

**01/28/16**  
**SOVEREIGN**  
**WEALTH FUNDS**  
**& RULE-BASED**  
**RESOURCE**  
**MANAGEMENT**

<TARGET><BILL></BILL><SUBJECT>01-28-16 SOVEREIGN WEALTH  
FUNDS and RULE-BASED RESOURCE  
MANAGEMENT</SUBJECT><COMM>HFIN29</COMM></TARGET>

# **Managing natural resource funds: global trends and practices**

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Kennedy School of Government, Harvard University

Director, Kalytix Partners

Juneau, Alaska  
January 2016

# The growth of new SWFs

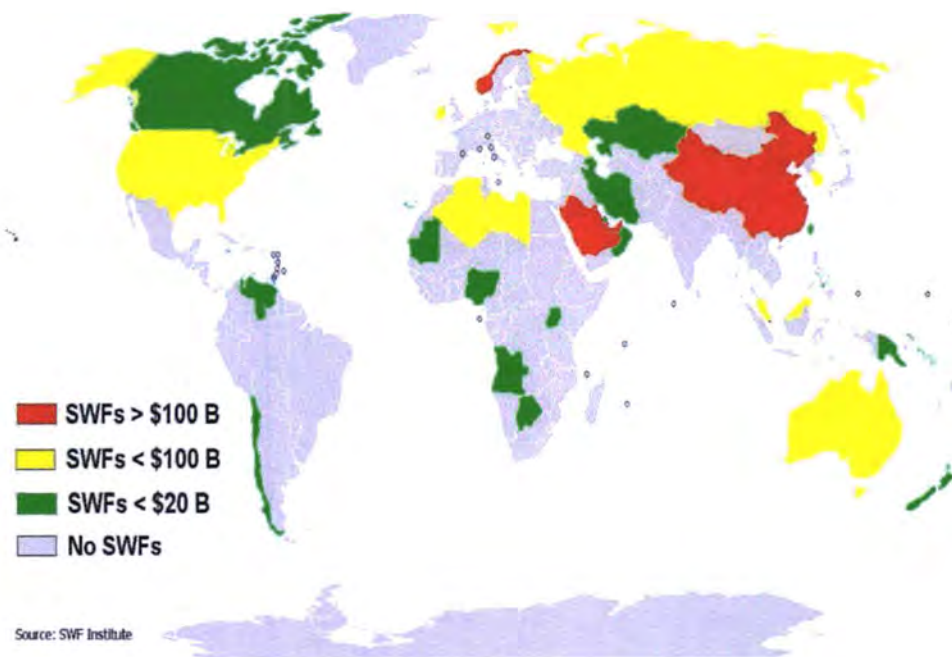
A number of very established, large funds (the “top 8”)

- Proliferation of new funds since 2000 (resource boom)

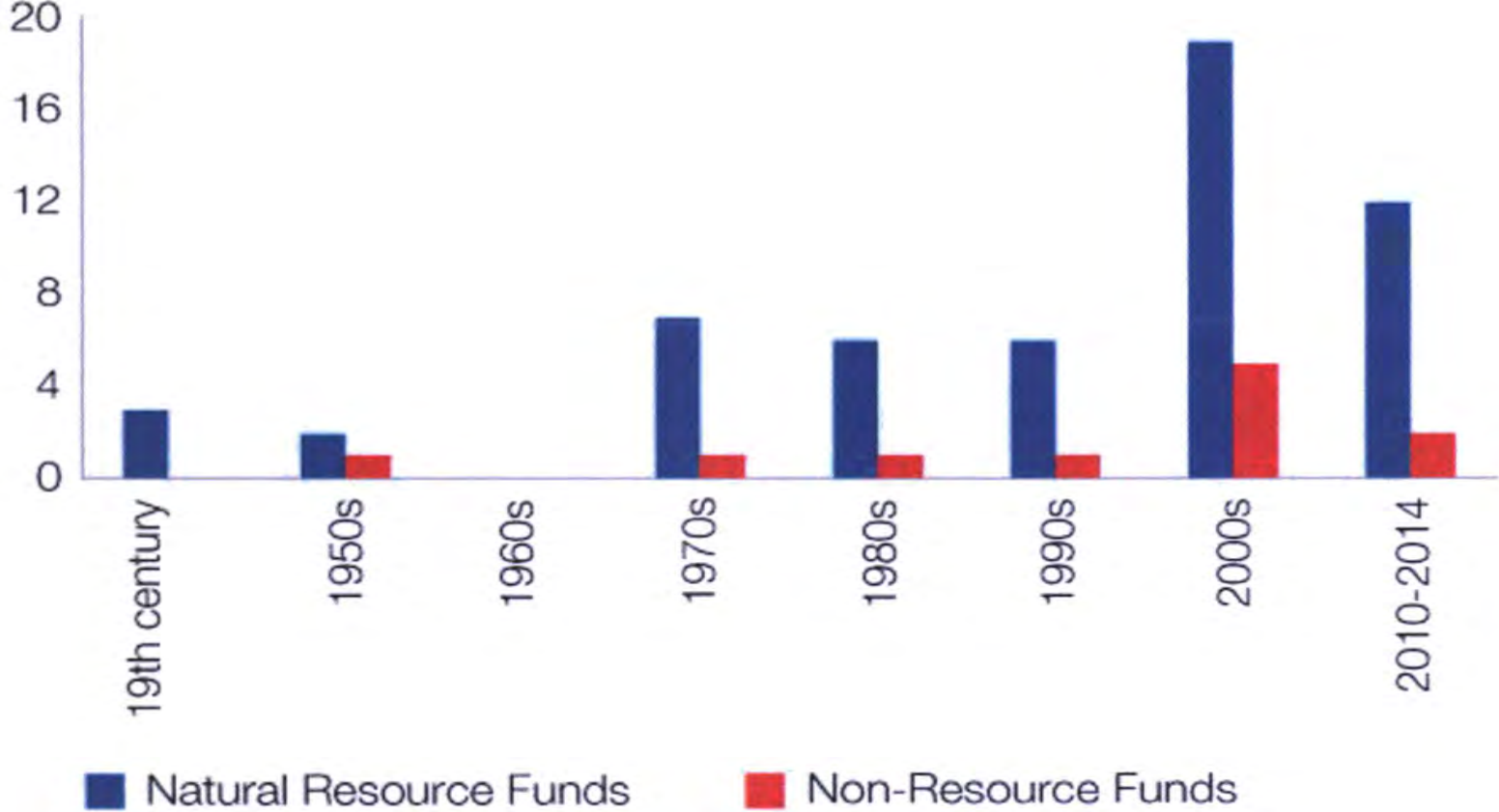
The sovereign investor universe

- Stabilization funds
- Savings funds
- Investment income funds
  - North American permanent fund model (since 1850s)

“Sovereign” includes a number of sub-national governments



# The growth of new SWFs



# Major global trends: the context

Its all about the fiscal framework

- Rules and mechanisms for funding and withdrawals
- Every single SWF in the world is going through this

We moved from SWFs 1.0 to SWFs 2.0 over the past decade

- Now moving on to SWFs 3.0

## SWFs 1.0

- Early adopters in resource-dependent jurisdictions
- Various waves of adoption in resource-dependent jurisdictions
- Very simple investment models
- Focus on saving (often a political compromise)

# Major global trends: the context

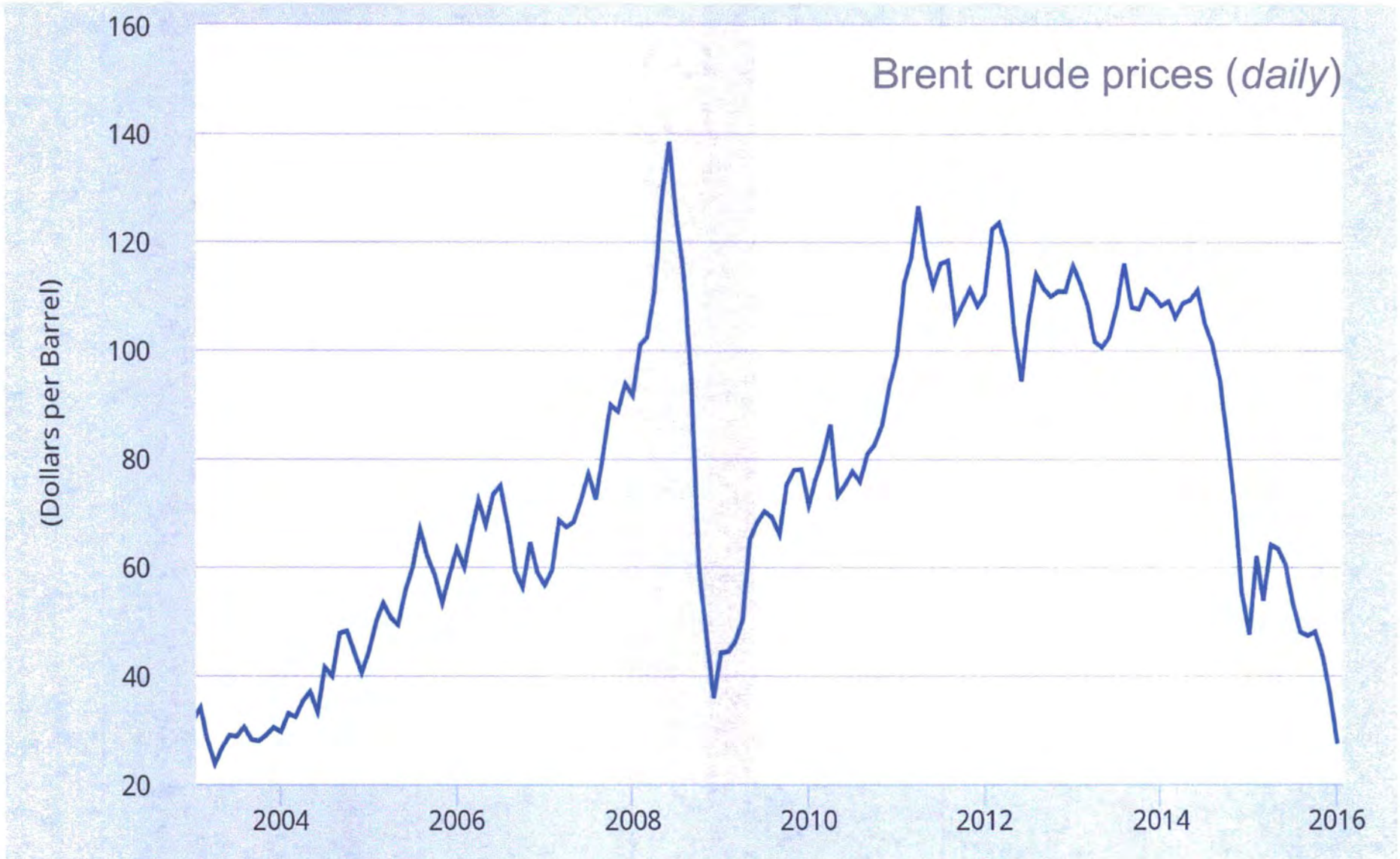
## SWFs 2.0

- Growth (in number, size and prominence from 1998-2014)
- Buoyed by rising commodity revenues (and in Asia, trade surpluses)
- Healthy financial returns

## SWF model goes mainstream

- Broad consensus on benefits of SWFs
- Creation of the International Forum of Sovereign Wealth Funds
- Reduced political pressure
- Much more analysis and research

# And then...this happened



# SWFs 3.0: Adjusting to new fiscal realities

SWFs 3.0 era underlines the importance of “cyclically robust” savings and spending mechanisms

- Old rules of thumbs are one-sided, work fine when running surpluses
- Norway, Abu Dhabi and Chile are rare exceptions

Focus for resource-based SWFs is now on:

- Avoiding depletion of assets (unless constitutionally protected)
- Decoupling saving/spending from commodity cycle

An ebbing tide reveals who has been swimming naked

- Not all SWFs are all they're cracked up to be

# SWFs 3.0: Adjusting to new fiscal realities

Are the rules appropriate for both boom and bust times?

Smarter countries are not resting on the laurels

- Group A: never saved enough (Venezuela, Nigeria)
- Group B: depleting now (Russia, Saudi Arabia)
- Group C: reforming saving and spending rules (Abu Dhabi, Kuwait, Norway, *potentially* Saudi Arabia)

Despite all the pressure, “voting with feet” for SWFs

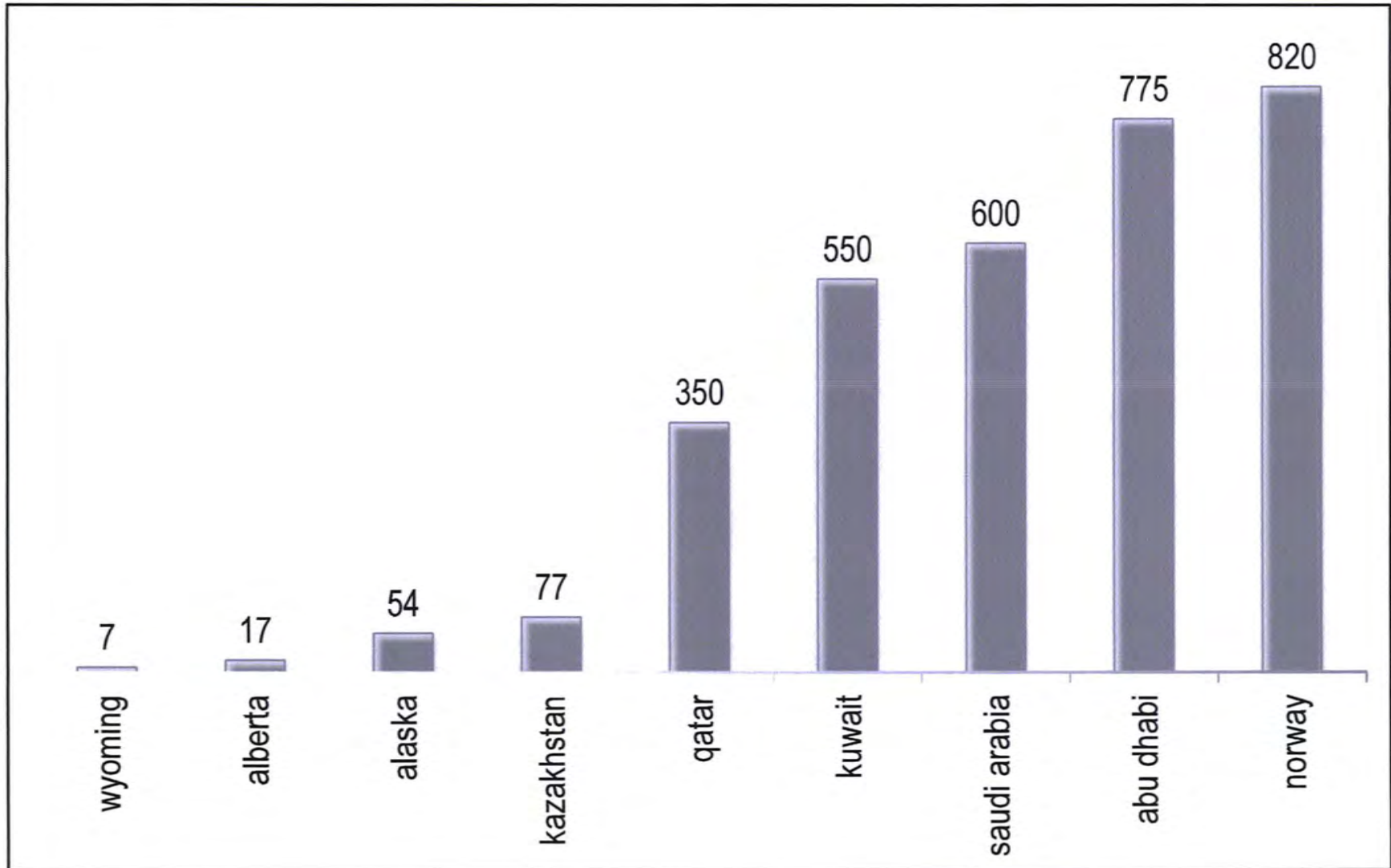


The Alaska situation:  
an outside perspective

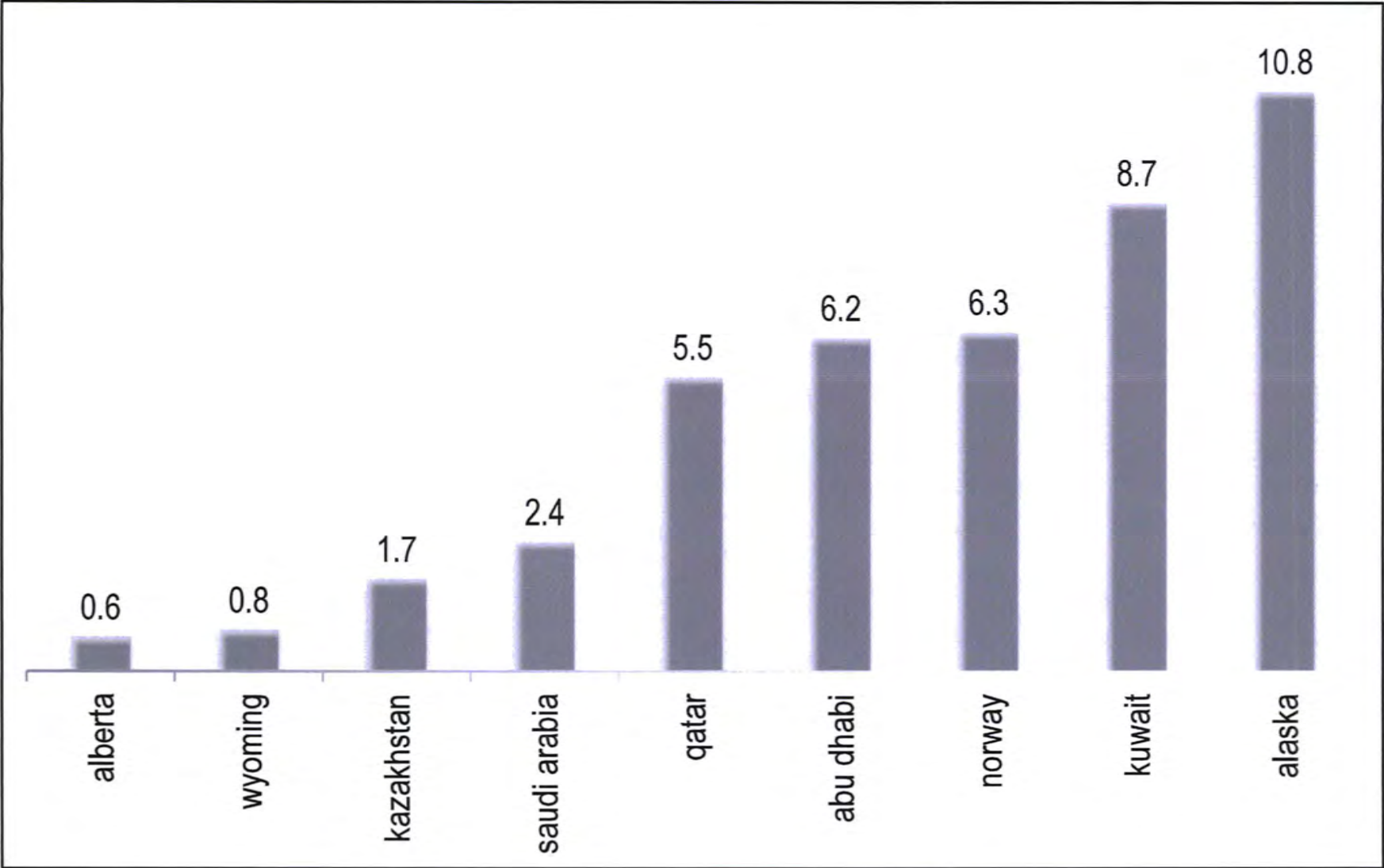
# Oil's % of revenue & fiscal break-even price



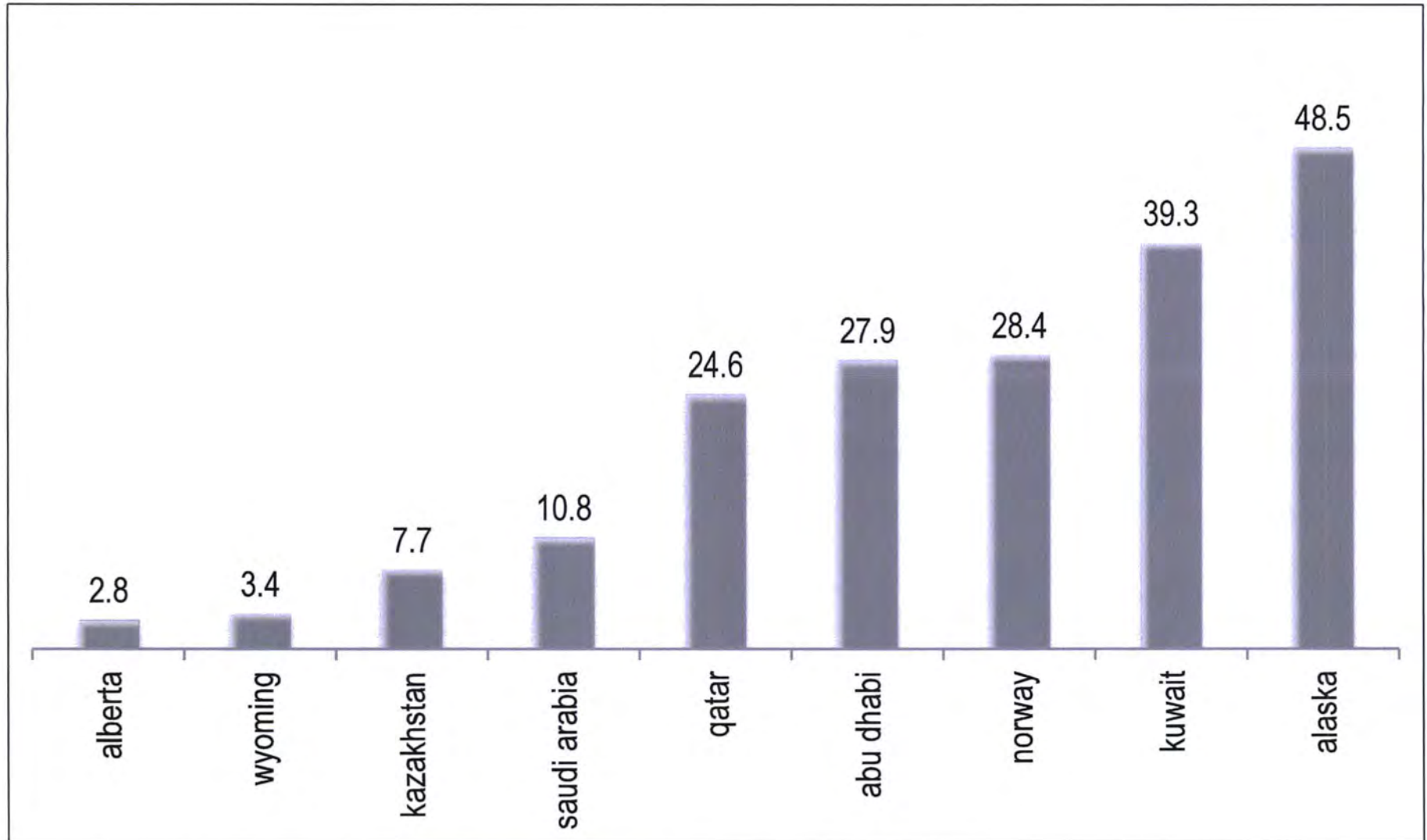
# SWF assets under management



# Size of assets relative to budget



# Notional sustainable draw as a % of budget



Note: sustainable draw assumed to be 4.5% per annum

# Alaskan strengths and weaknesses

	Like	Dislike
Size of savings	√√√	
Size of accessible buffers		XX
Fiscal dependence on oil		XXX
Existence of saving rule	√	
Appropriateness of fiscal rule		XX
Prospects for raising non-oil revenue (long term)	?	
Prospects for raising non-oil revenue (near term)		?
Long-term viability and profile (production)		XX
Fund governance structure and independence	√√√	
Fund investment style (relative to mandate)	√√	
Support for fund staffing needs		XX



## The sustainable SWF model: key aspects

# What are resource-based SWFs really about?

The most disadvantageous lottery in the world  
**Adam Smith**

## Saving

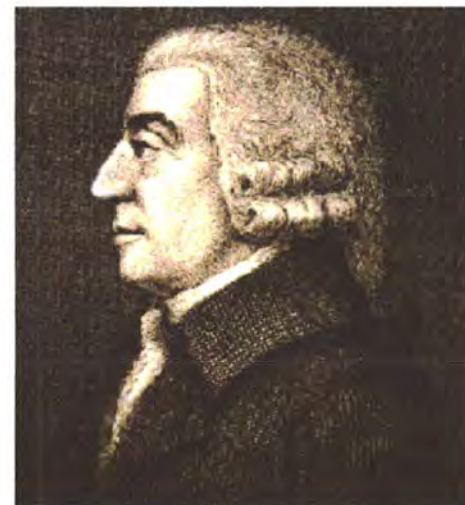
- Transforming a depleting asset & income stream
- Unmanageably large windfall

## Macroeconomic and fiscal stabilization

- Decoupling spending from commodity cycle
- Volatility moves from the budget to the funds

## Preventing waste and bad investments

- Boom-bust cycle, with “absorptive capacity” constraints
- White elephants



# Oil to equities

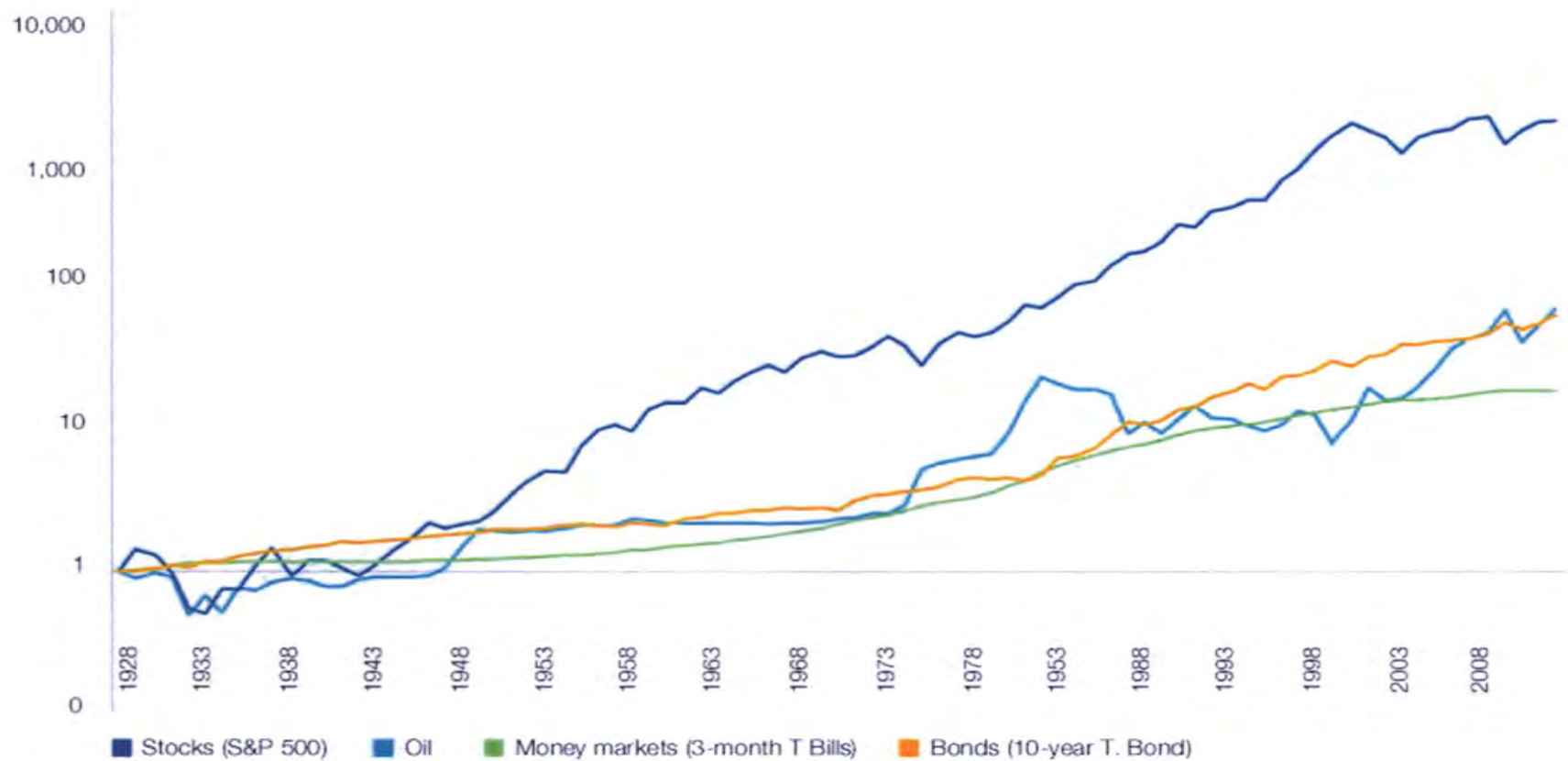
Financial assets have had much better risk-adjusted returns than oil, historically

- Oil: the risk of stocks, with the return of bonds
- Even more compelling when you think of total wealth into a portfolio

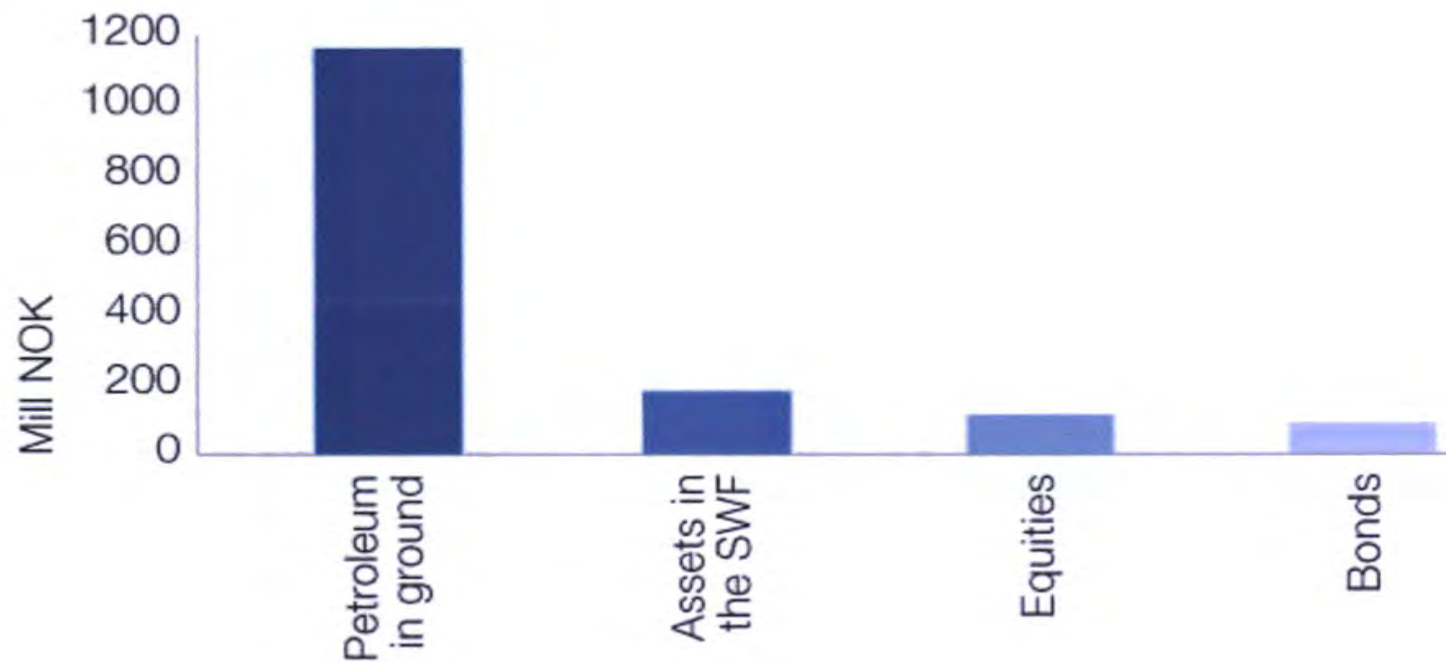
Transforming resource wealth into financial capital has (historically) been rewarded

- Despite having a \$900bn SWF, Norway still holds more wealth in subsoil assets
- That is perceived as a massive national risk

# Oil to equities: what would you rather hold?



# Oil to equities: what would you rather hold?



# Key elements of a rule-based SWF model

Saving rule: how much to transfer to SWF, and when?

- Transfer to the SWF in general
- And potentially between stabilization fund (liquid, safe assets) and savings/income fund (illiquid, risk assets)

Spending rule: how much to transfer from SWF, and when?

- Depends to fund's purpose: stabilization, savings and income
- Short-term stabilization, long-term "endowment" income and/or locked-up savings for the future

# Why have a rule?

Like all rules, the idea is to constrain discretion

- Particularly in boom-bust oil-rich states, memories tend to be short
- Human ability to forecast oil prices (and revenues) are extremely limited

Fiscal rule is “symmetric” and “counter-cyclical”

FIXED <sup>-%</sup> AMOUNT

- Real, not partial, decoupling
- Constraining spending growth in boom times
- Allowing sustainable, rule-based draws from SWFs in leaner times

Expectation management and credibility of medium- to long-term fiscal policy

- Ratings agencies
- Businesses and investors
- Public



## The changing nature of fiscal rules

# Existing approaches to rules

## Rule-of-thumb measures

- Fixed percentage (for example, 20% of revenues)
- Deviation from moving average (revenue or price)
- Reference-price (above and/below \$75)

## Rule-of-thumb measures better than nothing, but...

- Specific problems: procyclicality, setting “right” reference price?
- General problem: these are “accumulation rules”, but not integrated with budget
- Offer inadequate counter-cyclical decoupling

# A fiscal rule for resource-based SWFs

Based on Harvard Prof. Ricardo Hausmann's work for resource-rich governments

- Rule expresses critical policy choices around the use of volatile and finite resource revenues
- Finding a balance between spending, stabilization and saving

Model is flexible to different contexts and country needs

- Different revenue scenarios, assumptions and shocks
- Different assumed SWF returns and volatilities
- Spending rates
- Dynamics: spending now versus the future

# Harvard research



## Fiscal rules for resource-based SWFs

- Rule of thumb measures: suboptimal (ie. Alaska)
- Better to have an integrated, dynamic and rule-based framework

## Model

- Rule-based framework for savings, spending and stabilisation

## Governance and implementation

- Rules for resource-based SWFs
- The role and structure of the board
- Institutional positioning: arm's length independence, the central bank model, etc.

# Intuitive overview

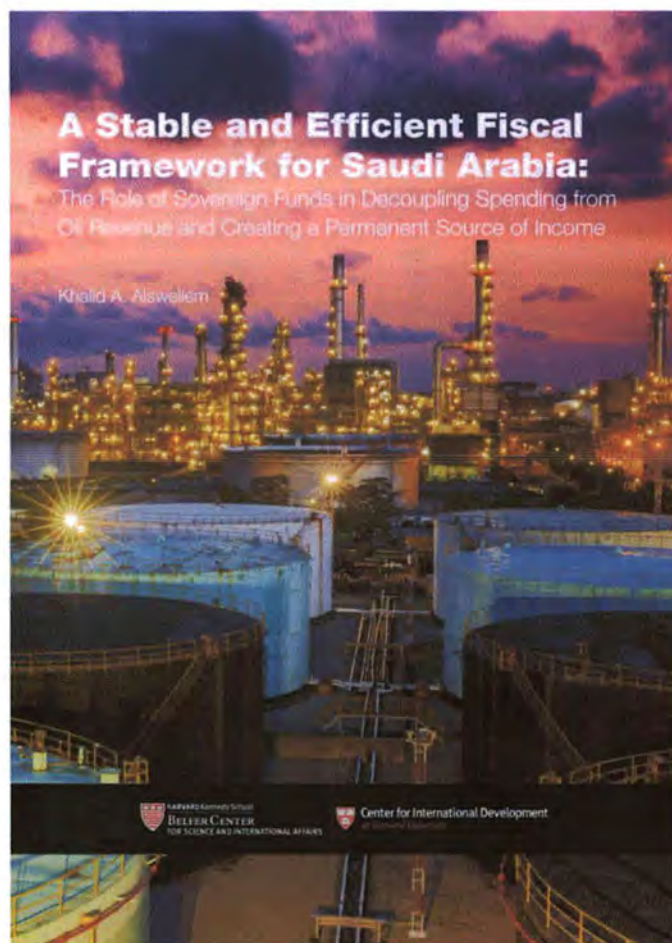
Several conceptual departures from rule-of-thumb approach

1. Resource revenues flow first to the fund, then via a rule-based spending policy, to the budget;
2. The fund – rather than the budget – bears the “burden of adjustment” to positive or negative oil-revenue shocks;
3. Spending is decoupled from annual oil-revenue volatility
4. Rule ensures that spending only adjusts partially and with a lag, via a change in the level of the fund:
  - NOTE: this holds for positive and negative oil price shocks



The Saudi Report:  
a more detailed look

# Saudi Arabian report



## The basic economics (starting point)

- World's largest oil producer
- Decades of (cheap) oil reserves
- \$850bn in reserves

## What on earth could go wrong?

- Oil dependence: high and rising
- Volatility in revenue and capital spending
- Reserves at risk: rising breakeven
- Uncertain long-term oil-revenue trends
- Rising long-term spending pressure

## Assets accumulated is *ad hoc*

- Spending and saving decisions not anchored by a rule-based framework

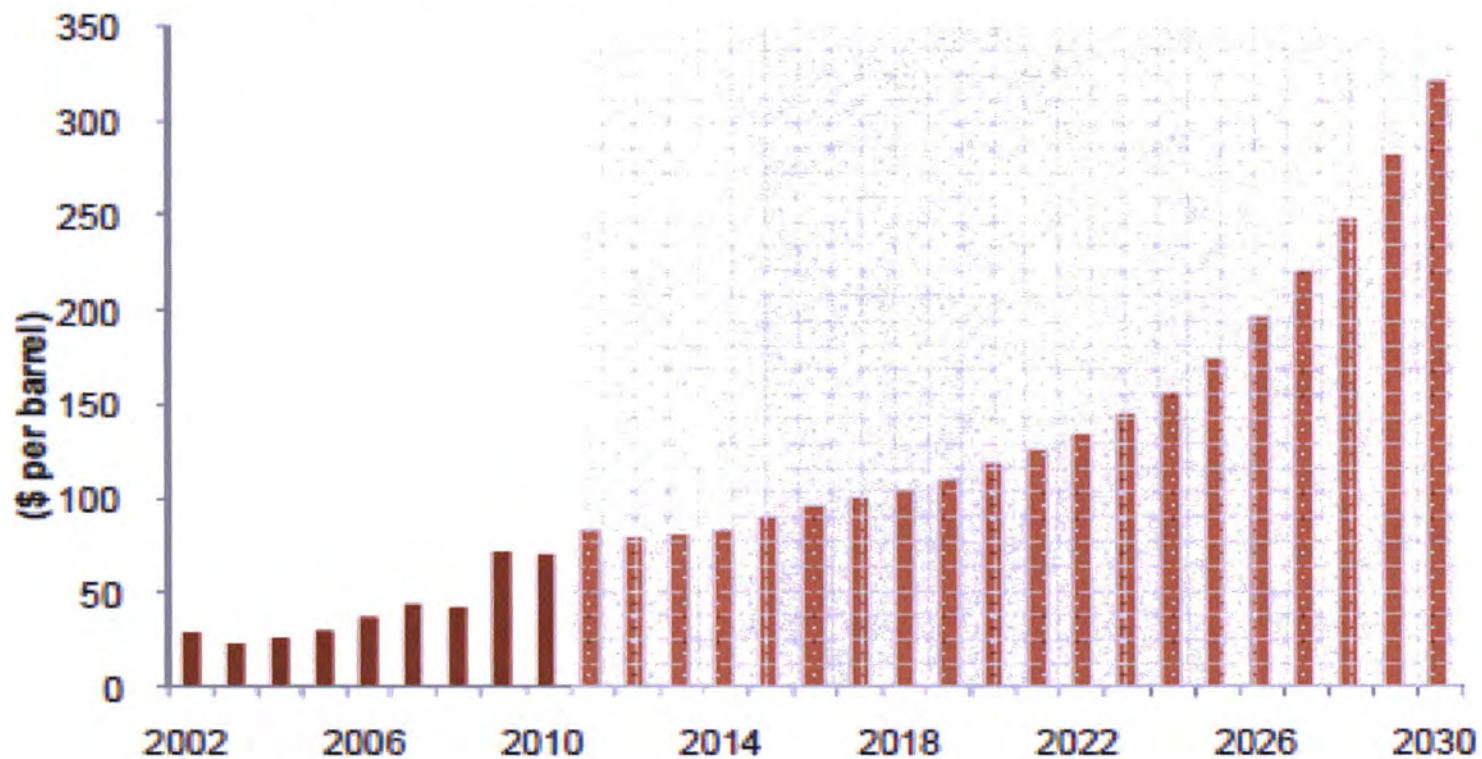
# Saudi Arabia's problems: lessons for Alaska?

