade												
Advanced Economies	–0.2	–0.4	–1.4	0.4	–2.5	3.8	–1.1	–1.8	–1.2	0.6	–0.3	0.0
Emerging Market and Developing Economies	1.5	0.8	3.6	1.6	3.8	–5.9	2.5	4.1	0.3	–0.1	–0.3	–0.9
Regional Groups												
Commonwealth of Independent States[3]	5.0	2.6	7.9	1.9	15.9	–17.4	12.7	11.2	1.8	–1.2	–0.4	–2.1
Emerging and Developing Asia	–1.5	–0.3	–0.6	0.3	–1.4	3.2	–6.2	–2.4	1.3	1.4	0.6	0.6
Emerging and Developing Europe	0.0	–0.8	–1.0	1.7	–2.7	3.5	–4.0	–1.9	–0.1	0.4	–2.9	–0.5
Latin America and the Caribbean	1.5	1.4	7.1	2.3	3.0	–8.9	11.1	9.0	–3.1	–1.5	–1.7	–1.6
Middle East, North Africa, Afghanistan, and Pakistan	6.8	2.2	6.8	3.2	12.7	–18.2	11.6	14.4	–0.1	–1.6	0.2	–3.1
Middle East and North Africa	7.2	2.3	7.0	3.2	13.4	–18.6	11.5	14.7	0.4	–1.7	0.4	–3.1
Sub-Saharan Africa	. . .	2.0	7.1	4.7	8.9	–13.0	12.7	8.9	–1.4	–1.8	–1.2	–2.3
Analytical Groups												
By Source of Export Earnings												
Fuel Exporters	7.4	2.6	8.9	3.9	15.6	–22.2	13.8	16.6	1.2	–1.9	–0.2	–3.2
Nonfuel Exporters	–0.5	0.1	0.9	0.7	–0.8	1.5	–1.5	–0.3	–0.1	0.5	–0.4	0.0
Memorandum												
World Exports in Billions of U.S. Dollars												
Goods and Services	8,482	20,390	14,891	17,336	19,830	15,880	18,916	22,317	22,535	23,083	23,990	25,123
Goods	6,835	16,396	12,035	13,920	15,984	12,469	15,167	18,123	18,260	18,591	19,281	20,132
Average Oil Price[4]	12.0	6.3	20.5	10.7	36.4	–36.3	27.9	31.6	1.0	–0.9	0.1	–6.0
In U.S. Dollars a Barrel	26.82	88.84	64.27	71.13	97.04	61.78	79.03	104.01	105.01	104.07	104.17	97.92
Export Unit Value of Manufactures[5]	–0.3	1.4	2.4	5.4	6.3	–6.5	2.5	6.1	0.2	–1.1	–0.3	–0.4

Note: SDR = special drawing right.

[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, 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.

[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 Balances on Current Account

(Billions of U.S. dollars)

									Projections		
	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2019
Advanced Economies	**–429.2**	**–327.4**	**–490.5**	**–57.7**	**–19.9**	**–43.5**	**–26.6**	**193.3**	**247.7**	**217.6**	**222.5**
United States	–798.5	–713.4	–681.3	–381.6	–449.5	–457.7	–440.4	–379.3	–391.1	–472.0	–627.1
Euro Area[1,2]	53.9	46.4	–96.5	33.1	72.7	109.2	246.0	366.0	391.6	432.6	498.7
Japan	170.9	212.1	159.9	146.6	204.0	119.3	60.4	34.3	57.2	65.0	84.8
Other Advanced Economies[3]	144.5	127.5	127.5	144.3	152.9	185.8	107.5	172.3	190.0	192.0	266.1
Emerging Market and Developing Economies	**632.1**	**604.4**	**674.4**	**248.8**	**325.3**	**414.0**	**368.4**	**210.0**	**239.1**	**175.0**	**98.5**
Regional Groups											
Commonwealth of Independent States[4]	94.0	65.5	108.6	43.0	69.1	108.1	67.7	20.5	50.2	39.2	29.0
Emerging and Developing Asia	271.1	394.8	429.3	275.9	238.7	97.4	104.1	145.2	177.5	213.9	335.9
Emerging and Developing Europe	–84.1	–129.7	–154.5	–50.3	–84.4	–118.8	–80.9	–75.6	–68.3	–76.6	–109.6
Latin America and the Caribbean	46.2	6.2	–39.5	–30.0	–62.1	–79.4	–107.1	–153.3	–154.1	–167.7	–208.7
Middle East, North Africa, Afghanistan, and Pakistan	275.4	255.7	332.3	39.1	175.0	418.7	418.8	320.5	283.6	225.5	125.2
Sub-Saharan Africa	29.5	11.8	–1.9	–28.8	–11.0	–11.9	–34.2	–47.2	–49.9	–59.3	–73.3
Memorandum											
European Union	–28.2	–62.9	–172.1	4.7	19.1	83.6	174.5	328.9	357.4	404.9	505.4
Analytical Groups											
By Source of Export Earnings											
Fuel	475.5	419.8	586.2	140.5	319.0	635.6	607.5	445.2	414.0	344.6	223.2
Nonfuel	156.7	184.6	88.2	108.3	6.3	–221.5	–239.0	–235.2	–174.9	–169.6	–124.7
Of Which, Primary Products	–12.1	–17.1	–34.9	–23.3	–13.5	–29.4	–65.8	–65.6	–58.4	–60.0	–65.0
By External Financing Source											
Net Debtor Economies	–107.4	–207.9	–376.0	–179.9	–273.7	–402.4	–461.0	–451.7	–429.2	–466.3	–604.1
Of Which, Official Financing	–17.7	–21.6	–32.9	–17.6	–12.1	–8.6	–20.4	–16.5	–17.1	–22.1	–32.3
Net Debtor Economies by Debt-Servicing Experience											
Economies with Arrears and/or Rescheduling during 2008–12	–5.8	–13.2	–27.1	–30.6	–32.6	–33.5	–53.4	–55.9	–55.8	–68.8	–89.6
World[1]	**203.0**	**277.0**	**183.9**	**191.1**	**305.4**	**370.6**	**341.9**	**403.3**	**486.8**	**392.6**	**321.1**

Table A10. Summary of Balances on Current Account *(concluded)*

(Percent of GDP)

									Projections		
	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2019
Advanced Economies	**–1.2**	**–0.8**	**–1.2**	**–0.1**	**0.0**	**–0.1**	**–0.1**	**0.4**	**0.5**	**0.4**	**0.4**
United States	–5.8	–4.9	–4.6	–2.6	–3.0	–2.9	–2.7	–2.3	–2.2	–2.6	–2.8
Euro Area[1,2]	0.5	0.4	–0.7	0.3	0.6	0.8	2.0	2.9	2.9	3.1	3.0
Japan	3.9	4.9	3.3	2.9	3.7	2.0	1.0	0.7	1.2	1.3	1.5
Other Advanced Economies[3]	1.8	1.4	1.3	1.7	1.6	1.8	1.0	1.6	1.7	1.6	1.8
Emerging Market and Developing Economies	**4.9**	**3.8**	**3.5**	**1.4**	**1.5**	**1.6**	**1.4**	**0.7**	**0.8**	**0.6**	**0.2**
Regional Groups											
Commonwealth of Independent States[4]	7.2	3.8	5.0	2.6	3.4	4.3	2.6	0.7	1.9	1.5	0.9
Emerging and Developing Asia	5.7	6.6	5.9	3.5	2.5	0.9	0.8	1.1	1.2	1.4	1.6
Emerging and Developing Europe	–6.5	–8.1	–8.2	–3.2	–4.9	–6.4	–4.5	–3.9	–3.6	–3.8	–4.2
Latin America and the Caribbean	1.5	0.2	–0.9	–0.7	–1.3	–1.4	–1.9	–2.7	–2.7	–2.8	–2.8
Middle East, North Africa, Afghanistan, and Pakistan	15.5	12.2	12.8	1.7	6.5	13.1	12.6	9.5	8.0	6.1	2.6
Middle East and North Africa	17.2	13.6	14.3	2.2	7.1	14.1	13.7	10.3	8.7	6.6	2.9
Sub-Saharan Africa	4.1	1.4	–0.2	–3.2	–1.0	–1.0	–2.7	–3.6	–3.6	–3.9	–3.6
Memorandum											
European Union	–0.2	–0.4	–0.9	0.0	0.1	0.5	1.0	1.9	1.9	2.1	2.2
Analytical Groups											
By Source of Export Earnings											
Fuel	16.3	11.6	12.7	3.7	7.1	11.5	10.4	7.4	6.7	5.4	2.8
Nonfuel	1.6	1.5	0.6	0.7	0.0	–1.1	–1.1	–1.0	–0.7	–0.7	–0.4
Of Which, Primary Products	–2.0	–2.6	–4.9	–3.3	–1.5	–2.9	–6.4	–6.3	–5.6	–5.4	–4.4
By External Financing Source											
Net Debtor Economies	–1.5	–2.4	–3.9	–1.9	–2.5	–3.2	–3.7	–3.5	–3.3	–3.4	–3.3
Of Which, Official Financing	–3.4	–3.6	–4.7	–2.6	–1.6	–1.1	–2.6	–1.9	–1.9	–2.3	–2.5
Net Debtor Economies by Debt-Servicing Experience											
Economies with Arrears and/or Rescheduling during 2008–12	–0.8	–1.5	–2.6	–3.0	–2.8	–2.5	–3.7	–3.7	–3.7	–4.4	–4.3
World[1]	**0.4**	**0.5**	**0.3**	**0.3**	**0.5**	**0.5**	**0.5**	**0.5**	**0.6**	**0.5**	**0.3**
Memorandum											
In Percent of Total World Current Account Transactions	0.7	0.8	0.5	0.6	0.8	0.8	0.8	0.9	1.0	0.8	0.5
In Percent of World GDP	0.4	0.5	0.3	0.3	0.5	0.5	0.5	0.5	0.6	0.5	0.3