<b>COUNTRY</b>	<b>ESTIMATED OIL PRICE REQUIRED TO BALANCE 2015 BUDGET</b>
Norway	\$40
Kuwait	\$54
Abu Dhabi	\$55
Russia	\$105
Saudi Arabia	\$106
Nigeria	\$122
Iran	\$131
Algeria	\$131
Venezuela	\$160

Sources: International Monetary Fund (2014b), except for Nigeria, Russia and Venezuela (Deutsche Bank, 2014) and Norway (Fitch Ratings, 2014).

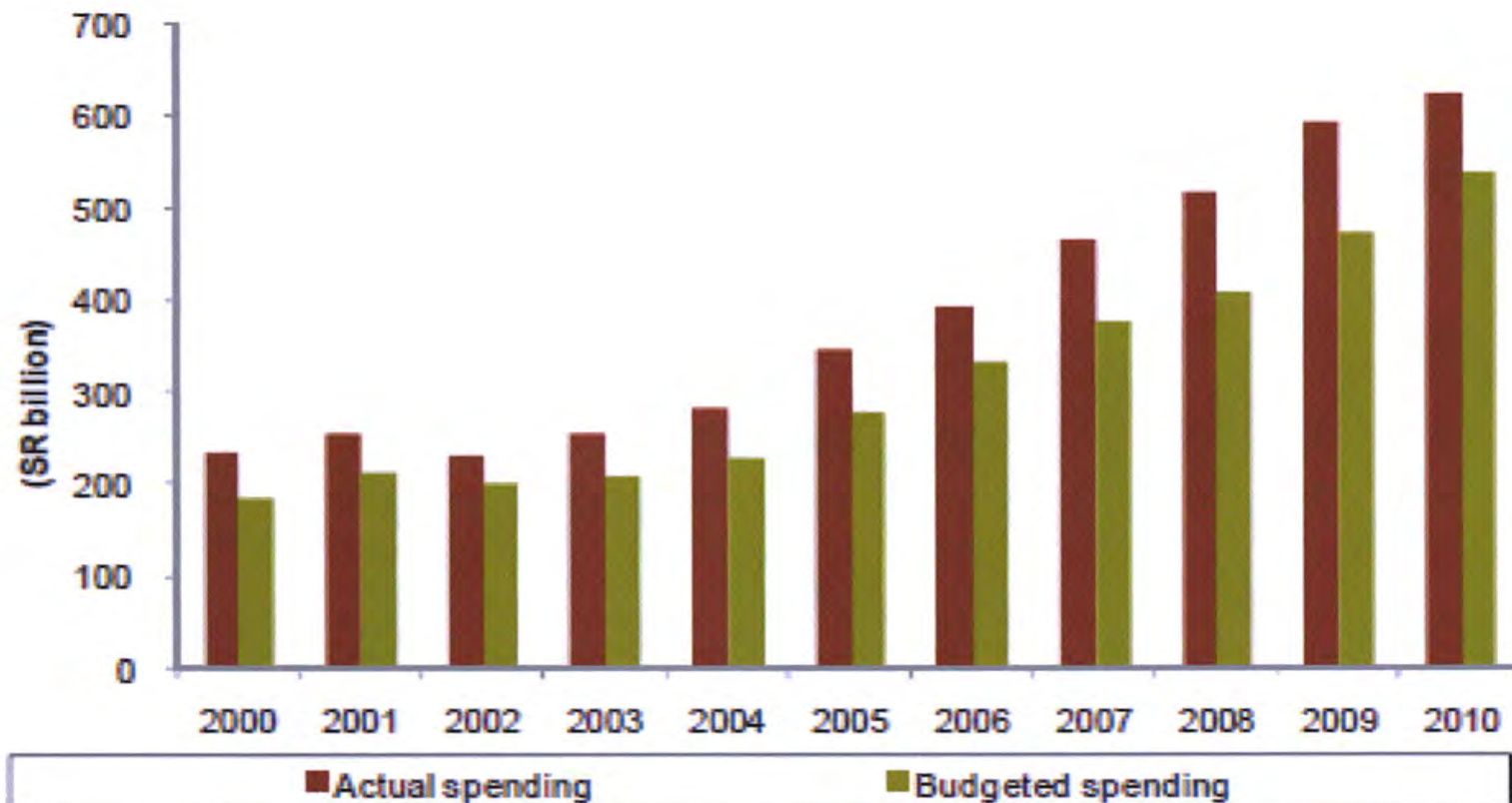
# Saudi Arabia's problems: lessons for Alaska?

**Projected breakeven oil price**  
(Saudi export crude; forecasts in shaded area)



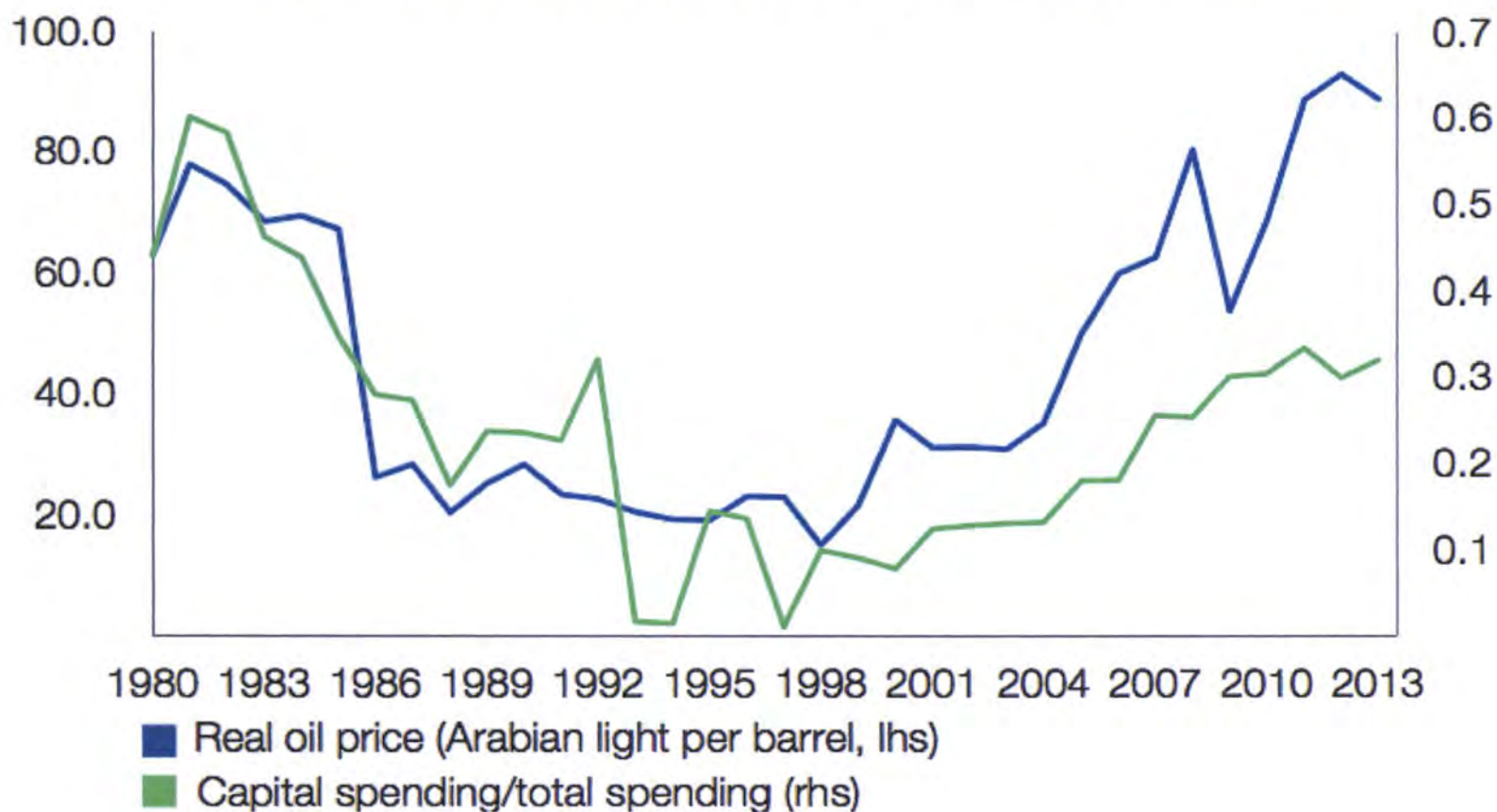
# Saudi Arabia's problems: lessons for Alaska?

## Budgeted and actual government spending



# Saudi Arabia's problems: lessons for Alaska?

## Oil-driven cyclicality in capital spending



# Policy recommendations: Saudi Arabia

## Establishment of savings and spending rule

- Under the jurisdiction of the Supreme Economic Council
- Modelled impact of specific fiscal rules on Saudi government finances
- Key message: don't delay further...delays are costly (have already been)

## Proposed the formalisation of two sovereign funds

- Stabilisation Fund: with \$250bn in initial capital
- Saudi Future Generations Fund: with \$500bn in initial capital

## Suggested governance arrangements for both funds

- Stabilisation to remain with SAMA (central bank), reporting to MoF
- Future Generations Fund to be managed by new entity, with:
- Governing Council: Supreme Economic Council
- Board of Directors: independent, fixed-term appointments
- Management authority: led by Senior Executive

# Implications for Saudi energy policy

- Royal family and key ministers convinced US shale is a flash in the pan
- Always been much more concerned about Iran and Iraq production increases



# Implications for Saudi energy policy

Willing to engage in all-out price war to regain market share, no matter the fiscal cost

- Deeply scarred by past episodes of uncoordinated OPEC policy
- Have enough gas in the tank to handle a 2- to 3-year oil slump


Burn through reserves, cut capital spending and raise debt


- Rather than cut production and be the swing producer of old
- Already gone through \$150bn in previously-accumulated reserves
  - Most recently: sale of parts of Saudi Aramco

# A Stable and Efficient Fiscal Framework for Saudi Arabia:

The Role of Sovereign Funds in Decoupling Spending from Oil Revenue and Creating a Permanent Source of Income

Khalid A. Alsweilem

 HARVARD Kennedy School  
BELFER CENTER  
FOR SCIENCE AND INTERNATIONAL AFFAIRS

 Center for International Development  
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# **A Stable and Efficient Fiscal Framework for Saudi Arabia:**

The Role of Sovereign Funds in Decoupling Spending from Oil Revenue and Creating a Permanent Source of Income

**Khalid A. Alswilem**

The Belfer Center for Science and International Affairs  
Harvard Kennedy School

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# Background

This paper applies theoretical and empirical insights from an ongoing research project of the Belfer Center and the Center for International Development at Harvard Kennedy School. This project has identified the leading governance structures and practices of the world's leading sovereign wealth funds, resulting in an analytical framework and number of practical tools for assessing the critical policy and institutional aspects that legislators, policymakers and investment practitioners need to consider in establishing new sovereign funds or reforming existing ones. In April 2015, the two centers released two in-depth reports based on this research:

- *Sovereign investor models: Institutions and policies for managing sovereign wealth*, which defines and categorizes the various types of sovereign investors and provides a detailed discussion of critical issues around their macroeconomic policy frameworks and governance arrangements.
- *A comparative study of sovereign investor models: Sovereign fund profiles*, which profiles the history, policies and institutional arrangements of 15 leading global sovereign funds or institutions.

These two reports provide the in-depth analysis used to frame the arguments presented in this paper for a number of specific reforms in the Saudi context.

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## About the Author



### **Khalid A. Alswilem**

**Former Director of Investments,  
Saudi Arabia Monetary Agency**

**Fellow, Belfer Center,  
Harvard Kennedy School**

Dr. Khalid A. Alswilem is the former Chief Counselor and Head of Investment at the Saudi Arabian Monetary Agency (SAMA). He joined SAMA in 1991 after completing a two-year post doctoral fellowship at Harvard University's Department of Economics. The fellowship research focused on a portfolio theory approach to public finance in Saudi Arabia. Before that, he completed his Masters and PhD degrees in economics (public enterprises, public finance, and industrial organizations) at Boston University and the University of Colorado at Boulder. He received a Bachelor of Science degree in industrial engineering from the University of Arizona.

Dr. Alswilem began his work at SAMA as an advisor in the Investment Department, and two years later became the Head of Investment Management (Chief Investment Officer). In 2002, he was promoted to become the Director General of the Department, in addition to his responsibility as the Chief Investment Officer, managing the country's vast foreign assets. According to Dr. Alswilem, the Investment Department at SAMA was able to manage risk effectively through prudent investment and efficient diversification among global currencies and instruments, with performance exceeding most sovereign funds. The Investment Department, he says, "managed to successfully overcome both the 1998 Asian crisis and the 2008 global financial crisis, to become by the end of 2012 the third largest holder of reserves after Japan and China, and the largest among all sovereign funds in the world." He is one of the longest serving and most successful sovereign investment practitioners, having held senior investment positions at SAMA for over two decades.

He was also responsible for the implementation of SAMA's monetary policy operations to ensure banking sector system liquidity and the strength and stability of the Saudi local currency. Additionally, since the start of the Sovereign rating process in Saudi Arabia more than ten years ago, Dr. Alswilem was responsible for coordinating the country's efforts with major international rating agencies to highlight the Kingdom's financial strength and its social and political stability, resulting in the Kingdom of Saudi Arabia obtaining a distinguished high sovereign rating in the AA category.

In addition to his non-resident affiliation with Harvard Kennedy School's Belfer Center, Dr. Alswilem is a board/investment committee member with several institutions. He is chairman of Ashmore Investment Saudi Arabia; an independent board member at Fajr Capital; a board member at Al Ra'edah Investment; and an investment committee member at the Arab Gulf Fund for Development (AGFUND). He is also Global Sovereign Wealth Funds (SWF) Advisor with Price Waterhouse Cooper (PWC).

At the Belfer Center, Dr. Alswilem focuses on the study of sovereign wealth funds, with a particular focus on Saudi Arabia's reserve sovereign funds and their linkages to the real economy.

Dr. Alswilem's research at the Belfer Center complements the theoretical work he did at Harvard's Department of Economics on portfolio theory approach to public finance in Saudi Arabia and its application to the work he did at SAMA during the past 20 years.

In addition to this paper, Dr. Alswilem is also the lead author on the two background papers on sovereign funds profiles, models, and institutions.

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## Experts consulted

During this research project, the author consulted a number of senior executives from a range of sovereign investment funds, as well as academic experts, government officials and policy advisors. Dr. Alswellem is particularly grateful for the support and contributions of the following experts:

**Graham Allison**

Director, Belfer Center for Science and International Affairs and Douglas Dillon Professor of Government, Harvard Kennedy School

**Gordon Clark**

Director, Smith School of Enterprise and the Environment, University of Oxford and Saïd Business School, University of Oxford

**Martin Feldstein**

Professor of Economics, Harvard University  
Former Chairman of the White House Council of Economic Advisors

**Jeffrey Frankel**

James W. Harpel Professor of Capital Formation and Growth, Harvard Kennedy School and Former Member of the White House Council of Economic Advisors

**Ricardo Hausmann**

Director, Center for International Development and Professor of the Practice of Economic Development, Harvard Kennedy School

**Scott Kalb**

Executive Director, Sovereign Investor Institute and Former Chief Investment Officer, Government of Korea Investment Corporation

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Former Director-General for Investment, Norwegian Ministry of Finance and Advisor to Sovereign Wealth Funds

**Ng Kok Song**

Former Group Chief Investment Officer, Government of Singapore Investment Corporation and Founding Chairman, Singapore International Monetary Exchange

**Ted Truman**

Senior Fellow, Peterson Institute for International Economics  
Former Assistant Secretary, US Treasury

**Sam Wills**

Research Fellow, Oxford Centre for the Analysis of Resource Rich Economics and ESRC Future Research Leaders Fellow, Department of Economics, University of Oxford

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# Introduction

► The uncertain outlook for global oil prices has underlined the challenges Saudi Arabia faces in maintaining long-term fiscal stability and ensuring its ability to meet future obligations. This paper proposes the implementation of policies and institutions that ensure a stable and efficient fiscal framework. Specifically, we propose the establishment of sovereign wealth funds and the implementation of a rule-based fiscal framework that decouples spending from oil revenue and creates a permanent source of income.

James Tobin (1974) famously described endowment trustees as “the guardians of the future against the claims of the present”, whose task it was to “preserve equity among generations.” Sovereign wealth funds have become increasingly popular vehicles through which to achieve similar aims at the national (and sometimes sub-national) level. One of the most important functions of these funds is to facilitate a degree of intergenerational equity in the allocation of the benefits from national assets, preserving the claims of future generations to these assets from those of the present. This task is particularly difficult in the context of resource-rich countries. First, the finite and uncertain nature of resource wealth creates unique challenges in which part of the sovereign wealth fund’s task is to transform finite assets and income from depleting natural resources into permanent wealth in the form of a portfolio of financial assets and its investment income.<sup>1</sup> Second, when resource abundance is accompanied by resource dependence, the volatility of the underlying asset and its income creates an additional challenge not encountered by other endowments. The volatility of income from commodities, coupled with its inherently finite and uncertain nature, has therefore led an increasing number of countries to adopt not only institutions (such as sovereign wealth funds), but also accompanying rule-based policies (fiscal rules), that “decouple” public spending from resource revenues.

The Kingdom has been the world’s leading oil producer for several decades and is set to continue receiving significant revenues from oil for decades to come. However, despite this wealth, the country faces fiscal challenges over the short-, medium- and long term. In the short-run, the dramatic drop in global oil prices in the second half of 2014

raises the likelihood of significant fiscal deficits and a decline in foreign exchange reserves; reversing the trend of the past decade of rising revenues, fiscal surpluses and growing reserves. Over the medium term, the much-debated prospect that the fall in oil prices may not be short-lived, but rather herald a new low oil-price corridor for a number of years, will put the Kingdom’s savings from earlier oil revenue booms at risk of depletion.

In the long run, Saudi Arabia’s growing spending needs, coupled with uncertainty around the size and level of future oil revenues, raises the risk of growing fiscal shortfalls, absent meaningful policy and institutional reforms. The steady rise in the fiscal break-even price for oil in recent years indicates that these pressures have already started to manifest. These pressures are likely to rise in the coming years and decades, as it is not prudent for Saudi Arabia to rely on ever-increasing oil revenues. Future oil prices are very difficult – if not impossible – to predict over all horizons.<sup>2</sup> However, a number of structural developments suggest that the sharp decline in oil prices in the second half of 2014 could herald a sustained period of lower prices. These structural developments include reduced growth in the demand for oil due to “secular stagnation” in the advanced economies, a less energy-intensive phase of Chinese and East Asian growth, and the increasingly commercial viability of renewable energy; as well as growing supply from both OPEC, driven by recoveries in production levels in Iran, Iraq and Libya, and non-OPEC energy producers, particularly US shale gas and tight oil (for detailed discussions, see Maugeri, 2012; Yergin, 2013; and Jaffe and Morse, 2013). In short, maintaining existing policies and institutions for the management of Saudi Arabia’s oil revenues requires the dubious assumption that these revenues will continue to grow at a similar (or even faster) long-run trend than that observed since the turn of the century.

This paper proposes reforms that provide a more sustainable fiscal framework for Saudi Arabia in light of this uncertain oil-price environment. These reforms will result in a departure from the more ad hoc approach to spending and savings currently in place, which worked reasonably well during a period of strong revenue growth, but is

1 Economists have theorized these issues for centuries, with seminal contributions from Jevons (1865), Hotelling (1931), Solow (1974) and Hartwick (1977).

2 In his extensive analysis of the statistical properties of the historical movement of the real oil price, Hamilton (2009) concluded that it was best approximated by a random walk (particularly in the post-1973 sample period, characterized by OPEC dominance over supply). While some authors, such as Alquist et al. (2013), have found that simple autoregressive models can provide marginally more information on price movements in the short run, the random-walk hypothesis is maintained over the medium- and long-run.

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problematic in a less support oil-price environment. Specifically, we propose the establishment of clearly separated sovereign stabilization and savings funds, funded by Saudi Arabia's existing foreign exchange reserves and future oil revenues. The establishment of such funds is, however, only part of the solution, as they are rendered meaningless in the absence of an accompanying rule-based fiscal framework for allocating public assets and revenues between these funds and the general budget.

An important property of the rule-based framework we propose is that it greatly reduces the link between spending and the annual fluctuations in oil revenue. Following Hausmann et. al. (2014), this rule decouples government spending from oil revenues, as the former responds in an indirect and gradual way to changes in the latter, through a Stabilization Fund. A second property of the rule is that it establishes a source of permanent income to the government in form of investment proceeds. Therefore, the level of future spending can be raised by an annual allocation of a percentage of oil revenues to a Savings Fund, which in turn contributes a fixed percentage (equal to the long-run real return of the fund, as per the famous example of Norway) to the budget annually. We also consider the requirements of the institutional framework for the sovereign wealth funds and the governance of the fiscal rule.

The paper is organized as follows: Section 1 explores the fiscal challenges facing Saudi Arabia. The reform proposals in this paper address the need to ensure medium- and long-term fiscal sustainability. In the absence of significant spending cuts and/or fiscal reforms, a 2-3 year period of lower oil revenue (compared to 2011-13) is likely to lead to a

sharp fall in previously accumulated reserves held by the Saudi Arabian Monetary Agency (SAMA) and a reduction in growth-enhancing capital spending. While drawing on existing reserves will enable Saudi Arabia to avoid painful spending cuts and will likely avert any near-term economic crisis, it risks placing the Kingdom on a perilous long-term fiscal path, as a sharp fall in previously accumulated assets will reduce the flexibility policymakers have to respond to future oil-price and revenue shocks. Moreover, the Saudi riyal is fixed to the US dollar, which requires holding sufficient foreign assets at all times to maintain the fixed exchange rate. A substantial depletion of reserves could endanger the stability of the Saudi riyal, which would have significant adverse macroeconomic ramifications.

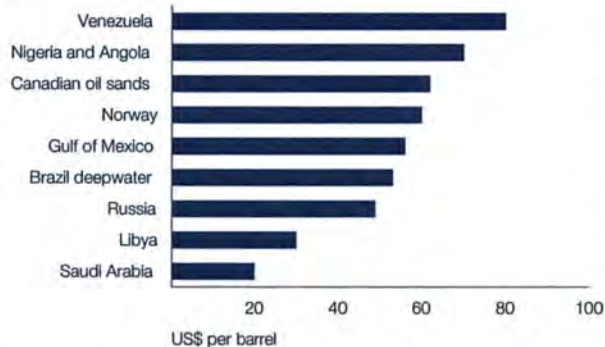
Section 2 provides a brief overview of the proposed fiscal rule, as well as the data sources and assumptions used in modeling the rule to simulate the impact of various policy settings empirically. The discussion of these simulations in Section 3 brings a number of findings into sharper focus. First, we consider a counterfactual scenario in which the framework was adopted in 2005, which shows how the accumulation of reserve assets through SAMA over the past decade, impressive as it may seem, was in fact less than what would have occurred under a prudent fiscal rule. We then investigate the implementation of our proposed reforms in the near term, and what this implies for future spending and savings dynamics. Section 4 outlines a number of concrete proposals for implementing various institutional arrangements based on international best practices amongst leading sovereign wealth funds and other public investment institutions. Section 5 summarizes our conclusions and policy implications.

## Section 1:

# Saudi Arabia's fiscal challenge: beyond the short term

Despite the rise in production from non-OPEC members over the past decade, Saudi Arabia remains the world's leading oil producer. The low marginal cost of extraction and overall upstream production expenses of Saudi oil (see Figure 1), coupled with the Kingdom's massive proven reserves, means that oil revenues will continue to be a significant source of government revenue and foreign exchange earnings for decades to come. However, the long-run fiscal challenge confronting Saudi Arabia is the likelihood that these oil revenues – which has in recent years accounted for more than 90% of government income – will not grow at a rate commensurate with growing spending needs. Even if spending growth moderates and falls in line with population growth, a sustained increase in total revenue is still likely to be required, including a rise in the share of non-oil revenue.

Figure 1: Estimates of total development costs for upstream projects



Sources: Cambridge Energy Research Associates

The need for the diversification of revenue sources arises from the fact that oil revenues alone are unlikely to keep pace with future spending needs. The growth in oil revenues observed over the past decade cannot prudently be expected to be sustained. This would require oil prices to not only recover from the slump experienced in the second half of 2014, but also to continue rising indefinitely following a possible recovery. In other words, the expectation would have to be that oil price not only recover to above \$100 per barrel in the short term, but in fact continues to rise beyond this level (by roughly 5-7% per annum on average) over the long run.

Alternatively, the belief that the growth of oil revenues can match that of spending needs requires the assumption that Saudi oil production can grow steadily over the course of a number of decades (without triggering an offsetting fall in global oil prices). This would imply a steady increase in Saudi Arabia's share of global energy production compared to end-2014 levels. This too is an increasingly implausible assumption, given the rise in non-OPEC production, the recovery of supply from established producers (such as Iraq, Iran and Libya) and the increasingly commercial viability of and regulatory pressure for renewable alternatives to oil and other hydrocarbons (Jaffe and Morse, 2013).

These anticipated long-term trends do not suggest that Saudi Arabia cannot weather a 2-3 year period of lower oil revenues. Saudi Arabia's foreign exchange reserves, which peaked at around \$800bn in mid-2014, remain substantial despite falling in the second half of the year; and the debt-to-GDP ratio is low, providing some scope for debt financing, if required. However, the key point is that drawing down on foreign assets held by SAMA and/or raising debt will further challenge the long-term fiscal outlook. The long-term fiscal dynamics are a function of a number of structural features of the Saudi economy, outlined in the remainder of this section.

## Oil dependence: high and rising

Despite the government's diversification efforts, the Saudi economy remains highly dependent on oil (see Box 1 for a discussion of a new approach to diversification). Oil dependence has risen persistently since the late 1970s. This trend is most striking with respect to government revenue. As shown in Figure 2, the share of oil revenues to total government revenue has trended upward since early 1990s, exceeding 90% in recent years. Saudi Arabian citizens do not pay tax on income, interest or dividends (foreign corporations are taxed at 20%). Nationals from all of the Gulf Cooperation Council countries who conduct business in the Kingdom pay an Islamic tax ("zakat"), administered at a flat rate of 2.5%. The contribution from these non-oil revenue sources to total government revenue is minimal. Consequently, over the past decade, even when oil prices have fallen sharply, oil's share of total revenue remained above 85%.

Figure 2: Oil's rising share of total government revenue



Source: Official data, SAMA

Exceptionally high oil dependence is also evident in the composition of Saudi Arabia's exports, where oil and its derivatives account for almost all the growth in Saudi exports since the mid-1990s. Currently, crude oil accounts for 76% of exports, while refined oil and petroleum gases account for an additional 6% and 3%, respectively (Hausmann et. al., 2011). In the Saudi context, export earnings are particularly important, as the majority of consumer goods, from cars to food, medical supplies, clothing, technological and household appliances, machinery and other intermediate goods are imported. While this paper is focused on the challenges confronting Saudi Arabia in terms of fiscal policy, uncertainty around the external balance and export earnings are also a potentially serious impediment to economic growth and diversification, particularly as it affects private-sector investment decisions through the role of expectations (for a detailed discussion of these issues, with a particular emphasis on Saudi Arabia, see Alswilem, 1991). Moreover, the Saudi riyal is fixed to the US dollar, which requires holding sufficient foreign assets at all times to maintain the fixed exchange rate. A substantial depletion of reserves could endanger the stability of the Saudi riyal, which would have significant adverse macroeconomic ramifications. This will generate further uncertainty and hinder efforts to diversify the real economy.

### **Economic Complexity – a tool for diversification**

The diversification of the real economy remains a critical challenge for all resource-dependent economies. The analysis of Economic Complexity, developed by Center for International Development (CID) at Harvard Kennedy School, has resulted in a number of powerful theories through which to analyze approaches and policies that promote diversification and sustainable long-term economic growth and development. Economic Complexity is a powerful tool for assisting policymakers in identifying the most promising domestic sectors for growth and diversification.

Economic Complexity argues that development involves not just the increase of output in existing production, but also the increase in the diversity (i.e. complexity) of what is produced. The ability to successfully export new products reflects a country's acquisition of new productive knowledge that opens up further opportunities for progress. Ultimately, countries develop by, first, increasing the number of different activities they successfully engage in; and, second, by moving towards activities that are more complex. What a country needs to do to achieve greater economic complexity will be context specific – drawing in particular on the country's existing productive capabilities and knowledge. Countries are more likely to succeed if they focus on products that are close to their current set of productive capabilities, as this would facilitate the identification and provision of the missing capabilities.

The CID's research, presented in its Atlas of Economic Complexity (see <http://atlas.cid.harvard.edu> and Hausmann et. al., 2011) provides a detailed exposition of the number and the complexity of the products that countries currently export; as well as a country-by-country identification of the industries and products that offer the most promising route to greater complexity. As such, the Center's data and tools help answer a number of the most important issues confronting national policymakers:

- What does a country current import and export?
- What are the drivers of, and best prospects for, export growth in a particular country?
- Which new industries are likely to emerge in a given geography; and which are likely to disappear?
- What are the GDP growth prospects of a given country in the next 5-10 years?

The analysis of Economic Complexity for Saudi Arabia shows very low levels of complexity and diversification. In the context of this paper, the tools and insights from Economic Complexity can be used to develop targeted multi-year macro- and microeconomic policies to promote the diversification of the Saudi economy. Moreover, it can provide detailed information on which sectors, economic clusters and products to target through a potential Sovereign Development Fund, which could be established as part of a second-round reform process after the establishment of a fiscal rule and savings- and stabilization funds (see Box 2 below).

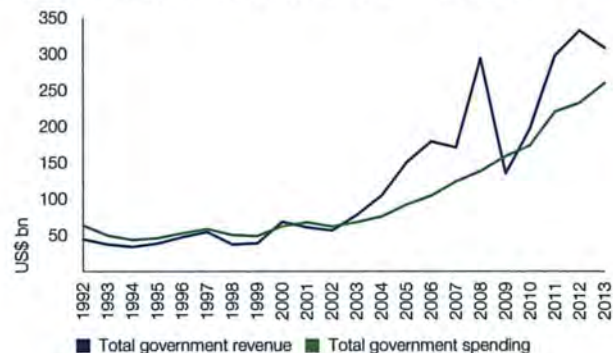
### Oil-related volatility in revenue, debt and capital spending

As a direct corollary of Saudi Arabia's dependence on oil, key macroeconomic variables exhibit a high degree of volatility, while medium- to long-term patterns are highly correlated with cyclical developments in the oil price. Figure 3 shows the massive swings in revenue relative to total government spending. This volatility complicates fiscal policy, requiring the government to resort to debt financing or drawing on previously accumulated assets in order to smooth spending in periods when revenue falls below expectations.

The use of assets accumulated during previous booms to smooth out fluctuations in fiscal spending and/or Balance-of-Payments adjustments per se is not the problem – indeed, it is quite common and generally desirable in the context of resource-rich countries. Buffers built up during boom periods can help stabilize fiscal policy and macroeconomic management more generally. However, such a policy requires the consistent countercyclical accumulation of assets: when oil prices and revenues exceed trend or expectations, spending should not respond and assets should rather be accumulated (and vice versa). In order to avoid dynamic inconsistencies, many resource-rich countries have adopted a rule-based fiscal framework to govern the allocation of revenues between spending, investment, and stabilization and savings funds (whether these rules are publicly disclosed or implicit is a separate matter).

In the Saudi context, elements of such policies and institutional arrangements are in place, but remain at the discretion of policymakers, rather than predictable and rule based. While the investment arm of SAMA can be described as a quasi-SWF – its investment strategy is similar to that of the famous sovereign funds of Norway, Abu Dhabi and Kuwait – is not as formally bound in a rule-based fiscal framework, and majority of its assets are therefore exposed to sharp fiscal and Balance-of-Payments fluctuations. In short, there no time-consistent savings- and spending rules for the use of SAMA's assets.

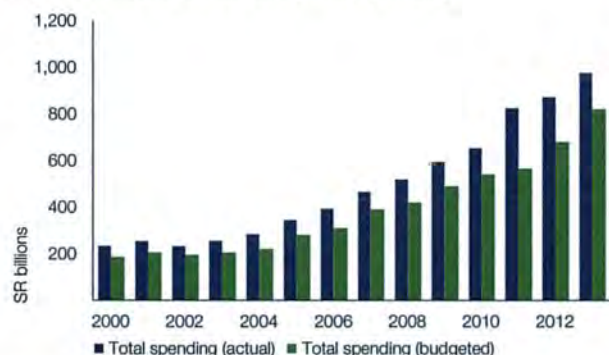
Figure 3: The volatility of revenue versus spending



Source: Official data, SAMA

By maintaining spending when oil prices collapse, the Saudi Ministry of Finance argues that it is conducting “countercyclical fiscal policies”, drawing on buffers accumulated in boom periods (see McDowall, 2014). However, the data show that policies are not countercyclical over the whole cycle. Instead, policy adjustments are much more ad hoc during periods of booming oil revenues. For example, while it is true that Saudi Arabia’s reserve assets grew substantially between 2005 and 2013, our analysis in Section 3 shows that the accumulation of reserves during this boom period was much less impressive than it would have been under a simple fiscal rule. Moreover, as per Figure 4, actual spending was consistently raised above the budgeted amount in every year from 2000 onwards – suggesting a procyclical rather than countercyclical response to positive oil shocks. Ultimately, the absence of a rule-based fiscal framework has resulted in ad hoc spending and savings decisions and a tendency to resort to countercyclical policies during low-revenue periods, coupled with procyclical responses to positive oil shocks.

Figure 4: Actual versus budgeted spending



Source: Official data, SAMA

The absence of robust fiscal rules and institutions in Saudi Arabia is also evident in the cyclical nature of the share of capital expenditure to total expenditure. Unsurprisingly, there is a strong correlation between the share of capital spending and oil prices, as shown in Figure 5. This suggests that, while Saudi policymakers have been able to maintain relatively stable total spending throughout periods of short- and medium-term oil-price volatility, the burden of adjustment has historically fallen on the capital-spending component of the budget. Further, note that capital spending (and hence public investment) as a share of total spending (and hence public investment) fell sharply when oil prices and revenue fell in the 1980s and early- to mid-1990s, and only partially recovered during the significant price- and revenue boom from 2005 onwards.

Figure 5: Oil-driven cyclical nature in capital spending



Source: Official data, SAMA

The burden of adjustment that capital spending performs is, therefore, more pronounced during downward adjustments in revenues. Similarly, Saudi Arabia's debt dynamics are correlated with cyclical developments in oil prices. From the mid-1980s to the turn of the century, the Saudi Ministry of Finance issued a substantial amount of debt, as oil prices and revenues remained below the levels of the late-1970s. The debt/GDP ratio rose from very low levels to 103% of GDP by 1999. When oil prices and revenues rose again between 2005 and 2013, public debt was aggressively reduced to only 1.6% of GDP.

### Reserves at risk as breakeven oil price rises

As of late-2014, SAMA held around \$750bn in accumulated assets – down from a peak of around \$800bn at the start of 2014. This buffer is widely regarded as providing the Kingdom with some fiscal breathing space during a period of lower oil prices and revenue. While this is undoubtedly true, caution is warranted in interpreting just how much breathing space these accumulated assets provide. The 2015 budget provides for total spending of \$230bn (860bn Saudi riyals) – roughly one-third of the size of SAMA's foreign exchange reserves – against \$190bn (715bn Saudi riyals) in revenue. The \$40bn deficit materializes under an assumed drop in revenues of only 16% compared to the 2014 budget – of course, the deficit (which would most likely be financed by drawing down on SAMA's assets) would be much bigger if actual spending continues to exceed budgeted spending and if the drop in revenues exceeds 16%.

Beyond the short-term horizon, accumulating and drawing down on these foreign assets in an ad hoc manner is problematic. What is needed in the Saudi case are rules that govern how these savings are used – specifically, when these savings can be accessed, how they should be invested to generate income for current and future generations, and how future savings are accumulated. Given the current absence of such rules and structures, Saudi Arabia's accumulated assets – impressive as they appear in aggregate – are, in fact, vulnerable to rapid depletion if oil revenues are lower than expected in the coming years. This point was highlighted in the IMF's most recent Article IV Consultation for Saudi Arabia (IMF, 2014a). In the Fund's baseline scenario, the recent rise in spending is maintained between 2014 and 2019, so that total government spending rises at a compound annual growth rate of 4.5% per annum,

while revenues decline by 1.3% per annum. The Fund concluded that this scenario would result in a decline of \$245bn in reserves between 2014 and 2019. However, the revenue assumptions in the Fund's baseline scenario (conducted in the first half of 2014) appear optimistic in light of the sharp fall in oil prices in second half of 2014. The Fund also calculated that if oil revenues were on average 30% below the baseline forecast between 2014 and 2019, SAMA's assets would fall by around \$450bn by 2019 (assuming there is no offsetting reduction in spending) – in order word, a more than 50% drop in reserves, to levels threatening the minimum required reserve holdings to ensure the stability of the riyal, with potentially dangerous consequences.