[1]Reflects errors, omissions, and asymmetries in balance of payments statistics on current account, as well as the exclusion of data for international organizations and a limited number of countries. See "Classification of Countries" in the introduction to this Statistical Appendix.
[2]Calculated as the sum of the balances of individual Euro Area countries excluding Latvia.
[3]In this table, Other Advanced Economies means advanced economies excluding the United States, Euro Area countries, and Japan but including Latvia.
[4]Georgia, 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 A11. Advanced Economies: Balance on Current Account

(Percent of GDP)

	2006	2007	2008	2009	2010	2011	2012	2013	Projections 2014	2015	2019
Advanced Economies	**–1.2**	**–0.8**	**–1.2**	**–0.1**	**0.0**	**–0.1**	**–0.1**	**0.4**	**0.5**	**0.4**	**0.4**
United States	–5.8	–4.9	–4.6	–2.6	–3.0	–2.9	–2.7	–2.3	–2.2	–2.6	–2.8
Euro Area[1]	0.5	0.4	–0.7	0.3	0.6	0.8	2.0	2.9	2.9	3.1	3.0
Germany	6.3	7.4	6.2	5.9	6.4	6.8	7.4	7.5	7.3	7.1	5.7
France	–0.6	–1.0	–1.7	–1.3	–1.3	–1.8	–2.2	–1.6	–1.7	–1.0	0.4
Italy	–1.5	–1.3	–2.9	–2.0	–3.5	–3.1	–0.4	0.8	1.1	1.1	–0.4
Spain	–9.0	–10.0	–9.6	–4.8	–4.5	–3.8	–1.1	0.7	0.8	1.4	3.4
Netherlands	9.3	6.7	4.3	5.2	7.4	9.5	9.4	10.4	10.1	10.1	9.2
Belgium	1.9	1.9	–1.3	–0.6	1.9	–1.1	–2.0	–1.7	–1.3	–1.0	0.3
Austria	2.8	3.5	4.9	2.7	3.4	1.4	1.8	3.0	3.5	3.5	3.6
Greece	–11.4	–14.6	–14.9	–11.2	–10.1	–9.9	–2.4	0.7	0.9	0.3	1.4
Portugal	–10.7	–10.1	–12.6	–10.9	–10.6	–7.0	–2.0	0.5	0.8	1.2	2.6
Finland	4.2	4.3	2.6	1.8	1.5	–1.5	–1.7	–0.8	–0.3	0.2	0.5
Ireland	–3.6	–5.3	–5.6	–2.3	1.1	1.2	4.4	6.6	6.4	6.5	6.2
Slovak Republic	–7.8	–5.3	–6.6	–2.6	–3.7	–3.8	2.2	2.4	2.7	2.9	2.5
Slovenia	–1.8	–4.2	–5.4	–0.5	–0.1	0.4	3.3	6.5	6.1	5.8	1.6
Luxembourg	10.4	10.1	5.4	7.3	7.7	6.6	6.6	6.7	6.7	5.5	5.0
Latvia	–22.6	–22.4	–13.2	8.7	2.9	–2.1	–2.5	–0.8	–1.6	–1.9	–2.0
Estonia	–15.3	–15.9	–9.2	2.7	2.8	1.8	–1.8	–1.0	–1.3	–1.5	0.1
Cyprus[2]	–7.0	–11.8	–15.6	–10.7	–9.8	–3.3	–6.8	–1.5	0.1	0.3	–0.2
Malta	–9.7	–4.0	–4.8	–8.3	–6.9	–0.6	2.1	0.9	1.4	1.4	1.5
Japan	3.9	4.9	3.3	2.9	3.7	2.0	1.0	0.7	1.2	1.3	1.5
United Kingdom	–2.8	–2.2	–0.9	–1.4	–2.7	–1.5	–3.7	–3.3	–2.7	–2.2	–0.6
Canada	1.4	0.8	0.1	–2.9	–3.5	–2.8	–3.4	–3.2	–2.6	–2.5	–2.2
Korea	1.5	2.1	0.3	3.9	2.9	2.3	4.3	5.8	4.4	3.5	3.0
Australia	–5.8	–6.7	–4.9	–4.6	–3.5	–2.8	–4.1	–2.9	–2.6	–2.8	–3.3
Taiwan Province of China	7.0	8.9	6.9	11.4	9.3	9.0	10.7	11.7	11.7	10.9	9.6
Sweden	8.7	9.3	9.0	6.3	6.3	6.0	6.1	5.9	6.1	6.2	5.8
Hong Kong SAR	11.9	12.1	13.4	8.4	5.4	5.2	2.8	3.1	3.3	3.9	5.0
Switzerland	14.4	8.6	2.1	10.5	14.8	9.0	9.6	9.6	9.9	9.8	9.8
Singapore	24.1	25.6	13.9	17.2	25.3	23.2	17.4	18.4	17.7	17.1	15.0
Czech Republic	–2.1	–4.4	–2.1	–2.5	–3.8	–2.9	–2.4	–1.0	–0.5	–0.5	–0.9
Norway	16.4	12.5	16.0	11.7	11.9	13.5	14.3	10.6	10.2	9.2	7.8
Israel	4.7	3.2	1.4	3.8	3.1	1.3	0.3	2.5	1.4	1.7	1.7
Denmark	3.0	1.4	2.9	3.4	5.8	5.9	6.0	6.6	6.3	6.3	6.6
New Zealand	–7.2	–6.9	–7.8	–2.3	–2.3	–2.9	–4.1	–4.2	–4.9	–5.4	–6.3
Iceland	–25.6	–15.7	–28.4	–11.6	–8.5	–5.6	–5.0	0.4	0.8	–0.2	2.5
San Marino	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Memorandum											
Major Advanced Economies	–1.9	–1.1	–1.3	–0.6	–0.8	–0.8	–1.0	–0.7	–0.6	–0.6	–0.7
Euro Area[3]	–0.1	0.1	–1.5	–0.1	0.1	0.1	1.3	2.3	2.4	2.5	2.4

[1]Calculated as the sum of the balances of individual Euro Area countries excluding Latvia.
[2]The balance on the current account for 2013 is a staff estimate at the time of the third review of the program and is subject to revision.
[3]Corrected for reporting discrepancies in intra-area transactions excluding Latvia.

Table A12. Emerging Market and Developing Economies: Balance on Current Account

(Percent of GDP)