The extent to which previously accumulated assets are at risk is also evident from the divergence between declining oil prices and the rising "break-even" oil price for the Saudi budget. The latter is a widely used rule-of-thumb measure of the oil price required to balance the budget in any given year, based on an assumed level of government spending, oil production and non-oil revenues. In the Saudi case, production is relatively well anchored, with officials targeting average production of around 9.7 million barrels per day. The fiscal breakeven price for oil is, therefore, largely a function of government spending. As this has been rising considerably in recent years, the break-even oil price has risen too. While estimates vary, based mostly on different assumptions around government spending, the current consensus is that the 2015 break-even price will be between \$95 and \$106 per barrel – having risen steadily \$74 p/b in 2013, \$68 p/b in 2012 and \$40 p/b in 2008, according to Fitch (2013).<sup>3</sup> These estimates typically use the benchmark 9.7 million barrels per day as the production assumption – of course, if Saudi Arabia were to reduce production, the break-even price would rise by a similar magnitude.

Compared to other large oil producers in the Gulf, Saudi Arabia's break-even oil price is very high (see Table 1). It is noticeable that amongst the major oil producers, Kuwait, Abu Dhabi and Norway have the lowest break-even prices. These three countries share three fundamental characteristics: (i) they have large sovereign wealth funds (relative to the size of revenue and government spending), (ii) these funds are imbedded in a rule-based fiscal policy framework, i.e. a disciplined approach to spending and saving; and (iii) they have established independent investment authorities to invest the assets placed in these funds, further protecting the funds from unscheduled drawdowns when oil prices collapse. Abu Dhabi and Kuwait are also highly dependent on oil revenues, but are able to draw on their sovereign wealth funds and their investment in a sustainable, rule-based way and have largely succeeded in decoupling spending patterns from underlying oil revenues (Norway has too, but has the advantage that oil revenues only account for around 25% of revenue).

Table 1: Fiscal break-even prices for major oil producers in 2015

COUNTRY	ESTIMATED OIL PRICE REQUIRED TO BALANCE 2015 BUDGET
Norway	\$40
Kuwait	\$54
Abu Dhabi	\$55
Russia	\$105
Saudi Arabia	\$106
Nigeria	\$122
Iran	\$131
Algeria	\$131
Venezuela	\$160

Sources: International Monetary Fund (2014b), except for Nigeria, Russia and Venezuela (Deutsche Bank, 2014) and Norway (Fitch Ratings, 2014).

Note: IMF estimates are based on an average price for Brent, Dubai, and West Texas Intermediate spot prices, other sources use Brent only. Venezuelan break-even price is for 2014.

<sup>3</sup> See also estimated by estimates by Fitch (2014), Deutsche Bank (2014) and Citi (2014).

At the other end of the spectrum, countries such as Russia, Nigeria, Iran, Algeria and Venezuela have amongst the highest break-even prices. While all of these countries have some form of de jure sovereign wealth funds, their lack of robust fiscal rules and the inadequate size of these funds relative to annual revenues and spending mean that these countries require high oil prices to sustain the levels of spending seen in recent years in order to avoid drawing down the sovereign wealth funds assets significantly or increasing debt to finance deficits. Saudi Arabia falls between these two groups, having accumulated assets held by a "quasi" sovereign wealth fund, but still requiring a high oil price to balance the fiscal books given the size of government spending and the absence of sustainable policies and rules for the use of sovereign wealth fund assets and income. The proposed reforms discussed in the remainder of this paper would move Saudi Arabia into the more fiscally secure group with the likes of Norway, Kuwait and Abu Dhabi.

### **Rising long-term spending pressure**

In identifying the long-term determinants of government expenditures, it is useful to distinguish between increases in per capita expenditure and spending growth that result from an increase in population (even if per capita spending remains constant). The major Saudi Arabian government spending categories are defense, education, and healthcare and social affairs – together these three categories account for 80% of the 2015 budget. Across various budget categories, the public-sector wage bill is equal to around 40% of public spending, as more than 80% of employed Saudis work for the government. Spending on healthcare, education and unemployment benefits have also been rising steadily, both in absolute and per capita terms; while spending on subsidies for the domestic use of fuel and food imports have also risen in line with growing demands and population trends.

Given this spending profile, it is doubtful whether any meaningful reduction in the growth of current and recurrent expenditure can be achieved – and, more importantly, sustained. The profile of current spending makes it clear how difficult it will be for Saudi Arabia to reduce spending (or simply reign in spending growth) over the coming decades:

- Spending on defense and security will be difficult to reduce given the threat of regional insurgency, terrorism and political tensions.
- While there is scope for stabilizing per capita spending on public-sector salaries and entitlements, Saudi Arabia's demographics make it difficult, if not impossible, to reduce the growth in overall spending on these budget items – which can, therefore, be proxied by the growth of Saudi Arabia's adult population (i.e. assuming no change in per capita spending on these items).
- Current expenditures on infrastructure will increase, in part due to maintenance and operating costs of the new facilities built over the past decade.
- While there is scope for reducing subsidies on fuel and food, total spending on subsidies is likely to continue to increase given the growth in the adult population – even if the government pushes through politically unpopular reductions in per capita spending on these items.<sup>4</sup>

As noted earlier (see Figure 5), Saudi Arabia has historically ramped up capital spending when oil prices rise, and cut capital spending when they decline. This procyclical pattern was also observed during the most recent oil revenue boom from 2005 onwards – total capital expenditure was \$83bn in 2013, up from \$10bn in 2004. The sharp rise in capital expenditure was attributed to efforts to enhance physical and social infrastructure. If oil prices remain low for an extended period of time, however, the historical tendency to cut capital spending may once again be anticipated. However, while they may reduce some of the fiscal pressure over the medium term, cuts to capital spending and public investment alone are unlikely to stabilize spending growth, given the points raised above. Ultimately, long-term spending pressures are driven by demographic trends that affect current expenditure.

<sup>4</sup> The rapid growth in the domestic use of oil, in light of subsidies, has been widely studied and is the source of some of the most pessimistic forecasts of Saudi Arabia's long-term fiscal outlook. See (Lahn and Stevens, 2011; Bourland and Gamble, 2011; and Rehman, 2012).

### Long-term oil-revenue trends

Saudi Arabia has the world's largest endowment of commercially viable, proven oil reserves and its current production target of around 9.7 million barrels a day is far below its estimated capacity of 12.5 million barrels.<sup>5</sup> Depending on how close Saudi Arabia comes to that capacity, the lifespan of existing oil reserves alone is estimated at 65-100 years (Bourland and Gamble, 2011). While these numbers underline the fact that Saudi Arabia is not about to run out of oil for the foreseeable future, some perspective on the relative size of the Kingdom's oil wealth is required: Saudi Arabia's oil wealth is far smaller than that of Kuwait, Qatar and the United Arab Emirates on a per capita basis (see Table 2).

It is very difficult to make robust predictions around the future size of oil revenues for Saudi Arabia. As noted above, Saudi Arabia is in the fortunate position that its current target level for production is below potential. There are plausible arguments for why revenue could be expected to rise over the next decade (forecasting beyond this point becomes almost impossibly difficult): Saudi Arabia has considerable spare capacity, which could be used if other major producers' contribution to global output is reduced for a length of time due to political and civil unrest (Venezuela, Iran, Iraq, Libya and Nigeria) or falling oil prices make production unprofitable (Venezuela, Canada and the United States). As Saudi Arabian officials have frequently pointed out, Saudi production is amongst the most resilient to a protracted low-price environment, which means that it can regain lost market share in a low-price environment.

Table 2: Oil reserves per country – total and per capita

<b>COUNTRY</b>	<b>PROVEN RESERVES (MILLIONS OF BARRELS)</b>	<b>PER CAPITA (BARRELS PER PERSON)</b>
Saudi Arabia	264,600	9,972
Iran	151,200	1,894
Iraq	143,100	4,597
Kuwait	101,500	37,658
United Arab Emirates	97,800	18,403
Libya	48,080	8,010
Qatar	25,570	13,102

Source: BP Statistical Review of World Energy (reserves), World Bank (population)

5 Venezuela's proven reserves are estimated by some sources, such as the BP Statistical Review of World Energy, to marginally exceed that of Saudi Arabia. However, much of Venezuela's reserves is only commercially viable at very high oil prices, and may therefore never be extracted. Saudi crude quality is much cheaper to extract and refine (as per Figure 1, the cost of Saudi upstream projects are roughly one-sixth those of Venezuela).

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At the same time, there are a myriad of compelling arguments for why revenues may decline over the next decade: Saudi Arabia's share of global oil production could be set for a secular decline given the US oil and gas boom and the emergence of new producers, and recovery of production levels in established producers. Second, Saudi Arabia's revenue and export earnings may decline due to rapidly rising domestic demand for oil (Bourland and Gamble, 2011). Of course, in addition to market shares, revenue trends will ultimately depend on long-term price dynamics, which are very difficult to predict at all frequencies and horizons. Third, in the long term (most likely two decades and longer), the growing feasibility of renewable alternatives to oil and other hydrocarbons as sources of energy – and the prospect of coordinated global regulatory action to reduce the use of fossil fuels – loom large as a threat to Saudi oil revenues.

### **Summary: structural features and long-term fiscal pressures**

Saudi Arabia has become increasingly dependent on oil in recent years. Oil now accounts for more than 90% of fiscal revenues and 85% of export earnings. The Kingdom's massive proven oil reserves and its low cost of production means that oil will remain a major source of government revenue and export earnings. However, with the rise in OPEC and non-OPEC oil production and alternative energy sources, Saudi Arabia is losing pricing power over the global energy markets, increasing the Kingdom exposure to price- and revenue volatility – and a growing shortfall of oil revenues relative to spending. After a few years of relative stability, the collapse in global oil prices in the second half of 2014 has underlined the volatility to which Saudi Arabia is exposed over the short term, while also calling into question previous expectations around long-term revenue and the sustainability of the Kingdom's recent fiscal path.

As a beneficiary of various revenue windfalls during past episodes of high oil prices – not least the recent the 2005-2008 and 2011-2013 booms – Saudi Arabia has been able to

accumulate roughly \$750bn in foreign reserves. While these reserves, and the low debt/GDP ratio, provide Saudi Arabia some scope to manage the impact of a sustained period of lower oil prices, the drawdown of these assets will only accentuate long-term fiscal challenges. In response to these long-term challenges, Saudi Arabia faces a number of policy choices, which are not mutually exclusive alternatives:

- The first option, which becomes absolutely necessary if other policies and reforms are insufficiently pursued, is to reduce per capita spending on healthcare, education, social welfare and public investment.
- Second, the Saudi authorities seek to reduce subsidies and increase non-oil tax revenues – including through income, corporate or consumption taxes.
- Third, Saudi Arabia can save a greater portion of its future oil revenues and adopt formal fiscal rules and appropriate institutions through which to generate sustainable investment income to help meet future spending needs.

The latter is an essential part of the reform process – and, arguably, least costly in terms of economic and social costs, and the most urgent. The bottom line is that Saudi Arabia cannot continue to rely on the accumulation and drawdown of savings in an ad hoc manner. As the Kingdom enters a period of sustained pressure to increase spending, coupled with an uncertain outlook for oil revenues, it needs to embrace a sustainable, rule-based fiscal framework to ensure medium- and long-term fiscal sustainability. While considerable attention has been devoted to promoting the public disclosure of such fiscal rules in order to enhance government accountability and transparency to anchor expectations in resource-rich countries, the more important point from a fiscal sustainability perspective is that such rules are appropriately calibrated and adhered to in both good and bad times – whether or not the rule is publically disclosed. The remainder of this paper presents and applies a rule-based fiscal framework, and outlines the institutional arrangements needed for effective implementation.

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## Section 2:

### Modeling the fiscal rule

The challenges confronting policymakers in Saudi Arabia that were identified in the previous section could be largely addressed by the adoption of a simple fiscal rule that allocates oil revenues between current spending and transfers to a Stabilization Fund and a Savings Fund. Many resource-rich countries have established sovereign wealth funds and associated fiscal rules to help meet similar challenges (see Alswilem et. al., 2015 for a recent overview). In this section, we introduce the simple fiscal rule developed by scholars at Harvard Kennedy School (Hausmann et. al., 2014), whose basic dynamics can be summarized as follows:

- The rule decouples spending from underlying oil revenues, so that volatility in spending is reduced, capital spending can be maintained, and both positive and negative shocks to oil revenue are only passed through to spending in a stabilized and delayed manner.
- This decoupling is achieved by basing annual spending on: (i) a percentage of the previous year's spending, (ii) a percentage of the value of the Stabilization Fund, and (iii) a transfer equal to the long-run average real return of the Savings Fund.
- The Stabilization Fund's value fluctuates in line with shocks in the oil price and revenues – increasing when positive shocks occur and vice versa.
- The long-term growth of the Savings Fund is determined by the size of transfers from annual oil revenues (the "savings rate") – a higher savings rate implies lower near-term spending in favor of higher future (and permanent) spending. As the Savings Fund grows, its annual contribution to the budget in the form of investment income (based on its expected long-run real return) supplements – and potentially replaces – oil revenue.

- If the level of spending from the Savings Fund does not exceed its long-run real return, its capital value will be preserved in real terms, meaning it becomes a permanent endowment and a source of permanent income across generations (even if oil revenues diminish).

The fiscal rule can be captured with a few basic equations. Assume that, before being allocated to the budget, all government revenues are transferred first to the Stabilization Fund, which then makes an annual transfer to the government based on a spending rule. The government is assumed to favor a smooth spending path, so that the spending rule stabilizes transfers from the Stabilization Fund (and, hence, government spending). To achieve a decoupling of spending from volatile revenues, spending is based on a combination of the previous year's spending and a fixed percentage transferred from the Stabilization Fund (based on its size in the previous year):

$$TS_t = \alpha TS_{t-1} + \beta FS_{t-1}$$

where:

$\alpha$  = a fixed parameter anchoring spending on the previous year's spending

$\beta$  = a fixed parameter for transfers based on the size of the Stabilization Fund

TS = the transfer from the Stabilization Fund

FS = the size of the Stabilization Fund

If resource revenues are permanent and sufficient, and the government merely wants to stabilize or smooth spending around the level of volatile revenues, having a Stabilization Fund and a spending rule is sufficient. Given that resource revenues are already a source of permanent income, there is no need to transform or grow natural wealth in the form of a permanent financial endowment, whose income is spread between current and future generations. The Stabilization Fund holds a highly liquid, low-yielding portfolio as it receives and makes large annual transfers in order to stabilize government spending according to the spending rule. The Stabilization Fund will receive large inflows in years following elevated resource revenues, and make large payouts in years of low revenues.

In the more likely scenario that the government wishes not only to stabilize permanent resource revenues, but rather wants to either (i) compensate for declining natural resource wealth by replacing it with financial wealth, or (ii) grow a financial endowment funded by resource revenues to help meet rising spending needs. In such circumstances, a percentage of annual resource revenues should be transferred to a separate Savings Fund.<sup>6</sup> In contrast to the Stabilization Fund's liquid, low-yielding portfolio, the Savings Fund's portfolio has greater exposure to risk factors that generate higher expected long-term returns. Over time, as the Savings Fund grows, the income generated through this fund supplements – and ultimately replaces – resource revenues as a source of (permanent) income to the government, and/or helps match the government's growing liabilities and spending needs.

Assume that the spending rate from the Savings Fund is set as equal to its expected long-run real return. The spending rule can now be rewritten for the two-fund set-up, as follows:

$$T_t = \alpha TS_{t-1} + \beta FS_{t-1} + \delta FE_{t-1}$$

where:

$\alpha$  = a fixed parameter anchoring spending on the previous year's spending

$\beta$  = a fixed parameter for transfers from the Stabilization Fund based on the fund's size

$\delta$  = a fixed parameter for transfers from the Savings Fund, based on its expected return

T = total transfers from both funds

TS = the transfer from the Stabilization Fund

FS = the size of the Stabilization Fund

FE = the size of the Savings Fund

The first two terms still perform the stabilization function – the parameters  $\alpha$  and  $\beta$  are determined by policymakers' preference for stable spending, subject to some constraints around what is sustainable and prudent.<sup>7</sup> Transfers from the Savings Fund, determined by the third term on the right-hand side of spending-rule equation, now supplements oil revenue – either to offset the gradual decline in resource wealth and/or raise the level of spending. The Savings Fund makes an annual transfer,  $\delta$ , to the budget based on its expected average long-run real return (for example, 4% or 5%, based on the fund's investment style and asset allocation).

In the two-fund set-up, the allocation of annual revenues is split between the Stabilization Fund and the Savings Fund, so that the latter receives a share,  $\varphi$ , of annual resource revenues (for example, a 10% or 20% allocation of revenue to the Savings Fund results in  $\varphi = 0.1$  and  $0.2$ , respectively). The Stabilization Fund receives a portion of annual revenues equal to  $1 - \varphi$ . The value of  $\varphi$  reflects the preferences of policymakers and the ability to forego current spending in order to build up financial assets that can provide an alternative source of government income in the future. A higher  $\varphi$  suggest a greater willingness or ability to pursue such savings from current resource revenues. If the government hopes to increase spending along a certain path, a suitable value for  $\varphi$  can be estimated that promotes this objective.

6 This fund could perhaps more accurately be called an "investment income fund", as the fund's investment income can be used to finance current and future expenditure (rather than simply saving assets for future use). Here we adhere to the convention of referring to this type of fund as a "savings fund".

7 Intuitively, in order to stabilize the volatility in spending, the policymaker wants as high an  $\alpha$  as possible; however, an  $\alpha = 1$  is not feasible, as this risk depleting the fund if oil revenues are persistently below their long-run average for an extended period of time. In repeated simulations, we find that an  $\alpha$  of between 0.7 and 0.8 provides an optimal degree of stability in spending, without putting the fund at risk of depletion.

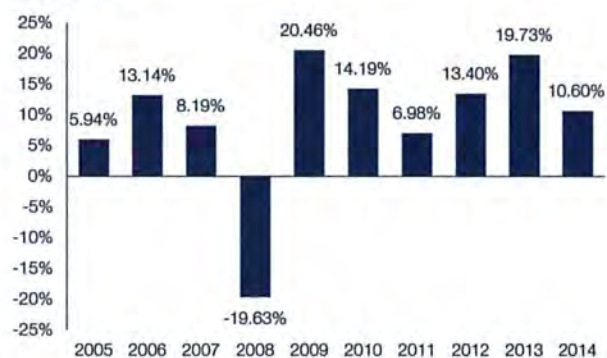
### Data and the simulation of volatile variables

In the following section, we simulate the implementation of the fiscal rule over the 2015 – 2035 horizon, while we also consider a backward-looking, counterfactual application of the rule for the period 2005 – 2013. Calibrating the rule in forward-looking setting requires a number of assumptions around the future path of resource revenues and the returns generated through the Stabilization Fund and the Savings Fund, respectively – as well as the volatilities of all three variables. The trend and volatility of these variables are modeled as follows:

01. Future revenue: we assume total revenue of \$190bn in 2015 (in line with budgeted revenue), which stays at this level until 2018. From then onwards, we assume that trend revenue grows at 4% per annum. In order to account for the volatility of these revenues, we model random fluctuations around that central tendency of 30% per annum.
02. Savings Fund returns: recall that this fund holds a diversified portfolio with significant allocation to risk factors in order to generate higher returns. Based on historical financial markets performance, we assume an average nominal return of 8% per annum, while the randomization process allows returns to vary between -4% and 20% in any given year.
03. Stabilization Fund returns: the Stabilization Fund is assumed to hold a portfolio of liquid, fixed-income assets with an average annual nominal return of 3-5% (also randomized).

In order to account for the combined impact of volatility and uncertainty in these key variables – specifically, to make sure that our findings are robust to combination of extreme (or tail) outcomes in a plausible range of revenues and fund returns – we conduct 1,000 Monte Carlo simulations that randomize the value of revenues and fund returns in the ranges specified above. In the following section, we compute the average outcome of the 1,000 simulations, while also ensuring that the key variables in the rule remain well behaved in all of the 1,000 simulations.

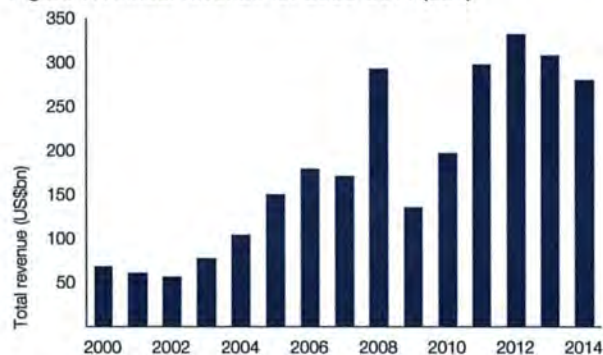
Figure 6: Annual returns on 60/40 balanced portfolio, 2000-2014



Source: Bloomberg

While most of our simulations involve forward-looking calibrations, we also consider a counterfactual application of the model in which we contemplate what would have happened if the fiscal rule had been adopted in the year 2005. For this part of the exercise, we can use the observed values between 2004 and 2014 for both revenues and the returns of the Savings Fund. The returns of the Savings Fund are approximated by the annual returns generated by a 60/40 equity-bond portfolio (rebalanced quarterly), which is a common reference or portfolio benchmark for risk-tolerant sovereign wealth funds and other long-term institutional investors. Stock-market returns are captured by S&P 500 Index and that of bonds by the Barclays US Aggregate Bond Index. The annual returns on this portfolio, which averaged 9.3%, are shown in Figure 6. Revenue data are taken from official data released by the Saudi Arabian government, as shown in Figure 7.

Figure 7: Annual revenue for 2000-2014 (\$bn)



Source: SAMA

## Section 3:

### Scenario analysis

In order to assess the contribution a fiscal rule and sovereign wealth funds could make (and could already have made) to the Saudi economy, this section presents simulations of the rule in various scenarios. We emphasize two distinct scenarios to illustrate our main points.

- **Scenario 1:** a counterfactual assuming that the decision to adopt the fiscal rule and establish the two sovereign wealth funds (Stabilization and Savings Funds) was taken in 2004 and implemented starting in 2005. This provides a 10-year counterfactual.
- **Scenario 2:** the immediate implementation (in 2015) of reforms that introduce the fiscal rule and the two sovereign wealth funds. Here we consider both a realistic implementation, based on an initial level of savings equal to \$750bn at the end of 2014, and a counterfactual based on higher initial savings (which would have been possible had the rule been implemented in 2005) – which clearly demonstrates the long-term value of savings.

#### Scenario 1: the counterfactual

Assume that the reforms outlined above were implemented starting in 2005. The construction of this counterfactual can be achieved with the benefit of actual observed data for revenues and financial market returns between 2005 and 2014. We start from the assumption that by the end of 2004 there was \$300bn in assets held by SAMA, which is split evenly between the newly established Stabilization and Savings Fund, so that the former receives \$100bn at the end of 2004 and the latter \$200bn. We assume that the Savings Fund's investment returns are approximated by a quarterly rebalanced 60/40 equity-bond portfolio, as described above (see Figure 6). Recall that the rule

discussed in the previous section provides for spending from three sources: (i) a fixed percentage ( $\alpha$ ) based on the previous year's spending, irrespective of the amount of revenues received; (ii) a fixed percentage ( $\beta$ ) transfer from the Stabilization Fund; and (iii) income from the Savings Fund based on its expected and sustainable long-run real return ( $\delta$ ).

Our baseline calibration of the spending rule sets these key parameters as follows:  $\alpha = 0.8$ ,  $\beta = 0.15$  and  $\delta = 0.05$ , so that the spending rule is implemented as follows:

$$T_t = 0.8TS_{t-1} + 0.15FS_{t-1} + 0.05FE_{t-1}$$

With this baseline spending rule, the main discretionary "policy lever" for government is  $\varphi$  – that is, the "savings rate" that transfers a percentage of annual revenue to the Savings Fund. All things being equal, a higher  $\varphi$  implies less spending in the short term in favor of a more aggressive build-up of the Savings Fund and higher future (and permanent) spending; while a lower  $\varphi$  implies higher spending in the short run at the expense of a lower level of spending in future. Our baseline assumption for the counterfactual is that 20% of revenues are transferred to the Savings Fund ( $\varphi = 0.20$ ). Finally, we assume that in implementing these reforms, the government commits during this period of rising revenue (which would require an ex ante commitment) not to spend any investment income from the Savings Fund, but rather to reinvest its investment proceeds in order to build up the fund's capital.<sup>8</sup>

8 This is the same approach pursued by a number of countries during the initial accumulation phase of their savings funds. The simple logic is that reinvesting returns allows the fund's capital to compound at a much faster rate, achieving a rapid accumulation of assets and the establishment of an alternative, permanent source of income. In the Gulf region, Kuwait has pursued this approach with the Kuwait Investment Authority.

Figure 8: Modeled counterfactual versus actual spending – 2005-2014

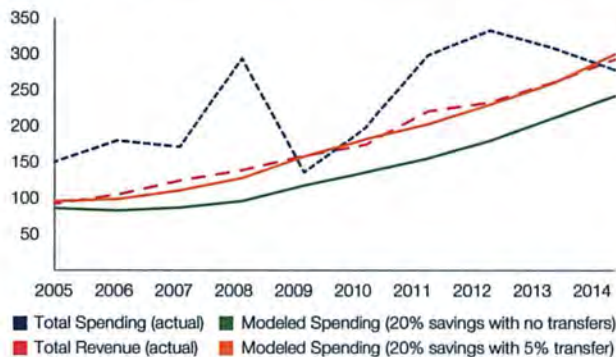


Figure 8 shows the output from the modeling of this counterfactual from which a number of important findings emerge. First, the modeled spending is similar to the actual spending in term of its profile, although the modeled path is, of course, consistently lower. Total spending under the fiscal rule between 2005 and 2014 was \$1.4 trillion versus the \$1.8 trillion actually spent. Interestingly, if we add a transfer of 5% per annum (i.e.  $\delta = 0.05$ ) from Savings Fund to the model, we find a modeled spending path for 2005-2013 that is remarkably close to that of actual spending (see Figure 8), albeit still resulting in somewhat lower spending and a greater accumulation of assets.

These similarities between the modeled and actual spending profile shows, first, that the framework we are proposing produces sensible results. Second, it shows that Saudi policymakers have implicitly pursued policies similar to what we propose. The benefits of adopting our proposed framework and a more explicit a set of rules include that it: (i) commits future policymakers to savings during revenue booms (rather than relying on discretion and ad hoc savings processes); (ii) prevents unsustainable, overspending during a temporary revenue boom (which our model suggests did occur to some extent between 2005 and 2013); and (iii) establish a more transparent, predictable and resilient response to anticipated shocks to oil revenues.

It is also striking that the modeled spending path would have resulted in a much greater accumulation of assets during what was ultimately (with the benefit of hindsight) a boom period in oil prices. Under the modeled fiscal rule, Saudi Arabia would have accumulated \$1.865 trillion in total assets between the Savings and Stabilization Fund by the end of 2014 (see Figure 9).<sup>9</sup> This is over \$1 trillion more than the \$750bn SAMA actually held by the end of 2014.

Figure 9: Revenue and cumulative sovereign wealth fund assets (counterfactual)



9 Even if we add the 5% transfer from Savings Fund, the accumulation of assets is larger than what actually was achieved. Saudi Arabia would have accumulated \$1.2 trillion in assets between the Savings and Stabilization Fund by the end of 2014 (see Figure 10). This is some \$450bn more in saved assets than the actual accumulated assets Saudi Arabia held by the end of 2014.

## Scenario 2: Implementing reforms in 2015

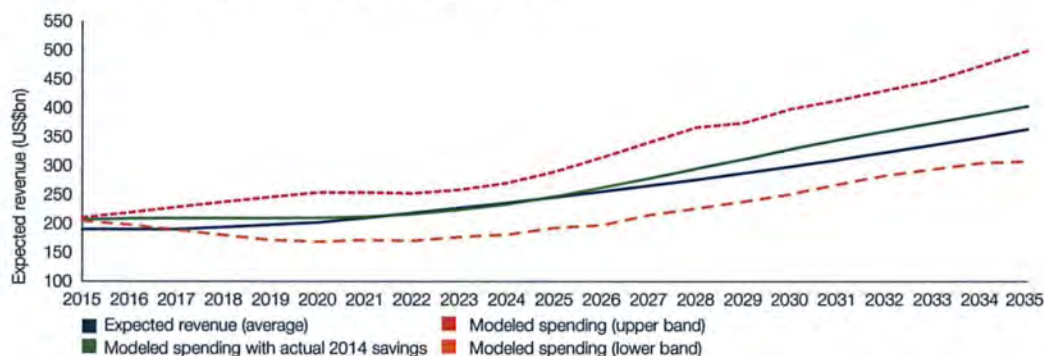
In the second scenario, we assume that the government takes immediate steps to establish a rule-based framework for the allocation, spending and savings of revenue along the lines described in the previous section. This would require in the first instance using Saudi Arabia's existing accumulated reserves to create two funds: a Stabilization Fund and Savings Fund. In the simulation below, we assume that the government has a total of \$750bn in previously accumulated assets as of end-2014 – which is in line with the assets held by SAMA as of end-2014 – to split between the two funds. Second, the reforms would require the adoption of formal savings and spending rules that govern the transfer of revenues and income between the two funds and the budget.

We calibrate the rule with the same parameters as those used above to construct the counterfactual:  $\alpha = 0.8$ ,  $\beta = 0.15$  and  $\delta = 0.05$ . However, given that we assume that Saudi Arabia is entering a period of reduced revenue for the foreseeable future (see Section 2 for our assumptions on the trend in future revenues), a savings rate of 20% may be deemed implausibly high for the implementation of the fiscal rule in 2015. We therefore, model the rule for 2015 implementation with a savings rate of 15% - i.e.,  $\phi = 0.15$ . We assume that the initial values for the Stabilization and Savings Fund are \$250bn and \$500bn, respectively (funded by the \$750bn in assets SAMA held by the end of 2014).

Figure 10 shows the output from this particular calibration of the fiscal rule, if implemented in 2015. We show the average modeled spending path under the fiscal rule, as well as the upper and lower bands for spending. The average spending path represents the mean value from 1,000 simulations based on random fluctuations in revenues and the two funds' returns (within the parameters outlined in the previous section); while the upper and lower bands represent the "best-" and "worst-case" scenarios based on 1,000 randomized iterations, respectively.<sup>10</sup> A number of insights emerge:

- Under this specification, the average spending permitted under the policy rule starts slightly below the level in 2015 budget: the modeled spending starts with \$209bn in total spending, whereas the budget plans for \$229bn. Under the specification of the policy rule, spending of \$229bn would result in a sharp drop in the level of the Stabilization Fund, which – following the policy rule – would mean spending would ultimately have to drop in subsequent years. Under the specification of rule shown in Figure 10, spending growth would remain flat for the first few years, but start to accelerate from 2020, following the modeled recovery in oil revenues.

Figure 10: Baseline calibration for 2015 implementation



<sup>10</sup> It should be stressed that these results are generated based on one particular methodology for estimating future oil revenues (and financial market returns). There are, of course, a number of alternative, and potentially more complex, ways to model the trend and volatility of future oil revenues. While the results here show the basic institution behind the model, the calibration of the rule can be "stress tested" against a number of different forecasting methodologies to ensure they are robust to all outcomes. Extending our model to incorporate a suite of different future oil-revenue and financial-market return estimators can easily be achieved in subsequent studies.

– Figure 11 shows the change over time in the contribution to spending from the three sources: (i) the fixed percentage of the previous year's spending, (ii) transfers based on the size of the Stabilization Fund, and (iii) investment income generated by the Savings Fund. Note that the share of total spending coming from the Savings Fund is rising, as the fund grows. By the end of the simulation horizon in 2035, the Savings Fund approaches \$2 trillion in assets under management, which means it is contributing around \$100bn in investment income. Of course, the size of Savings Fund and its contribution to total spending will continue to rise as long as it receives a portion of revenue – and as long as spending does not exceed the Savings Fund's long-run real return, the fund is a source of permanent income (which can even be maintained in perpetuity, even if oil revenues decline).

Figure 11: Contributions to total spending under the fiscal rule



### The impact of higher initial savings

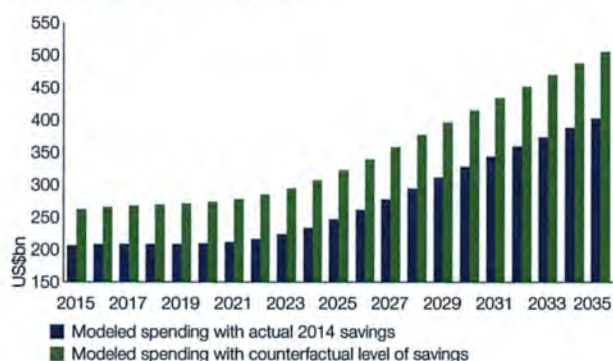
Recall from the analysis of the counterfactual under Scenario 1 that the implementation of the policy rule starting in 2005 would have resulted in total accumulated assets at the end of 2014 of \$1.865 trillion. It is instructive to consider what this additional savings would have implied for the level of spending and future growth of the two funds, compared to the realistic implementation of the rule analyzed in Scenario 2. In order to examine the impact of higher initial savings, we use the same calibration of the fiscal rule as before in Scenario 2:  $\alpha = 0.8$ ,  $\beta = 0.15$ ,  $\delta = 0.05$  and  $\varphi = 0.15$ . The Stabilization Fund still starts with an initial allocation of \$250bn. However, with the higher level of initial savings, we now assume that the Savings Fund receives an initial allocation of \$1.615 trillion starting in 2015 (as opposed to \$500bn, as per Scenario 2). Figure 12 compares the two modeled spending paths using the same calibration of the rule, but with different initial fund values.<sup>11</sup> A number of observations stand out:

01. Because both simulations use the same calibration of the fiscal rule, the profile of the two spending paths is similar. However, the higher initial savings and higher starting value for the Savings Fund, raises its investment income and the level of spending in every year. This higher level of spending is permanent, rather than transitory.
02. With higher initial savings, spending in first year is even higher than the total spending in the expansionary 2015 budget. The average level of spending (from 1,000 randomized simulations) for 2015 with higher initial savings is \$262bn, as opposed to \$209bn under Scenario 2 (recall, the 2015 budget includes \$229bn in total spending).
03. While the modeled spending path using the actual level of savings requires spending to remain flat until 2020, the counterfactual with higher initial savings would have allowed spending to continue growing, despite the assumed drop in revenues between 2015 and 2018. By 2020, total spending in the counterfactual has risen to \$274bn. As in Scenario 2, spending growth then accelerates after 2020 as the recovery in oil revenues starts to feed through to the two sovereign wealth funds.

<sup>11</sup> Figure 12 compares the average value for total spending for both scenarios from 1,000 randomized simulations.

04. Whereas the Savings Fund reached an expected value of \$2 trillion by 2035 under Scenario 2, the counterfactual with higher initial savings would have the Savings Fund reach this level (generating \$100bn in annual income) much earlier – by 2017/2018.

Figure 12: Comparing spending paths with actual vs counterfactual initial savings



### Policy implications from the scenarios

Scenario 1 considered a counterfactual in which Saudi Arabia adopted the proposed reforms a decade ago (starting in 2005). Over the past decade, Saudi Arabia managed to accumulate savings from exceptionally high oil revenues in certain years, notably 2008 and 2011-13, while at the same time raising the level of spending considerably. The value of assets held by SAMA grew from roughly \$150bn in 2000 to a peak of around \$800bn in mid-2014. Scenario 1 suggests that, while this accumulation of assets appears substantial, the failure to develop and implement a rule-based fiscal policy framework and formal sovereign wealth fund structures is a missed opportunity. Saudi Arabia could have accumulated more assets (required to generate permanent income for the future), without greatly reducing spending. The counterfactual analysis revealed three specific insights:

01. The earlier adoption of the proposed reforms would have resulted in much a more rapid and significant accumulation of assets. Adopting the reforms in 2005 would have generated around \$1 trillion in additional assets compared to the savings that Saudi Arabia did generate over the period. This additional savings would have contributed an additional \$60bn in revenue (from investment income) by 2015.

02. This additional savings would have made a significant difference with respect to reducing the trade-offs associated with future policies. Higher initial savings would have allowed a higher level of future spending. Higher saving would have been permanent and would have allowed spending to keep growing, despite the drop in revenues that we assumed for 2015 to 2018. If Saudi Arabia had saved a greater share of revenues during the past decade, it would have been plausible to maintain even higher spending than what was announced expansionary budget for 2015.

03. The difference in the level of future spending with higher initial savings as of end-2014 has important policy implications for the decision of when to implement the reforms we propose in this paper – specifically, it underlines the long-term cost associated with delayed reforms. Consider, for example, a delay in implementing reforms until 2020. Using the IMF's modeling (see IMF, 2014), Saudi Arabia's foreign assets would fall by \$450bn between 2014 and 2019 if spending is not moderated and oil revenues are 25% lower over this period (compared to 2013). If this were to occur, Saudi Arabia would be left with only around \$350bn in total reserve assets at the start of 2020, much of which would have to remain in low-yielding liquid assets to maintain the currency peg and provision for future shocks. This would imply a considerably lower permanent level of spending.

The second scenario we considered in this section took as a starting point that reforms are implemented immediately, using the \$750bn in assets SAMA held as of end-2014. The result of the calibration of the fiscal rule with this realistic starting point, revealed a number of important insights:

- 
01. Spending can be maintained around \$210bn per annum between 2015 and 2019, despite the assumed drop in revenue. The policy rule, however, suggests that the level should be slightly lower than the budgeted spending for 2015 (\$229bn), if revenue remains flat at \$190bn for a period of three years.
  02. The fiscal rule suggests that spending in line with the budgeted \$229bn would only be possible if the government drew more heavily on the assets of the Stabilization Fund in 2015, which requires spending cuts in the years that follow.
  03. Over time, the contribution to total spending from investment income generated by the Savings Fund rises. However, with a savings rate of 15% - which is relatively low, but necessarily so in order to avoid sharper spending cuts - the rise in the share of this investment income to total spending is gradual. With the assumed revenue growth path and the calibration of the fiscal rule we used in Scenario 2, the Savings Fund would reach \$2 trillion in assets under management (making a \$100bn contribution in annual revenue) by 2035.
  04. However, it is important to emphasize that, as long as spending does not exceed the Savings Fund's long-run real return, the fund is a source of permanent, rather than transitory, income that can be maintained even when oil revenues decline. The Savings Fund, therefore, effectively transforms a depleting asset (in the form oil) into a permanent asset (in the form of a financial portfolio) that can generate another source of income to the government in perpetuity.

Above all, the implementation of the policy rule achieves the critically important function of decoupling spending from volatile and uncertain oil revenues. The rule anchors spending in first instance on 80% of the previous year's spending, which naturally provides a high degree of stability; while unanticipated fluctuations in oil revenues are absorbed through the Savings Fund and the Stabilization Fund. Changes in the level of these two funds do ultimately feed through to spending, but in a delayed and gradual manner through the rule.

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## Section 4: Implementation

This section considers how the most important operational practices of sovereign wealth funds can be applied in the Saudi context to implement the policies and institutional arrangements proposed in this paper. The governance of sovereign wealth funds has been a growing academic and policy interest in recent years (for academic perspectives, see Ang, 2010 and Clarke et. al., 2013; for more policy-orientated analyses see Das et. al., 2009, Truman, 2010 and Al-Hassan et. al., 2013). In a background study to this paper, Alswilem et. al. (2015) emphasize that the governance and implementation of sovereign wealth fund models needs to be understood in a broad sense – beyond the narrow focus on the specific institutions investing the assets (although this is an important part of the overall question, as discussed below). They identify the following broad institutional principles and practices in the implementation of all successful sovereign wealth fund models:

01. The primacy of fiscal rules: the rule-based spending and savings policies are an essential (perhaps the essential) part of the overall governance or institutional framework of sovereign wealth funds. The governance of a sovereign wealth fund does not only pertain narrowly to the rules, structures and arrangements around the fund itself, but also to the entire fiscal framework and the sovereign wealth fund's place in it. Fiscal rules, whether publically disclosed or not, need to be adhered to in good and bad times – in academic terms, they need to be time consistent. As with monetary policy, rules help counteract the dynamic inconsistencies and procyclical policies that are long-standing macroeconomic and fiscal problems in resource-rich countries.

02. Operational independence for long-term investment funds: the world's leading sovereign wealth funds – particularly those with long-term, inter-generational mandates (like the Savings Fund in our model) – have been granted clear operational independence from government sponsors. An institutional separation from government helps insulate the fund from political and fiscal pressures that undermine the achievement of investment returns required to make the fiscal rule sustainable in the long run. It is also critically important that different kinds of sovereign wealth funds – stabilization funds, savings funds, pension-reserve funds and domestic development funds – have clearly differentiated mandates, objectives, and operational and governance arrangements.

03. Oversight in exchange for independence: while operational independence is important, sovereign wealth funds' independence is never absolute. The fiscal rules around the fund need to be designed and adhered to by ministries (typically, the finance ministries). Governments and legislators should also be involved in the establishment of sovereign wealth fund objectives, mandates and broad risk/return profiles. Operationally independent sovereign wealth funds exercise delegated authority, which requires both clearly articulated (and measurable) objectives and mandates, and robust oversight and reporting mechanisms.

These three broad principles can be used to frame an implementation strategy for the fiscal rules and sovereign wealth funds in Saudi Arabia proposed in this paper.

### **Establishing and governing the fiscal rule**

Ultimate authority for the establishment of the fiscal rule – and, importantly, the calibration of the rule's key parameters and ensuring that it is enforced – should be entrusted to authorities above the ministerial level. There are principally two reasons for this. First, the calibration of the rule requires a perspective and decision-making horizon that extends beyond that of ministers. Second, the finance ministry cannot be regarded as a neutral voice in the calibration and enforcement of the fiscal rule, as it – by definition and intention – ties the minister's hands to some extent and limits the discretion of executive office holders. This is not to say that the Minister of Finance will have no influence on the process around the establishment and calibration of the fiscal rule: indeed, the technical details of this process would inevitably involve technocratic expertise. The Minister of Finance would, therefore, be a logical member of a broad-based consultative body tasked with advising and studying the technical details of the fiscal rule. This body would comprise technocrats with established economic credentials, such as (in addition to the Minister of Finance) other ministers in the economic cluster, the governor of the central bank, senior officials from other state institutions – and potentially external experts. In the large literature on fiscal rules, the establishment of independent Fiscal Policy Committees has often been suggested, and offers a promising institutional solution should be government be willing to delegate the authority for determining finer aspects of the fiscal rule (Besley and Scott, 2010; and Debrun et. al., 2009).

In the specific context of Saudi Arabia, we propose that the two newly established Councils – the Council of Economic & Development Affairs and the Council of Political & Security Affairs – would have ultimate responsibility for the establishment and specification of the fiscal rule. These Councils include all key economic ministers, and its authority over the fiscal rule will ensure that policies are implemented with due consideration of their economic, developmental and security implications. The Councils would most likely task an expert committee – possibly in the

form of a Fiscal Policy Committee (see the preceding paragraph) with the analysis of the technical details involved with specifying the parameters of the fiscal rule.<sup>12</sup>

### **Operational independence and institutional positioning of the funds**

The fiscal rule proposed in this paper makes a clear distinction between the Stabilization Fund and the Savings Fund, which perform different functions and hold different portfolios. In practice, many countries combine the management of these two types of funds (through internally differentiated portfolios or tranches) or have them managed under one roof by a single sovereign investment entity. While there are practical and pragmatic reasons for doing so, strong arguments can also be made for separating the Stabilization Fund and the Savings Fund more fundamentally.

In the Saudi context, a clear separation would be justified given the scale of the assets and revenues in question. It would be feasible to leave the responsibility for the management of the Stabilization Fund with SAMA – or with carved-out entity within the central bank, chaired by the Minister of Finance. In the first instance, the Stabilization Fund's investment profile would be similar to that of conventional central bank reserves portfolios, with an emphasis on liquidity and capital preservation in fixed-income and money markets. The central bank has clear expertise (and the requisite operational infrastructure) to invest the Stabilization Fund's assets in a prudent manner. More fundamentally, the Stabilization Fund is essentially part of the annual fiscal process, helping to stabilize spending from year to year. The Ministry of Finance should, therefore, have a clear line of sight into the fund and its operations, and be able to draw on its assets and income – albeit in a manner constrained by the fiscal rule.

In contrast, if international practice were to be followed, a dedicated, independent portfolio investment authority would manage the Savings Fund.<sup>13</sup> The Savings Fund is essentially independent of the fiscal process – its most important

12 As noted earlier, the parameters used in the simulations are merely suggestive. In practice, more detailed stress tests should be conducted to find parameters that are robust to the outcomes generated by a number of alternative, and potentially more complex, ways to model the trend and volatility of future revenues (and, possible, financial market returns). The choice of parameters is ultimately a political decision, involving preferences around the trade-off between current and future spending, and the tolerance for possible reductions in spending. However, the choice of parameters should be made from sound technical basis, which can be achieved through the framework proposed in this paper, coupled with a more comprehensive modeling of key variables to ensure robustness.

13 In practice the Savings Fund would have a more appealing title, such as the "Saudi Future Generations Fund" or the "Saudi Investment Fund".

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objective is to hit its real-return target in the long run and contribute a sustainable and stable source of non-oil income to budget. The unambiguous lesson from the academic literature and practical experience is that public funds' achievement of long-term financial return targets is greatly compromised by political interference (see Hess and Impavido, 2004; Mitchell and Yang, 2005; Ambachtsheer, 2006; and Yermo, 2008). More practically, the Savings Fund's investments require technical investment expertise across a range of asset classes, risk factors and external-manager expertise. Countries as diverse as Norway, Abu Dhabi, Singapore, China and Kuwait have recognized the merits of establishing this institutional separation in order to raise long-term funds' investment performance.

### **Governance of the independent investment authority**

The operational independence and delegated authority of the Savings Fund require appropriate levels of oversight and reporting. In practice, delegated authority over sovereign wealth funds involves multiple principal-agent relationships, in which authority is delegated in exchange for monitoring (Clark et. al. 2013; and Ang, 2014). These agency relationships call for: (i) clarity of objectives and responsibilities between principals and agents, (ii) the measurement of, and targets for, the performance of agents, and (iii) regular reporting and monitoring of agents.

In the case of Saudi Arabia, we propose the establishment of three distinct bodies in the governance structure of the Savings Fund: (i) a Governing Council, which would be the highest authority in relation to the fund; (ii) an independent Board of Directors, which sets the high-level policies of the fund and appoints its senior executive management; and (iii) a senior executive team whose task it is to implement the policies established by the Board of Directors. These entities and their key functions are described below (and in Table 3).

- The **Governing Council** would consist of the highest political authorities and key economic officials, who would have ultimate authority over the Savings Fund. The most important functions of the Governing Council would be to: (i) clarify the purpose and mandate of the Savings Fund, ensuring that these are realistic and promote the integrity of the fiscal rule; (ii) ensure that the operational independence of the Savings Fund and its management authority is preserved at all times; and (iii) oversee the appointment, competence and independence of the Board of Directors, its chairman and the head of the institution managing the Savings Fund. In the Saudi case, we propose that the Governing Council would consist of selected members of the Council of Economic & Development Affairs and the Council of Political & Security Affairs. In addition to its oversight of the Savings Fund, the Governing Council should also oversee the investment funds of other government institutions to ensure consistency, coordination and good governance.
- The **Board of Directors** would consist of independent technocrats, appointed by the Governing Council on the basis of their investment expertise and track record. Following international best practice, the Board would have members serving fixed (renewable) terms and potentially include international experts. The Board would have a number of important tasks in relation to the investment policies and strategy of the Savings Fund. It would: (i) establish the fund's risk-return profile as an articulation of the mandate received from the Governing Council, (ii) determine the fund's Strategic Asset Allocation, risk-factor allocation and benchmarks to promote the achievement of its long-term real return target captured in the fiscal rule, and (iii) establish key Board-level governance committees to develop strategies and oversee management, notably an Investment Committee, a Risk Committee and operational committees (compensation, audit, etc.). In order to establish true independence, there would be no overlap in the membership of the Governing Council and the Board of Directors – the latter would be an entirely independent body of appointed technocrats.

– Finally, the Senior Executive Team, led by a Chief Executive Officer (appointed by the Board) would be responsible for implementing the policies and strategies handed down by the Board of Directors. Depending on its investment model, the management institution performs some combination of the following tasks: (i) administering the investment of the fund's assets; (ii) outperforming the benchmarks established by the Board (i.e. "generating alpha"); and (iii) overseeing external fund managers. Following international practices, some senior executives may also sit on the Board of Directors, most likely the Chief Executive Officer and the Chief Investment and Chief Risk Officer – however, they would not chair the Board or have any exceptional powers in relation to it. The former two would naturally join the Board's Investment Committee, while the latter would be part of the Risk Committee.

Saudi Arabia has a number of structural advantages in implementing the reforms we propose in this paper. First, the investment model is already broadly in place. The Saudi Arabian Monetary Agency has a proven track record, capacity and expertise in investment management and already invests Saudi Arabia's existing reserves in a way that would require minimal changes under the formal establishment of a Stabilization Fund and an independent Savings Fund. Second, unlike many other resource-rich countries, Saudi Arabia did accumulate significant savings during the period of booming oil revenues over the past decade. These savings may be less than what is desirable from a long-term fiscal perspective, but are nevertheless significant and make the reforms we propose more feasible.

Table 3: Proposed governance structure

<b>BODY</b>	<b>KEY FUNCTIONS</b>	<b>WHO</b>
Governing Council	<p>Create the mandate of the Savings Fund, ensuring it is realistic and promotes the achievement of the fiscal rule.</p> <p>Ensure that the operational independence of the Savings Fund and its management authority is preserved at all times.</p> <p>Oversee the appointment, competence and independence of the Board of Directors.</p>	Selected members from the Council of Economic & Development Affairs and the Council for Political & Security Affairs.
Board of Directors	<p>Establish the fund's fundamental risk-return profile as an articulation of the mandate received from the Governing Council.</p> <p>Determine the fund's Strategic Asset Allocation, risk-factor allocation and benchmarks to promote the achievement of the long-term real return target in the fiscal rule.</p> <p>Establish Board-level governance committees to develop strategies and oversee management: Investment Committee, a Risk Committee and operational committees.</p>	Independent technocrats, appointed by the Governing Council on the basis of investment expertise. Board members would serve fixed (renewable) terms and potentially include international experts.
Senior Executive Team	<p>Implementing the policies and strategies handed down by the Board of Directors.</p> <p>Administering the investment of the fund's assets.</p> <p>Attempting to outperform the benchmarks established by the Board (i.e. "generating alpha").</p> <p>Overseeing external fund managers and other service providers (investment consultants, IT services, etc.).</p>	Chief executive officer, chief investment officer, chief risk officer, chief operational officer. Senior executive team appointed by the Board of Directors.

### A Saudi sovereign development fund – models and mandates

In addition to stabilization and savings funds, a number of resource-dependent countries have created a third type of sovereign investment vehicle, namely sovereign development funds. While there are a number of different operational and investment models within this group, these funds share a focus on investing in the domestic economy, with at least a partial objective of developing local infrastructure and industries that promote diversification and job creation. They have also generally been created when more established or conventional sovereign funds, such as saving and stabilization funds, reach a critical level relative to identified policy needs.

A number of broad trends around sovereign development funds can be highlighted. First, the size of these funds is often constrained by the need to first achieve stabilization and savings objectives, and by the absorptive capacity in the domestic economy. Consequently, a number of the sovereign development funds in the Middle East – Mubadala (Abu Dhabi), Mumtalakat (Bahrain) and Saudi Arabia's own Public Investment Fund – are relatively small, compared to stabilization and savings funds. A second trend amongst sovereign development funds, notably Temasek (Singapore), Khazanah (Malaysia) and Samruk-Kazyna (Kazakhstan), is the tendency to augment the fund's own financial resources through the issuance of debt, public-private partnerships and co-investments with other sovereign funds, foreign investors and private corporations.

Finally, while sovereign development funds have typically been primarily focused on top-down investments in public infrastructure and "mega projects", a more recent model involves smaller, venture-capital style investments in domestic growth sectors. These funds' investment models and target sectors are often described as "strategic" and

"innovative". A prominent example of such a fund is the Ireland Strategic Investment Fund (which was spun out of the National Pensions Reserve Fund in December 2014), while the Chinese government has recently launched a similar vehicle (see Mitchell, 2015).

The advantages to channeling public investments in targeted sectors through a sovereign development fund, rather than through the budget, include the ability to capture sector-specific "know-how" in a dedicated fund, the capacity to co-invest and attract private capital, and an institutionalized long-term investment orientation and horizon. The analysis of Economic Complexity, pioneered by the Center for International Development at Harvard Kennedy School, provides invaluable insights into how to identify national sectors that promote sustainable economic growth and diversification (see Box 1).

In the Saudi context, the allocation of a portion of assets to a new sovereign development fund - or a scaled-up and reformed Public Investment Fund – would be compatible with the proposals made in this paper. For example, the Sovereign Development Fund could receive a stable and predictable flow of funding from a portion of the investment income of the Savings Fund. However, the establishment of a sovereign development fund should be a second-round reform, once the stabilization and saving requirements have

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## Section 5:

# Conclusions and policy recommendations

been met, and the fiscal rule and new sovereign wealth funds have been firmly established.

This paper has argued that Saudi Arabia should adopt a rule-based fiscal framework and establish two separate sovereign wealth funds: a Stabilization Fund and a Savings Fund. The most important overarching purpose of these reforms would be to decouple spending from volatile and uncertain oil revenues, which is the country's increasingly dominant source of public revenue. This decoupling would help Saudi Arabia maintain steady growth in the level spending, regardless of positive and negative shocks to oil revenues, avoiding the tendency towards procyclical fiscal policy in the short- to medium term, while also laying the foundations for a sustainable rise in spending over the long run.

Our analysis shows that these reforms will contribute significantly to meeting Saudi Arabia's growing long-term fiscal challenges; importantly, without imposing unbearable short-term reductions in spending, even if oil revenues remain low for an extended period of time. In contrast, without these reforms, the likely policy response to a sustained drop in oil revenues – which, following historical precedents, include depleting previously accumulated assets held by SAMA, cutting back sharply on capital spending, and possibly borrowing – all place the Saudi economy and fiscal trajectory on an uncertain path. Our proposed reforms show that this stark trade-off can be avoided.

Section 1 discussed a number of trends and features of the Saudi economy, which can be summarized as follows:

- Oil dependence is high and rising;
- Revenue, debt and capital spending are very highly correlated with cyclical movements in the oil price;
- Reserves are at risk as the budget breakeven oil price rises;
- Long-term spending pressures are rising; and
- Long-term oil-revenue trends are highly uncertain.

If spending is maintained by drawing heavily on reserves assets held by SAMA, Saudi Arabia may well avert any short-term crisis. However, depleting reserves will have long-term costs, exacerbating the already significant medium- and long-term fiscal challenges confronting the Kingdom, and putting the future stability of the Saudi riyal at risk.

Section 2 and 3 introduced and applied a simple fiscal rule with two sovereign wealth funds. The rule decouples government spending from annual variations in oil revenue, ensuring that spending does not react to short-term fluctuations in the oil price. As the Savings Fund grows, its investment income substitutes (and potentially replaces) oil revenues. The income from the Savings Fund is permanent, rather than temporary, as long as spending out of the fund does not exceed its long-run real return. Our modeling of the calibrated fiscal rule in a number of different counterfactual and simulated contexts in Section 3 revealed the following insights:

- The adoption of the proposed reforms in 2005 would have resulted in additional savings of around \$1 trillion. This additional savings would have reduced the trade-offs associated with future policies, allowing for a permanently higher level of future spending.
- The difference in the level of future spending with higher initial savings has important implications for the decision of when to implement the reforms we propose. Delayed reforms have long-term costs. If SAMA's foreign assets were to drop to around \$350bn by the end of 2019, as assumed under the IMF's recent low-revenue scenario, it would result in a considerably lower permanent level of spending (or the need for painful spending cuts in the future).
- Our modeling of the fiscal rule under the assumption of immediate reforms (using the actual level of SAMA assets as of end-2014) shows that spending can be maintained around \$210bn per annum between 2015 and 2019, despite the assumed drop in revenue. The level of spending is slightly lower than the budgeted spending for 2015 (\$229bn). We regard this fiscal adjustment as both necessary and achievable – and more prudent in terms of long-term fiscal dynamics than the current policy path.

### The feasibility and urgency of reforms: five key messages

- The reforms are important and urgent, as they help preserve and protect Saudi foreign assets. If foreign reserves are drawn down over the coming years to finance spending in a low oil-price environment, these fund sizes would be much smaller, reducing the efficacy of the reforms and threatening fiscal and exchange-rate stability.
- Saudi Arabia has an opportunity to use its existing foreign reserves to establish a sustainable fiscal framework (and a source of permanent income for the future). Our proposal is to place \$500bn of current foreign assets in a Savings Fund, with the remaining \$250bn placed in a Stabilization Fund.
- The reforms do not imply or require a dramatic cut in total spending, even with the assumed drop in oil revenues over the next 3-5 years. Similarly, if adopted ten years ago, these reforms would not have compromised spending on development projects, but would rather have rationalized public spending.
- The current outlook for lower oil revenues does not mean it is too late to implement the reforms – rather, it underlines their urgency. The fiscal rule and sovereign wealth funds would help manage a period of lower oil prices.
- The establishment of an independent sovereign wealth fund does not require changes to way Saudi foreign assets are invested. Rather, the reforms address the need to preserve government assets and establish a rule-based, time-consistent fiscal framework for saving and spending.

Section 4 considered a number of practical aspects around the implementation of the reforms we proposed, specifically the governance of the fiscal rule and the two sovereign wealth funds. We emphasize the critical importance of not treating the narrow governance of the sovereign wealth funds as independent from that of the fiscal rule – even the best run sovereign wealth fund can be undone by the failure to stick to the fiscal rule through good and bad times.<sup>14</sup> We also propose a number of specific institutional and governance arrangements for the implementation of the reforms in the Saudi context, as discussed below.

### Specific policy recommendations

The paper made a number of specific policy recommendations, which can be summarized as follows:

01. Adopt a fiscal rule that decouples spending from volatile and uncertain oil revenues. The rule stabilizes spending around the previous year's spending, irrespective of annual fluctuations in oil revenues, which are absorbed through the sovereign wealth funds.

02. Create two distinct sovereign wealth funds, namely a Stabilization Fund and a Savings Fund. The former absorbs excesses and shortfalls in revenues arising from oil-price movements. The Savings Fund generates investment income (based on its long-run expected return) that supplements and potentially replaces (in the case of declining resource wealth) oil revenues. We propose placing \$500bn in the Savings Fund and \$250bn in the Stabilization Fund, funded by the \$750bn in assets held by SAMA (as of end-2014).

03. Transfer 15% of annual oil revenues to the Savings Fund, which will allow it to grow to \$2 trillion by 2035, while contributing 5% of its value to budget every year starting with the 2016 budget. Spending from the Savings Fund should not exceed the fund's long-run average real return if the real value of the fund's capital is to be preserved and for the fund to provide a source of permanent income across generations.

<sup>14</sup> Indeed, these policy and institutional interventions should be seen as part of even wider fiscal considerations. For example, the accumulation of assets in well-governed sovereign wealth funds and the prudent adherence to the fiscal rule could still be undermined by the simultaneous accumulation of debt (i.e. the growth of sovereign assets being offset by the growth of sovereign liabilities).

- 
04. Grant ultimate authority over the fiscal rule to the newly established Council of Economic & Development Affairs and the Council of Political & Security Affairs. The appropriate specification and adherence to the fiscal rule are critical to achieving the benefits of the reforms we propose. Therefore, the ultimate authority for these decisions should be entrusted to authorities above the ministerial level. The calibration of the rule requires a decision-making horizon that extends beyond that of ministers, whose discretion and flexibility is by definition and intention constrained by the rule. The two Councils may appoint a permanent expert committee (ie., a Fiscal Policy Committee) to study and report on the technical aspects of the rule's parameters.
  05. Separate governance and operational models for the two funds. The Stabilization Fund's mandate, role and investment model is such that it can remain under the administration of SAMA, under the supervision of the Minister of Finance. In contrast, the Savings Fund would be best constituted as an independent investment authority, under the ultimate supervision of a Governing Council.
  06. Establish a three-tier governance structure for the Savings Fund. We proposed the establishment of Governing Council (consisting of selected members of the Council of Economic & Development Affairs and the Council of Political & Security Affairs) as the highest supervisory authority of the fund. Second, we propose the establishment of an independent Board of Governors (consisting of appointed technocrats serving fixed terms). Finally, the Board would give authority to implement the Savings Fund's investment policies, strategies and operations to a Senior Executive Team.
  07. Finally, we propose that in addition to its oversight of the Savings Fund, the Governing Council should oversee the investment funds of other government institutions to ensure consistency, coordination and good governance.

Saudi Arabia has a number of structural advantages in implementing the reforms we propose. First, SAMA has a proven track record, capacity and expertise in investment management; and already invests Saudi Arabia's existing reserves in a way that would require minimal changes under the formal establishment of a Stabilization Fund and Savings Fund (albeit in a changed institutional setting). The current investment model is not the problem. Rather, the problem lies with governance issues around Saudi Arabia's foreign assets, particularly the absence of a rule-based fiscal framework to protect and grow these assets. Second, unlike many poorer resource-dependent countries, Saudi Arabia did accumulate significant savings during the period of booming oil revenues over the past decade. These savings may be less than what is desirable from a long-term fiscal perspective, but are nevertheless significant and make the reforms we propose more feasible.

The policy and institutional reforms proposed and outlined in this paper will not be a panacea that single-handedly addresses Saudi Arabia's long-term economic challenges. Many complementary initiatives to promote economic diversification, generate additional non-oil revenues and create employment opportunities for the Kingdom's growing working-age population will be needed. However, the establishment of a rule-based fiscal regime, with a stabilization fund and savings fund component, is a prerequisite, first-round reform. Its urgency should be understood as a national economic and security concern for Saudi Arabia. The highly uncertain outlook for oil prices, coupled with growing medium- to long-term spending pressures on the Kingdom's fiscal position – and the high opportunity costs associated with delayed fiscal reforms – underline why the introduction of these policies and institutional changes are a critical priority.


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# Fiscal Monitor

**The Commodities Roller Coaster**  
**A Fiscal Framework for Uncertain Times**

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World Economic and Financial Surveys

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October 2015

## **The Commodities Roller Coaster** **A Fiscal Framework for Uncertain Times**

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## ASSUMPTIONS AND CONVENTIONS

The following symbols have been used throughout this publication:

. . . to indicate that data are not available

— to indicate that the figure is zero or less than half the final digit shown, or that the item does not exist

– between years or months (for example, 2008–09 or January–June) to indicate the years or months covered, including the beginning and ending years or months

/ between years (for example, 2008/09) 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  $\frac{1}{4}$  of 1 percentage point).

“n.a.” means “not applicable.”

Minor discrepancies between sums of constituent figures and totals are due to rounding.

As used in this publication, the term “country” does 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.

## FURTHER INFORMATION AND DATA

This version of the *Fiscal Monitor* is available in full through the IMF eLibrary ([www.elibrary.imf.org](http://www.elibrary.imf.org)) and the IMF website ([www.imf.org](http://www.imf.org)).

The data and analysis appearing in the *Fiscal Monitor* are compiled by the IMF staff at the time of publication. 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](http://www.elibrary.imf.org)) and on the IMF website ([www.imf.org](http://www.imf.org)). All substantive changes are listed in detail in the online tables of contents.

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## PREFACE

The *Fiscal Monitor* is prepared by the IMF Fiscal Affairs Department under the supervision of Vitor Gaspar, Director of the Department; Christopher Towe, Deputy Director; and Benedict Clements, Division Chief. The main authors of this issue are Paulo Medas (team leader), Chadi Abdallah, Olivier Basdevant, Elva Bova, Paolo Dudine, David Gentry, Tom Josephs, Tigran Poghosyan, and Jasmin Sin. It also includes contributions from Jose Delgado, Mark Lutz, Cameron McLoughlin, Diego Mesa Puyo, Randa Sab, Gonzalo Salinas, Marika Santoro, and Fabian Valencia. Exceptional research assistance was provided by Juan Farah Yacoub and Tafadzwa Mahlangu. The methodological and statistical appendix was prepared by Younghun Kim under the supervision of Marta Ruiz-Arranz. Jeffrey Pichocki provided outstanding administrative and editorial support. From the IMF Communications Department, Gemma Diaz and Linda Kean edited the issue, and Gemma Diaz managed its production.

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## EXECUTIVE SUMMARY

Natural resource-rich countries benefited from an exceptional commodity price boom during the 2000s, with metal and oil prices reaching historic highs. This provided a substantial boon to resource-rich developing countries, which benefited from large increases in fiscal revenues and the opportunity to promote economic transformation and development.

However, the more recent reversal in commodity prices has driven home the fact that commodity prices are volatile, unpredictable, and subject to long-lasting shocks. It has also meant that commodity exporters will need to adjust to a—possibly protracted—period of lower export and fiscal revenues.

In light of this recent development, this issue of the *Fiscal Monitor* examines the conduct of fiscal policy under the uncertainty caused by dependence on natural resource revenues. It draws on extensive past research on the behavior of commodity prices and their implications for macroeconomic outcomes, as well as on extensive IMF technical assistance to resource-rich economies seeking to improve their management of natural resource wealth.

Although natural resources represent a tremendous opportunity for economies seeking to promote economic development and the well-being of their populations, in fact this has proven to be surprisingly difficult. Especially in the case of exhaustible mineral and hydrocarbon wealth, many countries have apparently suffered from what is often termed a “resource curse.” In some countries, efforts to jump-start growth and development have not borne fruit, fiscal policies were too procyclical, and underlying institutions were not strengthened sufficiently.

Of course, the experience of these countries has varied considerably and there are examples where these resources have been used in a manner that fosters successful development. In recent decades there has also been greater attention paid by resource-rich countries to upgrading their fiscal policies, rules, and institutions. This has meant that many countries were successful in saving a larger share of the resource revenue

windfall during the 2000s, while also scaling up public investment and social spending.

Important lessons for fiscal policies derive from these divergent experiences and serve as a further reminder of the uncertainty related to commodity prices. Countries face important trade-offs between how much to consume of their nonrenewable resource wealth and how much to save in the form of financial savings and other assets (for example, public infrastructure). For low-income countries there are good arguments to use natural resource wealth to help kick-start development. But it is critical to ensure that public infrastructure investment and social spending be scaled up at a pace that can withstand possible adverse shocks to commodity revenues, and that public investment management be strengthened to ensure the anticipated growth dividends. And since commodity-based revenues are both volatile and exhaustible, it is important that resource-rich countries diversify their sources of revenues, ensuring that the tax base includes the nonresource economy.

Financial (stabilization) buffers should also be built especially to help withstand the uncertainty that commodity-exporting countries are particularly prone to. These buffers will allow for countercyclical fiscal policies, as the economic cycle moves together with the commodity cycle (October 2015, *World Economic Outlook*). And finally, recent experience also confirms that sound fiscal policy and institutions provide the essential basis for ensuring that these policies are well-designed and sustained.

Countries with stabilization buffers are better prepared to manage the sharp fall in commodity prices since 2012. These have led to a substantial growth slowdown in commodity exporters. For countries with sufficient buffers and output at or below potential, prudent fiscal management and smoothing macroeconomic fluctuations go together. For countries that need to adjust and build up buffers, macroeconomic conditions may recommend gradual adjustment to minimize adverse effects on economic activity and growth.

## THE COMMODITIES ROLLER COASTER: A FISCAL FRAMEWORK FOR UNCERTAIN TIMES

Exporters of nonrenewable commodities such as oil, gas, and metals are a key part of the global economy (Figure 1.1).<sup>1</sup> They are a mix of high-, middle-, and low-income countries that represent close to 20 percent of world GDP and global exports, and are an important destination for foreign direct investment (FDI). They hold a large share of the world's natural resources, accounting for almost 90 percent of crude oil reserves and 75 percent of copper reserves.

Natural resource wealth has enabled some of these countries to accumulate substantial assets. These assets provide a buffer in the event of shocks and allow countries to share the benefits of exhaustible natural resources with future generations. In a growing number of countries, these assets have been placed in sovereign wealth funds and invested abroad (Figure 1.2).

Natural resources would seem to be a blessing for a country. Resource wealth should make it easier to finance investment for sustainable growth while allowing the government to provide fundamental social services. However, quite a number of resource-rich countries have struggled to leverage these resources to raise economic growth and living standards, falling prey to the so-called resource curse.

When governments rely heavily on revenues derived from commodities, they are subject to the unpredictable ebb and flow of commodity prices. If not adequately managed, this volatility can result in disappointing economic performance.<sup>2</sup> For example, economic activity fell on average by 1 percent a year in several countries (Iran, Libya, Peru, Saudi Arabia) during the commodity price bust of the 1980s, as public spending collapsed by a third or more. Conversely, several countries (Angola, Azerbaijan, Equatorial Guinea, Kuwait, Libya) experienced strong growth during the 2000–08 commodity price boom—partly

fueled by a tripling of public spending in real terms—but in some cases did not accumulate enough buffers to protect from falling prices.

The IMF (2012a) examined these issues and developed new macroeconomic policy frameworks for resource-rich developing economies. The analysis there demonstrated that some frontloading of consumption spending to benefit presently poorer generations may be welfare improving and that some scaling up of domestic investment would normally be part of an optimal development strategy. At the same time, the analysis suggested that a high saving rate is necessary if there is to be a lasting impact on development, and that the volatility and uncertainty of resource flows also argues for liquidity buffers.

In light of the large and unexpected decline in global commodity prices since 2012, this issue of the *Fiscal Monitor* reviews the recent experience of resource-rich economies and examines their fiscal policy frameworks. In doing so, several interrelated questions arise: Did policies help shield the economy from large and unexpected commodity price movements? How did governments use the latest period of abundant resources? How can policies and fiscal institutions be improved to cope with uncertainty and better support economic growth?

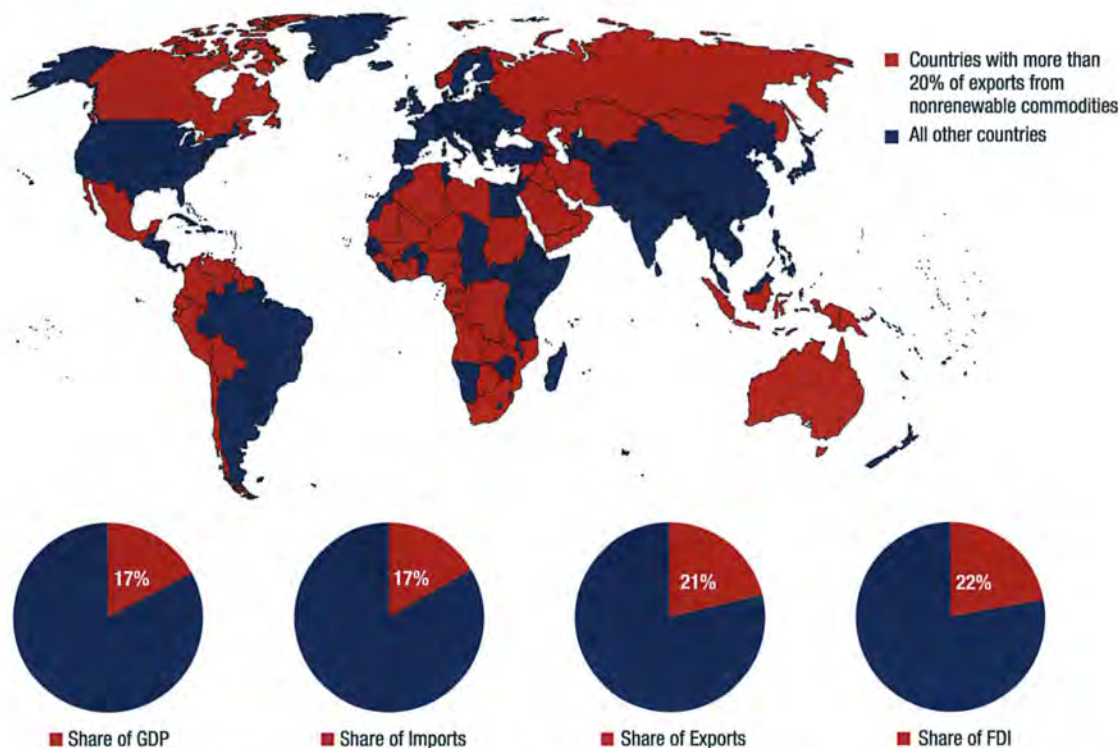
The experience of the past few decades, including the latest boom, has shown that fiscal policy plays a crucial role in managing the effects of commodity price volatility on the domestic economy, but this has been a difficult challenge for many countries. In particular, public expenditure growth has tended to accelerate during price upswings and fall during price downswings, and this procyclical response has intensified the volatility in the economy and could have hampered economic growth. Moreover, although some countries accumulated significant financial buffers during the 2000–08 revenue boom, which have helped them to manage the downturn since 2009, many others will have to endure sharper fiscal contractions due to insufficient buffers.

Against this backdrop, this issue of the *Fiscal Monitor* argues that fiscal policies in commodity-exporting countries need to be sufficiently mindful of uncertainty.

<sup>1</sup> The chapter looks at exporters of extractive commodities (oil, gas, and metals), where these commodities represent a significant share of exports or fiscal revenues (Annex 1.1).

<sup>2</sup> Other important factors that explain weak growth include real exchange rate appreciations (Sachs and Warner 2001; van der Ploeg 2011), rent seeking, and fragile political institutions (Arezki, Hamilton, and Kazimov 2011).

Figure 1.1. Nonrenewable Commodity Exporters, 2014



Sources: BP Statistical Review of World Energy, 2015; *Institutional Investor's Sovereign Wealth Center*; national authorities; Sovereign Wealth Fund Institute; and U.S. Geological Survey.  
 Note: FDI = foreign direct investment.

The discussion below draws heavily on extensive past IMF research, technical assistance to resource-rich countries, and policy analysis (including IMF 2012a). This past work—as well as the recent collapse in commodity prices—has underscored the need for fiscal policies to pay closer attention to the large volatility and uncertainty to which commodity exporters are particularly prone. And consistent with past IMF advice to these countries, this *Fiscal Monitor* concludes that addressing these challenges requires a comprehensive strategy:

- A longer-term anchor is needed to guide fiscal policy. Countries need to set a long-term strategy that ensures an appropriate level of savings to deal with the eventuality of depleted resources and to help stabilize the economy and promote long-term growth under high uncertainty. This calls for long-term stabilization savings to weather the large and persistent shocks.
- Sound fiscal rules, institutional frameworks, and tax policies can further support these goals, along with improvements in public investment management

and reform of fuel subsidies. Strong fiscal institutions and appropriate stabilization buffers will also increase the chances of a successful scaling up of public investment.

- Strong underlying institutions (including good governance) are essential for ensuring that countries are able to leverage their natural wealth to achieve higher long-term growth.

### How Commodity Cycles Affect the Economy

Commodity prices are highly volatile and unpredictable, posing significant challenges to policymakers in resource-rich economies (Figure 1.3). Shocks to commodity prices are often large and persistent. Booms and busts can involve prices moving by as much as 40–80 percent for as long as a decade. Hence, forecasting commodity prices has proved exceptionally difficult (Cashin, Liang, and McDermott 2000), and even more so in recent years as commodity prices have been highly volatile (Arezki and others 2013).

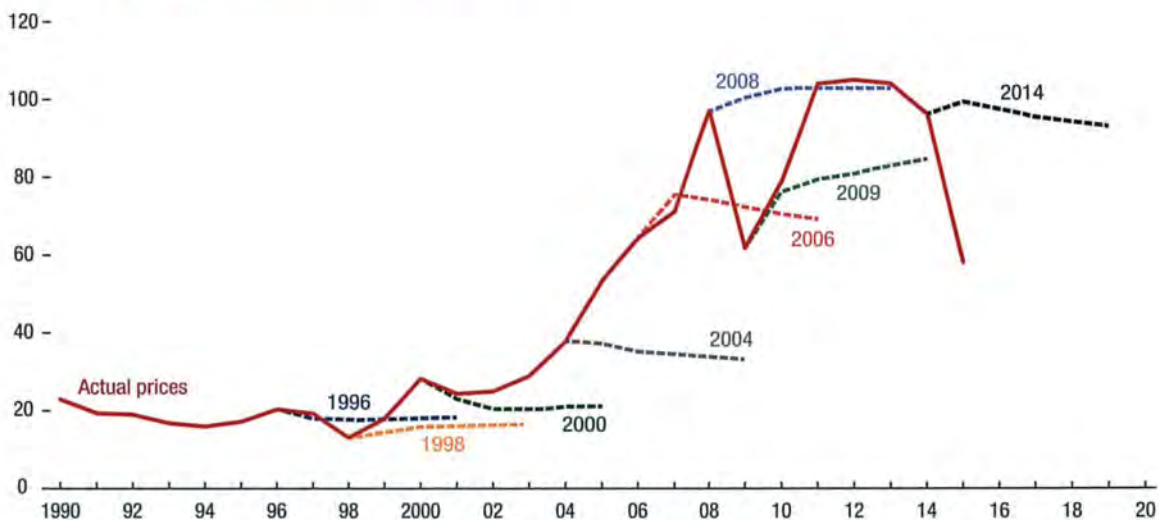
Macroeconomic performance of commodity exporters tends to move with commodity price cycles (April 2012 *World Economic Outlook*). The direct impacts of commodity price shocks, whether positive or negative, are felt via exports and the effect that shocks to the country's terms of trade have on the rest of the economy. Typically, economic activity and external and fiscal balances deteriorate (improve) during commodity price downswings (upswings). These price fluctuations can have significant impacts on growth and investment.<sup>3</sup>

The principal transmission channel appears to be through the government budget, especially for oil exporters. In many commodity-exporting countries, a large share of government revenue is provided by the resource sector. As illustrated in Figure 1.4, commodity price shocks tend to cause large fluctuations in fiscal revenues and, correspondingly, very large changes in government spending. Indeed, empirical analysis of oil-exporting countries suggests that oil price shocks affect growth mostly through public expenditure.<sup>4</sup>

<sup>3</sup> See the October 2015 *World Economic Outlook* for an analysis of economic growth in resource-rich countries over commodity price cycles.