	2006	2007	2008	2009	2010	2011	2012	2013	Projections 2014	2015	2019
Commonwealth of Independent States[1]	**7.2**	**3.8**	**5.0**	**2.6**	**3.4**	**4.3**	**2.6**	**0.7**	**1.9**	**1.5**	**0.9**
Russia	9.3	5.5	6.3	4.1	4.4	5.1	3.6	1.6	2.1	1.6	1.0
Excluding Russia	0.6	–1.4	0.9	–1.8	0.3	1.8	–0.7	–1.8	1.0	0.8	0.5
Armenia	–1.8	–6.4	–11.8	–15.8	–14.8	–10.9	–11.2	–8.4	–7.2	–6.8	–6.3
Azerbaijan	17.6	27.3	35.5	23.0	28.0	26.5	21.8	19.7	15.0	9.9	4.6
Belarus	–3.9	–6.7	–8.2	–12.6	–15.0	–8.5	–2.7	–9.8	–10.0	–7.8	–5.5
Georgia	–15.2	–19.8	–22.0	–10.5	–10.2	–12.7	–11.7	–6.1	–7.9	–7.3	–5.5
Kazakhstan	–2.5	–8.0	4.7	–3.6	0.9	5.4	0.3	0.1	1.9	2.0	1.4
Kyrgyz Republic	–3.1	–6.2	–15.5	–2.5	–6.4	–6.5	–15.0	–12.6	–15.5	–14.3	–6.8
Moldova	–11.3	–15.2	–16.1	–6.9	–7.0	–11.3	–6.0	–4.8	–5.9	–6.4	–6.4
Tajikistan	–2.8	–8.6	–7.6	–5.9	–1.2	–4.8	–2.0	–1.9	–2.1	–2.3	–2.5
Turkmenistan	15.7	15.5	16.5	–14.7	–10.6	2.0	0.0	–3.3	–1.1	1.3	3.2
Ukraine[2]	–1.5	–3.7	–7.1	–1.5	–2.2	–6.3	–8.1	–9.2	. . .	. . .	. . .
Uzbekistan	9.2	7.3	8.7	2.2	6.2	5.8	1.2	1.7	2.2	1.9	0.8
Emerging and Developing Asia	**5.7**	**6.6**	**5.9**	**3.5**	**2.5**	**0.9**	**0.8**	**1.1**	**1.2**	**1.4**	**1.6**
Bangladesh	1.2	0.8	1.4	2.8	0.5	–1.2	0.8	1.8	0.5	–0.7	–0.9
Bhutan	–4.4	14.6	–2.2	–2.0	–10.3	–23.7	–17.6	–22.2	–22.6	–24.7	–6.6
Brunei Darussalam	50.1	47.8	48.9	40.3	45.5	43.1	46.9	39.0	39.3	37.9	38.8
Cambodia	–0.6	–1.9	–5.7	–4.5	–3.9	–8.1	–8.7	–8.6	–8.4	–7.4	–5.8
China	8.5	10.1	9.3	4.9	4.0	1.9	2.3	2.1	2.2	2.4	3.0
Fiji	–15.4	–10.4	–15.9	–4.2	–4.5	–5.7	–1.5	–18.5	–6.3	–7.1	–10.1
India	–1.0	–1.3	–2.3	–2.8	–2.7	–4.2	–4.7	–2.0	–2.4	–2.5	–2.6
Indonesia	2.6	1.6	0.0	2.0	0.7	0.2	–2.8	–3.3	–3.0	–2.7	–2.6
Kiribati	–23.6	–19.4	–20.4	–23.3	–16.9	–32.6	–29.0	–15.7	–36.2	–30.5	–31.0
Lao P.D.R.	–9.9	–15.7	–18.5	–21.0	–18.2	–15.2	–28.4	–29.5	–27.3	–23.7	–17.0
Malaysia	16.1	15.4	17.1	15.5	10.9	11.6	6.1	3.8	4.0	4.0	3.7
Maldives	–23.2	–17.2	–32.3	–11.1	–8.9	–20.0	–22.9	–20.6	–22.7	–22.1	–20.1
Marshall Islands	–4.3	–5.4	–3.5	–17.4	–28.8	–9.0	–8.1	–9.3	–20.6	–10.8	–11.2
Micronesia	–13.7	–9.2	–16.2	–18.3	–14.9	–17.4	–12.0	–9.6	–9.5	–9.0	–8.0
Mongolia	6.5	6.3	–12.9	–8.9	–15.0	–31.5	–32.6	–27.9	–22.1	–19.7	–15.9
Myanmar	6.8	–0.7	–4.2	–1.3	–1.5	–2.1	–4.4	–4.9	–5.3	–5.2	–5.4
Nepal	2.1	–0.1	2.7	4.2	–2.4	–0.9	4.8	3.3	2.4	0.8	–1.0
Palau	–24.7	–16.7	–16.8	–4.7	–7.2	–4.1	–5.0	–6.5	–5.5	–5.3	–5.6
Papua New Guinea	–1.7	3.9	8.5	–15.2	–21.4	–23.5	–51.0	–27.9	–3.7	11.0	4.6
Philippines	4.4	4.8	2.1	5.6	4.5	3.2	2.9	3.5	3.2	2.6	0.5
Samoa	–10.2	–15.5	–6.4	–6.2	–7.6	–4.1	–9.2	–2.3	–6.1	–5.6	–4.9
Solomon Islands	–9.1	–15.7	–20.5	–21.4	–30.8	–6.7	0.2	–4.2	–13.0	–12.4	–10.1
Sri Lanka	–5.3	–4.3	–9.5	–0.5	–2.2	–7.8	–6.6	–4.1	–3.8	–3.6	–2.9
Thailand	1.1	6.3	0.8	8.3	3.1	1.2	–0.4	–0.7	0.2	0.3	0.5
Timor-Leste	19.2	39.7	45.6	39.0	39.8	40.4	43.4	34.2	31.9	26.7	23.7
Tonga	–5.6	–5.6	–8.1	–6.7	–3.7	–4.8	–6.2	–5.3	–4.2	–3.4	–2.7
Tuvalu	21.1	–21.7	0.3	5.4	–4.7	–29.0	32.3	37.1	25.3	24.2	24.4
Vanuatu	–6.2	–7.3	–10.8	–7.9	–5.4	–8.1	–6.4	–4.4	–5.6	–5.7	–5.4
Vietnam	–0.2	–9.0	–11.0	–6.5	–3.8	0.2	5.8	6.6	4.3	3.5	–3.3
Emerging and Developing Europe	**–6.5**	**–8.1**	**–8.2**	**–3.2**	**–4.9**	**–6.4**	**–4.5**	**–3.9**	**–3.6**	**–3.8**	**–4.2**
Albania	–5.6	–10.4	–15.2	–14.1	–10.0	–9.6	–9.3	–9.1	–10.3	–12.4	–8.2
Bosnia and Herzegovina	–7.9	–9.1	–14.1	–6.6	–6.2	–9.8	–9.7	–5.6	–7.5	–7.0	–4.6
Bulgaria	–17.6	–25.2	–23.0	–8.9	–1.5	0.1	–0.9	2.1	–0.4	–2.1	–3.2
Croatia	–6.7	–7.3	–9.0	–5.2	–1.2	–0.9	0.0	1.2	1.5	1.1	–2.0
Hungary	–7.4	–7.3	–7.4	–0.2	0.2	0.5	1.0	3.1	2.7	2.2	–1.5
Kosovo	–7.2	–10.2	–16.0	–9.4	–12.0	–13.8	–7.7	–6.8	–7.7	–6.9	–7.6
Lithuania	–10.6	–14.5	–13.3	3.9	0.0	–3.7	–0.2	0.8	–0.2	–0.6	–1.8
FYR Macedonia	–0.4	–7.1	–12.8	–6.8	–2.0	–2.5	–3.0	–1.8	–3.9	–5.5	–4.3
Montenegro	–31.3	–39.5	–49.8	–27.9	–22.9	–17.7	–18.7	–15.0	–17.9	–21.9	–16.7
Poland	–3.8	–6.2	–6.6	–4.0	–5.1	–4.9	–3.5	–1.8	–2.5	–3.0	–3.4
Romania	–10.4	–13.4	–11.6	–4.1	–4.4	–4.5	–4.4	–1.1	–1.7	–2.2	–3.3
Serbia	–10.1	–17.8	–21.7	–6.6	–6.8	–9.1	–10.7	–5.0	–4.8	–4.6	–7.2
Turkey	–6.0	–5.8	–5.5	–2.0	–6.2	–9.7	–6.2	–7.9	–6.3	–6.0	–5.4

Table A12. Emerging Market and Developing Economies: Balance on Current Account *(continued)*

(Percent of GDP)

									Projections		
	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2019
Latin America and the Caribbean	**1.5**	**0.2**	**–0.9**	**–0.7**	**–1.3**	**–1.4**	**–1.9**	**–2.7**	**–2.7**	**–2.8**	**–2.8**
Antigua and Barbuda	–25.7	–29.9	–26.7	–14.0	–14.7	–10.4	–14.0	–13.8	–12.3	–11.4	–10.0
Argentina[3]	3.4	2.6	1.8	2.5	0.3	–0.6	–0.1	–0.9	–0.5	–0.5	–0.5
The Bahamas	–17.7	–11.5	–10.6	–10.3	–10.1	–15.3	–18.4	–19.6	–14.7	–10.4	–6.3
Barbados	–8.2	–5.4	–10.7	–6.8	–5.8	–11.4	–10.1	–11.4	–7.8	–7.3	–6.3
Belize	–2.1	–4.0	–10.6	–4.9	–2.4	–1.1	–2.2	–4.2	–4.5	–4.8	–6.3
Bolivia	11.2	11.4	11.9	4.3	3.9	0.3	7.8	3.7	3.7	2.4	1.1
Brazil	1.3	0.1	–1.7	–1.5	–2.2	–2.1	–2.4	–3.6	–3.6	–3.7	–3.5
Chile	4.6	4.1	–3.2	2.0	1.6	–1.2	–3.4	–3.4	–3.3	–2.8	–2.5
Colombia	–1.9	–2.9	–2.8	–2.1	–3.0	–2.9	–3.2	–3.3	–3.3	–3.2	–2.8
Costa Rica	–4.5	–6.3	–9.3	–2.0	–3.5	–5.3	–5.2	–5.0	–5.1	–5.1	–5.3
Dominica	–13.0	–21.1	–28.7	–22.7	–17.4	–14.5	–18.9	–17.0	–17.7	–16.7	–15.4
Dominican Republic	–3.6	–5.3	–9.9	–5.0	–8.4	–7.9	–6.8	–4.2	–4.5	–5.2	–3.7
Ecuador	3.7	3.7	2.8	0.5	–2.3	–0.3	–0.3	–1.5	–2.4	–3.1	–6.0
El Salvador	–4.1	–6.1	–7.1	–1.5	–2.7	–4.9	–5.4	–6.7	–6.3	–5.9	–4.9
Grenada	–30.8	–29.7	–28.0	–22.2	–22.1	–21.8	–19.2	–27.2	–22.6	–21.0	–17.4
Guatemala	–5.0	–5.2	–3.6	0.7	–1.4	–3.4	–2.6	–3.0	–2.6	–2.3	–2.1
Guyana	–13.4	–9.5	–13.7	–9.1	–9.6	–13.1	–13.3	–17.9	–18.3	–19.9	–12.0
Haiti	–1.5	–1.5	–3.1	–1.9	–1.5	–4.3	–5.4	–6.5	–5.8	–5.7	–5.2
Honduras	–3.7	–9.1	–15.4	–3.8	–4.3	–8.0	–8.6	–8.8	–7.4	–6.0	–5.5
Jamaica	–10.0	–15.3	–17.7	–11.0	–8.7	–13.4	–13.0	–10.4	–8.6	–7.4	–5.1
Mexico	–0.8	–1.4	–1.8	–0.9	–0.3	–1.1	–1.2	–1.8	–1.9	–2.0	–1.6
Nicaragua	–10.4	–13.5	–18.4	–8.6	–9.7	–13.2	–12.9	–13.2	–12.7	–12.2	–11.1
Panama	–3.2	–8.0	–10.9	–0.7	–11.4	–15.9	–10.6	–11.9	–11.5	–11.2	–7.1
Paraguay	1.6	5.7	1.0	3.0	–0.3	0.5	–1.0	0.9	–0.9	–1.6	–1.1
Peru	3.2	1.4	–4.2	–0.6	–2.5	–1.9	–3.4	–4.9	–4.8	–4.4	–3.5
St. Kitts and Nevis	–13.6	–16.1	–27.3	–27.3	–21.5	–15.7	–11.9	–8.5	–17.4	–17.1	–15.1
St. Lucia	–29.3	–30.1	–28.7	–11.6	–16.2	–18.8	–12.8	–11.8	–11.4	–11.4	–12.1
St. Vincent and the Grenadines	–19.5	–28.0	–33.1	–29.2	–30.6	–29.4	–27.8	–28.9	–30.7	–24.4	–18.1
Suriname	8.4	11.1	9.2	0.3	6.4	5.8	0.6	–4.7	–4.5	–6.7	2.8
Trinidad and Tobago	39.6	23.9	30.5	8.5	20.3	12.4	4.9	10.2	10.1	8.9	6.2
Uruguay	–2.0	–0.9	–5.7	–1.3	–1.9	–3.0	–5.4	–5.9	–5.5	–5.2	–3.7
Venezuela	14.4	6.9	10.2	0.7	3.0	7.7	2.9	2.7	2.4	1.8	–2.8
Middle East, North Africa, Afghanistan, and Pakistan	**15.5**	**12.2**	**12.8**	**1.7**	**6.5**	**13.1**	**12.6**	**9.5**	**8.0**	**6.1**	**2.6**
Afghanistan	–1.1	6.0	5.2	1.9	3.1	3.1	3.9	2.8	3.3	–0.3	–3.6
Algeria	24.7	22.7	20.1	0.3	7.5	9.9	6.0	0.4	0.5	–1.3	–3.3
Bahrain	11.8	13.4	8.8	2.4	3.0	11.2	7.3	12.0	10.4	9.4	4.5
Djibouti	–11.5	–21.4	–24.3	–9.3	–5.4	–14.1	–12.3	–13.2	–16.3	–17.5	–16.5
Egypt	1.6	2.1	0.5	–2.3	–2.0	–2.6	–3.9	–2.1	–1.3	–4.6	–6.1
Iran	8.5	10.6	6.5	2.6	6.5	11.0	6.6	8.1	5.2	2.8	0.4
Iraq	12.9	7.7	12.8	–8.0	3.0	12.0	6.7	0.0	1.0	1.2	4.0
Jordan	–11.5	–16.8	–9.3	–3.3	–5.3	–12.0	–18.1	–11.1	–12.9	–9.3	–6.1
Kuwait	44.6	36.8	40.9	26.7	30.8	41.8	43.2	38.8	37.4	34.2	25.1
Lebanon	–7.3	–7.2	–11.1	–12.6	–13.3	–15.7	–15.7	–16.2	–15.8	–13.9	–12.1
Libya	51.1	44.1	42.5	14.9	19.5	9.1	35.4	–2.8	–27.7	–16.7	–15.4
Mauritania	–1.3	–17.2	–14.9	–16.2	–9.4	–7.5	–32.5	–25.8	–26.3	–38.0	–14.8
Morocco	2.2	–0.1	–5.2	–5.4	–4.1	–8.0	–9.7	–7.4	–6.6	–5.8	–4.2
Oman	15.4	5.9	8.3	–1.3	10.0	15.3	11.6	9.7	7.8	2.5	–2.1
Pakistan	–3.6	–4.5	–8.1	–5.5	–2.2	0.1	–2.1	–1.0	–0.9	–1.0	–0.8
Qatar	15.5	14.4	23.1	6.5	19.0	30.3	32.4	29.2	25.4	20.5	6.5
Saudi Arabia	26.3	22.5	25.5	4.9	12.7	23.7	22.4	17.4	15.8	13.3	9.9
Sudan[4]	–8.8	–6.0	–1.6	–9.6	–2.1	–0.4	–10.4	–10.6	–8.2	–7.1	–3.1
Syria[5]	1.4	–0.2	–1.3	–2.9	–2.8	. . .	. . .	. . .	. . .	. . .	. . .
Tunisia	–1.8	–2.4	–3.8	–2.8	–4.7	–7.4	–8.2	–8.4	–6.7	–5.7	–3.7
United Arab Emirates	16.3	6.9	7.1	3.1	2.5	14.6	17.3	14.9	13.3	12.4	6.9
Yemen	1.1	–7.0	–4.6	–10.1	–3.4	–4.0	–1.3	–2.7	–1.5	–2.7	–4.4

Table A12. Emerging Market and Developing Economies: Balance on Current Account *(concluded)*

(Percent of GDP)

	2006	2007	2008	2009	2010	2011	2012	2013	Projections 2014	2015	2019
Sub-Saharan Africa	**4.1**	**1.4**	**–0.2**	**–3.2**	**–1.0**	**–1.0**	**–2.7**	**–3.6**	**–3.6**	**–3.9**	**–3.6**
Angola	25.6	19.9	10.3	–9.9	8.1	12.6	9.2	5.0	2.2	–0.4	–1.0
Benin	–4.9	–10.2	–8.1	–8.9	–8.7	–7.8	–7.9	–14.5	–9.2	–7.2	–6.8
Botswana	19.2	15.1	0.4	–10.2	–5.4	–0.2	–4.9	–0.4	0.4	0.2	–3.7
Burkina Faso	–9.5	–8.3	–11.5	–4.7	–2.2	–1.2	–0.8	–7.2	–7.3	–8.4	–7.8
Burundi	–21.5	–5.4	–1.0	1.7	–12.2	–13.6	–17.3	–23.2	–21.5	–21.3	–16.8
Cabo Verde	–4.8	–12.9	–13.7	–14.6	–12.4	–16.3	–11.2	–1.9	–10.0	–10.1	–6.2
Cameroon	1.6	1.4	–1.2	–3.3	–3.0	–2.9	–4.0	–4.4	–3.5	–3.6	–4.2
Central African Republic	–3.0	–6.2	–10.0	–9.2	–10.2	–7.6	–5.6	–10.4	–13.9	–13.4	–11.9
Chad	4.6	8.2	3.7	–9.2	–9.0	–5.6	–8.3	–8.1	–6.0	–6.4	–6.2
Comoros	–6.0	–5.8	–12.1	–7.8	–5.7	–9.4	–3.8	–6.1	–11.5	–11.1	–8.6
Democratic Republic of the Congo	–2.3	–0.7	–10.6	–7.8	–4.9	–5.9	–8.0	–9.9	–7.9	–7.2	–6.2
Republic of Congo	2.8	–6.5	–0.5	–6.0	3.8	5.8	–1.3	–1.2	2.0	0.1	–0.2
Côte d'Ivoire	2.8	–0.2	2.3	7.6	2.5	12.9	–1.3	–1.2	–2.2	–2.0	–4.5
Equatorial Guinea	16.9	15.9	12.2	–7.5	–9.6	–0.6	–4.6	–12.0	–10.2	–10.9	–11.1
Eritrea	–3.6	–6.1	–5.5	–7.6	–5.6	0.6	2.3	0.3	0.2	–1.2	–2.9
Ethiopia	–9.2	–4.5	–5.7	–5.1	–4.1	–0.7	–6.5	–6.1	–5.4	–6.0	–4.4
Gabon	14.1	15.3	23.4	7.5	8.7	13.2	14.0	10.6	6.9	4.5	0.5
The Gambia	–6.9	–8.3	–12.3	–12.3	–16.0	–15.6	–17.0	–17.0	–14.3	–14.9	–14.9
Ghana	–8.2	–8.7	–11.9	–5.4	–8.6	–9.1	–12.2	–13.2	–10.6	–7.8	–6.7
Guinea	–4.6	–11.6	–10.6	–8.6	–11.5	–20.5	–33.0	–20.1	–18.0	–48.1	–23.3
Guinea-Bissau	–5.6	–3.4	–4.9	–6.6	–8.6	–1.2	–6.5	–8.7	–4.6	–4.4	–1.7
Kenya	–2.3	–4.0	–6.5	–5.5	–7.3	–11.2	–10.4	–8.3	–9.6	–7.8	–5.6
Lesotho	26.3	24.6	23.4	8.9	–4.7	–8.6	–4.2	–1.3	–0.8	–5.4	–11.5
Liberia	–18.2	–12.1	–54.8	–28.5	–37.4	–34.0	–31.9	–31.4	–48.3	–30.7	–20.7
Madagascar	–3.8	–8.9	–17.8	–19.5	–8.8	–5.6	–6.2	–4.6	–1.9	–2.2	–0.5
Malawi	–11.3	1.0	–9.7	–4.8	–1.3	–5.8	–4.0	–3.4	–2.2	–2.2	–0.9
Mali	–3.7	–6.3	–12.2	–7.3	–12.6	–6.0	–3.3	–3.3	–6.7	–5.7	–5.6
Mauritius	–9.1	–5.4	–10.1	–7.4	–10.3	–13.3	–7.9	–9.1	–8.7	–8.4	–5.6
Mozambique	–8.6	–10.9	–12.9	–12.2	–11.7	–24.4	–45.6	–41.9	–42.8	–43.2	–37.1
Namibia	13.8	9.1	2.8	–1.1	–1.8	–3.5	–2.6	–4.6	–5.1	–6.9	5.6
Niger	–8.6	–8.2	–12.9	–24.4	–19.8	–22.3	–15.4	–17.2	–21.8	–17.7	–11.7
Nigeria	25.3	16.5	14.0	8.2	5.8	3.5	7.7	4.7	4.9	4.0	2.5
Rwanda	–4.3	–2.2	–4.9	–7.3	–5.4	–7.2	–11.4	–7.3	–11.5	–10.3	–6.5
São Tomé and Príncipe	–34.5	–31.9	–35.0	–23.7	–23.0	–26.6	–20.5	–20.3	–15.3	–13.9	–9.6
Senegal	–9.2	–11.6	–14.1	–6.7	–4.4	–7.9	–10.3	–9.3	–7.5	–6.6	–6.2
Seychelles	–16.1	–18.8	–27.2	–22.4	–22.3	–26.6	–24.8	–17.7	–14.5	–13.2	–9.0
Sierra Leone	–4.2	–4.2	–8.9	–6.3	–19.7	–44.9	–36.7	–14.2	–9.4	–7.6	–7.1
South Africa	–5.3	–7.0	–7.2	–4.0	–2.0	–2.3	–5.2	–5.8	–5.4	–5.3	–4.5
South Sudan	. . .	. . .	. . .	. . .	. . .	18.4	–27.7	2.2	–2.3	2.2	–2.3
Swaziland	–6.7	–2.1	–7.7	–13.1	–10.0	–8.6	4.1	5.5	1.9	–1.2	–3.5
Tanzania	–9.6	–11.0	–10.2	–9.8	–9.3	–14.5	–15.9	–14.3	–13.9	–12.9	–10.7
Togo	–8.4	–8.7	–6.8	–6.6	–6.3	–9.1	–11.8	–12.0	–10.9	–9.8	–6.9
Uganda	–4.2	–5.5	–8.7	–7.3	–11.1	–12.5	–10.5	–11.7	–12.6	–12.1	–10.2
Zambia	–0.4	–6.5	–7.1	4.6	7.4	3.7	3.8	1.2	0.9	1.1	1.9
Zimbabwe[6]	–6.5	–5.4	–16.7	–39.6	–20.3	–28.8	–20.1	–19.7	–18.3	–17.1	–14.3