<sup>4</sup> The empirical analysis draws on Husain, Tazhibayeva, and Ter-Martirosyan (2008). See also background notes <http://www.imf.org/external/pubs/ft/fm/2015/02/pdf/fmtn1502.pdf>.

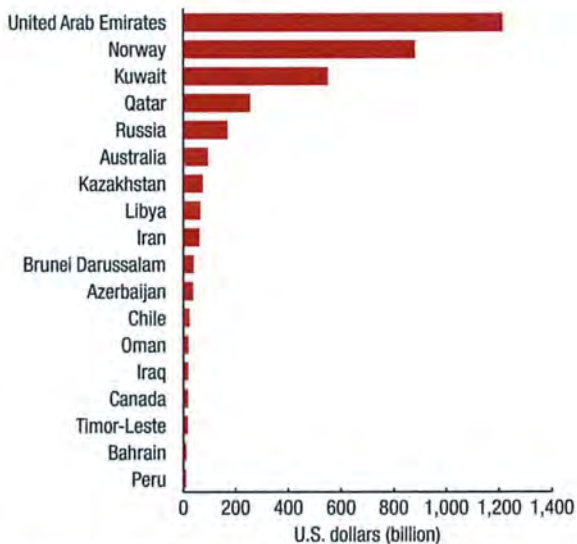
**Figure 1.3. A Poor Record of Forecasting Oil Prices**  
(Crude oil, U.S. dollars a barrel)



Sources: IMF staff estimates and market projections. 2015 represents an estimate based on actual data for part of the year and future contracts. Note: The solid line represents actual crude oil average prices for the year. The dashed lines are based on market projections for prices (futures contracts).

**Figure 1.2. Sovereign Wealth Funds, 2014**

Many commodity exporters have established sovereign wealth funds, which now hold more than \$3.6 trillion.



Sources: *Institutional Investor's* Sovereign Wealth Center; national authorities; Sovereign Wealth Fund Institute; and IMF staff reports. Note: The total amount for each country takes into account available data for all sovereign wealth funds. Saudi Arabia's Monetary Authority, although not a wealth fund, holds significant reserves at the central bank (\$0.8 trillion).

Moreover, commodity price shocks appear to have had damaging effects on long-term growth. Although some countries have been able to sail successfully through the turbulence of commodity price cycles and achieve sustainable growth (including Botswana, Chile, and Norway), many have not. For example, after the boom-bust in the late 1970s, many resource-rich countries endured a long period of low or negative growth, and in some cases, per capita GDP in the late 1990s was at or below 1970 levels (Figure 1.5). Economic growth accelerated in many resource-rich countries during the 2000s, boosted by the large commodity boom, but it is expected to slow down significantly in the years ahead (October 2015 *World Economic Outlook*). Analysis of the experience of 64 resource-rich countries during commodity boom-bust periods suggests that although countries that maintained a pegged exchange rate and did not accumulate fiscal buffers grew the fastest during boom periods, they also suffered the most after the price bust (Adler and Sosa 2011).

### Fiscal Policy during Booms and Busts: A Difficult Balancing Act

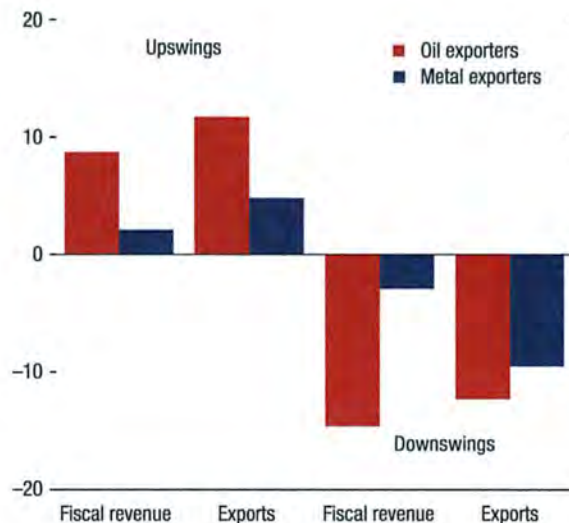
Fiscal policymakers in resource-rich countries have often tried to meet two challenging, and at times conflicting, objectives. One is to reduce the dependence of public expenditures on unpredictable fluctuations in commodity prices, so as to avoid overheating the economy during price upswings or making large cuts in expenditures during downswings. The other is to leverage resource revenue to support long-term growth, including by scaling up public investment. This section examines how resource-rich countries have fared with respect to these two objectives.

#### Procyclical Fiscal Policy during Revenue Windfalls

Stabilization of economic activity is particularly challenging in resource-rich countries given the high uncertainty around commodity price shocks. As discussed in the April 2015 *Fiscal Monitor*, fiscal policies that reduce output volatility could have the added benefit of increasing long-term growth. The high volatility of fiscal revenues in resource-rich economies implies that the role of fiscal policy in achieving these objectives is even more critical, but also more difficult.

There are two approaches to gauging the success of fiscal policymakers in acting in a manner that dampens the effects of cyclical shocks. One looks at the extent to which fiscal policy is reacting to the business cycle

**Figure 1.4. Impact of Commodity Price Swings on Fiscal Revenues and Exports**  
(Percent of GDP, average)



Source: IMF staff estimates.

Note: For upswings (downswings), the impact is estimated by multiplying fiscal revenue and exports as a share of GDP during the most recent trough (peak) by the average percentage change of commodity prices from trough to peak (peak to trough). Based on Cashin, McDermott, and Scott (2002), the following parameters are used to date commodity cycles for the period 1957–2015: minimum duration of each phase = 12 months; minimum duration of a complete cycle = 24 months.

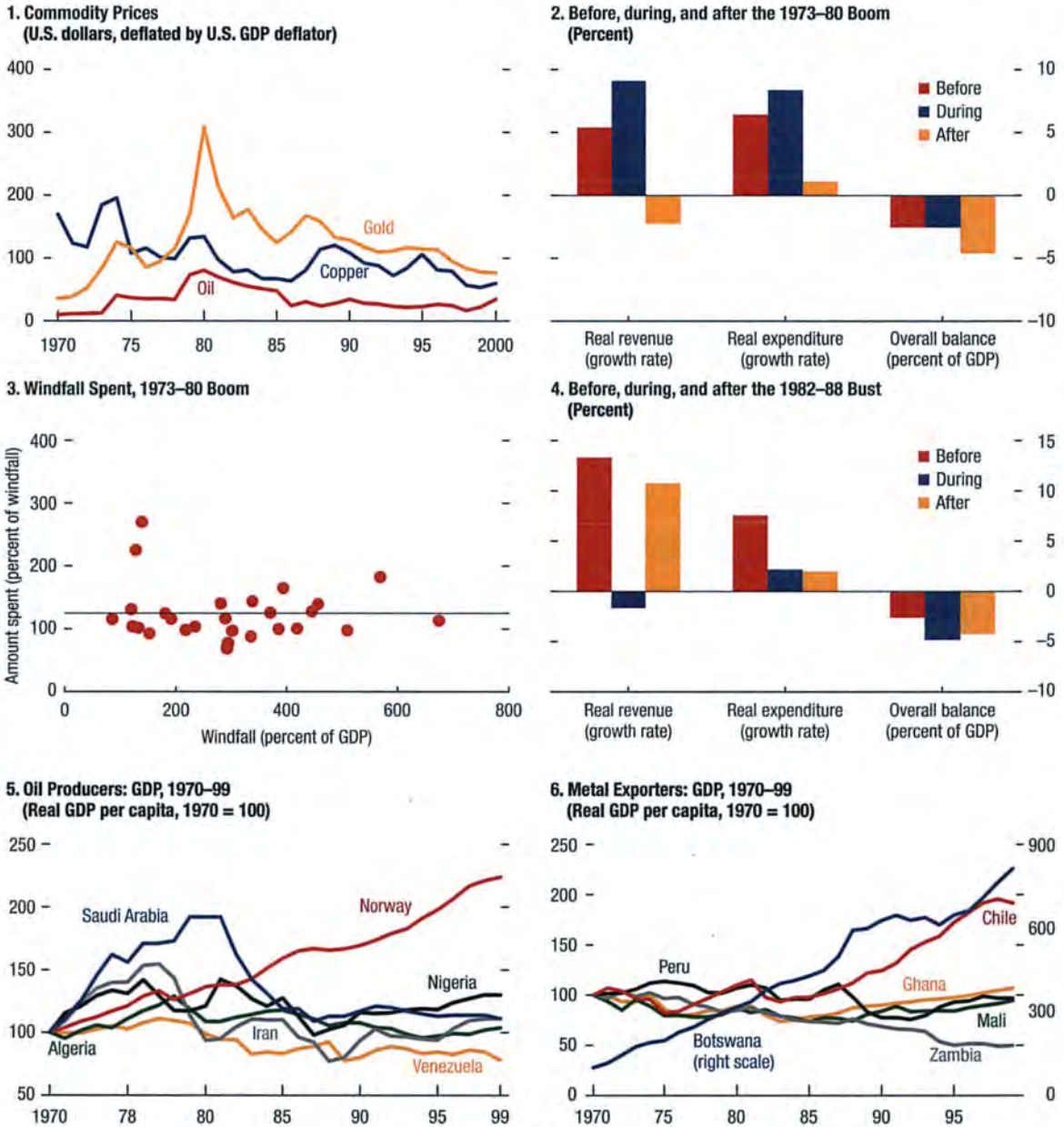
in the nonresource sector. The other approach measures the responsiveness of the rate of growth of public expenditures to year-to-year changes in commodity prices (Céspedes and Velasco 2014). A key policy challenge is to limit the expenditure response to the year-to-year commodity prices to protect macroeconomic stability (Arezki, Hamilton, and Kazimov 2011).

The evidence suggests that, on average, fiscal policies have not been stabilizing. In particular, government spending growth has been positively correlated with commodity prices; that is, it has been procyclical—increasing when commodity prices rise and decreasing when prices fall.<sup>5</sup> To some extent this is not surprising given the large shocks that have occurred to commodity prices, the uncertainty regarding their persistence, and the impact on the balance sheet of the govern-

<sup>5</sup> By focusing on government spending growth and commodity price changes, the analysis abstracts from positive long-run comovement in the level of both variables and focuses on their cyclical association. The results are robust to using an error-correction model that accounts for a long-term comovement between commodity prices and government spending.

**Figure 1.5. Impact of the 1970s–80s Boom-Bust on Growth**

The 1970s–80s boom-bust had a long-lasting negative impact on growth for commodity-exporting countries. Oil producers and metal exporters struggled to grow after the 1970s boom.



Source: IMF staff estimates.  
 Note: For panel 2, before = 1971–72, during = 1973–80, after = 1982–83; for panel 4, before = 1980–81, during = 1982–88, after = 1989–90.

ment.<sup>6</sup> However, a strong response of expenditures to prices implies that fiscal policy has exacerbated rather than mitigated the effect of commodity price volatility on the economy. On average, a 10 percent increase in commodity prices has led to a 1.2 percentage point increase in the growth of real expenditures (the increase is even higher for public investment) among resource-rich economies.<sup>7</sup> Moreover, the response of government spending has been asymmetric. Procyclicality has been significant in commodity price upturns but less so in downturns (Figure 1.6), which suggests that there has been a strong tendency for countries to spend the revenue windfalls during good times.<sup>8</sup> Procyclicality has tended to be higher among countries with larger commodity sectors, whereas advanced economies (Australia, Canada, Norway) have been successful in delinking expenditures from commodity prices.

The tendency toward procyclicality is also confirmed when the relationship between the nonresource fiscal balance (NRB) and the domestic (nonresource) economy is examined (Figure 1.7). In particular, the cyclically adjusted NRB (that is, the overall fiscal balance excluding revenues from the resource sector, adjusted for the business cycle) provides a measure of the underlying fiscal position. The analysis finds that governments tended to loosen the fiscal stance when the domestic nonresource economy strengthened, and tighten the fiscal stance when the economy weakened. Specifically, a 1 percentage point improvement in the output gap of the nonresource sector (that is, the difference between actual output and output at full employment) led to a 1 percentage point deterioration of the cyclically adjusted NRB as a share of potential nonresource GDP.<sup>9</sup> Moreover, commodity exporters tend to be more procyclical than other emerging economies. Notably, the April 2015 *Fiscal Monitor* found that emerging market and developing economies also tend to act procyclically in expansions (albeit with a coefficient of about 0.5, half the size of the figure found here for commodity exporters).

As shown in the literature, by exacerbating output volatility, procyclical fiscal policy could dampen

<sup>6</sup> A positive and persistent shock to prices will allow countries to sustain increases in public spending. Likewise, during persistent price downturns, most countries will adjust downward spending.

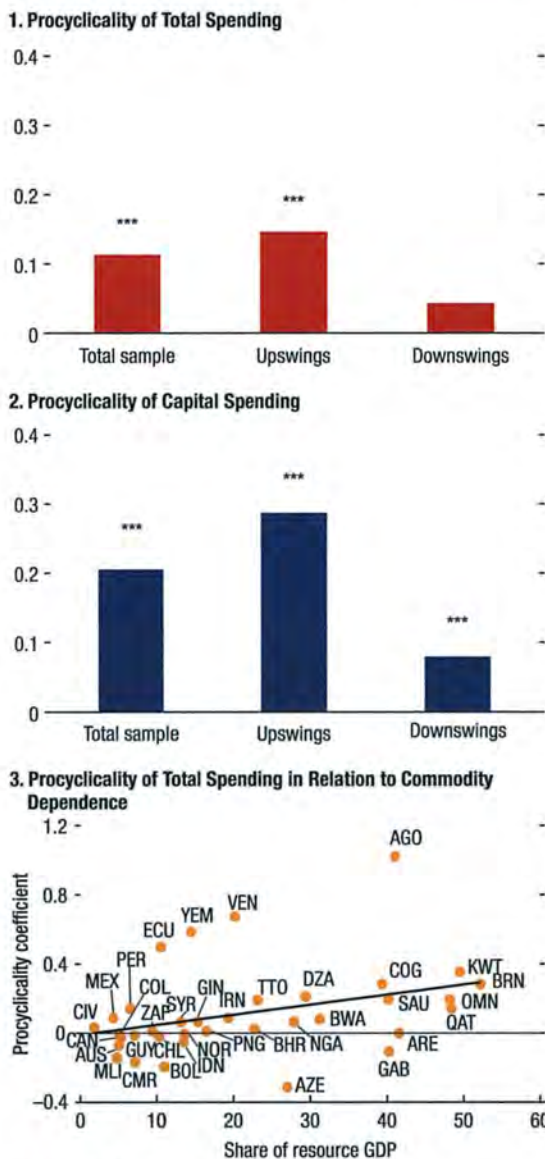
<sup>7</sup> See background notes for methodology <http://www.imf.org/external/pubs/ft/fm/2015/02/pdf/fmtn1502.pdf>.

<sup>8</sup> This difference is statistically significant.

<sup>9</sup> Given the high uncertainty with respect to measuring the output gap in resource-rich countries, we also run regressions using output growth rates as a robustness check. The results are qualitatively similar (as shown in Figure 1.7).

**Figure 1.6. Public Expenditure Procyclicality across Countries**  
(Procyclicality coefficient)

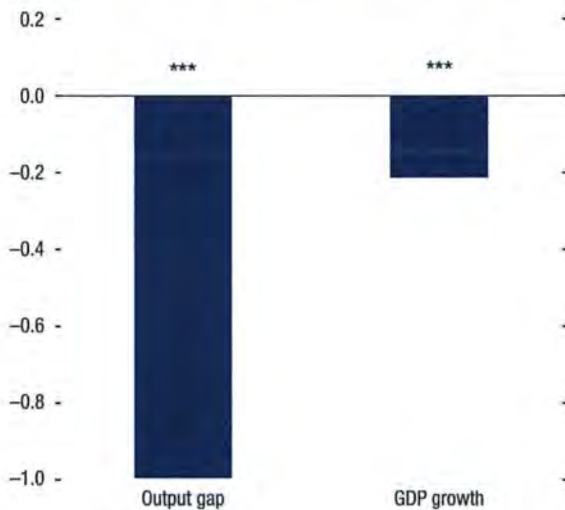
Total government expenditure growth is positively correlated with changes in commodity prices (procyclical), with capital expenditure even more procyclical. The procyclicality of public spending increases with commodity dependence.



Sources: United Nations; and IMF staff estimates.  
Note: Data labels in the figure use International Organization for Standardization (ISO) country codes. Sample period is 1972–2014, but length varies across countries; minimum sample length is set to 10 observations for each country. Panels 1 and 2 show coefficients from panel regressions of real expenditure growth on commodity price changes. Panel 3 shows coefficients from country-specific regressions of real expenditure growth rates on commodity price changes. Positive numbers indicate procyclicality (see background notes for details <http://www.imf.org/external/pubs/ft/fm/2015/02/pdf/fmtn1502.pdf>). Share of resource GDP is calculated using annual averages for the whole sample period.  
\*\*\*  $p < 0.01$ .

**Figure 1.7. Cyclically Adjusted Nonresource Balance and Procyclicality**  
(Procyclicality coefficient)

The tendency toward fiscal procyclicality is confirmed by the relationship between the cyclically adjusted nonresource fiscal balance and the output gap.



Source: IMF staff estimates.  
Note: The sample period is 1990–2014. The bars show the estimated impact of a 1 percent increase in the nonresource output gap and nonresource GDP on the cyclically adjusted nonresource balance. Estimations are performed using panel time and country fixed effects, and robust error estimator.  
\*\*\*  $p < 0.01$ .

economic growth. The April 2015 *Fiscal Monitor* finds that an increase in fiscal stabilization (equivalent to 1 standard deviation of the sample) would boost long-run annual growth rates of developing economies by 0.1 percentage points.<sup>10</sup> Van der Ploeg and Poelhekke (2008) also show that volatility hurts growth among commodity exporters, with the former partially explained by volatile government expenditures.<sup>11</sup> These findings suggest that the higher fiscal procyclicality in resource-rich economies could partially explain the disappointing long-term growth performance of these countries. Figure 1.8 illustrates the relationship between procyclicality and economic growth for a sample of commodity exporters.

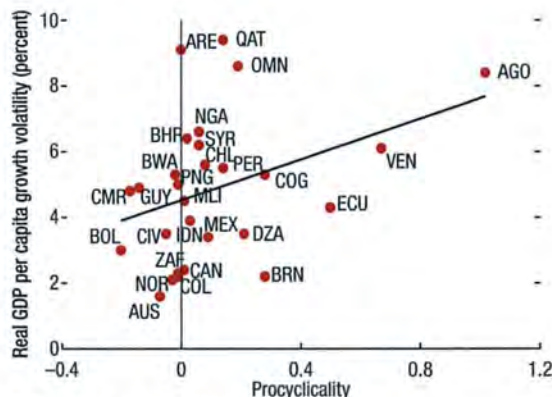
There are several reasons why fiscal policies have been procyclical in the face of unexpected commod-

<sup>10</sup> Fatas and Mihov (2003) show that the volatility in expenditures (a proxy for discretionary policy) hurts economic growth. McManus and Gulcin Ozkan (2012) also find a negative impact of procyclical policies on volatility and economic growth.

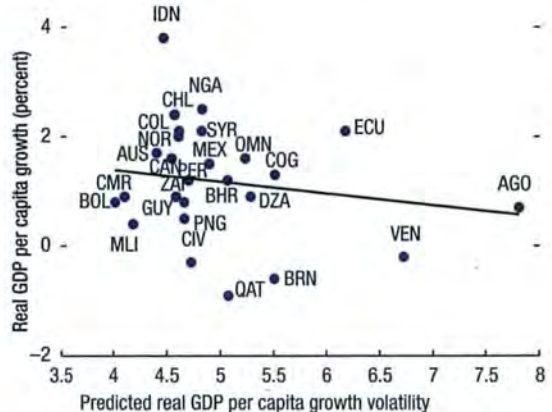
<sup>11</sup> The procyclical indicator relative to commodity prices has a high correlation with expenditure volatility.

**Figure 1.8. Procyclicality and Growth**

1. Procyclicality and Output Volatility



2. Procyclicality and Output Growth



Source: IMF staff estimates.  
Note: Data labels in the figure use International Organization for Standardization (ISO) country codes. Countries with at least 30 real GDP per capita observations are reported. Procyclicality is measured using country-specific regressions of real expenditure growth rates on commodity price changes. Predicted real GDP per capita growth volatility is obtained from a linear regression on procyclicality. The sample period is 1972–2014, but length varies across countries.

ity price swings. In part this reflects the persistence of shocks exacerbated by procyclical amplification by financial markets (Gavin and Perotti 1997; Riascos and Vegh 2003). If there is overoptimism, countries may react to price windfalls by excessively increasing expenditures, requiring large adjustments once price dynamics disappoint, resulting in procyclical policies. Moreover, countries with weak political institutions are more prone to rent-seeking in the face of large commodity-related windfalls, which in turn can result in rapid and wasteful spending (Alesina, Campante, and Tabellini 2008; Tornell and Lane 1999).

One way to shield the budget from this procyclical tendency is through the use of resource funds and fiscal rules. Resource funds are typically used to save for future generations, but can also serve a stabilization objective, with an allowance to release funds when the economy (or the budget) is faced with an adverse shock. Fiscal rules are often established in resource-rich economies to act as a constraint on expenditures, debt, or deficits (see Annex 1.2 for country examples) or to regulate the flows of revenues to and from resource funds (for example, Equatorial Guinea, Iran, and Venezuela).

The experience with resource funds and fiscal rules has been mixed. There have been notable successes (Botswana, Chile, Norway),<sup>12</sup> but the cross-country evidence suggests that these approaches have not reduced procyclicality in a statistically significant way (Figure 1.9, panel 1). The reasons for this lack of success are varied—for example, it may reflect weak design, but it could also reflect the fact that rules were not followed—but specific country experiences can be instructive. In Timor-Leste, the fiscal rule was breached because policymakers preferred to place a greater priority on scaling up public investment. Mongolia's efficacy of the fiscal rule was undermined by off-budget spending and overly optimistic revenue forecasts. Nigeria's oil-price-based fiscal rule was undermined by weak enforcement. In a number of cases (Chad, Ecuador, Papua New Guinea) resource funds were abandoned partly because they were deemed to be incompatible with budget needs.<sup>13</sup> In some cases (Azerbaijan, Kazakhstan, Libya) the ability to use these funds to finance extra-budgetary spending risks leading to a loss of control over expenditures and a weakening of the budget process. Some countries (Ghana, Trinidad and Tobago) accumulate financial assets in funds while having to borrow extensively to finance deficits.

There is empirical support, however, that “institutional quality” helps limit the procyclical bias in spending (Figure 1.9, panel 2). These results are similar to those found in earlier studies (Fasano 2000; Ossowski and others 2008).<sup>14</sup> This evidence suggests that the lack of success of rules and funds in some countries may owe more to the underlying weaknesses of their institutional frameworks than to the rules themselves. This body of evidence underscores the importance of improving the quality of institutions, which tends

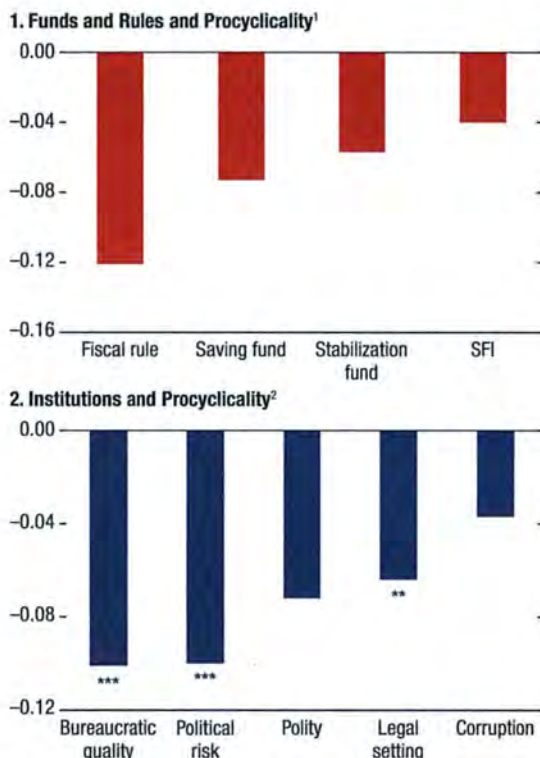
<sup>12</sup> See Annex 1.2 and Ossowski and others (2008).

<sup>13</sup> Papua New Guinea is in the process of creating a new fund.

<sup>14</sup> See background notes for details <http://www.imf.org/external/pubs/ft/fm/2015/02/pdf/fmtn1502.pdf>.

**Figure 1.9. Positive Impact of Good Institutions on Fiscal Policy**  
(Procyclicality coefficient)

The use of resource funds and fiscal rules has had varying levels of success in reducing the procyclicality of government expenditures to commodity prices, but there is stronger empirical evidence that better institutions do help limit procyclicality.



Source: IMF staff estimates.  
 Note: Sample period is 1972–2014. Procyclicality is measured using regressions of real expenditure growth rates on commodity price changes.  
<sup>1</sup> Reported numbers show the change in procyclicality following the introduction of a fiscal rule, saving fund, or stabilization fund. SFI = Special fiscal institutions (includes both fiscal rules and resource funds).  
<sup>2</sup> Reported numbers show the impact of a 1 standard deviation increase in the institutional quality index on procyclicality.  
 \*\*\*  $p < 0.01$ ; \*\*  $p < 0.05$ .

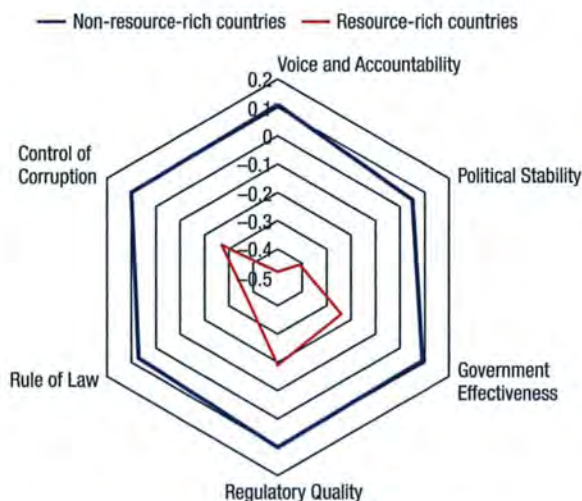
to be weaker in resource-rich countries than in other countries (Figure 1.10).

**How Have Commodity Price Windfalls Been Used?**

Commodity exporters benefited from a very large revenue windfall from 2000 to 2008, when many countries experienced cumulative windfalls of about 230 percent of 2000 GDP (Figure 1.11). On average, resource-rich countries spent about two-thirds of this windfall—a smaller share than during the large boom in the 1970s (see Figure 1.5, Panel 3),

**Figure 1.10. Institutional Quality in Resource-Rich Countries**

Resource-rich countries tend to have lower institutional quality relative to other countries.



Sources: Worldwide Governance Indicators (World Bank) for 1996–2014; and IMF staff calculations.

Note: The figure shows the average levels of institutional quality for resource-rich and non-resource-rich countries with the same level of GDP per capita (sample average for resource-rich countries).

but amounting to a boost to expenditures equivalent to 150 percent of 2000 GDP in just eight years. This posed the difficult challenge of ensuring the quality of spending, and of managing the procyclical consequences for the economy as a whole (such as avoiding high inflation).

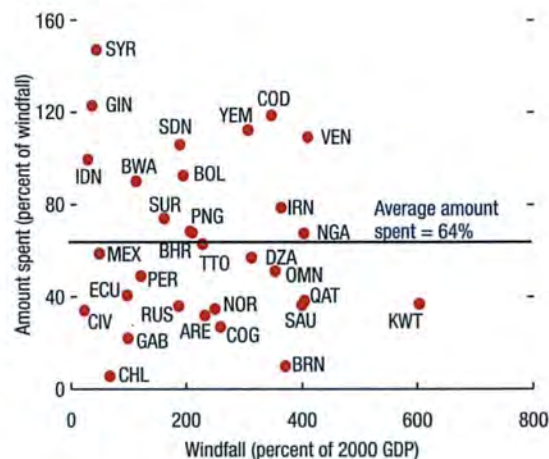
A significant proportion of the spending during the most recent commodity price boom was on capital outlays. Public investment grew at an average of more than 15 percent a year (in real terms) during the 2000–08 period. This increase was especially pronounced among low-income countries, where public capital is relatively scarce (Figure 1.12).

What effect has the scaling up of public investment had on growth among low- and middle-income commodity-exporting countries? To provide an illustration, 12 episodes of significant booms in public investment during the 1970–2009 period were identified, that is, cases in which public investment rose by at least 5 percent of GDP. In only a few cases was economic growth in the subsequent five years higher than in the period before the public investment boom (Figure 1.13).<sup>15</sup>

<sup>15</sup> The analysis compares the post-scaling up period with the previous period to assess whether the investment had a sustained impact on growth (during scaling up growth will tend to be higher due to

**Figure 1.11. Spending during the 2000–08 Boom**

Commodity exporters spent a significant share of the 2000–08 large resource windfall.



Source: IMF staff estimates.

Note: Data labels in the figure use International Organization for Standardization (ISO) country codes. Windfall is the cumulative increase in commodity revenues between 2000 and 2008; amount spent is the share of the windfall that was spent.

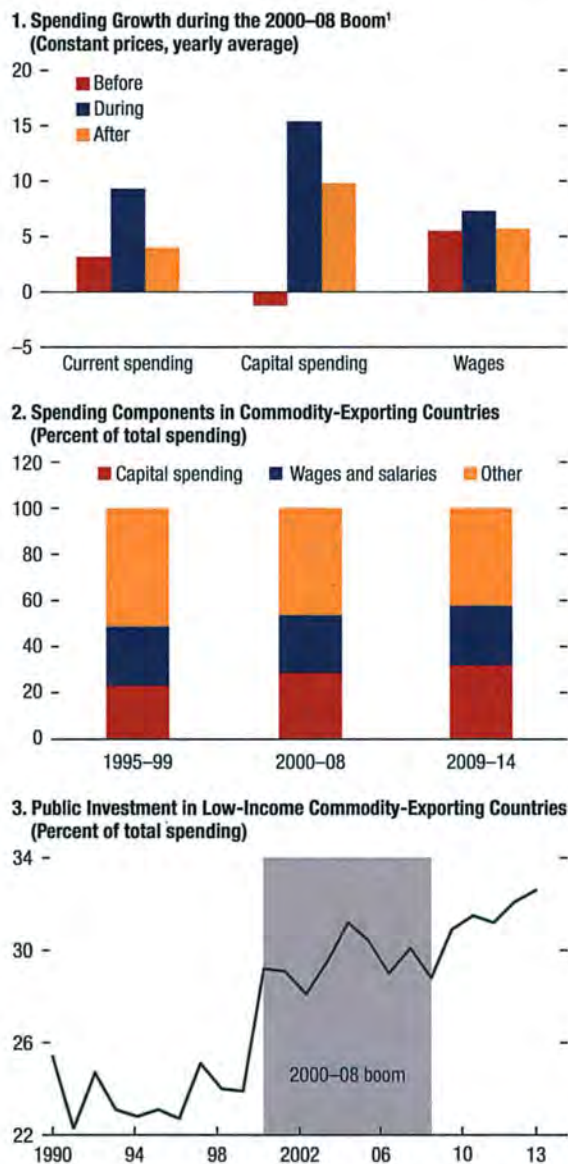
This suggests that although public investment can have significant growth dividends, a successful scaling up requires attention to several factors:

- *Macroeconomic constraints and volatility.* Scaling up of public investment needs to be implemented at a pace that does not crowd out private investment, takes into account supply bottlenecks, and avoids undermining the impact on growth (Sturm, Gurtner, and Alegre 2009). It is also important to build up financial buffers that can help insulate spending plans from the volatility of resource revenues and avoid costly “stop-go” cycles in public investment.
- *Microeconomic constraints.* The pace of public investment also needs to be consistent with institutional capacity to ensure that it does not lead to poor project selection or inefficient implementation. Indeed, Gupta and others (2014) show that the increase in spending during the 2000–08 boom resulted in a much smaller increase in the “efficiency-adjusted” capital stock (see also Annexes 1.3 and 1.4 for country examples). IMF (2015) discusses

the boost to aggregate demand). The growth impact may be affected by other factors not considered in the analysis. Gelb and Associates (1988) and Sachs and Warner (1999) find similar results.

**Figure 1.12. Current and Capital Spending during the 2000–08 Boom**

Countries took advantage of the windfall to accelerate both current and capital spending.



Source: IMF staff estimates.  
 ¹Before = 1998–99, during = 2000–08, after = 2009–10.

the various areas to improve inefficiencies in public investment management processes.<sup>16</sup>

- *Political economy constraints.* Especially if institutional frameworks are weak, accountability is poor, and rent-seeking is prevalent, there is a risk that funds will be used for the benefit of special interests, rather than for the development of the economy.

Current spending also expanded at a robust pace during the 2000–08 period, which may not be sustainable in the future. Current expenditures grew by almost 10 percent yearly (in real terms), while public wage bills expanded by 7¼ percent yearly. Encouragingly, these increases reflected higher outlays on education (Chad, Ghana, Iran, Mexico) and health (Democratic Republic of the Congo, Equatorial Guinea, Sudan), which have led to improvements in social indicators—although progress has been limited in some other countries (Figure 1.14). However, as with spending on public capital, the challenge is to ensure that scaling up in these areas also avoids overheating the economy in the shorter term, or leads to spending levels that cannot be sustained when commodity prices decline.

Finally, many oil exporters directed some of their revenue windfall to fuel subsidies. In many of these countries, and particularly in the Middle East, the retail price of fuel adjusts only slowly, if at all, to movements in international prices (Figure 1.15). The pretax fuel subsidies typically are not reflected in the budgets, but are sizable (amounting to 10–50 percent of budgetary expenses).<sup>17</sup> In addition to the revenues foregone, these subsidies can lead to domestic overconsumption of fuel products and reduce oil exports—a tendency observed in oil exporters (Algeria, Oman, Saudi Arabia). They also have important health and environmental costs. But progress is being made. Many countries have already initiated energy subsidy reforms (Angola, Cameroon, Iran, Kuwait, Qatar, United Arab Emirates).

### Long-Term Fiscal Management under Uncertainty

A central fiscal challenge facing resource-rich countries is to reconcile long-term objectives with the

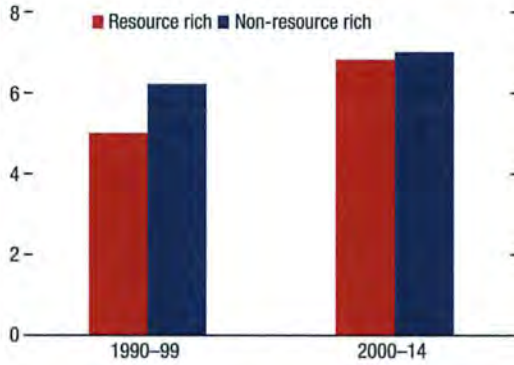
<sup>16</sup> In addition, the October 2014 *World Economic Outlook* illustrated the important growth payoff of public infrastructure investment, but also noted that payoffs were highest where project selection processes direct spending to high-return investments and when project execution capacity is high.

<sup>17</sup> These pretax subsidies are estimated as the difference between domestic and international prices.

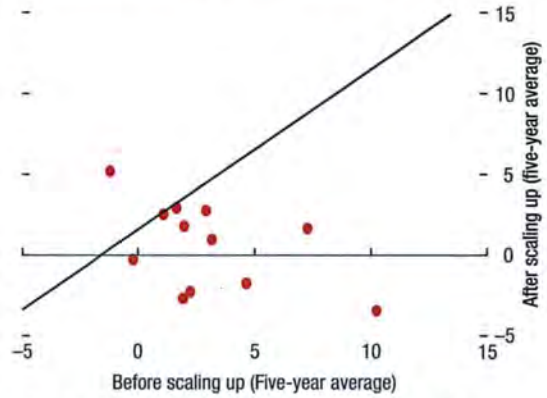
**Figure 1.13. Impact of Public Capital Spending Scaling up on Growth**

In some cases, the scaling up of capital spending in response to the commodity windfalls did not deliver significant growth dividends, in part reflecting low efficiency and high volatility of public investment in resource-rich countries.

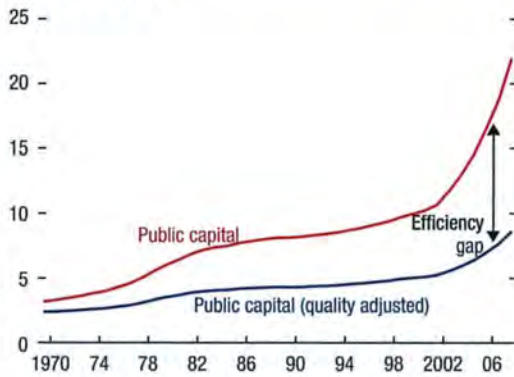
**1. Capital Investments in Low-Income Countries (Percent of GDP)**



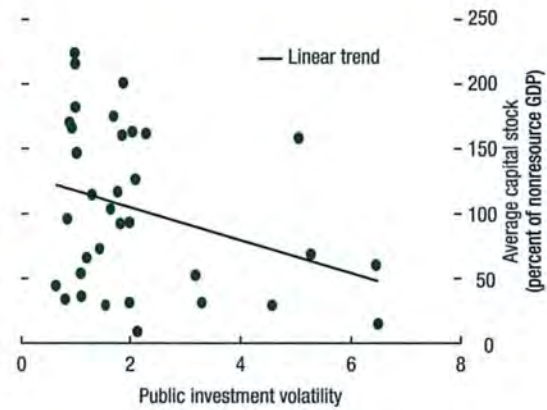
**2. GDP per Capita Growth Rate before and after Public Investment Scaling-up Episodes, 1970-2009<sup>1</sup>**



**3. Quality of Public Investment in Low-Income Resource-Rich Economies (Percent of GDP)**



**4. Volatility and Investment in Resource-Rich Countries<sup>2</sup>**



Sources: Gupta and others (2014); and IMF staff calculations.  
 Note: All capital investment refers to public capital investment.

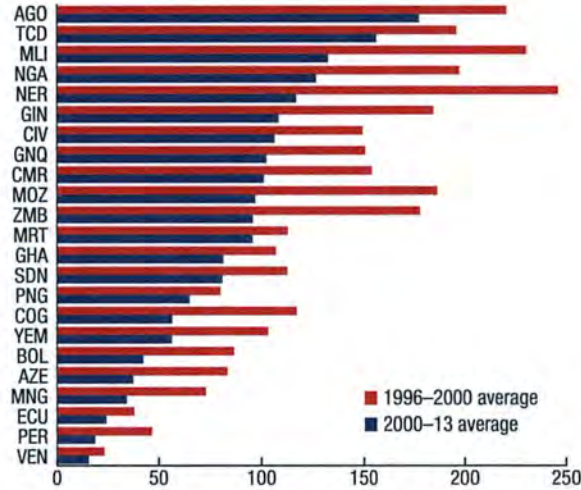
<sup>1</sup> Scaling-up episodes were identified as five consecutive years of investment increases, for a total increase of at least 5 percent of GDP over those five years.