[1]Georgia, 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.
[2]Projections for Ukraine are excluded due to the ongoing crisis.
[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 due to the uncertain political situation.
[6]The Zimbabwe 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. Emerging Market and Developing Economies: Net Financial Flows[1]

(Billions of U.S. dollars)

	Average									Projections	
	2003–05	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Emerging Market and Developing Economies											
Private Financial Flows, Net	253.1	321.3	714.5	182.6	263.8	557.8	479.6	228.7	419.9	362.1	385.2
Private Direct Investment, Net	208.6	301.6	442.9	468.8	332.2	409.9	520.1	471.4	475.6	439.6	447.4
Private Portfolio Flows, Net	44.5	–37.2	108.2	–81.6	57.6	193.4	86.8	234.8	186.5	162.9	164.6
Other Private Financial Flows, Net	0.0	56.9	163.4	–204.5	–126.0	–45.5	–127.4	–477.6	–242.1	–240.3	–226.7
Official Financial Flows, Net[2]	–76.1	–177.2	–58.8	–79.2	166.7	98.1	–10.6	10.3	–45.3	–76.2	–15.0
Change in Reserves[3]	–392.6	–721.8	–1,186.6	–654.9	–496.1	–816.3	–720.9	–404.2	–509.3	–550.0	–525.2
Memorandum											
Current Account[4]	255.2	632.1	604.4	674.4	248.8	325.3	414.0	368.4	210.0	239.1	175.0
Commonwealth of Independent States[5]											
Private Financial Flows, Net	18.6	51.2	129.3	–98.0	–62.7	–25.4	–63.3	–41.4	–43.7	–60.5	–29.1
Private Direct Investment, Net	9.9	21.1	28.0	49.7	15.7	9.7	13.5	17.1	11.8	13.5	19.4
Private Portfolio Flows, Net	3.5	4.8	18.8	–31.3	–8.8	8.7	–27.5	–4.9	5.1	5.0	9.7
Other Private Financial Flows, Net	5.1	25.3	82.5	–116.3	–69.6	–43.8	–49.2	–53.7	–60.6	–79.0	–58.1
Official Flows, Net[2]	–13.3	–25.1	–5.7	–19.0	41.6	1.3	–17.9	1.9	–2.2	–6.6	–7.0
Change in Reserves[3]	–54.9	–127.5	–167.7	26.7	–7.2	–52.1	–23.9	–29.9	31.7	17.6	–2.4
Emerging and Developing Asia											
Private Financial Flows, Net	119.3	90.1	204.4	35.7	208.2	389.4	370.8	116.3	314.8	289.4	220.6
Private Direct Investment, Net	82.6	127.2	174.2	153.8	116.9	222.8	288.8	238.4	226.4	199.6	171.5
Private Portfolio Flows, Net	24.8	–53.4	52.2	–0.4	48.5	82.0	56.7	109.0	64.8	88.9	79.5
Other Private Financial Flows, Net	11.9	16.3	–21.9	–117.6	42.8	84.6	25.2	–231.1	23.6	0.9	–30.3
Official Flows, Net[2]	–8.3	7.1	7.2	–4.1	31.8	31.4	10.8	19.0	17.6	29.5	26.2
Change in Reserves[3]	–228.3	–368.3	–621.2	–479.6	–461.4	–570.2	–437.5	–131.8	–441.0	–490.9	–450.8
Emerging and Developing Europe											
Private Financial Flows, Net	62.4	110.6	177.0	153.7	37.2	84.6	96.5	63.9	69.3	52.9	60.3
Private Direct Investment, Net	27.0	62.5	72.5	66.8	31.0	24.8	38.4	23.9	21.1	25.3	30.8
Private Portfolio Flows, Net	13.8	0.7	–3.3	–10.8	8.5	27.2	34.3	46.3	28.0	24.8	23.4
Other Private Financial Flows, Net	21.5	47.3	107.8	97.7	–2.3	32.7	23.8	–6.4	20.1	2.8	6.1
Official Flows, Net[2]	5.2	4.5	–6.4	19.5	45.4	33.7	22.1	16.2	–9.8	–1.2	1.0
Change in Reserves[3]	–22.1	–28.8	–34.6	–8.3	–32.7	–35.8	–13.8	–22.7	–3.8	–2.4	–4.2
Latin America and the Caribbean											
Private Financial Flows, Net	22.9	46.9	116.5	72.5	34.3	117.7	176.3	123.4	137.9	128.6	147.0
Private Direct Investment, Net	49.6	33.8	94.9	100.9	70.0	80.5	126.8	129.0	154.7	142.5	152.4
Private Portfolio Flows, Net	–8.3	8.2	45.8	–13.2	29.2	65.7	54.1	34.1	53.0	18.4	22.0
Other Private Financial Flows, Net	–18.4	4.9	–24.2	–15.2	–64.8	–28.5	–4.6	–39.7	–69.8	–32.3	–27.4
Official Flows, Net[2]	–8.7	–44.9	–0.9	3.5	44.7	48.1	24.7	62.7	47.9	32.6	38.0
Change in Reserves[3]	–1.0	–10.0	–98.1	10.3	–26.3	–64.9	–81.1	–29.3	9.0	6.8	4.3
Middle East, North Africa, Afghanistan, and Pakistan											
Private Financial Flows, Net	19.0	15.5	72.5	4.2	30.6	9.6	–101.3	–48.0	–72.9	–75.0	–57.5
Private Direct Investment, Net	25.1	48.5	51.1	61.5	66.1	49.9	20.3	31.1	26.1	20.5	26.0
Private Portfolio Flows, Net	10.7	–3.5	–5.5	1.9	–16.8	10.6	–22.3	40.2	36.2	24.6	29.5
Other Private Financial Flows, Net	–16.8	–29.5	26.9	–59.3	–18.7	–51.0	–99.4	–119.3	–135.1	–120.1	–113.0
Official Flows, Net[2]	–50.0	–84.9	–61.6	–89.7	–16.1	–49.7	–79.1	–124.5	–125.7	–158.6	–97.8
Change in Reserves[3]	–72.3	–156.3	–236.6	–187.0	23.4	–92.7	–141.1	–171.2	–99.3	–75.5	–62.9
Sub-Saharan Africa											
Private Financial Flows, Net	10.9	7.0	14.7	14.5	16.1	–18.1	0.6	14.6	14.5	26.6	43.9
Private Direct Investment, Net	14.3	8.5	22.1	36.2	32.5	22.3	32.2	31.9	35.5	38.2	47.3
Private Portfolio Flows, Net	0.0	6.0	0.2	–27.8	–3.0	–0.9	–8.4	10.1	–0.7	1.2	0.6
Other Private Financial Flows, Net	–3.4	–7.4	–7.6	6.1	–13.4	–39.5	–23.2	–27.4	–20.3	–12.8	–4.0
Official Flows, Net[2]	–1.1	–33.9	8.6	10.6	19.4	33.1	28.8	35.0	26.9	28.1	24.6
Change in Reserves[3]	–13.9	–30.9	–28.2	–16.9	8.1	–0.7	–23.6	–19.3	–5.9	–5.7	–9.3
Memorandum											
Fuel Exporting Countries											
Private Financial Flows, Net	19.3	19.8	120.0	–189.3	–98.9	–95.6	–227.7	–158.0	–217.5	–210.2	–149.0
Other Countries											
Private Financial Flows, Net	233.8	301.5	594.5	371.9	362.7	653.5	707.3	386.7	637.4	572.4	534.2

[1]Net financial flows comprise net direct investment, net portfolio investment, other net official and private financial flows, and changes in reserves.
[2]Excludes grants and includes transactions in external assets and liabilities of official agencies.
[3]A minus sign indicates an increase.
[4]The sum of the current account balance, net private financial flows, net official flows, and the change in reserves equals, with the opposite sign, the sum of the capital account and errors and omissions.
[5]Georgia, 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 A14. Emerging Market and Developing Economies: Private Financial Flows[1]

(Billions of U.S. dollars)

	Average									Projections	
	2003–05	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Emerging Market and Developing Economies											
Private Financial Flows, Net	253.1	321.3	714.5	182.6	263.8	557.8	479.6	228.7	419.9	362.1	385.2
Assets	–226.3	–618.5	–821.6	–579.0	–302.6	–645.5	–709.8	–805.0	–665.1	–669.7	–741.6
Liabilities	478.1	940.4	1,536.9	768.6	567.4	1,200.9	1,189.4	1,029.0	1,078.7	1,029.7	1,124.5
Commonwealth of Independent States[2]											
Private Financial Flows, Net	18.6	51.2	129.3	–98.0	–62.7	–25.4	–63.3	–41.4	–43.7	–60.5	–29.1
Assets	–52.5	–100.4	–161.4	–264.9	–74.9	–104.9	–164.7	–161.1	–164.6	–173.0	–168.8
Liabilities	71.0	151.6	290.7	167.0	12.2	79.3	101.3	119.6	120.8	112.6	139.8
Emerging and Developing Asia											
Private Financial Flows, Net	119.3	90.1	204.4	35.7	208.2	389.4	370.8	116.3	314.8	289.4	220.6
Assets	–54.7	–219.3	–260.4	–169.3	–96.6	–256.5	–296.1	–397.6	–257.0	–290.3	–353.5
Liabilities	172.2	304.8	459.6	209.7	301.7	640.4	661.6	505.7	565.1	576.6	572.2
Emerging and Developing Europe											
Private Financial Flows, Net	62.4	110.6	177.0	153.7	37.2	84.6	96.5	63.9	69.3	52.9	60.3
Assets	–18.1	–54.6	–39.7	–31.0	–8.9	–8.0	12.4	–2.3	13.0	–1.3	–10.3
Liabilities	80.4	164.8	215.6	183.7	46.6	92.6	84.2	66.3	56.3	54.5	71.0
Latin America and the Caribbean											
Private Financial Flows, Net	22.9	46.9	116.5	72.5	34.3	117.7	176.3	123.4	137.9	128.6	147.0
Assets	–43.1	–92.5	–109.7	–81.2	–99.8	–167.4	–115.3	–140.1	–122.1	–77.8	–76.8
Liabilities	66.6	144.8	233.4	157.3	137.3	288.4	297.6	266.8	261.4	207.5	225.6
Middle East, North Africa, Afghanistan, and Pakistan											
Private Financial Flows, Net	19.0	15.5	72.5	4.2	30.6	9.6	–101.3	–48.0	–72.9	–75.0	–57.5
Assets	–45.1	–118.7	–216.3	–14.4	–9.5	–81.6	–118.7	–83.3	–113.1	–115.0	–120.7
Liabilities	64.1	134.1	288.7	18.6	40.4	91.3	17.5	35.9	40.5	40.8	63.1
Sub-Saharan Africa											
Private Financial Flows, Net	10.9	7.0	14.7	14.5	16.1	–18.1	0.6	14.6	14.5	26.6	43.9
Assets	–12.8	–32.9	–34.0	–18.3	–13.0	–27.2	–27.3	–20.6	–21.3	–12.4	–11.4
Liabilities	23.8	40.2	48.9	32.3	29.2	8.9	27.1	34.8	34.7	37.7	52.7

[1]Private financial flows comprise direct investment, portfolio investment, and other long- and short-term investment flows.
[2]Georgia, 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 A15. Summary of Sources and Uses of World Savings

(Percent of GDP)

	Averages								Projections		
											Average
	1992–99	2000–07	2008	2009	2010	2011	2012	2013	2014	2015	2016–19
World											
Savings	22.7	23.1	24.7	22.7	23.9	24.7	24.8	25.0	25.5	25.6	26.2
Investment	23.3	23.1	24.5	22.4	23.6	24.1	24.4	24.5	24.8	25.1	25.9
Advanced Economies											
Savings	22.5	21.3	20.6	18.3	19.2	19.7	19.6	19.9	20.4	20.6	21.3
Investment	22.8	22.1	22.0	18.7	19.5	19.9	19.9	19.7	20.0	20.3	21.0
Net Lending	–0.3	–0.8	–1.4	–0.5	–0.4	–0.1	–0.2	0.3	0.4	0.3	0.3
Current Transfers	–0.5	–0.6	–0.8	–0.8	–0.9	–0.8	–0.8	–0.9	–0.9	–0.9	–0.9
Factor Income	–0.3	0.5	0.3	0.4	0.6	1.1	0.9	0.9	0.9	0.8	0.7
Resource Balance	0.5	–0.6	–0.8	0.1	0.0	–0.2	–0.2	0.3	0.5	0.6	0.6
United States											
Savings	19.1	18.4	15.5	14.4	15.1	15.8	16.3	17.2	17.6	17.9	18.9
Investment	21.6	22.5	20.8	17.5	18.4	18.4	19.0	19.5	19.9	20.5	21.7
Net Lending	–2.5	–4.1	–5.3	–3.1	–3.3	–2.6	–2.7	–2.3	–2.2	–2.6	–2.8
Current Transfers	–0.5	–0.7	–0.9	–0.8	–0.9	–0.9	–0.8	–0.8	–0.8	–0.8	–0.8
Factor Income	–0.5	1.0	0.3	0.4	0.9	1.8	1.4	1.4	1.2	1.1	0.8
Resource Balance	–1.4	–4.5	–4.8	–2.7	–3.3	–3.6	–3.3	–2.8	–2.6	–2.7	–2.9
Euro Area[1]											
Savings	21.4	21.7	21.5	19.1	19.8	20.5	20.5	20.6	21.2	21.5	22.0
Investment	21.3	21.3	22.2	18.8	19.2	19.6	18.4	17.7	18.1	18.3	18.8
Net Lending	0.1	0.5	–0.7	0.3	0.6	0.8	2.1	2.9	3.0	3.2	3.1
Current Transfers[2]	–0.6	–0.9	–1.1	–1.2	–1.2	–1.2	–1.2	–1.3	–1.3	–1.3	–1.3
Factor Income[2]	–0.5	–0.3	–0.6	–0.1	0.3	0.4	0.4	0.5	0.5	0.4	0.3
Resource Balance[2]	1.5	1.6	1.0	1.5	1.6	1.6	2.8	3.6	3.8	4.1	4.2
Germany											
Savings	21.1	22.1	25.5	22.3	23.7	25.1	24.7	24.3	24.8	24.7	23.8
Investment	22.1	18.9	19.3	16.4	17.3	18.3	17.3	16.7	17.4	17.6	17.6
Net Lending	–1.0	3.2	6.2	5.9	6.4	6.8	7.4	7.5	7.3	7.1	6.2
Current Transfers	–1.5	–1.3	–1.3	–1.4	–1.5	–1.3	–1.4	–1.5	–1.5	–1.5	–1.5
Factor Income	0.0	0.4	1.3	2.5	2.2	2.7	2.9	2.8	2.8	2.8	2.8
Resource Balance	0.5	4.1	6.2	4.8	5.7	5.4	6.0	6.2	6.1	5.8	4.9
France											
Savings	19.3	20.3	20.2	17.6	18.0	19.0	17.6	17.7	18.4	19.1	20.4
Investment	17.8	19.8	21.9	18.9	19.3	20.8	19.8	19.4	19.7	19.8	20.1
Net Lending	1.5	0.5	–1.7	–1.3	–1.3	–1.8	–2.2	–1.6	–1.3	–0.7	0.3
Current Transfers	–0.7	–1.1	–1.3	–1.8	–1.6	–1.8	–1.8	–2.0	–2.0	–2.0	–2.0
Factor Income	0.0	1.3	1.7	1.7	2.0	2.3	1.5	1.7	2.0	2.0	2.0
Resource Balance	2.2	0.3	–2.2	–1.3	–1.7	–2.3	–1.9	–1.4	–1.4	–0.7	0.2
Italy											
Savings	21.2	20.6	18.8	16.9	16.5	16.7	17.6	17.8	19.0	19.2	19.5
Investment	20.0	21.2	21.6	18.9	20.1	19.8	18.0	17.1	17.9	18.1	19.3
Net Lending	1.2	–0.6	–2.9	–2.0	–3.5	–3.1	–0.4	0.8	1.1	1.1	0.2
Current Transfers	–0.5	–0.7	–0.9	–0.8	–1.0	–1.0	–1.0	–1.0	–1.1	–1.2	–1.2
Factor Income	–1.4	–0.4	–1.2	–0.7	–0.5	–0.6	–0.5	–0.7	–0.7	–0.8	–1.2
Resource Balance	3.1	0.4	–0.7	–0.5	–1.9	–1.5	1.1	2.5	2.9	3.2	2.6
Japan											
Savings	30.4	26.4	26.3	22.6	23.5	22.2	21.8	21.7	22.8	22.8	23.2
Investment	27.9	23.1	23.0	19.7	19.8	20.2	20.8	21.0	21.6	21.5	21.8
Net Lending	2.4	3.3	3.3	2.9	3.7	2.0	1.0	0.7	1.2	1.3	1.4
Current Transfers	–0.2	–0.2	–0.3	–0.2	–0.2	–0.2	–0.2	–0.2	–0.2	–0.2	–0.2
Factor Income	1.0	2.0	3.2	2.7	2.6	3.0	3.0	3.5	3.6	3.4	3.4
Resource Balance	1.6	1.5	0.4	0.5	1.4	–0.7	–1.8	–2.6	–2.2	–1.9	–1.9
United Kingdom											
Savings	16.2	15.3	16.1	12.7	12.3	13.5	10.9	11.0	12.2	13.1	15.4
Investment	17.2	17.5	17.1	14.1	15.0	14.9	14.7	14.4	14.9	15.3	16.5
Net Lending	–1.0	–2.2	–0.9	–1.4	–2.7	–1.5	–3.7	–3.3	–2.7	–2.2	–1.1
Current Transfers	–0.8	–0.8	–0.9	–1.1	–1.4	–1.4	–1.5	–1.5	–1.4	–1.4	–1.4
Factor Income	–0.1	1.1	2.2	1.3	0.9	1.5	–0.1	–0.3	–0.1	0.2	0.8
Resource Balance	–0.1	–2.5	–2.2	–1.6	–2.2	–1.5	–2.1	–1.6	–1.3	–1.1	–0.5