<sup>2</sup> The horizontal axis refers to the coefficient of variation of the volatility of the real growth rate of public investment.

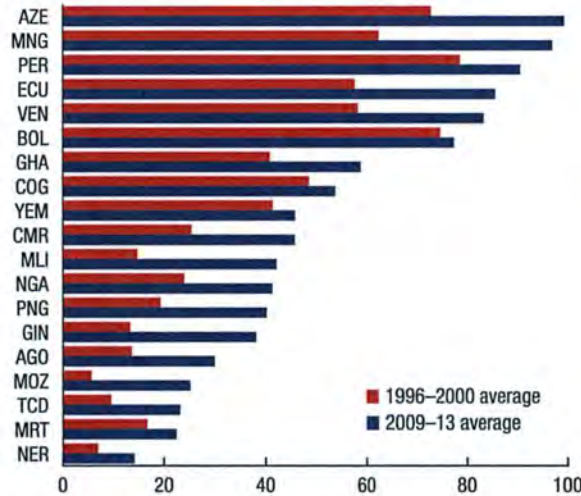
**Figure 1.14. Health and Education during the 2000–08 Commodity Boom**

Health and education improved after the recent boom, partly as a result of the rise in public spending.

**1. Infant Mortality Rate before and after the 2000–08 Boom**  
(Deaths before age 5 per 1,000 live births)



**2. Secondary School Enrollment Rate before and after the 2000–08 Boom**  
(Percent of total secondary-age population)



Sources: Global Health Observatory, World Health Organization; and the World Bank.

Note: Data labels in the figure use International Organization for Standardization (ISO) country codes.

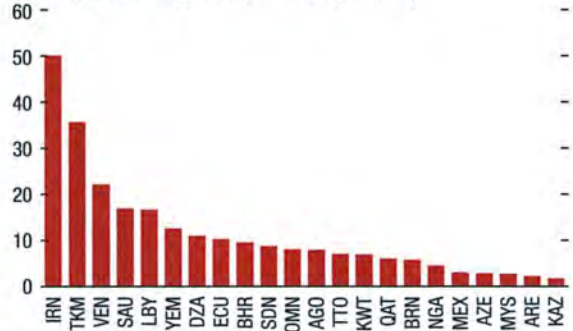
need to manage the high volatility and uncertainty surrounding resource revenue. Policymakers usually face three key choices: how to leverage this wealth to promote economic development; how to allocate the nonrenewable natural resource wealth across genera-

**Figure 1.15. Fuel Subsidies in Oil-Exporting Countries**

Fuel subsidies are large and fuel prices are low in oil-exporting countries.

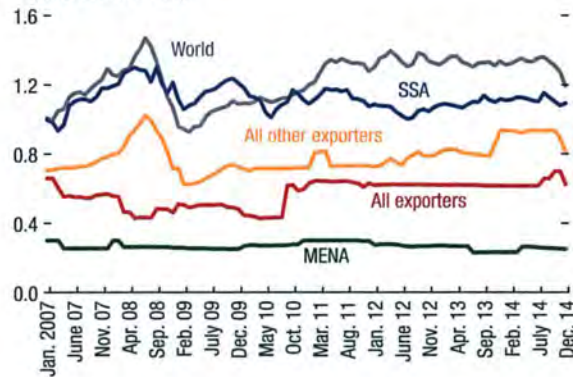
**1. Pretax Fuel Subsidies**

(Average 2011–14, percent of total expenditure)



**2. Domestic Retail Gasoline Prices**

(U.S. dollars a liter)



Source: IMF staff estimates.

Note: MENA = Middle East and North Africa; SSA = Sub-Saharan Africa. Data labels in the figure use International Organization for Standardization (ISO) country codes. All other exporters = all exporters except for SSA and MENA.

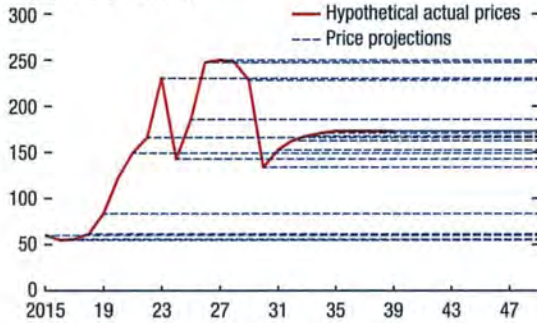
tions; and how to shield the economy from the large volatility associated with commodity prices. Developing economies tend to prioritize the promotion of economic development whereas advanced economies tend to focus on the intergenerational sharing of the natural resources. However, conceptual frameworks for the design of fiscal policy in resource-rich countries have paid less attention to the issue of how to manage the long-term uncertainty regarding commodity prices. This remains a key challenge, as discussed.

Designing an appropriate long-term strategy to manage natural resources is a complex task. Governments need to decide how much of the resource wealth to consume at any given year and how much to save. These savings can be used to accumulate financial assets or other assets (such as public infrastructure, or

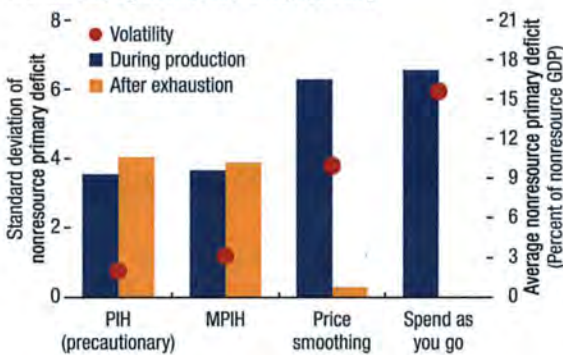
**Figure 1.16. Simulation of the Impact of Various Strategies to Manage Resource Wealth under Uncertainty**

Different strategies can have a large impact on the volatility of public spending and the fiscal stance.

**1. Hypothetical Price Scenario: Actual and Projections (U.S. dollars a barrel)**



**2. Some Strategies Will Lead to High Volatility**



Source: IMF staff estimates and calculations.  
 Note: PIH = permanent income hypothesis, MPIH = modified version of the PIH. The simulated price path is similar to price developments since 2000. The simulations assume that shocks are highly persistent (coefficient equal to 1). Production is assumed to be fairly stable and reserves are estimated to last 50 years. The “price smoothing rule” assumes that spending is linked to resource revenues evaluated at a reference price (the average of the previous three years of prices, the current price, and the three-year forward projections). The coefficient of risk aversion used was set at 6 (usually the literature uses between 4 and 8).

human capital, or both), with the allocation depending on the returns of the different assets. Indeed, for developing economies, where infrastructure may be scarce and where access to capital markets is limited, the growth dividends may be highest from using a larger share of the savings to scale up investment. These decisions are complicated because of the need to project resource prices and reserves of commodities over the very long run. There is also uncertainty regarding the returns on the different types of investments. Box 1.1

discusses some of the long-term fiscal benchmarks that have been proposed for resource-rich countries.

The experience of recent years has driven home the need for commodity exporters to also take into greater account the considerable uncertainty that surrounds commodity revenues when establishing their fiscal goals.<sup>18</sup> In particular, because commodity prices are highly volatile and shocks can be very persistent, it is prudent to accumulate long-lasting precautionary savings. The size of the buffers will depend on several factors, including the size and persistence of shocks and the cost of insurance.<sup>19</sup> The approaches typically used (Box 1.1) do not envisage precautionary balances to insure against long-term uncertainty. Recent studies discuss in greater depth the need for significant levels of stabilization savings (for example, van der Ploeg 2013).<sup>20</sup>

The implications for both fiscal savings and stabilization policies of taking account of long-term uncertainty can be illustrated by simulating the experience of a typical oil exporter (Figure 1.16). For these illustrations we use the modified version of the permanent income hypothesis (PIH) approach and a precautionary version of the PIH (Box 1.1 describes these approaches).<sup>21</sup>

- The “*spend as you go*” approach, whereby resource revenues are fully spent. This approach results in more spending (higher nonresource fiscal deficits) upfront, a more volatile and procyclical nonresource fiscal balance, and no financial buffers.
- The *price-smoothing rule*, whereby only a share of revenue consistent with a reference price is spent (implicitly targeting a balanced budget over the medium term). This approach still involves significant volatility but would result in some degree of savings during a windfall.
- The *modified PIH approach (MPIH)*, which assumes a temporary scaling up of public investment, results in significantly higher levels of financial savings and considerably more stable spending patterns.

<sup>18</sup> Other sources of uncertainty include fluctuations in production, costs of production, and the return on the physical investment that has been scaled up.

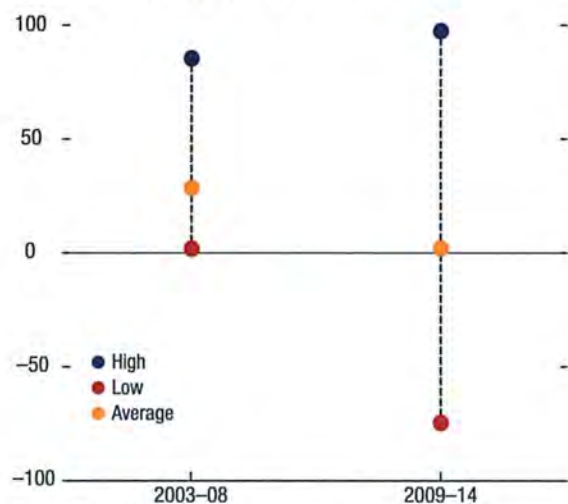
<sup>19</sup> See background notes <http://www.imf.org/external/pubs/ft/fm/2015/02/pdf/fmtn1502.pdf>.

<sup>20</sup> Cherif and Hasanov (2013) also argue that there is a strong case for precautionary savings for oil exporters. They estimate that the precautionary savings rate is sizable (about 30 percent of income) for oil exporters, whereas investment is relatively low, given high (persistent) shocks to oil revenues and the low productivity of the tradable sector.

<sup>21</sup> See background notes with a simple illustrative model <http://www.imf.org/external/pubs/ft/fm/2015/02/pdf/fmtn1502.pdf>.

**Figure 1.17. Saving Rates during Boom Years**  
(Share of commodity revenues)

Some resource-rich countries increased their net financial assets (or reduced net debt) during the 2003–08 resource revenue windfall.



Source: IMF staff estimates.

Note: Saving rates are calculated as the change in net assets as a percentage of commodity revenue during the 2003–08 and 2009–14 periods (used the longest sample available for each country within the specified periods). Countries included in the sample are Angola, Algeria, Azerbaijan, Chile, Equatorial Guinea, Iran, Kazakhstan, Kuwait, Libya, Nigeria, Norway, Peru, Qatar, Saudi Arabia, Trinidad and Tobago, United Arab Emirates.

- The *precautionary version of the PIH approach (PPIH)* results in even higher levels of savings and even less volatile spending than the previous approaches. The PPIH is derived in the same manner as the PIH benchmark, but takes into account the uncertainty that surrounds commodity revenues and the preference that policymakers have for stability. Simulations of this benchmark result in a somewhat higher level of financial savings in the early years, leaving fiscal policy better prepared to manage the volatility of commodity prices.<sup>22</sup>

These illustrative simulations suggest that building precautionary balances beyond simple price smoothing is likely to be desirable. However, the approaches based on the PIH models, which envisage large long-term savings, are likely not affordable for many countries. In the next section, we discuss an alternative operational

<sup>22</sup> The level of precautionary savings will depend especially on the uncertainty regarding commodity prices. The simulations assume that shocks have a high degree of persistence (that is, they follow a random walk). The amount of precautionary savings also increases with the degree of volatility, the dependence on resource revenues, and the degree of risk aversion (see background notes <http://www.imf.org/external/pubs/ft/fm/2015/02/pdf/fmtn1502.pdf>).

benchmark for precautionary savings to shield spending plans from the volatility.

The evidence shows that many countries did save considerably during the 2003–08 revenue windfall, but much less so in the subsequent years. As the precautionary approach suggests, many countries did accumulate buffers (net financial assets) during the height of the latest revenue windfall (2003–08). Among those that saved part of the windfall, the savings rate averaged 30 percent of the resource revenue (Figure 1.17). Some countries saved more than half (for example, Algeria, Chile, United Arab Emirates, Norway). However, there was no improvement in financial buffers on average in the more volatile 2009–14 period—when many countries experienced a large deceleration in economic growth relative to the 2003–08 period. Initially, as an appropriate response to the sharp fall in commodity revenue in 2009, some countries (for example, Angola, Chile, Iran, Nigeria) reduced significantly their buffers (or increased their debt levels). However, some are now more vulnerable to the latest commodity price shock because buffers were not subsequently replenished.

### A Risk-Based, Comprehensive Approach to Fiscal Policy

The preceding analysis illustrates the potential benefits for resource-rich countries of adopting fiscal frameworks that take better account of the large uncertainty they face. Although fiscal policy will need to reflect country-specific circumstances to be most effective, fiscal frameworks need to be comprehensive. In particular, they should encompass four priorities: (1) setting appropriate levels of stabilization savings, (2) strengthening the broad institutional framework, (3) establishing more effective spending policies, and (4) making better use of taxation to reduce revenue volatility.

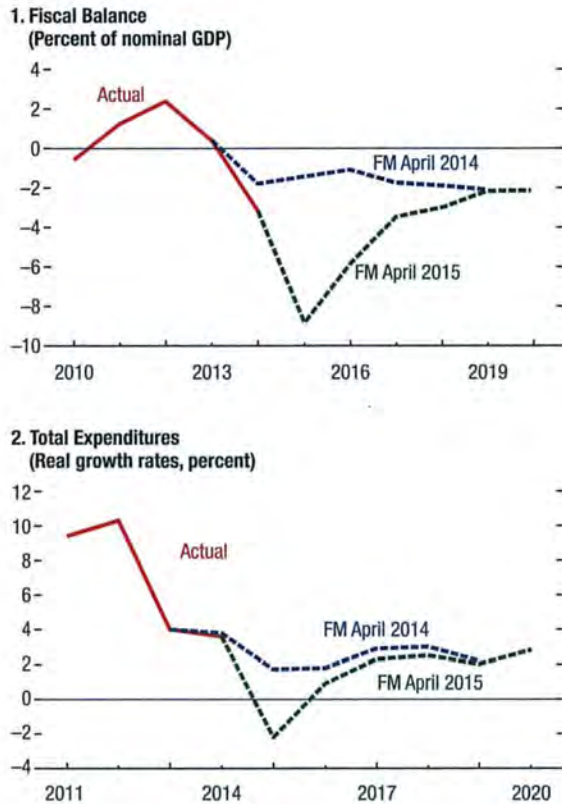
### Fiscal Indicators Need to Account for Commodity Price Volatility and Uncertainty

Fiscal policy in resource-rich countries can benefit from more systematically using fiscal indicators that take into account their countries' specific characteristics. Three indicators, in particular, can be helpful:

- *A long-term anchor.* This is particularly important for resource-rich countries, given that their resource base is exhaustible and subject to persistent shocks. A long-term benchmark can provide guidance as to the appropriate fiscal stance and would need to be tailored

**Figure 1.18. Impact of the Fall in Commodity Prices on Fiscal Balances in Resource-Rich Countries**

The fall in commodity prices has led to a significant upward revision in projected fiscal deficits, especially among oil exporters, despite much lower public expenditures.



Source: IMF staff projections.  
Note: FM = Fiscal Monitor.

to account for country-specific circumstances. For example, some countries may prefer to direct resource revenues to infrastructure and social needs instead of accumulating financial assets for future generations.

- *A benchmark for stabilization savings.* Regardless of the approach chosen for the long-term sustainability benchmark, there should be an explicit consideration of uncertainty. Countries that set a benchmark based on the projection for commodity prices should add additional precautionary (stabilization) savings to protect spending plans from the shocks. Importantly, such a buffer would be countercyclical, especially during large commodity prices booms and busts. Box 1.2 illustrates a possible operational benchmark for stabilization buffers.

- *A short-term fiscal target.* This should be set informed by the long-term benchmark. Since the overall fiscal balance will be distorted by the volatility of commodity prices, the nonresource balance as a share of nonresource GDP (NRB) provides a better indicator of the underlying fiscal stance and the impact on aggregate demand. The NRB is especially used by oil exporters as a target (Norway, Timor-Leste).<sup>23</sup> Several countries, especially metal exporters, target the structural balance (SB), which corresponds to the overall balance excluding the cyclical component of resource revenues and the business cycle of the nonresource economy. The SB is especially useful when the economy is less dependent on the commodity cycle. Because this indicator can be heavily influenced by assumptions regarding the “structural” price (Villafuerte, Lopez-Murphy, and Ossowski 2010), Chile relies on an independent committee to assess the long-term reference price while other countries use price formulas. Countries should also monitor other indicators depending on country circumstances (Medas and Zakharova 2009).<sup>24</sup>

Fiscal policy will need to be set in coordination with other policy objectives. For example, in deciding on the level of the nonresource primary balance, it will be important to assess the absorption capacity of the economy. Fiscal policy will also need to be coordinated with monetary policy and will vary depending on the exchange rate regime, as flexible exchange rates provide some buffer to the budget.<sup>25</sup>

What is the relevance of these benchmarks in the current circumstances, which involve a large fall in commodity prices? Commodity prices have been on a downward trend over the past few years; however, the drop in oil prices in the second half of 2014 was particularly pronounced (almost 50 percent). This decline is expected to persist, and for many commodity exporters will mean the erosion of a sizable share of government revenues (Figure 1.18). The deficits in oil-exporting countries are expected to widen the most (amounting to a decline of 8 percent of GDP in 2015, on average) compared with metal exporters (a 2 percent decline).

<sup>23</sup> The NRB can also be used to correct for the nonresource economic cycle. For example, Norway’s target is implemented flexibly over the cycle.

<sup>24</sup> These could include the overall balance and gross financing needs (for countries under tight financing conditions) and public gross debt.

<sup>25</sup> A flexible exchange rate will partially protect the budget from the first impact of movements in commodity prices. However, this implies that the domestic economy will receive the brunt of the shock—and thus tax revenues will eventually fall.

Most countries will need to adjust their budgets to the new commodity prices.

Fiscal consolidation should rely on measures that minimize the effects on growth. Those countries that had taken advantage of the earlier boom to accumulate sufficient financial buffers, or that have relatively ready access to capital markets, can adopt a more gradual fiscal adjustment. Others will have fewer options and may have to make more painful adjustments:

- Spending cuts should be as growth friendly as possible. Nevertheless, in some cases a scaling down of public investment may be unavoidable; it is already being implemented or planned in several countries (Angola, Gabon, Nigeria). Further efficiency gains in health, education, and the social sectors could be pursued to contain pressures on the budget, especially in Latin America (Celasun and others 2015).
- Many of the policies proposed in this *Fiscal Monitor* can also help. Energy pricing reforms can deliver significant gains to the budget. Improvements in public investment management systems will help increase the efficiency of investment and mitigate the negative impact of lower resources. Most countries also have space to increase nonresource taxation.

### The Broad Institutional Framework Needs to Be Strengthened

The volatility that commodity exporters face make it exceptionally challenging for policymakers to adhere to medium- and long-term plans. Thus, strong fiscal institutions are especially critical. These need to translate long-term policy objectives for the use of large and volatile resource revenues into operational guidance for the annual budget, and to hold policymakers accountable for meeting these objectives. The key elements follow:

- *Medium-term fiscal framework.* This needs to provide a clear linkage between medium-term and long-term objectives, and a guide for annual budgets. A well-defined mechanism is also needed to reassess these objectives at regular intervals. Several countries (Angola, Sierra Leone, Tanzania, Timor-Leste) have been moving forward with reforms in these areas with support from the IMF (Box 1.3).
- *Enhanced management of fiscal risks.* As part of a more risk-based approach to fiscal policy, budget documents should include alternative macro-fis-

cal scenarios that present the fiscal implications of changes in key macroeconomic assumptions, including different price and production scenarios.<sup>26</sup> This analysis of fiscal risks should also consider the implications for precautionary savings and other policies to mitigate risks.

- *Transparency.* A commitment to transparency should be a core principle in all areas related to the management of resource revenues (Box 1.4). Transparency allows for informed understanding and scrutiny of resource revenues by lawmakers, external analysts, and the broader public. It also helps build a constituency for precautionary approaches to policymaking, ensures that resources are used in line with national objectives, and reduces the risk of their misuse.

Numerical fiscal rules or resource funds can help achieve policy objectives if they are supported by strong institutions, are well designed, are closely linked to broader policy objectives, and are backed by a strong political commitment. The examples of Chile and Norway show that these fiscal rules can both help discipline policies and provide the necessary flexibility to respond to shocks.

The preceding discussion argues that the design of fiscal rules for resource-rich economies should be based on fiscal anchors that take account of volatility and uncertainty (Box 1.5). Instead, some countries rely on price-smoothing rules that are not adequately linked to long-term fiscal benchmarks. These rules often define the amount of resource revenue that is made available to the budget based on an average of past prices or forecasts of future prices, thereby limiting the extent to which budgetary revenues respond to actual prices. They can dampen price-related procyclicality, but they are less effective than rules that take into consideration a risk-adjusted longer-term fiscal anchor. As such, price-smoothing rules should be used in conjunction with appropriate fiscal anchors and financial buffers.

The creation of a natural-resource-revenue fund can provide a useful mechanism for managing saved resource revenue flows. While keeping financial assets at the central banks (Algeria, Saudi Arabia) is an option, some countries have opted to establish resource funds to manage their assets. These funds can be used

<sup>26</sup> Countries could bring the two approaches together into stochastic projections of the key fiscal aggregates (see Gaspar, Hughes, and Jaramillo 2015).

to save for future generations and for short-term stabilization purposes. Cross-country experience with these, including in the context of IMF technical assistance, suggests that to be successful their design should be shaped by the following principles:

- They should support the fiscal policy framework. In particular, the accumulation of financial assets in funds should be derived from actual fiscal surpluses. Otherwise, accumulating revenue in funds without regard for budget needs can result in a simultaneous and undesirable buildup of expensive debt.<sup>27</sup> The budget should specify how much of the fund would be used each year in line with fiscal policy objectives. It should also specify how much will be retained in the fund for stabilization and saving purposes.
- The fund should be fully integrated into the budget process and should not have independent spending authority. All withdrawals should require legislative approval and flow through the government budget. Spending should be subject to the same scrutiny and accountability as any other public spending—at a minimum. Financing funds are preferable because they are fully linked to the budget and do not attempt to limit the availability of resources to the budget (Ossowski and others 2008).
- The operations of the fund should be transparent and there should be a strong governance structure (see Box 1.4).<sup>28</sup> Transparency requirements should include regular and frequent disclosure and reporting on the principles governing the fund, its inflows and outflows, the investment policy, and the allocation and return on assets.
- Fund assets should be prudently managed in line with a transparent investment strategy. Funds could be operated by the central bank or by a body created

<sup>27</sup> Countries with a large nonconcessional debt might opt to pay down public debt rather than accumulate financial assets. Such a strategy can be justified not only on purely financial grounds (for example, borrowing rates are higher than lending rates) but also to reduce the country's interest premium and thereby foster private sector growth. By the same token, countries with low levels of debt may opt to issue debt to support the development of local financial markets or to provide a yield curve that serves as a reference for private sector development.

<sup>28</sup> There are several initiatives on improving transparency, including the International Forum of Sovereign Wealth Funds (see <http://www.ifswf.org>).

for asset management purposes, with a strategy set by the ministry of finance.<sup>29</sup>

- The assets of a resource fund should be part of the government's overall asset and liability position. This will allow for better asset-liability management of the public balance sheet.

An important asset-liability issue is the extent to which market-based insurance (such as hedging instruments) can be used to shield the budget from commodity price volatility. A detailed examination of this issue is beyond the scope of this chapter, but it is important to recognize that, despite their potential advantages, these instruments have in general not been used by resource-rich economies. One exception is Mexico, which uses options to hedge the value of roughly half its oil exports for one year ahead (Annex 1.2). The fact that other countries have shown less interest may reflect the lack of liquidity for contracts with long horizons, and the unwillingness of policymakers to place themselves in a position of having to justify the cost of hedges in years when the insurance is not used. Countries tend to prefer to self-insure by accumulating financial savings, which also has the advantage of helping to protect against production volatility.

### Well-Designed Tax Systems Can Also Help Reduce Vulnerabilities

Resource-rich countries tend to collect relatively more revenue, relative to GDP, than do other countries, but less from the nonresource sector (Figure 1.19). This is not surprising since taxes on the resource sector can be less distortionary than most instruments applied to the nonresource sector.

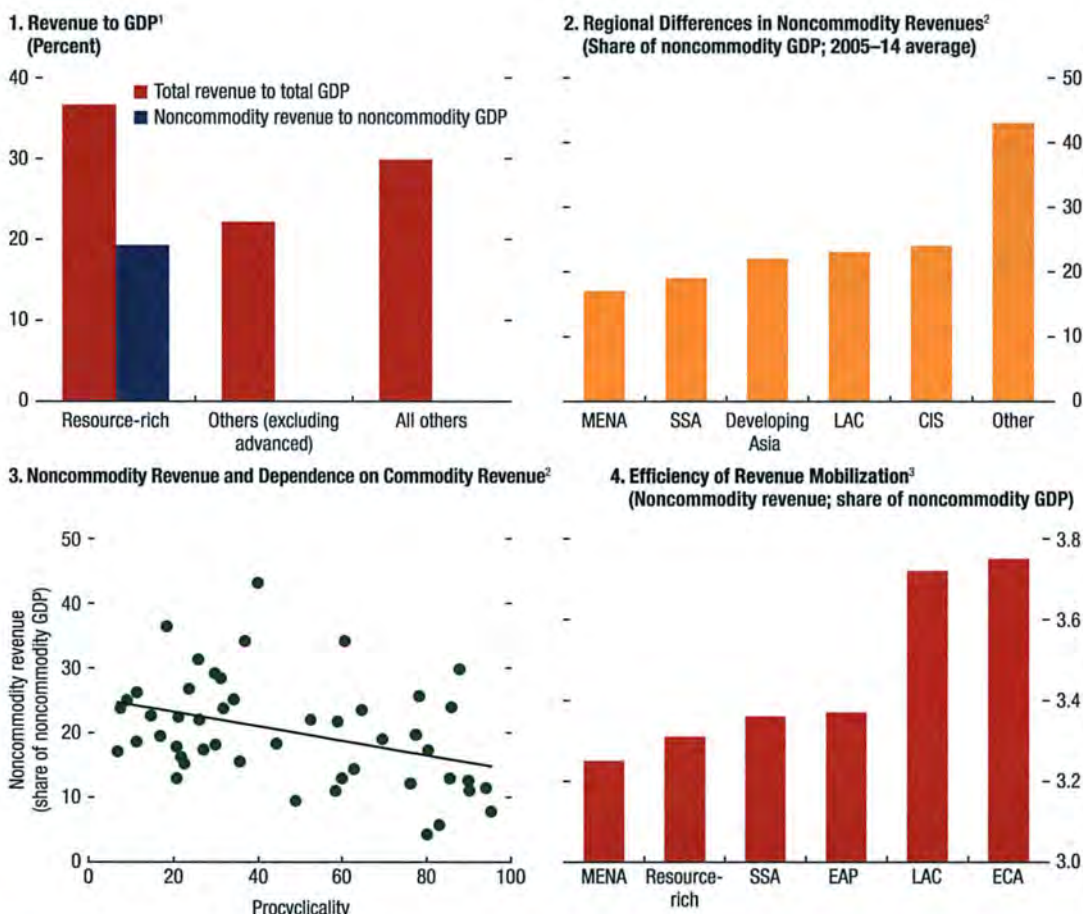
Nonetheless, even many countries with large revenues from the resource sector can benefit from developing tax systems with more meaningful and well-designed tax collection from the nonresource sector. This is important for several reasons:

- It helps to better insulate spending plans from disruptive price and supply shocks to the resource sector (Figure 1.20).
- A more developed tax system can enhance equity by better matching contributions to government revenues to the ability to pay, or, in some cases, to

<sup>29</sup> For more details on investment strategies and operational management of these funds, see IMF 2014a. Best practice guidelines are also provided by the International Working Group of Sovereign Wealth Funds (2008) (the "Santiago Principles").

**Figure 1.19. Tax Revenue in Resource-Rich Countries**

Tax revenue tends to be low in resource-rich countries, which have a low revenue effort outside the resource sector.



Sources: World Bank; and IMF staff calculations.

Note: CIS = Central and Eastern Europe and the Commonwealth of Independent States; EAP = East Asia and Pacific; ECA = Europe and Central Asia; LAC = Latin America and the Caribbean; MENA = Middle East and North Africa; SSA = Sub-Saharan Africa.

<sup>1</sup> The averages of an unbalanced panel of resource-rich and non-resource-rich countries are displayed for 1990–2014.

<sup>2</sup> The averages of an unbalanced panel of resource-rich countries are shown for 2005–14.

<sup>3</sup> The latest available data are as of 2013.

the benefits received from public spending. It can also improve incentives for good governance (since paying taxes increases incentives to scrutinize fiscal policies). The tax reform agenda in many of these countries is large, especially to improve the relatively low levels of efficiency of revenue mobilization (Figure 1.19, panel 4).

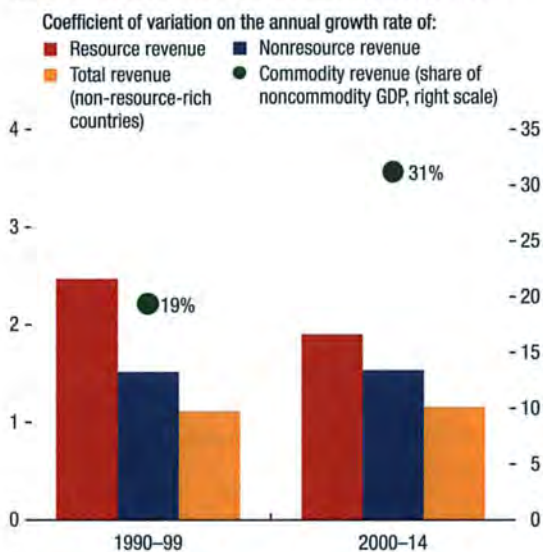
- Building better tax systems requires time and effort, and cannot be achieved quickly as circumstances turn sour or resources are depleted: it requires substantial investment in building effective tax administrations and educating taxpayers on both the general need for

and precise nature of changes in the tax system. Evidence suggests that although resource-rich countries adjust the tax effort in response to persistent changes in commodity revenues, the response tends to be relatively modest and takes several years. For example, a permanent increase in resource revenues by 10 percent of nonresource GDP reduces nonresource revenues by only 0.4 percent of nonresource GDP.<sup>30</sup>

<sup>30</sup> See background notes <http://www.imf.org/external/pubs/ft/fm/2015/02/pdf/fmtn1502.pdf>. See also Bornhorst, Gupta, and Thornton (2009); Thomas and Treviño (2013); Crivelli and Gupta (2014).

**Figure 1.20. Resource and Nonresource Revenues**  
(Fiscal buffers; percent of 2015 GDP)

Resource revenues are more volatile than nonresource revenues.



Source: IMF staff estimates.

Two broad areas in which many nonresource tax systems can usefully be strengthened stand out. One is establishing a simple and broad-based value-added tax (VAT). This can improve the efficiency of the tax system and reduce the costs associated with complex fees and charges, which are prevalent in many resource-rich countries in the Middle East (Mansour 2015). Generally, a VAT tends to be a more stable and growth-friendly source of revenue than most other taxes (Acosta-Ormaechea and Yoo 2012). However, resource-rich countries on average collect only about half of what resource-poor countries do from goods and services taxes, suggesting considerable scope for boosting these revenues (Figure 1.21). The other avenue to pursue is increased reliance on the personal income tax, which in these countries typically generates revenues equivalent to only about 2 percent of GDP. A properly designed personal income tax system can help improve equity and serve a critical role in complementing, and ensuring acceptability of, the VAT. Other areas that merit attention include property taxation, often identified as relatively pro-growth and capable of being aligned to equity objectives, and the corporate tax, whose importance in these countries largely reflects its role in capturing resource returns.

Encouragingly, a number of countries have made helpful efforts to increase nonresource taxation. For example,

Iran introduced a VAT in 2008, which brought in revenues of 1 percent of GDP in 2013–14 (and is expected to increase further in the future). Bolivia increased tax revenues by more than 3 percent of GDP from 2005 to 2013, strengthening tax administration and significantly broadening the tax base. Mozambique made strides in improving its tax administration; this has helped boost revenues by the equivalent of 1¼ of GDP each year from 2010 to 2014, excluding windfall taxes.

The fiscal treatment of the resource sector itself requires close attention. Of the many challenges,<sup>31</sup> one of the most fundamental is that of striking a balance between mitigating the volatility of government revenue and ensuring that the public sector receives an appropriate share of the natural resource wealth. A broadly progressive fiscal regime that increases the government share as profits and commodity prices rise has the advantage of encouraging investment and maximizing government revenues during windfalls. However, more progressivity inherently generates more volatility in revenues. Some governments, especially those with liquidity constraints, may prefer early and more stable revenues, even if the budget will benefit less when prices increase—which generally calls for stronger reliance on royalties. Balancing these considerations, some countries use, as is often recommended, a combination of royalties and some form of resource rent tax alongside the corporate income tax.<sup>32</sup>

### Expenditure Policy Can Help Reduce Vulnerabilities and Achieve Development Objectives

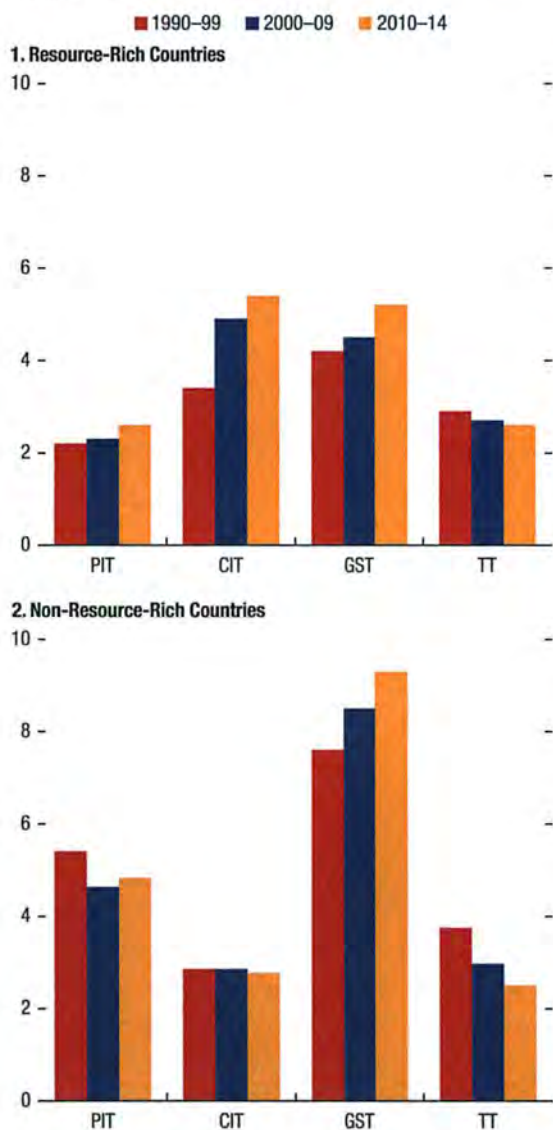
Several studies have suggested that resource-rich economies have an important opportunity to improve their public investment management (PIM), which in turn could boost growth prospects. Dabla-Norris and others (2011) find that on average oil exporters had lower PIM scores than others, particularly in the project appraisal and evaluation stages of the PIM process. Albino-War and others (2014) find that oil exporters in the Middle East and North Africa region lag behind the most efficient international performers in all PIM

<sup>31</sup> These challenges are reviewed in IMF (2012b) and, in more detail, in Daniel, Keen, and McPherson (2010).

<sup>32</sup> These industries also require careful attention to treaty policy and withholding taxes (IMF 2014b) given the prevalence of multinational companies, as well as to the distinct challenges that effective administration of fiscal regimes for the extractive industries pose (Calder 2014). See also background notes <http://www.imf.org/external/pubs/ft/fm/2015/02/pdf/fmnt1502.pdf>.

**Figure 1.21. Revenue Shares from Taxation in Resource-Rich Countries, 1990–2014**  
(Percent of 2015 GDP)

Resource-rich countries have lower revenue shares from personal income tax and goods and services tax.



Source: IMF staff estimates.

Note: Personal income taxes (PIT), corporate income taxes (CIT), goods and services taxes (GST), and trade taxes (TT) as a share of GDP for resource-rich and non-resource-rich countries.

areas (Annex 1.3). A study by IMF staff (IMF 2015) discusses the different areas to make public investment more efficient. Developing PIM practices should therefore be a priority in resource-rich countries, and ideally should take place before investment spending is scaled up.

In addition, reforming fuel subsidies would allow better use of resources and reduce fiscal vulnerabilities. Although fuel subsidies can be used to share the resource wealth and shield the domestic economy from volatile oil prices, subsidies have several disadvantages. They are very poorly targeted devices for supporting the poor (Clements and others 2013). Moreover, they can generate significant environmental and health costs. The issue is not just—or even mainly—addressing the global harm from climate change. It is very much a matter of the local damage (Box 1.6). Fuel subsidy reforms should be accompanied by well-targeted transfers to those most vulnerable. For oil exporters, where fuel subsidies are seen as a way to share the oil wealth, it may also be useful to design a transfer system that allows some direct sharing of oil revenue that would accompany the reform of fuel subsidies.

## Conclusion

The experience of the past several years has provided a stark reminder of the considerable uncertainty that resource-rich economies face and the implications this has for fiscal policy. In particular, as the analysis in this chapter has shown, fiscal policies have not been successful in shielding the domestic economy from the effects of commodity price shocks, and in many cases have actually exacerbated their effects, with possibly important adverse consequences for growth and inter-generational equity.

More efforts are needed to establish a comprehensive fiscal policy framework in resource-rich countries that can help them cope with heightened uncertainty. The key elements of this framework should include the following:

- *A solid longer-term anchor to guide fiscal policy.* Countries face important trade-offs between how much of the nonrenewable resource wealth to consume and how much to save in financial and other assets (such as public infrastructure). Given their large development needs, for low-income countries a large share of the savings should likely be allocated to public investment, commensurate with their absorptive and institutional capacity.
- *Stabilization savings to help weather the large and persistent shocks.* The long-term strategy should also ensure an appropriate level of financial savings for precautionary purposes, which will lead to counter-cyclical policies that will help stabilize the economy

and promote long-term growth. To achieve this, such benchmarks will need to account for the uncertainty that surrounds the returns to natural resource wealth.

- *Stronger institutional fiscal frameworks to help ensure longer-term objectives.* These should include the following:
  - Comprehensive medium-term budget frameworks, which demonstrate and ensure consistency between the longer-term objective, fiscal targets, and the annual budgets.
  - Fiscal risk statements that explore the consequences of uncertainty for the government's fiscal plans and explain how these might be addressed.
  - Strong public investment management and expenditure policies that help ensure that government spending plans are efficient and are likely to yield important growth dividends.
  - Tax policies that diversify the revenue base and avoid an overdependence of government spending on the resource sector.
  - Fiscal regimes for extractive industries that strike a balance between limiting the volatility of government revenue and ensuring an appropriate share of the resource wealth for government. A combination of fiscal instruments is usually recommended.
  - Sufficient transparency in each aspect of this policy framework to help ensure adherence.
- *Strong underlying institutions.* Experience suggests that such institutions (including governance) are essential for ensuring that natural resources are used in a manner that supports long-term growth and avoids disruptive procyclicality. In the context of strong institutions, fiscal rules can help constrain the response to windfalls and avoid unhelpful procyclicality. Resource funds can be a useful tool to manage financial assets.