Table A15. Summary of Sources and Uses of World Savings *(continued)*

(Percent of GDP)

	Averages								Projections		
	1992–99	2000–07	2008	2009	2010	2011	2012	2013	2014	2015	Average 2016–19
Canada											
Savings	17.8	23.4	24.1	18.9	19.8	21.1	21.2	21.1	21.6	21.8	22.3
Investment	19.8	21.7	24.0	21.8	23.3	23.8	24.7	24.4	24.3	24.3	24.6
Net Lending	–2.0	1.7	0.1	–2.9	–3.5	–2.8	–3.4	–3.2	–2.6	–2.5	–2.3
Current Transfers	–0.1	0.0	0.0	–0.2	–0.2	–0.2	–0.2	–0.2	–0.2	–0.2	–0.2
Factor Income	–3.9	–2.3	–1.6	–1.3	–1.4	–1.3	–1.2	–1.4	–1.3	–1.4	–1.7
Resource Balance	1.9	4.1	1.7	–1.5	–1.9	–1.2	–2.0	–1.7	–1.2	–1.0	–0.5
Emerging Market and Developing Economies											
Savings	23.7	28.8	33.7	32.2	32.9	33.4	33.4	32.9	33.4	33.3	33.4
Investment	25.3	26.2	30.0	30.7	31.4	31.7	32.0	32.2	32.6	32.8	33.1
Net Lending	–1.6	2.7	3.6	1.6	1.6	1.7	1.4	0.8	0.9	0.6	0.4
Current Transfers	0.8	1.5	1.4	1.3	1.2	1.1	0.9	0.8	0.9	0.8	0.8
Factor Income	–1.6	–1.8	–1.4	–1.4	–1.7	–1.9	–1.8	–1.8	–1.7	–1.6	–1.4
Resource Balance	–0.8	3.0	3.6	1.6	2.1	2.6	2.3	1.8	1.7	1.4	1.0
Memorandum											
Acquisition of Foreign Assets	2.2	7.0	6.4	4.6	6.9	5.9	4.9	4.2	3.9	3.7	3.2
Change in Reserves	0.9	3.7	3.4	2.7	3.7	2.8	1.5	1.8	1.9	1.7	1.4
Regional Groups											
Commonwealth of Independent States[3]											
Savings	25.5	29.7	30.0	22.0	26.1	28.5	25.9	24.7	26.6	26.6	26.5
Investment	25.1	22.0	25.2	19.2	22.5	24.1	23.3	23.9	24.7	25.2	25.6
Net Lending	0.5	7.6	4.9	2.8	3.6	4.4	2.6	0.8	2.0	1.5	1.0
Current Transfers	0.7	0.4	0.2	0.2	0.2	0.2	0.1	0.0	0.0	0.2	0.3
Factor Income	–2.4	–2.7	–3.3	–3.6	–3.6	–3.9	–3.9	–3.9	–3.7	–3.4	–2.4
Resource Balance	2.1	9.9	8.1	6.0	6.9	8.1	6.4	4.7	5.6	4.8	3.1
Memorandum											
Acquisition of Foreign Assets	2.7	12.3	10.0	1.6	5.8	5.9	4.9	2.6	3.4	4.0	3.7
Change in Reserves	0.2	6.6	–1.2	0.4	2.6	1.0	1.1	–1.1	–0.7	0.1	0.2
Emerging and Developing Europe											
Savings	32.7	37.7	44.6	45.3	44.7	43.3	43.8	43.8	43.9	43.8	43.4
Investment	33.4	34.3	38.6	41.8	42.1	42.3	43.0	42.7	42.7	42.4	42.0
Net Lending	–0.6	3.3	5.9	3.5	2.5	0.9	0.8	1.0	1.2	1.3	1.4
Current Transfers	1.0	1.8	1.8	1.6	1.5	1.3	1.1	0.9	0.9	0.9	0.8
Factor Income	–1.4	–1.2	–0.2	–0.6	–0.9	–1.2	–1.1	–1.1	–1.1	–1.1	–1.2
Resource Balance	–0.2	2.8	4.3	2.5	2.0	0.8	0.8	1.2	1.3	1.6	1.8
Memorandum											
Acquisition of Foreign Assets	3.8	7.5	7.5	6.9	8.7	6.1	4.4	4.8	4.7	4.4	3.8
Change in Reserves	1.8	5.6	6.6	5.9	6.0	3.9	1.1	3.3	3.4	2.9	2.3
Emerging and Developing Europe											
Savings	19.3	16.6	16.7	15.7	15.7	16.5	16.2	16.4	16.5	16.5	16.4
Investment	21.6	21.4	24.9	18.9	20.6	22.8	20.6	20.3	20.0	20.2	20.4
Net Lending	–2.3	–4.7	–8.1	–3.2	–4.9	–6.4	–4.5	–3.9	–3.5	–3.7	–4.0
Current Transfers	1.8	1.9	1.4	1.6	1.5	1.6	1.5	1.5	1.6	1.6	1.4
Factor Income	–1.1	–1.9	–2.4	–2.5	–2.5	–2.8	–2.7	–2.8	–2.9	–3.0	–3.2
Resource Balance	–3.1	–4.8	–7.3	–2.5	–4.0	–5.2	–3.4	–2.8	–2.3	–2.4	–2.3
Memorandum											
Acquisition of Foreign Assets	1.3	3.5	2.1	2.1	2.7	–0.4	0.6	0.2	–0.3	0.1	–0.1
Change in Reserves	1.2	1.7	0.4	2.1	2.1	0.7	1.3	0.2	0.1	0.2	0.3

Table A15. Summary of Sources and Uses of World Savings *(continued)*

(Percent of GDP)

	Averages								Projections		
											Average
	1992–99	2000–07	2008	2009	2010	2011	2012	2013	2014	2015	2016–19
Latin America and the Caribbean											
Savings	18.4	20.0	22.0	19.7	20.0	20.0	19.2	18.5	18.3	18.3	18.8
Investment	21.5	20.3	23.1	20.4	21.4	21.7	21.3	21.3	21.1	21.2	21.7
Net Lending	–3.2	–0.3	–1.1	–0.7	–1.4	–1.7	–2.1	–2.8	–2.8	–2.9	–2.9
Current Transfers	0.9	1.7	1.6	1.4	1.2	1.1	1.1	1.1	1.2	1.1	1.1
Factor Income	–2.7	–3.1	–2.8	–2.6	–2.6	–2.9	–2.7	–2.8	–2.8	–2.8	–2.7
Resource Balance	–1.3	1.1	0.1	0.4	0.0	0.1	–0.5	–1.1	–1.2	–1.3	–1.3
Memorandum											
Acquisition of Foreign Assets	1.4	3.1	2.2	3.5	5.0	4.1	3.3	2.3	1.0	1.1	1.0
Change in Reserves	0.2	0.1	–0.2	0.6	1.3	1.4	0.5	–0.2	–0.1	–0.1	0.0
Middle East, North Africa, Afghanistan, and Pakistan											
Savings	23.2	33.9	42.2	32.6	36.1	40.4	38.8	35.7	34.7	32.8	31.2
Investment	22.6	23.2	28.0	29.8	28.6	26.4	25.3	25.4	26.0	26.0	26.9
Net Lending	0.5	11.0	14.2	3.6	8.0	14.5	14.2	11.3	9.7	7.5	4.8
Current Transfers	–1.0	0.1	0.0	–0.5	–0.6	–0.6	–0.6	–0.9	–0.6	–1.0	–1.0
Factor Income	2.4	1.1	1.5	1.0	0.5	0.6	0.5	0.5	0.7	1.2	2.5
Resource Balance	–0.8	9.8	12.9	2.6	7.8	14.4	13.8	10.9	9.0	7.0	3.3
Memorandum											
Acquisition of Foreign Assets	1.2	13.4	11.6	3.6	9.0	13.0	13.0	10.1	8.8	7.8	6.0
Change in Reserves	1.1	5.5	7.2	–1.0	3.4	4.4	5.1	2.9	2.1	1.7	1.2
Sub-Saharan Africa											
Savings	13.7	19.4	22.5	19.8	21.1	20.7	20.1	19.5	19.6	19.2	19.1
Investment	17.3	19.9	22.3	22.9	22.3	21.5	22.7	23.0	23.2	23.2	22.9
Net Lending	–3.6	–0.5	0.1	–3.1	–1.1	–0.8	–2.6	–3.6	–3.5	–3.9	–3.8
Current Transfers	1.8	2.9	4.5	4.6	4.1	3.8	3.7	3.9	3.9	3.6	3.4
Factor Income	–4.3	–5.0	–5.4	–3.9	–4.6	–4.7	–5.0	–4.9	–4.5	–4.2	–3.7
Resource Balance	–0.9	1.5	0.9	–3.8	–0.7	0.4	–1.4	–2.6	–2.9	–3.3	–3.5
Memorandum											
Acquisition of Foreign Assets	1.5	3.9	4.1	2.6	3.1	3.2	2.4	0.6	1.8	2.0	1.9
Change in Reserves	0.6	2.1	1.8	–0.9	0.1	1.9	1.5	0.4	0.4	0.6	0.6
Analytical Groups											
By Source of Export Earnings											
Fuel Exporters											
Savings	24.6	34.9	39.5	30.5	34.0	37.6	35.9	33.2	32.7	31.6	30.1
Investment	23.5	23.3	26.1	26.0	26.2	25.5	25.0	25.4	25.6	25.8	26.2
Net Lending	1.2	11.7	13.4	4.9	8.0	12.2	11.1	8.3	7.5	6.2	4.1
Current Transfers	–2.1	–1.2	–0.7	–1.0	–1.1	–1.0	–1.2	–1.4	–1.4	–1.4	–1.4
Factor Income	0.7	–1.1	–1.5	–1.4	–1.9	–2.1	–2.3	–2.3	–1.9	–1.5	0.0
Resource Balance	2.7	14.0	15.6	6.9	10.7	15.4	14.3	11.6	10.5	8.8	5.5
Memorandum											
Acquisition of Foreign Assets	1.9	14.2	12.5	3.0	7.9	11.3	10.8	7.7	7.2	6.8	5.3
Change in Reserves	–0.5	4.7	2.5	–2.1	1.9	2.9	3.7	1.0	0.5	0.6	0.3
Nonfuel Exporters											
Savings	23.5	27.3	31.9	32.6	32.7	32.2	32.7	32.8	33.6	33.8	34.1
Investment	25.7	26.9	31.2	31.8	32.6	33.3	33.8	33.9	34.4	34.5	34.6
Net Lending	–2.2	0.5	0.6	0.8	0.0	–1.1	–1.1	–1.1	–0.7	–0.7	–0.5
Current Transfers	1.4	2.1	2.1	2.0	1.8	1.6	1.5	1.4	1.5	1.4	1.3
Factor Income	–2.0	–2.0	–1.4	–1.5	–1.7	–1.8	–1.6	–1.7	–1.7	–1.7	–1.7
Resource Balance	–1.6	0.3	–0.1	0.2	–0.1	–0.9	–1.0	–0.8	–0.6	–0.4	–0.1
Memorandum											
Acquisition of Foreign Assets	2.2	5.1	4.5	5.1	6.7	4.4	3.3	3.2	3.0	3.0	2.7
Change in Reserves	1.2	3.4	3.7	4.0	4.2	2.8	0.9	2.0	2.2	1.9	1.6