Achieving these objectives has become even more difficult in the current environment, given the recent collapse in commodity prices. After a period of abundance in the 2000s, many countries will need to adjust to a period of scarcer resources that is likely to persist. Countries that have accumulated savings will be able to adjust gradually. But in some cases, large adjustments in spending may be unavoidable. These countries may have options for ameliorating the effects on priority spending by examining the scope for curbing subsidies and other unproductive outlays, or by boosting tax revenue. In the current circumstances, the priority is

to ensure that fiscal positions are brought to sustainable levels (in cases in which they are not, given the commodity price declines). But steps to strengthen the underlying fiscal and policy frameworks as described in this chapter could both enhance confidence and place countries in a better position to manage future shocks.

### Annex 1.1. Data Sources

The primary sources for this chapter are the IMF's *International Financial Statistics (IFS)*, *Balance of Payments Statistics*, *Direction of Trade Statistics*, World Economic Outlook, and fiscal rules databases; United Nations Statistics Division "National Account Official Country Data" database; the World Bank's *World Development Indicators* and *Worldwide Governance Indicators*; the Macro Data Guide Political Constraint Index (POLCON) Dataset; and Polity IV and *International Country Risk Guide* data. Data for all variables of interest are collected on an annual basis from 1970 to 2013, where available.

The sample comprises 51 countries that are exporters of oil, gas, and metals (such as copper, gold, iron, and silver), where these commodities represent a large share of exports (20 percent or more of total exports) or fiscal revenues. The countries are Algeria, Angola, Australia, Azerbaijan, Bahrain, Bolivia, Botswana, Brunei Darussalam, Cameroon, Canada, Chad, Chile, Colombia, Democratic Republic of the Congo, Republic of Congo, Côte d'Ivoire, Equatorial Guinea, Ecuador, Gabon, Ghana, Guinea, Guyana, Indonesia, Iran, Iraq, Kazakhstan, Kuwait, Libya, Mali, Mauritania, Mexico, Mongolia, Mozambique, Nigeria, Norway, Oman, Papua New Guinea, Peru, Qatar, Russia, Saudi Arabia, South Africa, Sudan, Suriname, Syria, Timor-Leste, Trinidad and Tobago, United Arab Emirates, Venezuela, Yemen, and Zambia. The sample varies for each analysis depending on data availability.

### Annex 1.2. Selected Experiences with Fiscal Rules and Resource Funds in Latin America and the Caribbean<sup>33</sup>

*Chile* bases its fiscal framework on a fiscal rule. The rule was introduced in 2001 and institutionalized by the 2006 Fiscal Responsibility Law. According to the law, the government, at the beginning of its mandate,

<sup>33</sup> With contributions from M. Santoro, J. Delgado, E. Valencia, and M. Lutz.

must set a fiscal objective in terms of a structural balance position to be reached by the end of its term (four years). The structural fiscal balance is calculated by adjusting expected revenues for the cycles in economic activity and expected copper prices (with a committee of experts providing estimates for potential output and long-term copper prices for the annual budget). The path of spending is thus the residual, to be determined on an annual basis given the estimated structural revenues and the target at the end of the government mandate.

The presence of the fiscal rule has reduced the procyclical fiscal bias and increased the credibility of fiscal policy in Chile. The rule contributed to a reduction in net public debt by more than 20 percentage points of GDP before the financial crisis. Moreover, the rule combines a commitment at the end of the mandate with flexibility, in terms of adjusting the path of spending to both the end-of-mandate target and the position in the business and commodity cycles (see Schmidt-Hebbel 2012). The flexibility allows for countercyclical policy, while the fiscal target at the end of the mandate helps anchor expectations. By striking the right balance between rules and discretion, Chile has been able to build a strong reputation for fiscal responsibility.

*Colombia* reformed its fiscal framework as a response to a large accumulation of debt in the late 1990s and early 2000s. In 1997–98, two laws established strict limits for subnational expenditure and debt accumulation. In 2003, a fiscal transparency law was enacted that aims to protect fiscal sustainability by requiring a detailed 10-year, medium-term fiscal framework each year and establishing indicative balance targets for the nonfinancial public sector.

The introduction of the structural balance fiscal rule in 2012 strengthened the framework for countercyclical fiscal policy. The new law established a quantitative target for the central government overall balance, adjusted for the oil and GDP cycles (structural balance). The rule also allows the deficit target to be relaxed through countercyclical expenditures under some circumstances, and includes an escape clause when macroeconomic stability is at risk.

*Mexico* hedges a large fraction of oil exports through put options to insure against a decline in international oil prices. Each year, Mexico purchases Asian put options<sup>34</sup> with a strike price equal to the oil reference

price used in the budget (which corresponds to an average between historical and future oil prices). Mexico hedges roughly half the volume of its oil exports at a cost that has varied between \$2.50 and \$5.60 a barrel over the past five years. The program was particularly useful after the collapse of oil prices at the onset of the global financial crisis, when oil prices were 20 percent below the budgeted price.

To further insulate fiscal revenues from transitory fluctuations in oil-related revenues, Mexico recently created a sovereign wealth fund. Since early 2015, the Mexican Oil Fund has managed all oil-related revenues and payments (except for taxes). The federal government receives transfers from the Oil Fund for up to 4.7 percent of GDP—roughly the amount of oil-related revenues received in 2013. Revenues in excess of this threshold will accumulate in the fund. Long-term assets in the Mexican Oil Fund can be used to cover persistent declines in revenues only after smaller stabilization funds have been exhausted.

*Peru* approved a new fiscal framework in 2013, which became operational in the 2015 budget. It amended a fiscal framework introduced in 1999 with the enactment of the Law on Fiscal Prudence and Transparency (LPTF). The LPTF's main objective is to establish a commitment to fiscal balance over the business cycle through fiscal rules at the national level and by establishing a multiyear fiscal framework.

The fiscal framework set out in the 2000s was not sufficiently flexible to adapt to the economic and institutional changes facing Peru. In particular, the growing importance of resource revenues was not addressed, contributing to the volatility of government revenues. The 1999 framework also did not reduce the bias toward procyclicality, as the rule targeted the nominal deficit. The framework has been repeatedly amended over the past decade, hurting its predictability, simplicity, and transparency.

The new framework, amended in 2013, was named the Fiscal Responsibility and Transparency Law. It includes a new structural deficit target for the nonfinancial public sector, an important shift relative to the past. Like the previous version, it includes a multiyear macroeconomic framework that sets three-year projections for the main macroeconomic and fiscal variables. It allows the national government to use the

<sup>34</sup> The payoff of an Asian put option is determined by the difference between the strike price and the average price of the underlying

asset over a predetermined period, which in the case of Mexico covers one year. More details about Mexico's hedging program can be found in Duclaud and Garcia (2012).

fiscal stabilization fund if revenue declines below the average of the past three years. A fiscal council will provide independent analyses of macro-fiscal projections, the evolution of public finances, and compliance with fiscal laws and rules.

In *Trinidad and Tobago*, fiscal performance has been mixed in the absence of multiyear budgeting and other formal rules. The 1973–74 oil price boom sharply improved the country's fiscal position. However, the oil price collapse in the early 1980s led to a procyclical fiscal retrenchment. A sovereign wealth fund, the Heritage and Stabilization Fund, was established in 2004, to be built over time with "above-normal" fiscal energy revenues. Its assets reached about 20 percent of GDP in September 2014 (external reserves are an additional 35 percent of GDP).<sup>35</sup> While there have been no legally binding fiscal rules, various governments have made pledges regarding overall (or non-energy) balances.

### Annex 1.3. Public Investment in Oil-Producing Countries of the Middle East<sup>36</sup>

During the past decade, drawing on oil revenues, most oil-producing countries of the Middle East and Central Asia (MCDOE) have sustained the level of investment spending at about 7–8 percent of GDP—about 3–4 percentage points higher than levels in the early 2000s.

Overall, public investment efficiency<sup>37</sup> in these countries has been lower than in comparator countries. The quality of infrastructure in MCDOE is about 10 percent lower compared with advanced countries or resource-rich countries with strong institutions such as Australia and Canada. It is also about 18 percent lower than the maximum quality index (GCI index), suggesting that significant efficiency gains could be generated. A particular source of concern is the cost of mass transit projects, which appear significantly more expensive than similar projects in advanced countries.

Strong institutions could improve the quality and efficiency of public investment in MCDOE. The Public Investment Management Index (PIMI) suggests that issues arise primarily at the appraisal and selection

phases (Dabla-Norris and others 2011). Cost-benefit analyses (at least for large projects), as well as improved fiscal planning with medium-term frameworks, could help.

In *Kuwait*, the authorities are engaged in public investment programs, in part to increase oil production, but also to diversify the economy. Overall, while these investments could lead to significant gains, potential risks remain. In the oil sector, the main risk relates to macroeconomic conditions, as the development of shale gas in competitor countries could lower the profitability of investment in the sector. In the non-oil sector, the main issue relates to the quality of investment, as delays in implementation and potential cost overruns could harm efficiency.

*Qatar* has enjoyed strong growth rates in the recent past, in part due to large public investments aimed at diversifying the economy. Aware of the need for continued improvements in investment quality, the authorities have taken steps to review capital spending (and related operational costs), and intend to integrate investment spending plans within medium-term fiscal planning, including by establishing a public investment management department at the ministry of finance. The authorities are also in the process of developing a medium-term fiscal framework.

In *Saudi Arabia*, capital spending grew by 24 percent on average annually from 2000 to 2008, on the back of high hydrocarbon revenues. In turn, Saudi Arabia's economy grew strongly from 2000 to 2013; nonhydrocarbon output growth averaged more than 7 percent annually. Large public investments have improved the quality of infrastructure, with the ranking of infrastructure quality by the *Global Competitiveness Report* improving from 41 in 2008/09 to 31 in 2013/14. Efficiency could be further strengthened by adopting a medium-term fiscal framework and by improving the public investment process, notably regarding the assessment and selection of projects.

### Annex 1.4. How Selected Sub-Saharan African Countries Have Used Commodity Windfalls<sup>38</sup>

*Angola* has used windfalls from the recent commodity price boom to rebuild reserves and scale up public investment. Central government deposits at the National Bank of Angola rose from 1 percent of GDP

<sup>35</sup> Given that contributions are triggered by above-normal energy revenues, contributions have sometimes coincided with overall fiscal deficits.

<sup>36</sup> See Albino-War and others (2014).

<sup>37</sup> As measured by the infrastructure component of the Global Competitiveness Indicator (GCI) developed by the World Economic Forum.

<sup>38</sup> With contributions from R. Sab, C. McLaughlin, and G. Salinas.

in 2004 to 9½ percent in 2014. The sovereign wealth fund was created in 2012 and had accumulated assets of 4 percent of GDP by end-2014. Public investment was scaled up significantly during the boom period, in part driven by the need to rebuild infrastructure after the civil war that ended in 2002. However, there is considerable room to boost the quality of public investment. Measures to improve PIM include enhancing the compliance of the PIM process with existing legislation; better prioritizing and monitoring of the execution of investment projects; conducting ex ante and ex post project evaluations; and improving technical capacity to appraise, select, and monitor investment projects.

*The Republic of Congo* has also used windfalls to increase financial assets, directing part of them to scale up capital spending and address large social gaps. Government oil revenues more than tripled from 2003 to 2008. This allowed a substantial buildup of financial assets and doubled domestically financed capital spending as a share of non-oil GDP. Higher oil prices also have driven the Republic of Congo's ambitious 2012–16 National Development Plan, which is aimed at addressing large social and infrastructure gaps and diversifying the economy, funding reconstruction and rehabilitation in the aftermath of the 2012 munitions explosion, and supporting a large amount of construction spending for the Fall 2015 All Africa Games. The Republic of Congo's investment efficiency still lags substantially behind that of other low-income countries. Improving

the quality of capital expenditures is essential for maximizing their effect on non-oil growth and enhancing economic diversification.

*Gabon* used a large part of the first phase of the windfall (2003–08) to repay and restructure its debt and rebuild reserves. Public debt was brought down from 126 percent of non-oil GDP in 2003 to 32 percent in 2008, while deposits at the central bank rose to 7 percent of non-oil GDP in 2008. Capital spending increased only moderately during this period, but was scaled up substantially when oil prices rose following the global crisis.

Capital spending grew from 8 percent of non-oil GDP in 2008 to about 20 percent in 2011–13, mainly to improve the country's transport and energy infrastructure and to finance the infrastructure needed to host the 2012 Africa Cup of Nations football championship. Favorable oil prices also allowed the government to draw on external financing sources to finance part of the scale up.

However, the very high level of capital spending proved unsustainable. By early 2014, the government started drawing on its deposits, having accumulated significant domestic arrears (equivalent to 12 percent of non-oil GDP), and had to resort to central bank statutory advances at the maximum permissible level. The government was ultimately forced to undertake a fiscal adjustment and cut back its capital spending in 2014 to about 10 percent of non-oil GDP to repay part of its arrears.

**Box 1.1. Long-Term Management of Natural Resources**

Assessing the long-term sustainability of macro-fiscal policy in resource-rich countries is both crucial and highly complex. Broadly, the approaches to long-term management of natural resources fall into three main groups (Davis, Ossowski, and Fedelino 2003):

- Under the “*bird-in-hand*” approach, countries would save all oil revenue as financial assets, with only the yield from the accumulated financial assets spent. This approach shields the budget from the impact of oil price movements, but can be very restrictive (particularly in the first years). It is better suited for when there is a strong preference for leaving a substantial share of the oil wealth to future generations. (Norway follows a similar approach.)
- Countries can also target a level of spending guided by the return on overall net government wealth. This follows the *permanent income hypothesis (PIH)*. Under the standard PIH approach, governments would consume a constant share of the net government wealth every year. A country with net government wealth substantially higher than its present financial assets could afford to make higher expenditures earlier than under a “bird-in-hand” approach. The standard PIH has been criticized as not being an appropriate framework for low-income countries especially when there are large infrastructure needs.

IMF (2012a) discusses variations that address some of the weaknesses in the standard PIH:

- A *modified PIH (MPIH)* with scaling up of capital spending. Instead of preserving financial wealth over time, this approach allows financial assets to be drawn down for a few years during the scaling-up period. The drawdown would be offset by fiscal adjustment in the future to rebuild financial assets to the same level as under the traditional PIH. This approach does not explicitly account for the potential impact of the scaling up on growth and nonresource revenues.
- The *Fiscal Sustainability Framework* explicitly takes into account the expected impact of higher investment on growth and nonresource revenues. Fiscal sustainability can be consistent with a fiscal target that allows a drawdown of government wealth and eventually stabilizes it at a lower level than the PIH or the MPIH. Lower financial wealth will generate a lower stream of income to the budget than in the PIH-based framework, but this would be compensated for by “fiscal returns” in the form of larger nonresource revenues.
- Under another alternative, countries would spend all current-period oil revenue. This approach poses significant risks and leads to highly volatile spending.

### Box 1.2. A Benchmark for Stabilization Savings

Resource-rich countries need larger and more durable buffers than other countries because shocks can be large and highly persistent. Countries could accumulate financial savings to ensure that the investment returns on those assets are enough to avoid large adjustments in the event that commodity prices fall.<sup>1</sup> Such a buffer would be for stabilization purposes, assuming the expenditure plan is sustainable.

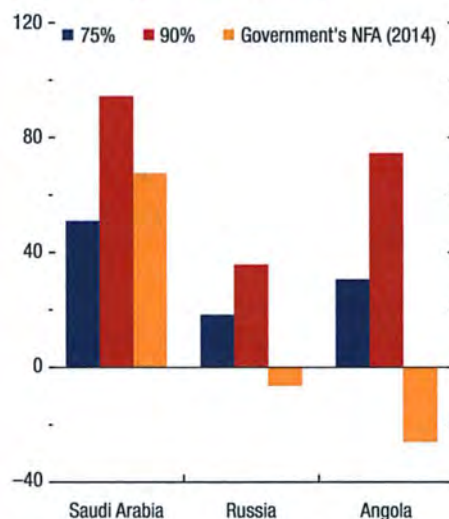
The size of the buffer would depend on the degree of resource dependence and risk tolerance. Countries that already save significant amounts of resource revenues for future generations would have to save less for stabilization purposes (as these are only to guard against shocks to resource revenue that directly funds the annual budgets). The advantage would be that it would help reduce the tendency to spend during revenue booms and provide countercyclical relief during downturns.

As an illustration, the simulations presented in Figure 1.2.1 consider the level of assets that would be sufficient to generate investment returns to cover half the lost revenue over the next five years with 75 percent and 90 percent probability for three major oil exporters: Angola, Russia, and Saudi Arabia.<sup>2</sup> The estimated levels of net financial assets are equivalent to two years of annual resource revenues (for the 75th

<sup>1</sup> Under the PIH with precautionary savings, countries accumulate additional financial assets and use the investment returns on those assets to reduce the volatility. The benchmark proposed here is line with those recommendations.

<sup>2</sup> The simulations assume that the investment returns on these buffers would be used only to shield the budget from downside shock. The level of financial assets would be adjusted annually to ensure the desired level of protection for the next five years.

**Figure 1.2.1. Precautionary Buffers under Different Degrees of Risk Tolerance**  
(Fiscal buffers; percent of 2015 GDP)



Source: IMF staff estimates.

Note: NFA = net financial assets. Estimates of fiscal buffers needed to ensure five-year spending plans (WEO projections) are largely protected with probability of 75 percent and 90 percent under oil price uncertainty. The simulations assume countries would make half of the adjustment in the non-oil balance in the advent of a fall in prices.

percentile shocks). Of the three, only Saudi Arabia has net financial assets to provide significant protection over time.

**Box 1.3. IMF Technical Assistance to Help Countries Manage Their Natural Resource Wealth**

The IMF has had a long history of providing technical assistance to resource-rich countries. In 2010, the IMF extended such efforts in the context of the establishment of the Managing Natural Resource Wealth (MNRW) topical trust fund.

The MNRW is supported by Australia, the European Commission, Kuwait, the Netherlands, Norway, Oman, and Switzerland, and aims to assist low- and lower-middle-income countries endowed with oil, gas, and metals in their efforts to establish the institutional

frameworks needed to ensure the management of natural resource wealth in a manner that supports good governance and growth.

The MNRW has funded technical assistance in about 20 countries since its inception, with a focus on improving five areas: fiscal regimes, revenue administration, macro-fiscal policies and public financial management, asset-liability management, and statistics for natural resources.

### Box 1.4. The Vital Role of Transparency for the Successful Management of Natural Resources

There are several areas in which greater transparency around resource revenues is particularly important:

- *Estimates of resource wealth.* It is important to provide regular estimates of the value of a country's resource reserves using a range of price scenarios, as well as the rate at which the reserves are being extracted and consumed or converted to financial assets. This information is vital to underpin decisions around the long-term use of natural resources.
- *The collection of resource revenues and their use.* There should be clear reporting on the fiscal regime and on the amount of revenue the government is collecting, and informed understanding and scrutiny of the use of resource revenues by lawmakers, external analysts, and citizens. This should help ensure that revenue collection is effective, resources are used efficiently in line with national objectives, revenues are all incorporated within the budget, and the risk of misuse is reduced.
- *Risks and uncertainty.* Dealing with the volatility of resource revenues, and their finite nature requires effective medium-term and long-term fiscal planning. This should be accompanied by wide-ranging fiscal risk analysis to help ensure the plans are robust in the face of shocks.

The IMF has proposed a draft standard template for the collection of data on government revenues from natural resources, which could be used as a broad guide (*Template to Collect Data on Government Revenues from Natural Resources* 2014). An independent agency, such as the auditor general, could be assigned

to assess that the reported revenues are based on the official definition.

An important indicator of the integrity of reporting is the application of international standards, in addition to those developed specifically for reporting on natural resources, such as the Extractive Industries Transparency Initiative. The IMF has also recently published a draft Fourth Pillar of its Fiscal Transparency Code, devoted to resource revenue management, which lays out a set of transparency practices in the full range of areas. Among the key areas are the following:

- The fiscal regime for natural resources should be comprehensive, open, and governed by law.
- Fiscal reporting should cover stocks as well as flows, and include specific assurances of integrity of reported data.
- Specific practices should be stipulated for forecasting and budgeting for resource revenues. This includes transparency around the setting of objectives for the use of resource revenues, the incorporation of all revenues in budget documents, and the transparent operation of any natural resources fund.
- Transparency concerning the fiscal risks arising from natural resource revenues is an important element in the governance of resource revenues. Good practice includes disclosure, analysis, and management of risks, and the publication of a long-term fiscal sustainability analysis. Transparency concerning the activities and finances of public corporations operating in natural resource sectors is also important.

**Box 1.5. Fiscal Rules for Resource-Rich Countries**

*Nonresource primary balance rules* (Norway, Timor-Leste). Targeting the nonresource primary balance as a share of nonresource GDP, instead of overall fiscal balance, can lead to a more stabilizing fiscal policy. The target should preferably be set in line with long-term fiscal sustainability goals. This is especially relevant for countries with limited years of commodity reserves. For others, the target could be set to ensure appropriate levels of precautionary savings and be gradually adjusted to converge to the long-term benchmarks over time.

*Structural balance budget rules* (Chile, Colombia). An alternative rule is based on a structural balance, correcting for both the economic cycle and the commodity price cycle. This approach is especially relevant to countries in which the nonresource economy is significant and the business cycle is not highly correlated with the commodity cycle. It can help avoid procyclical fiscal policy and should be set to ensure an appropriate level of net financial savings. In practice,

the rule is heavily dependent on how the level of the “structural” commodity price is computed.

*Price-smoothing rules.* Typically, the rule will set commodity reference prices based on a specific formula. If actual revenues exceed the expected revenues, the difference is usually accumulated in a resource fund and can be used in periods of shortfalls. However, such rules have important weaknesses. Usually, they are not linked to sustainability benchmarks, and they are not well prepared to deal with sudden large shocks. They also disregard other shocks (such as those related to production and reserves of natural resources). This type of rule, if used, should be set consistently with a fiscal anchor and ensure that financial buffers are appropriate.

*Expenditure rules.* These can be useful to contain spending growth during booms and are a good complement to rules based on fiscal aggregates. The rules can reduce the degree of procyclicality and can be set to be consistent with the absorptive capacity constraints (IMF 2012a).

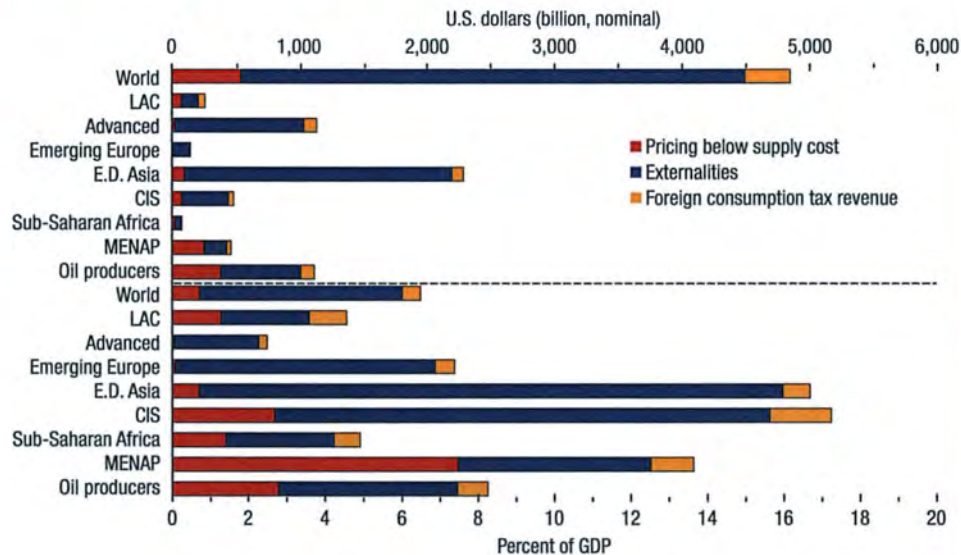
### Box 1.6. The Large Size of Global Energy Subsidies

A recent IMF staff study (Coady and others 2015) provides country-level energy subsidy estimates under two different definitions of energy subsidies. Under the first definition, energy subsidies arise when consumer prices are below the opportunity costs of supplying energy—this is the traditional definition of energy subsidies. A broader notion, based on the true costs of energy consumption, also accounts for undercharging for environmental costs—carbon emissions, local air pollution, traffic congestion, and so on—and the failure to fully apply standard rates of consumption taxation.

At a global level, energy subsidies based on the traditional definition were estimated at \$541 billion in 2013 (0.7 percent of global GDP), with oil producers accounting for nearly 70 percent of these subsidies. By region, both in dollar terms and in percent of GDP, subsidies were highest in the Middle East, North Africa, Afghanistan, and Pakistan, reflecting the prevalence of oil producers, and lowest in emerging Europe in dollar terms and in advanced economies in percent of GDP.

However, subsidies with respect to the true costs of energy consumption were dramatically larger at \$4.9 trillion (6.5 percent of global GDP), with oil producers accounting for a much smaller share (23 percent) (Figure 1.6.1). Energy subsidies under this broader notion are sizable in nearly all countries, with regional averages greater than 2 percent of GDP in all regions. The bulk of these subsidies—over 75 percent at the global level and about 80 percent for oil producers (Table 1.6.1)—are due to underpricing of energy from a domestic perspective (as opposed to global warming). It is therefore in countries' own interests to reflect not only the opportunity costs of supplying energy but also domestic environmental costs in energy prices. Doing so can lead to a substantial fiscal benefit—4.0 percent of GDP at the global level and 6.1 percent of GDP for oil producers—and a significant reduction in deaths related to fossil fuel emissions (55 percent at the global level and 41 percent for oil producers).

**Figure 1.6.1. Size of Global Energy Subsidies**



Sources: Coady and others (2015); and IMF staff calculations.  
 Note: CIS = Commonwealth of Independent States; E.D. Asia = emerging and developing Asia; LAC = Latin America and the Caribbean; MENAP = Middle East, North Africa, and Pakistan.

**Box 1.6. (continued).****Table 1.6.1. Energy Subsidies in Selected Oil Exporters**

	Energy Subsidies by Component in Dollars (billions)			Energy Subsidies by Component in Percent of GDP		
	Pricing below supply cost	Externalities	Foregone consumption tax revenue	Pricing below supply cost	Externalities	Foregone consumption tax revenue
Angola	4.6	2.7	0.6	3.7	2.2	0.5
Colombia	0.8	7.4	2.4	0.2	2.0	0.6
Iran	76.2	40.8	1.1	20.8	11.1	0.3
Mexico	11.4	33.9	12.7	0.9	2.7	1.0
Nigeria	3.7	4.4	0.8	0.7	0.8	0.2
Norway	0.1	3.7	0.2	0.0	0.7	0.0
Russia	43.7	241.9	32.2	2.1	11.5	1.5
Saudi Arabia	65.4	49.3	14.2	8.7	6.6	1.9
United Arab Emirates	18.2	12.9	3.5	4.5	3.2	0.9
Venezuela	36.5	19.2	4.4	16.1	8.5	1.9

Source: IMF staff estimates.

Note: The table refers to only energy subsidies in oil exporters. However, some oil importers have similar or even higher energy subsidies in dollar terms and as a share of GDP. See estimates by country: <http://imf.org/external/np/fad/subsidies/index.htm>

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## COUNTRY ABBREVIATIONS

Code	Country name	Code	Country name
AFG	Afghanistan	DOM	Dominican Republic
AGO	Angola	DZA	Algeria
ALB	Albania	ECU	Ecuador
ARE	United Arab Emirates	EGY	Egypt
ARG	Argentina	ERI	Eritrea
ARM	Armenia	ESP	Spain
ATG	Antigua and Barbuda	EST	Estonia
AUS	Australia	ETH	Ethiopia
AUT	Austria	FIN	Finland
AZE	Azerbaijan	FJI	Fiji
BDI	Burundi	FRA	France
BEL	Belgium	FSM	Micronesia, Federated States of
BEN	Benin	GAB	Gabon
BFA	Burkina Faso	GBR	United Kingdom
BGD	Bangladesh	GEO	Georgia
BGR	Bulgaria	GHA	Ghana
BHR	Bahrain	GIN	Guinea
BHS	Bahamas, The	GMB	Gambia, The
BIH	Bosnia and Herzegovina	GNB	Guinea-Bissau
BLR	Belarus	GNQ	Equatorial Guinea
BLZ	Belize	GRC	Greece
BOL	Bolivia	GRD	Grenada
BRA	Brazil	GTM	Guatemala
BRB	Barbados	GUY	Guyana
BRN	Brunei Darussalam	HKG	Hong Kong SAR
BTN	Bhutan	HND	Honduras
BWA	Botswana	HRV	Croatia
CAF	Central African Republic	HTI	Haiti
CAN	Canada	HUN	Hungary
CHE	Switzerland	IDN	Indonesia
CHL	Chile	IND	India
CHN	China	IRL	Ireland
CIV	Côte d'Ivoire	IRN	Iran
CMR	Cameroon	IRQ	Iraq
COD	Congo, Democratic Republic of the	ISL	Iceland
COG	Congo, Republic of	ISR	Israel
COL	Colombia	ITA	Italy
COM	Comoros	JAM	Jamaica
CPV	Cabo Verde	JOR	Jordan
CRI	Costa Rica	JPN	Japan
CYP	Cyprus	KAZ	Kazakhstan
CZE	Czech Republic	KEN	Kenya
DEU	Germany	KGZ	Kyrgyz Republic
DJI	Djibouti	KHM	Cambodia
DMA	Dominica	KIR	Kiribati
DNK	Denmark	KNA	St. Kitts and Nevis

Code	Country name	Code	Country name
KOR	Korea	ROU	Romania
KWT	Kuwait	RUS	Russia
LAO	Lao P.D.R.	RWA	Rwanda
LBN	Lebanon	SAU	Saudi Arabia
LBR	Liberia	SDN	Sudan
LBY	Libya	SEN	Senegal
LCA	Saint Lucia	SGP	Singapore
LKA	Sri Lanka	SLB	Solomon Islands
LSO	Lesotho	SLE	Sierra Leone
LTU	Lithuania	SLV	El Salvador
LUX	Luxembourg	SMR	San Marino
LVA	Latvia	SOM	Somalia
MAR	Morocco	SRB	Serbia
MDA	Moldova	STP	São Tomé and Príncipe
MDG	Madagascar	SUR	Suriname
MDV	Maldives	SVK	Slovak Republic
MEX	Mexico	SVN	Slovenia
MHL	Marshall Islands	SWE	Sweden
MKD	Macedonia, former Yugoslav Republic of	SWZ	Swaziland
MLI	Mali	SYC	Seychelles
MLT	Malta	SYR	Syria
MMR	Myanmar	TCD	Chad
MNE	Montenegro	TGO	Togo
MNG	Mongolia	THA	Thailand
MOZ	Mozambique	TJK	Tajikistan
MRT	Mauritania	TKM	Turkmenistan
MUS	Mauritius	TLS	Timor-Leste
MWI	Malawi	TON	Tonga
MYS	Malaysia	TTO	Trinidad and Tobago
NAM	Namibia	TUN	Tunisia
NER	Niger	TUR	Turkey
NGA	Nigeria	TUV	Tuvalu
NIC	Nicaragua	TWN	Taiwan Province of China
NLD	Netherlands	TZA	Tanzania
NOR	Norway	UGA	Uganda
NPL	Nepal	UKR	Ukraine
NZL	New Zealand	URY	Uruguay
OMN	Oman	USA	United States
PAK	Pakistan	UZB	Uzbekistan
PAN	Panama	VCT	St. Vincent and the Grenadines
PER	Peru	VEN	Venezuela
PHL	Philippines	VNM	Vietnam
PLW	Palau	VUT	Vanuatu
PNG	Papua New Guinea	WSM	Samoa
POL	Poland	YEM	Yemen
PRT	Portugal	ZAF	South Africa
PRY	Paraguay	ZMB	Zambia
QAT	Qatar	ZWE	Zimbabwe

## GLOSSARY

**Cyclical balance** Cyclical component of the overall fiscal balance, computed as the difference between cyclical revenues and cyclical expenditures. The latter are typically computed using country-specific elasticities of aggregate revenue and expenditure series with respect to the output gap. Where unavailable, standard elasticities (0,1) are assumed for expenditure and revenue, respectively.

**Cyclically adjusted balance (CAB)** Difference between the overall balance and the automatic stabilizers; equivalently, an estimate of the fiscal balance that would apply under current policies if output were equal to potential.

**Cyclically adjusted primary balance (CAPB)** Cyclically adjusted balance excluding net interest payments.

**Fiscal buffer** Fiscal space created by saving budgetary resources and reducing public debt in good times.

**Fiscal space** Extent to which a government can allocate resources for a given purpose without prejudice of liquidity or long-term public debt sustainability.

**Fiscal stabilization** Contribution of fiscal policy to output stability through its impact on aggregate demand.

**General government** All government units and all nonmarket, nonprofit institutions that are controlled and mainly financed by government units comprising the central, state, and local governments; includes social security funds, and does not include public corporations or quasikorporations.

**Gross debt** All liabilities that require future payment of interest and/or principal by the debtor to the creditor. This includes debt liabilities in the form of special drawing rights, currency, and deposits; debt securities; loans; insurance, pension, and standardized guarantee programs; and other accounts payable. (See the IMF's 2001 *Government Finance Statistics Manual* and *Public Sector Debt Statistics Manual*.) The term "public debt" is used in the *Fiscal Monitor*, for simplicity, as synonymous with gross debt of the general government, unless specified otherwise.

(Strictly speaking, public debt refers to the debt of the public sector as a whole, which includes financial and nonfinancial public enterprises and the central bank.)

**Net debt** Gross debt minus financial assets corresponding to debt instruments. These financial assets are monetary gold and special drawing rights; currency and deposits; debt securities; loans, insurance, pensions, and standardized guarantee programs; and other accounts receivable. In some countries, the reported net debt can deviate from this definition based on available information and national fiscal accounting practices.

**Nonfinancial public sector** General government plus nonfinancial public corporations.

**Output gap** Deviation of actual from potential GDP, in percent of potential GDP.

**Overall fiscal balance (also "headline" fiscal balance)** Net lending and borrowing, defined as the difference between revenue and total expenditure, using the IMF's 2001 *Government Finance Statistics Manual* (GFSM 2001). Does not include policy lending. For some countries, the overall balance is still based on the GFSM 1986, which defines it as total revenue and grants minus total expenditure and net lending.

**Potential output** Estimate of the level of GDP that can be reached if the economy's resources are fully employed.

**Primary balance** Overall balance excluding net interest payment (interest expenditure minus interest revenue).

**Public debt** See *gross debt*.

**Public sector** The general government sector plus government-controlled entities, known as public corporations, whose primary activity is to engage in commercial activities.

**Structural fiscal balance** Difference between the cyclically adjusted balance and other nonrecurrent effects that go beyond the cycle, such as one-off operations and other factors whose cyclical fluctuations do not coincide with the output cycle (for instance, asset and commodity prices and output composition effects).

## METHODOLOGICAL AND STATISTICAL APPENDIX

This appendix comprises five sections: Data and Conventions provides a general description of the data and conventions used to calculate economy group composites. Fiscal Policy Assumptions summarizes the country-specific assumptions underlying the estimates and projections for 2015–16 and the medium-term scenario for 2017–20. Definition and Coverage of Fiscal Data provides details on the coverage and accounting practices underlying each country's *Fiscal Monitor* data. Economy Groupings summarizes the classification of countries in the various groups presented in the *Fiscal Monitor*. Statistical tables on key fiscal variables complete the appendix. Data in these tables have been compiled on the basis of information available through September 22, 2015.

### Data and Conventions

Country-specific data and projections for key fiscal variables are based on the October 2015 World Economic Outlook database, unless indicated otherwise, and compiled by the IMF staff. Historical data and projections are based on the information gathered by IMF country desk officers in the context of their missions and through their ongoing analysis of the evolving situation in each country; they are updated on a continual basis as more information becomes available. Structural breaks in data may be adjusted to produce smooth series through splicing and other techniques. IMF staff estimates serve as proxies when complete information is unavailable. As a result, *Fiscal Monitor* data can differ from official data in other sources, including the IMF's *International Financial Statistics*.

Sources for fiscal data and projections not covered by the World Economic Outlook database are listed in the respective tables and figures.

The country classification in the *Fiscal Monitor* divides the world into three major groups: 35 advanced economies, 40 emerging market and middle-income economies, and 40 low-income developing countries. The seven largest advanced economies in terms of GDP (Canada, France, Germany, Italy, Japan, United Kingdom, United States) 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. Data for most European Union (EU) member countries have been revised following the adoption of the 2010 European System of National and Regional Accounts (ESA 2010). The low-income developing countries are those designated eligible for the Poverty Reduction and Growth Trust (PRGT) in the 2013 PRGT-eligible review and whose per capita gross national income was less than the PRGT income graduation threshold for “non-small” states—that is, twice the operational threshold of the International Development Association, or \$2,390 in 2011, as measured by the World Bank's Atlas method. Zimbabwe is included in the group. Emerging market and middle-income economies include those not classified as advanced economies or low-income developing countries. See “Economy Groupings” for more details.

All fiscal data refer to the general government, where available, and to calendar years, except for Bangladesh, Egypt, Haiti, Hong Kong SAR, India, Iran, Lao P.D.R., Pakistan, Qatar, Singapore, and Thailand, for which they refer to the fiscal year.

Composite data for country groups are weighted averages of individual-country data, unless specified otherwise. Data are weighted by annual nominal GDP converted to U.S. dollars at average market exchange rates as a share of the group GDP.

For the purpose of data reporting in the *Fiscal Monitor*, the Group of Twenty (G20) member aggregate refers to the 19 country members and does not include the European Union.

For most countries, fiscal data follow the IMF's 2001 *Government Finance Statistics Manual* (GFSM 2001). The overall fiscal balance refers to net lending (+) and borrowing (–) of the general government. In some cases, however, the overall balance refers to total revenue and grants minus total expenditure and net lending.

As used in the *Fiscal Monitor*, the term “country” does 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 whose statistical data are maintained on a separate and independent basis.

*Argentina:* Total expenditure and the overall balance account for cash interest only. The GDP data are officially reported data as revised in May 2014. On February 1, 2013, the IMF issued a declaration of censure, and in December 2013 called on Argentina to implement specified actions to address the quality of its official GDP data according to a specified timetable. On June 3, 2015, the Executive Board recognized the ongoing discussions with the Argentine authorities and their material progress in remedying the inaccurate provision of data since 2013, but found that some specified actions called for by end February 2015 had not yet been completely implemented. The Executive Board will review this issue again by July 15, 2016, and in line with the procedures set forth in the IMF legal framework. Consumer price data from December 2013 onward reflect the new national CPI (IPCNU), which differs substantively from the preceding CPI (the CPI for the Greater Buenos Aires Area, CPI-GBA). Because of the differences in geographical coverage, weights, sampling, and methodology, the IPCNU data cannot be directly compared to the earlier CPI-GBA data. Because of this structural break in the data, the average CPI inflation for 2014 is not reported in the October 2015 *World Economic Outlook*. Following a declaration of censure by the IMF on February 1, 2013, the public release of a new national CPI by 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.