Table A15. Summary of Sources and Uses of World Savings *(concluded)*

(Percent of GDP)

	Averages								Projections		
											Average
	1992–99	2000–07	2008	2009	2010	2011	2012	2013	2014	2015	2016–19
By External Financing Source											
Net Debtor Economies											
Savings	19.5	20.8	21.8	21.6	22.3	21.8	20.8	20.8	21.2	21.2	21.9
Investment	22.4	22.3	25.6	23.5	24.7	25.0	24.5	24.3	24.5	24.6	25.3
Net Lending	–2.9	–1.4	–3.8	–1.9	–2.5	–3.2	–3.7	–3.5	–3.3	–3.4	–3.4
Current Transfers	1.7	2.5	2.6	2.6	2.3	2.3	2.4	2.4	2.5	2.4	2.3
Factor Income	–2.2	–2.5	–2.4	–2.2	–2.4	–2.4	–2.5	–2.6	–2.7	–2.7	–2.8
Resource Balance	–2.3	–1.5	–4.0	–2.3	–2.4	–3.1	–3.6	–3.3	–3.2	–3.2	–3.0
Memorandum											
Acquisition of Foreign Assets	1.4	3.2	1.1	2.9	4.0	2.0	1.9	1.2	0.9	1.1	1.1
Change in Reserves	0.9	1.8	0.6	1.7	2.1	1.0	0.7	0.1	0.6	0.6	0.6
Official Financing											
Savings	15.8	19.4	19.2	19.5	20.6	20.8	19.7	20.0	20.7	20.6	21.9
Investment	19.7	21.2	23.2	21.5	21.7	21.3	22.0	21.8	22.6	22.9	24.9
Net Lending	–4.0	–1.9	–4.1	–2.1	–1.1	–0.5	–2.3	–1.9	–1.9	–2.3	–3.0
Current Transfers	4.0	5.5	5.4	6.0	6.4	6.6	6.9	6.6	6.6	6.7	6.6
Factor Income	–2.8	–2.9	–2.9	–2.7	–2.5	–2.2	–2.5	–2.6	–2.6	–2.6	–3.1
Resource Balance	–5.3	–4.6	–6.6	–5.5	–5.0	–5.0	–6.7	–6.0	–6.0	–6.4	–6.5
Memorandum											
Acquisition of Foreign Assets	1.1	1.9	2.1	1.7	1.7	1.0	–3.4	–1.7	0.2	0.1	0.1
Change in Reserves	1.2	1.5	2.4	2.7	1.6	0.9	–1.3	–0.4	1.2	1.1	0.9
Net Debtor Economies by Debt-Servicing Experience											
Economies with Arrears and/or Rescheduling during 2008–12											
Savings	15.4	19.0	20.8	18.3	18.9	18.6	17.0	17.1	17.8	17.2	17.6
Investment	18.8	18.9	23.8	21.3	22.4	22.4	21.4	21.3	21.8	21.8	22.1
Net Lending	–3.5	0.0	–3.0	–3.0	–3.6	–3.8	–4.4	–4.2	–4.1	–4.7	–4.5
Current Transfers	2.6	4.3	4.1	4.0	4.0	3.8	3.9	4.0	4.8	4.1	4.1
Factor Income	–2.2	–2.9	–2.6	–2.6	–3.7	–4.0	–3.2	–3.0	–2.9	–2.7	–2.4
Resource Balance	–3.9	–1.5	–4.6	–4.5	–3.9	–3.6	–5.1	–5.3	–6.0	–6.1	–6.2
Memorandum											
Acquisition of Foreign Assets	2.6	3.3	1.7	0.4	2.7	1.6	–1.1	–1.0	–0.7	0.0	0.4
Change in Reserves	1.0	1.2	0.4	0.8	1.3	–0.5	–1.6	–0.8	0.0	0.4	0.5

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. This differs from the calculations in the April 2005 and earlier issues of the *World Economic Outlook*, in which the composites were weighted by GDP valued at purchasing power parities as a share of total world GDP. For many countries, the estimates of national savings are built up from national accounts data on gross domestic investment and from balance-of-payments-based data on net foreign investment. The latter, which is equivalent to the current account balance, comprises three components: current transfers, net factor income, and the resource balance. The mixing of data sources, which is dictated by availability, implies that the estimates for national savings that are derived incorporate the statistical discrepancies. Furthermore, errors, omissions, and asymmetries in balance of payments statistics affect the estimates for net lending; at the global level, net lending, which in theory would be zero, equals the world current account discrepancy. Despite these statistical shortcomings, flow-of-funds estimates, such as those presented in these tables, provide a useful framework for analyzing developments in savings and investment, both over time and across regions and countries.

[1]Excludes Latvia.

[2]Calculated from the data of individual Euro Area countries excluding Latvia.

[3]Georgia, 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 A16. Summary of World Medium-Term Baseline Scenario

	Averages				Projections		Averages	
	1996–2003	2004–11	2012	2013	2014	2015	2012–15	2016–19
			Annual Percent Change					
World Real GDP	**3.5**	**4.0**	**3.2**	**3.0**	**3.6**	**3.9**	**3.4**	**3.9**
Advanced Economies	2.8	1.6	1.4	1.3	2.2	2.3	1.8	2.3
Emerging Market and Developing Economies	4.6	6.8	5.0	4.7	4.9	5.3	5.0	5.4
Memorandum								
Potential Output								
Major Advanced Economies	2.5	1.6	1.3	1.3	1.5	1.5	1.4	1.7
World Trade, Volume[1]	**6.1**	**5.6**	**2.8**	**3.0**	**4.3**	**5.3**	**3.9**	**5.7**
Imports								
Advanced Economies	6.1	4.0	1.1	1.4	3.5	4.5	2.6	5.3
Emerging Market and Developing Economies	6.5	9.6	5.8	5.6	5.2	6.3	5.7	6.3
Exports								
Advanced Economies	5.5	4.8	2.1	2.3	4.2	4.8	3.4	5.3
Emerging Market and Developing Economies	7.8	7.6	4.2	4.4	5.0	6.2	4.9	6.2
Terms of Trade								
Advanced Economies	0.1	–0.6	–0.7	0.7	0.0	–0.2	–0.1	0.0
Emerging Market and Developing Economies	0.5	2.1	0.6	–0.3	–0.2	–0.7	–0.1	–0.4
World Prices in U.S. Dollars								
Manufactures	–1.3	2.9	0.2	–1.1	–0.3	–0.4	–0.4	0.5
Oil	6.7	17.4	1.0	–0.9	0.1	–6.0	–1.5	–3.0
Nonfuel Primary Commodities	–2.5	11.1	–10.0	–1.2	–3.5	–3.9	–4.7	–0.6
Consumer Prices								
Advanced Economies	1.9	2.1	2.0	1.4	1.5	1.6	1.6	1.9
Emerging Market and Developing Economies	11.1	6.5	6.0	5.8	5.5	5.2	5.6	4.9
			Percent					
Interest Rates								
Real Six-Month LIBOR[2]	2.7	0.5	–1.1	–1.1	–1.1	–1.0	–1.1	1.3
World Real Long-Term Interest Rate[3]	3.0	1.5	0.1	0.8	1.0	1.5	0.9	2.3
			Percent of GDP					
Balances on Current Account								
Advanced Economies	–0.4	–0.6	–0.1	0.4	0.5	0.4	0.3	0.4
Emerging Market and Developing Economies	0.2	2.8	1.4	0.7	0.8	0.6	0.9	0.3
Total External Debt								
Emerging Market and Developing Economies	36.5	26.9	24.1	24.4	24.4	24.3	24.3	23.7
Debt Service								
Emerging Market and Developing Economies	9.5	8.9	8.3	8.6	8.5	8.5	8.5	8.5

[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, United Kingdom, and United States.

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I. Methodology—Aggregation, Modeling, and Forecasting

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