*Australia:* For cross-country comparability, gross and net debt levels reported by national statistical agencies for countries that have adopted the 2008 System of National Accounts (2008 SNA) (Canada, Hong Kong SAR, United States) are adjusted to exclude unfunded pension liabilities of government employees’ defined-benefit pension plans.

*Bangladesh:* Data are on a fiscal year basis.

*Brazil:* General Government (GG) data refer to the nonfinancial public sector—which includes the federal, state, and local governments, as well as public enterprises (excluding Petrobras and Eletrobras)—and

are consolidated with the sovereign wealth fund. Revenue and expenditures of federal public enterprises are added in full to the respective aggregates. Transfers and withdrawals from the sovereign wealth fund do not affect the primary balance. Disaggregated data on gross interest payments and interest receipts are available from 2003 only. Before 2003, total revenue of the GG excludes interest receipts; total expenditure of the GG includes net interest payments. Gross public debt includes the Treasury bills on the central bank’s balance sheet, including those not used under repurchase agreements. Net public debt consolidates GG and central bank debt. The national definition of nonfinancial public sector gross debt excludes government securities held by the central bank, except the stock of Treasury securities used for monetary policy purposes by the central bank (those pledged as security reverse repurchase agreement operations). According to this national definition, gross debt amounted to 58.9 percent of GDP at the end of 2014.

*Canada:* For cross-country comparability, gross and net debt levels reported by national statistical agencies for countries that have adopted the 2008 SNA (Australia, Hong Kong SAR, United States) are adjusted to exclude unfunded pension liabilities of government employees’ defined-benefit pension plans.

*Chile:* Cyclically adjusted balances include adjustments for commodity price developments.

*China:* Public debt data include central government debt as reported by the Ministry of Finance, explicit local government debt, and shares—ranging from 14 percent to 19 percent, according to the National Audit Office estimate—of government-guaranteed debt and liabilities the government may incur. IMF staff estimates exclude central government debt issued for the China Railway Corporation. Relative to the authorities’ definition, the consolidated general government net borrowing includes: (1) transfers to and from stabilization funds; (2) state-administered state-owned enterprise funds and social security contributions and expenses (about 1¼ percent to 1½ percent of GDP a year since 2008); and (3) off-budget spending by local governments (estimated by net local government bonds issued by the central government on their behalf). Deficit numbers do not include some expenditure items, mostly infrastructure investment financed off budget through land sales and local government-financing vehicles. The fiscal balances are not consistent with reported debt because no time

series of data in line with the National Audit Office debt definition is published officially.

*Colombia:* Gross public debt refers to the combined public sector, including Ecopetrol and excluding Banco de la República's outstanding external debt.

*Egypt:* Data are on a fiscal year basis.

*Greece:* General government gross debt includes short-term debt and loans of state-owned enterprises.

*Haiti:* Data are on a fiscal year basis.

*Hong Kong SAR:* Data are on a fiscal year basis. Cyclically adjusted balances include adjustments for land revenue and investment income. For cross-country comparability, gross and net debt levels reported by national statistical agencies for countries that have adopted the 2008 SNA (Australia, Canada, United States) are adjusted to exclude unfunded pension liabilities of government employees' defined-benefit pension plans.

*Hungary:* The cyclically adjusted overall and cyclically adjusted primary balances for 2011 exclude one-time revenues from asset transfers to the general government resulting from changes to the pension system.

*India:* Data are on a fiscal year basis.

*Ireland:* The general government balances between 2010 and 2016 reflect the impact of banking sector support and other one-off measures. The fiscal balance estimates excluding these measures are -11.0 percent of GDP for 2010; -8.7 percent of GDP for 2011; -8.0 percent of GDP for 2012; -6.1 percent of GDP for 2013; -4.2 percent of GDP for 2014; -2.3 percent of GDP for 2015; and -1.5 percent of GDP for 2016. Cyclically adjusted balances reported in Tables A3 and A4 exclude financial sector support and other one-off measures and correct for real output, equity, house prices, and unemployment cycles.

*Japan:* Gross debt is equal to total unconsolidated financial liabilities for the general government. Net debt is calculated by subtracting financial assets from financial liabilities for the general government.

*Lao P.D.R.:* Data are on a fiscal year basis.

*Latvia:* The fiscal deficit includes bank restructuring costs and thus is higher than the deficit in official statistics.

*Mexico:* General government refers to the central government, social security, public enterprises, development banks, the national insurance corporation, and the National Infrastructure Fund, but excludes subnational governments.

*Norway:* Cyclically adjusted balances correspond to the cyclically adjusted non-oil overall or primary balance. These variables are in percent of non-oil potential GDP.

*Pakistan:* Data are on a fiscal year basis.

*Peru:* Cyclically adjusted balances include adjustments for commodity price developments.

*Qatar:* Data are on a fiscal year basis.

*Singapore:* Data are on a fiscal year basis. Historical fiscal data have been revised to reflect the migration to GFSM 2001, which entailed some classification changes.

*Spain:* Overall and primary balances include financial sector support measures estimated to be 0.04 percent of GDP for 2010; 0.5 percent of GDP for 2011; 3.7 percent of GDP for 2012; and 0.5 percent of GDP for 2013. For 2014, they include one-offs of 0.5 percent of GDP, of which financial sector support of 0.1 percent of GDP. For 2015 and 2016, they include one-offs of 0.4 percent of GDP and no financial support.

*Sweden:* Cyclically adjusted balances take into account output and employment gaps.

*Switzerland:* Data submissions at the cantonal and commune level are received with a long and variable lag and are subject to sizable revisions. Cyclically adjusted balances include adjustments for extraordinary operations related to the banking sector.

*Thailand:* Data are on a fiscal year basis.

*Turkey:* Information on the general government balance, primary balance, and cyclically adjusted primary balance differs from that in the authorities' official statistics or country reports, which include net lending and privatization receipts.

*United States:* Cyclically adjusted balances exclude financial sector support estimated at 2.4 percent of potential GDP for 2009; 0.3 percent of potential GDP for 2010; 0.2 percent of potential GDP for 2011; 0.1 percent of potential GDP for 2012; and zero for 2013. For cross-country comparability, expenditure and fiscal balances of the United States are adjusted to exclude the imputed interest on unfunded pension liabilities and the imputed compensation of employees, which are counted as expenditure under the 2008 SNA recently adopted by the United States, but this is not true for countries that have not yet adopted the 2008 SNA. Data for the United States may thus differ from data published by the U.S. Bureau of Economic Analysis (BEA). In addition, gross and net debt levels reported by the BEA and national statistical agencies

for other countries that have adopted the 2008 SNA (Australia, Canada, Hong Kong SAR) are adjusted to exclude unfunded pension liabilities of government employees' defined-benefit pension plans.

*Uruguay:* Data are for the consolidated public sector which includes the non-financial public sector (as presented in the authorities' budget documentation), local governments, Banco Central del Uruguay, and Banco de Seguros del Estado.

## Fiscal Policy Assumptions

Historical data and projections of key fiscal aggregates are in line with those of the October 2015 *World Economic Outlook*, unless noted otherwise. For underlying assumptions other than on fiscal policy, see the October 2015 *World Economic Outlook*.

Short-term fiscal policy assumptions are based on officially announced budgets, adjusted for differences between the national authorities and the IMF staff regarding macroeconomic assumptions and projected fiscal outturns. Medium-term fiscal projections incorporate policy measures that are judged likely to be implemented. When 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.

*Argentina:* Fiscal projections are based on the available information regarding budget outturn for the federal government and budget plans for provinces, and on IMF staff macroeconomic projections.

*Australia:* Fiscal projections are based on Australian Bureau of Statistics data, the 2015-16 budget documents and IMF staff estimates.

*Austria:* For 2014, the creation of a defeasance structure for Hypo Alpe Adria is assumed to have increased the general government debt-to-GDP ratio by 4.3 percentage points, and the deficit effect arising from Hypo is assumed at 1.4 percentage points.

*Belgium:* Projections reflect the authorities' 2015 budget (updated for new developments) and the 2015–18 stability program objectives, adjusted for differences in the IMF staff's macroeconomic framework.

*Brazil:* For 2014, outturn estimates are based on the information available as of July 2015. Projections for 2015 take into account budget performance until August 2015, adjustment measures approved by the Congress and the Senate until August 2015, and

the budget proposal announced by the government on August 31, 2015. In outer years, projections are consistent with the announced primary surplus objectives.

*Cambodia:* Historical fiscal and monetary data are from the Cambodian authorities. Projections are based on IMF staff assumptions following discussions with the authorities.

*Canada:* Projections use the baseline forecasts in the Economic Action Plan 2015 and 2015 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 second quarter of 2015.

*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 at the Third Plenum reform agenda.

*Croatia:* Projections are based on the macro framework and authorities' medium-term fiscal guidelines.

*Cyprus:* Projections are on a cash basis based on the latest information on the budget, fiscal measures, and staff's macroeconomic assumptions.

*Czech Republic:* Projections are based on the authorities' budget forecast for 2015 with adjustments for the IMF staff's macroeconomic projections. For 2016–18, the projections are based on the macro framework and incorporate key fiscal components of the authorities' 2015 Convergence Program.

*Denmark:* Projections for 2014–15 are aligned with the latest official budget estimates and the underlying economic projections, adjusted where appropriate for the IMF staff's macroeconomic assumptions. For 2016–20, the projections incorporate key features of the medium-term fiscal plan as embodied in the authorities' 2014 Convergence Program submitted to the EU.

*Egypt:* The fiscal projections are mainly based on budget sector operations (with trends of main variables discussed with the Ministry of Finance during the November 2014 consultation).

*Estonia:* The forecast, which is cash based, not accrual based, incorporates the authorities' 2014 budget, adjusted for newly available information and for the IMF staff's macroeconomic scenario.

*Finland:* Forecast is based on policies announced by the authorities, adjusted for the IMF staff's macroeconomic scenario.

*France:* Projections for 2015 reflect the budget law. For 2016–17, they are based on the multiyear budget and the April 2015 Stability Program adjusted for differences in assumptions on macro and financial variables, and revenue projections. Historical fiscal data reflect the May 2015 revision and update of the fiscal accounts and national accounts.

*Germany:* The IMF staff's projections for 2015 and beyond reflect the authorities' adopted core federal government budget plan and the 2015 German Stability Programme, adjusted for the differences in the IMF staff's macroeconomic framework. 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:* The fiscal projections for 2015 and the medium term are staff estimates based on the fiscal package included in the ESM program agreed between Greece and its European partners and on information available as of August 12, 2015.

*Hong Kong SAR:* Projections are based on the authorities' medium-term fiscal projections on expenditures.

*Hungary:* Fiscal projections include IMF staff projections of the macroeconomic framework and of the impact of recent legislative measures, as well as fiscal policy plans announced in the 2015 budget.

*India:* Historical data are based on budgetary execution data. Projections are based on available information on the authorities' fiscal plans, with adjustments for IMF staff assumptions. Subnational data are incorporated with a lag of up to two years; general government data are thus finalized well after central government data. IMF and Indian presentations differ, particularly regarding divestment and license auction proceeds, net versus gross recording of revenues in certain minor categories, and some public sector lending.

*Indonesia:* IMF projections are based on moderate tax policy and administration reforms, fuel subsidy pricing reforms introduced in January 2015, and a

gradual increase in social and capital spending over the medium term in line with fiscal space.

*Ireland:* Fiscal projections are based on the 2015 Stability Plan Update (SPU). The fiscal projections are adjusted for differences between the IMF staff's macroeconomic projections and those of the Irish authorities.

*Israel:* Historical data are based on Government Finance Statistics (GFS) submitted by the Central Bureau of Statistics. Monetary policy stance is assumed to be unchanged.

*Italy:* Staff estimates and projections are based on the fiscal plans included in the government's 2015 Budget and Economic and Financial Document and subsequent approved measures. Estimates of the cyclically adjusted balance include the expenditure to clear capital arrears in 2013, which are excluded from the structural balance. After 2015, the IMF staff projects convergence to a structural balance in line with Italy's fiscal rule, which implies corrective measures in some years, as yet unidentified.

*Japan:* The projections include fiscal measures already announced by the government, including consumption tax increases, earthquake reconstruction spending, and the stimulus package.

*Kazakhstan:* Fiscal projections are based on the Budget Law and IMF staff projections.

*Korea:* The medium-term forecast incorporates the government's announced medium-term consolidation path.

*Malaysia:* Fiscal year 2014 projection is based on actual outturn. Fiscal year 2015 projections are based on preliminary outturn for the first half of 2015 and IMF staff projections taking into account the budget numbers.

*Malta:* Projections are based on the latest Stability Programme Update by the authorities and budget documents, adjusted for the IMF staff's macroeconomic and other assumptions.

*Mexico:* Fiscal projections for 2015 are broadly in line with the approved budget; projections for 2016 onward assume compliance with rules established in the Fiscal Responsibility Law.

*Moldova:* Fiscal projections are based on various bases and growth rates for GDP, consumption, imports, wages, energy prices, and demographic changes.

*Myanmar:* Fiscal projections are made based on budget numbers, discussions with the authorities, and IMF staff adjustments.

*Netherlands:* Fiscal projections for 2015–20 are based on the authorities' Bureau for Economic Policy Analysis budget projections, after adjustments for differences in macroeconomic assumptions. Historical data were revised following the June 2014 release of revised macro data by the Central Bureau of Statistics because of the adoption of the European System of National and Regional Accounts (ESA 2010) and the revisions of data sources.

*New Zealand:* Fiscal projections are based on the authorities' 2015–16 budget documents and IMF staff estimates.

*Norway:* Fiscal projections are based on the authorities' 2015 budget. Structural and cyclically adjusted balances are based on the non-oil balance.

*Philippines:* Fiscal projections assume that the authorities' fiscal deficit target will be achieved in 2016 and beyond. Revenue projections reflect the IMF staff's macroeconomic assumptions and incorporate anticipated improvements in tax administration. Expenditure projections are based on budgeted figures, institutional arrangements, current data, and fiscal space in each year.

*Poland:* Data is on ESA-2010 basis beginning 2010. Data prior to 2010 is on ESA-95 basis. Projections are based on the 2015 budget. The projections also take into account the effects of the 2014 pension changes.

*Portugal:* For 2014, the general government fiscal balance does not include a one-off transaction arising from banking support, pending a decision on statistical classification by the Instituto Nacional de Estatística (INE)/Eurostat. The projection for 2015 reflects the authorities' 2015 budget and the first half outturn; projections thereafter are based on the IMF staff's macroeconomic forecast, under the assumption of unchanged policies.

*Romania:* The 2015 fiscal projections reflect legislated changes as of August 28, 2015, including a 25 percent increase in the wages of health care workers effective October 1, 2015. The 2016 and 2017 fiscal projections reflect planned changes to the fiscal code as of August 28, 2015. The projections for the years beyond 2017 assume no additional policy changes.

*Russia:* Projections for 2015–20 are based on the oil-price-based fiscal rule introduced in December 2012, with adjustments by IMF staff.

*Saudi Arabia:* The authorities base their budget on a conservative assumption for oil prices, with adjustments to expenditure allocations considered in the event that revenues differ from budgeted amounts.

IMF staff projections of oil revenues are based on *World Economic Outlook* baseline oil prices. On the expenditure side, wage bill estimates incorporate 13th-month pay awards every three years in accordance with the lunar calendar. Projections assume that capital spending falls as a percentage of GDP over the medium term as large-scale projects currently being implemented are completed and that spending in the January and April 2015 fiscal packages is not repeated.

*Singapore:* For fiscal year 2014/15 and 2015/16, projections are based on budget numbers. For the remainder of the projection period, the IMF staff assumes unchanged policies.

*Slovak Republic:* Projections for 2015 take into account developments in the first quarters of the year and the authorities' new projections presented in the draft budget for 2016. Projections for 2016 consider the authorities' 2016 draft budget. Projections for 2017 and beyond reflect a no-policy-change scenario.

*Spain:* For 2015 and beyond, fiscal projections are based on the measures specified in the Stability Programme Update 2015–18, new recently approved measures included in the 2016 budget, the 2015 budget plan issued in October 2014, and the 2015 budget approved in December 2014.

*Sri Lanka:* Projections are based on the authorities' medium-term fiscal framework and the revenue measures proposed.

*Sweden:* Fiscal projections take into account the authorities' projections based on the Spring Fiscal Policy Bill 2015. The impact of cyclical developments on the fiscal accounts is calculated using the 2005 Organization for Economic Cooperation's elasticity in order to take into account output and employment gaps.

*Switzerland:* The projections assume that fiscal policy is adjusted as necessary to keep fiscal balances in line with the requirements of Switzerland's fiscal rules.

*Thailand:* For the projection period, the IMF staff assumes an implementation rate of 50 percent for the planned infrastructure investment programs.

*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 2015 Summer Budget, published in July 2015. However, on the revenue side, the authorities' projections are adjusted for differences between IMF staff forecasts of macroeconomic variables (such as GDP growth) and the forecasts

of these variables assumed in the authorities' fiscal projections. IMF staff data exclude public sector banks and the effect of transferring assets from the Royal Mail Pension Plan to the public sector in April 2012. Real government consumption and investment are part of the real GDP path, which, according to the IMF staff, may or may not be the same as projected by the U.K. Office for Budget Responsibility.

*United States:* Fiscal projections are based on the August 2015 Congressional Budget Office baseline adjusted for the IMF staff's policy and macroeconomic assumptions. The baseline incorporates the key provisions of the Bipartisan Budget Act of 2013, including a partial rollback of the sequestered 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 those agreed upon under the Bipartisan Budget Act for fiscal years 2014 and 2015, with back-loaded measures generating savings in mandatory programs and additional revenues. 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 of defined benefit pension plans and are converted to a general government basis. Historical data start at 2001 for most series because data compiled according to GFSM 2001 may not be available for earlier years.

*Vietnam:* 2015 expenditure is based on authorities' budget; 2015 projections for oil revenues are based on *World Economic Outlook* assumptions for oil and gas prices. For projections from 2016 and onwards staff use the information/measures in the team's macro-framework assumptions.

*Yemen:* Hydrocarbon revenue projections are based on *World Economic Outlook* (WEO) assumptions for oil and gas prices (authorities use \$55/brl) and authorities' projections of production of oil and gas. Non-hydrocarbon revenues largely reflect authorities' projections, as do most of the expenditure categories, with the exception of fuel subsidies, which are projected based at the WEO price consistent with revenues. Monetary projections are based on key macroeconomic assumptions about the growth rate of broad money, credit to the private sector, and deposit growth.

## Definition and Coverage of Fiscal Data

### Economy Groupings

The following groupings of economies are used in the *Fiscal Monitor*.

Advanced Economies	Emerging Market and Middle-Income Economies	Low-Income Developing Countries	G7	G20 <sup>1</sup>	Advanced G20 <sup>1</sup>	Emerging G20
Australia	Algeria	Bangladesh	Canada	Argentina	Australia	Argentina
Austria	Angola	Benin	France	Australia	Canada	Brazil
Belgium	Argentina	Bolivia	Germany	Brazil	France	China
Canada	Azerbaijan	Burkina Faso	Italy	Canada	Germany	India
Cyprus	Belarus	Cambodia	Japan	China	Italy	Indonesia
Czech Republic	Brazil	Cameroon	United Kingdom	France	Japan	Mexico
Denmark	Chile	Chad	United States	Germany	Korea	Russia
Estonia	China	Côte d'Ivoire		India	United Kingdom	Saudi Arabia
Finland	Colombia	Democratic Republic of the Congo		Indonesia	United States	South Africa
France	Croatia	Republic of Congo		Italy		Turkey
Germany	Dominican Republic	Ethiopia		Japan		
Greece	Ecuador	Ghana		Korea		
Hong Kong SAR	Egypt	Guinea		Mexico		
Iceland	Hungary	Haiti		Russia		
Ireland	India	Honduras		Saudi Arabia		
Israel	Indonesia	Kenya		South Africa		
Italy	Iran	Kyrgyz Republic		Turkey		
Japan	Kazakhstan	Lao P.D.R.		United Kingdom		
Korea	Kuwait	Madagascar		United States		
Latvia	Libya	Mali				
Lithuania	Malaysia	Moldova				
Luxembourg	Mexico	Mongolia				
Malta	Morocco	Mozambique				
Netherlands	Oman	Myanmar				
New Zealand	Pakistan	Nepal				
Norway	Peru	Nicaragua				
Portugal	Philippines	Niger				
Singapore	Poland	Nigeria				
Slovak Republic	Qatar	Papua New Guinea				
Slovenia	Romania	Rwanda				
Spain	Russia	Senegal				
Sweden	Saudi Arabia	Sudan				
Switzerland	South Africa	Tajikistan				
United Kingdom	Sri Lanka	Tanzania				
United States	Thailand	Uganda				
	Turkey	Uzbekistan				
	Ukraine	Vietnam				
	United Arab Emirates	Yemen				
	Uruguay	Zambia				
	Venezuela	Zimbabwe				

<sup>1</sup> Does not include EU aggregate.

**Economy groupings (continued)**

Euro Area	Emerging Market and Middle-Income Asia	Emerging Market and Middle-Income Europe	Emerging Market and Middle-Income Latin America	Emerging Market and Middle-Income Middle East and North Africa and Pakistan	Emerging Market and Middle-Income Africa
Austria	China	Azerbaijan	Argentina	Algeria	Angola
Belgium	India	Belarus	Brazil	Egypt	South Africa
Cyprus	Indonesia	Croatia	Chile	Iran	
Estonia	Malaysia	Hungary	Colombia	Kuwait	
Finland	Philippines	Kazakhstan	Dominican Republic	Libya	
France	Sri Lanka	Poland	Ecuador	Morocco	
Germany	Thailand	Romania	Mexico	Oman	
Greece		Russia	Peru	Pakistan	
Ireland		Turkey	Uruguay	Qatar	
Italy		Ukraine	Venezuela	Saudi Arabia	
Latvia				United Arab Emirates	
Lithuania					
Luxembourg					
Malta					
Netherlands					
Portugal					
Slovak Republic					
Slovenia					
Spain					
Low-Income Developing Asia	Low-Income Developing Latin America	Low-Income Developing Sub-Saharan Africa	Low-Income Developing Others	Low-Income Oil Producers	Oil Producers
Bangladesh	Bolivia	Benin	Kyrgyz Republic	Cameroon	Algeria
Cambodia	Haiti	Burkina Faso	Moldova	Chad	Angola
Lao P.D.R.	Honduras	Cameroon	Sudan	Côte d'Ivoire	Azerbaijan
Mongolia	Nicaragua	Chad	Tajikistan	Democratic Republic of the Congo	Bahrain
Myanmar		Côte d'Ivoire	Uzbekistan	Sudan	Brunei Darussalam
Nepal		Democratic Republic of the Congo	Yemen	Vietnam	Cameroon
Papua New Guinea		Republic of Congo		Yemen	Chad
Vietnam		Ethiopia			Democratic Republic of the Congo
		Ghana			Republic of Congo
		Guinea			Côte d'Ivoire
		Kenya			Ecuador
		Madagascar			Equatorial Guinea
		Mali			Gabon
		Mozambique			Indonesia
		Niger			Iran
		Nigeria			Iraq
		Rwanda			Kazakhstan
		Senegal			Kuwait
		Tanzania			Libya
		Uganda			Mexico
		Zambia			Nigeria
		Zimbabwe			Norway
					Oman
					Qatar
					Russia
					Saudi Arabia
					Sudan
					Syria
					Timor-Leste
					Turkmenistan
					United Arab Emirates
					Venezuela
					Vietnam
					Yemen

Table A. Advanced Economies: Definition and Coverage of Fiscal Monitor Data

	Overall Fiscal Balance <sup>1</sup>			Cyclically Adjusted Balance			Gross Debt		
	Coverage		Accounting Practice	Coverage		Accounting Practice	Coverage		Accounting Practice
	Aggregate	Subsectors		Aggregate	Subsectors		Aggregate	Subsectors	
Australia	GG	CG, LG, SG, TG	A	GG	CG, LG, SG, TG	A	GG	CG, LG, SG, TG	A
Austria	GG	CG, SG, LG, SS	A	GG	CG, SG, LG, SS	A	GG	CG, SG, LG, SS	A
Belgium	GG	CG, SG, LG, SS	A	GG	CG, SG, LG, SS	A	GG	CG, SG, LG, SS	A
Canada	GG	CG, SG, LG, SS	A	GG	CG, SG, LG, SS	A	GG	CG, SG, LG, SS	A
Cyprus <sup>2</sup>	GG	CG, LG, SS	C	...	...	...	GG	CG, LG, SS	C
Czech Republic	GG	CG, LG, SS	A	GG	CG, LG, SS	A	GG	CG, LG, SS	A
Denmark	GG	CG, LG, SS	A	GG	CG, LG, SS	A	GG	CG, LG, SS	A
Estonia	GG	CG, LG, SS	C	...	...	...	GG	CG, LG, SS	C
Finland	GG	CG, LG, SS	A	GG	CG, LG, SS	A	GG	CG, LG, SS	A
France	GG	CG, LG, SS	A	GG	CG, LG, SS	A	GG	CG, LG, SS	A
Germany	GG	CG, SG, LG, SS	A	GG	CG, SG, LG, SS	A	GG	CG, SG, LG, SS	A
Greece	GG	CG, LG, SS	A	GG	CG, LG, SS	A	GG	CG, LG, SS	A
Hong Kong SAR	CG	CG	C	CG	CG	C	CG	CG	C
Iceland	GG	CG, LG, SS	A	GG	CG, LG, SS	A	GG	CG, LG, SS	A
Ireland	GG	CG, LG, SS	A	GG	CG, LG, SS	A	GG	CG, LG, SS	A
Israel	GG	CG, SS, LG	A	GG	CG, SS, LG	A	GG	CG, SS, LG	A
Italy	GG	CG, LG, SS	A	GG	CG, LG, SS	A	GG	CG, LG, SS	A
Japan	GG	CG, LG, SS	A	GG	CG, LG, SS	A	GG	CG, LG, SS	A
Korea	CG	CG	C	CG	CG	C	GG	CG, LG	C
Latvia	GG	CG, LG, SS, NFPC	C	GG	CG, LG, SS, NFPC	C	GG	CG, LG, SS, NFPC	C
Lithuania	GG	CG, LG, SS	A	GG	CG, LG, SS	A	GG	CG, LG, SS	A
Luxembourg	GG	CG, LG, SS	A	GG	CG, LG, SS	A	GG	CG, LG, SS	A
Malta	GG	CG, SS	A	GG	CG, SS	A	GG	CG, SS	A
Netherlands	GG	CG, LG, SS	A	GG	CG, LG, SS	A	GG	CG, LG, SS	A
New Zealand	CG	CG	A	CG	CG	A	CG	CG	A
Norway	GG	CG, SG, LG, SS	A	GG	CG, SG, LG, SS	A	GG	CG, SG, LG, SS	A
Portugal	GG	CG, LG, SS	A	GG	CG, LG, SS	A	GG	CG, LG, SS	A
Singapore	CG	CG	C	CG	CG	C	CG	CG	C
Slovak Republic	GG	CG, LG, SS	A	GG	CG, LG, SS	A	GG	CG, LG, SS	A
Slovenia	GG	CG, SG, LG, SS	C	GG	CG, SG, LG, SS	C	GG	CG, SG, LG, SS	C
Spain	GG	CG, SG, LG, SS	A	GG	CG, SG, LG, SS	A	GG	CG, SG, LG, SS	A
Sweden	GG	CG, LG, SS	A	GG	CG, LG, SS	A	GG	CG, LG, SS	A
Switzerland	GG	CG, SG, LG, SS	A	GG	CG, SG, LG, SS	A	GG	CG, SG, LG, SS	A
United Kingdom	GG	CG, LG	A	GG	CG, LG	A	GG	CG, LG	A
United States	GG	CG, SG, LG, SS	A	GG	CG, SG, LG, SS	A	GG	CG, SG, LG, SS	A

Note: Coverage: BCG = budgetary central government; CG = central government; EA = extrabudgetary units; FC = financial public corporations; GG = general government; LG = local governments; NFPC = nonfinancial public corporations; NFPS = nonfinancial public sector; PS = public sector; SG = state governments; SS = social security funds; TG = territory governments. Accounting standard: A = accrual; C = cash.

<sup>1</sup> For most economies, fiscal data follow the IMF's *Government Finance Statistics Manual 2001*. The concept of overall fiscal balance refers to net lending (+) / borrowing (-) of the general government. In some cases, however, the overall balance refers to total revenue and grants minus total expenditure and net lending.

<sup>2</sup> Historical data until 2012 are reported on an accrual basis as general government cash. Data were not available for years that preceded the IMF program.

**Table B. Emerging Market and Middle-Income Economies: Definition and Coverage of Fiscal Monitor Data**

	Overall Fiscal Balance <sup>1</sup>			Cyclically Adjusted Balance			Gross Debt		
	Coverage		Accounting Practice	Coverage		Accounting Practice	Coverage		Accounting Practice
	Aggregate	Subsectors		Aggregate	Subsectors		Aggregate	Subsectors	
Algeria	CG	CG	C	...	...	...	CG	CG	C
Angola	GG	CG, LG	Other	...	...	...	GG	CG, LG	Other
Argentina	GG	CG, SG, LG, SS	C	CG	CG	C	CG	CG	C
Azerbaijan	CG	CG	C	...	...	...	CG	CG	C
Belarus <sup>2</sup>	GG	CG, LG, SS	C	...	...	...	GG	CG, LG, SS	C
Brazil <sup>3</sup>	NFPS	CG, SG, LG, SS, MPC, NFPC	C	NFPS	CG, SG, LG, SS, MPC, NFPC	C	NFPS	CG, SG, LG, SS, MPC, NFPC	C
Chile	GG	CG, LG	A	CG	CG, LG	A	GG	CG, LG	A
China	GG	CG, LG	C	GG	CG, LG	C	GG	CG, LG	C
Colombia <sup>4</sup>	PS	CG, SG, LG, NFPC	C/A	PS	CG, SG, LG, NFPC	C/A	PS	CG, SG, LG, NFPC	C/A
Croatia	GG	CG, LG	C	GG	CG, LG	C	GG	CG, LG	C
Dominican Republic	GG	CG, SG, LG, SS	C/A	GG	CG, SG, LG, SS	C/A	GG	CG, SG, LG, SS	C/A
Ecuador	NFPS	CG, LG, SS, NFPC	C	NFPS	CG, LG, SS, NFPC	C	NFPS	CG, LG, SS, NFPC	C
Egypt	CG	CG, LG, SS, MPC	C	GG	CG, LG, SS, MPC	C	GG	CG, LG, SS, MPC	C
Hungary	GG	CG, LG, SS, NMPC	A	GG	CG, LG, SS, NMPC	A	GG	CG, LG, SS, NMPC	A
India	GG	CG, SG	A	GG	CG, SG	A	GG	CG, SG	A
Indonesia	GG	CG, LG	C	GG	CG, LG	C	GG	CG, LG	C
Iran	CG	CG	C	...	...	...	CG	CG	C
Kazakhstan	GG	CG, LG	A	...	...	...	GG	CG, LG	A
Kuwait	CG	CG	C/A	...	...	...	CG	CG	C/A
Libya	GG	CG, SG, LG	C	...	...	...	GG	CG, SG, LG	C
Malaysia	GG	CG, SG, LG	C	GG	CG	C	GG	CG, SG, LG	C
Mexico	PS	CG, SS, NFPC	C	CG	CG	C	PS	CG, SS, NFPC	C
Morocco	CG	CG	A	...	...	...	CG	CG	A
Oman	CG	CG	C	...	...	...	CG	CG	C
Pakistan	GG	CG, LG, SG	C	...	...	...	GG	CG, LG, SG	C
Peru	GG	CG, SG, LG, SS	C	GG	CG, SG, LG, SS	C	GG	CG, SG, LG, SS	C
Philippines	GG	CG, LG, SS	C	CG	CG	C	GG	CG, LG, SS	C
Poland	GG	CG, LG, SS	A	GG	CG, LG, SS	A	GG	CG, LG, SS	A
Qatar	CG	CG	C	...	...	...	CG	CG	C
Romania	GG	CG, LG, SS	C	GG	CG, LG, SS	C	GG	CG, LG, SS	C
Russia	GG	CG, SG, SS	C/A	GG	CG, SG, SS	C/A	GG	CG, SG, SS	C/A
Saudi Arabia	GG	CG	C	...	...	...	GG	CG	C
South Africa	GG	CG, SG, SS	C	GG	CG, SG, SS	C	GG	CG, SG, SS	C
Sri Lanka	GG	CG, SG, LG, SS	C	...	...	...	GG	CG, SG, LG, SS	C
Thailand <sup>5</sup>	GG	CG, LG, SS	A	GG	CG, LG, SS	A	PS	CG, SS, NFPC, NMPC	A
Turkey	GG	CG, LG, SS	A	GG	CG, LG, SS	A	GG	CG, LG, SS	A
Ukraine	GG	CG, SG, LG, SS	C	GG	CG, SG, LG, SS	C	GG	CG, SG, LG, SS	C
United Arab Emirates <sup>6</sup>	GG	CG, BCG, SG, SS	C	...	...	...	GG	CG, BCG, SG, SS	C
Uruguay	PS	CG, LG, SS, MPC, NFPC	A	...	...	...	PS	CG, LG, SS, MPC, NFPC	A
Venezuela	GG	CG, LG, SS, NFPC	C	GG	CG, LG, SS, NFPC	C	GG	CG, LG, SS, NFPC	C

Note: Coverage: BCG = budgetary central government; CG = central government; EA = extrabudgetary units; FPC = financial public corporations; GG = general government; LG = local governments; MPC = monetary public corporations, including central bank; NFPC = nonfinancial public corporations; NFPS = nonfinancial public sector; NMPC = nonmonetary financial public corporations; PS = public sector; SG = state governments; SS = social security funds. Accounting standard: A = accrual; C = cash.

<sup>1</sup> For most economies, fiscal data follow the IMF's *Government Finance Statistics Manual 2001*. The concept of overall fiscal balance refers to net lending (+) / borrowing (-) of the general government. In some cases, however, the overall balance refers to total revenue and grants minus total expenditure and net lending.

<sup>2</sup> Gross debt refers to general government public debt, including publicly guaranteed debt.

<sup>3</sup> Gross debt refers to the nonfinancial public sector, excluding Eletrobras and Petrobras, and includes sovereign debt held on the balance sheet of the central bank.

<sup>4</sup> Revenue is recorded on a cash basis and expenditure on an accrual basis.

<sup>5</sup> Data for Thailand do not include debt of Specialized Financial Institutions (SFIs/NMPC) without government guarantee.

<sup>6</sup> Gross debt covers banking system claims only.

**Table C. Low-Income Developing Countries: Definition and Coverage of Fiscal Monitor Data**

	Overall Fiscal Balance <sup>1</sup>			Cyclically Adjusted Balance			Gross Debt		
	Coverage		Accounting Practice	Coverage		Accounting Practice	Coverage		Accounting Practice
	Aggregate	Subsectors		Aggregate	Subsectors		Aggregate	Subsectors	
Bangladesh	CG	CG	C	CG	CG	C	CG	CG	C
Benin	CG	CG	C	...	...	...	CG	CG	C
Bolivia	NFPS	CG, LG, SS, MPC, NMPC, NFPC	C	NFPS	CG, LG, SS, MPC, NMPC, NFPC	C	NFPS	CG, LG, SS, MPC, NMPC, NFPC	C
Burkina Faso	CG	CG	C	...	...	...	CG	CG	C
Cambodia	GG	CG, LG	C	GG	CG, LG	C	GG	CG, LG	C
Cameroon	NFPS	CG, NFPC	C	...	...	...	NFPS	CG, NFPC	C
Chad	NFPS	CG, NFPC	C	...	...	...	NFPS	CG, NFPC	C
Democratic Republic of the Congo	GG	CG, LG	A	...	...	...	GG	CG, LG	A
Republic of Congo	CG	CG	A	...	...	...	CG	CG	A
Côte d'Ivoire	CG	CG	A	...	...	...	CG	CG	A
Ethiopia	CG	CG, SG, LG, NFPC	C	...	...	...	CG	CG, SG, LG, NFPC	C
Ghana	CG	CG, SG, LG	C	...	...	...	CG	CG, SG, LG	C
Guinea	CG	CG	Other	...	...	...	CG	CG	Other
Haiti	CG	CG	C	CG	CG	C	CG	CG	C
Honduras	CPS	CG, LG, SS, NFPC	A	CPS	CG, LG, SS, NFPC	A	CPS	CG, LG, SS, NFPC	A
Kenya	CG	CG	A	...	...	...	CG	CG	A
Kyrgyz Republic	GG	CG, LG, SS	C	...	...	...	GG	CG, LG, SS	C
Lao P.D.R. <sup>2</sup>	CG	CG	C	CG	CG	C	CG	CG	C
Madagascar	CG	CG, LG	C	...	...	...	CG	CG, LG	C
Mali	CG	CG	C/A	...	...	...	CG	CG	C/A
Moldova	GG	CG, LG, SS	C	GG	CG, LG, SS	C	GG	CG, LG, SS	C
Mongolia	GG	CG, SG, LG, SS	C	...	...	...	GG	CG, SG, LG, SS	C
Mozambique	CG	CG	C	CG	CG	C	CG	CG	C
Myanmar <sup>3</sup>	NFPS	CG, NFPC	C	...	...	...	NFPS	CG, NFPC	C
Nepal	CG	CG	C	CG	CG	C	CG	CG	C
Nicaragua	GG	CG, SG, LG, SS	C	GG	CG, SG, LG, SS	C	GG	CG, SG, LG, SS	C
Niger	CG	CG	A	...	...	...	CG	CG	A
Nigeria	GG	CG, SG, LG, NFPC	C	...	...	...	GG	CG, SG, LG, NFPC	C
Papua New Guinea	CG	CG	C	...	...	...	CG	CG	C
Rwanda	GG	CG, SG, LG	C/A	...	...	...	GG	CG, SG, LG	C/A
Senegal	CG	CG	C	CG	CG	C	CG	CG	C
Sudan	CG	CG	A	...	...	...	CG	CG	A
Tajikistan	GG	CG, LG, SS	C	...	...	...	GG	CG, LG, SS	C
Tanzania	CG	CG, LG	C	...	...	...	CG	CG, LG	C
Uganda	CG	CG	C	...	...	...	CG	CG	C
Uzbekistan <sup>4</sup>	GG	CG, SG, LG, SS	C	...	...	...	GG	CG, SG, LG, SS	C
Vietnam	GG	CG, SG, LG	C	GG	CG, SG, LG	C	GG	CG, SG, LG	C
Yemen	GG	CG, LG	C	...	...	...	GG	CG, LG	C
Zambia	CG	CG	C	...	...	...	CG	CG	C
Zimbabwe	CG	CG	C	...	...	...	CG	CG	C

Note: Coverage: BCG = budgetary central government; CG = central government; CPS = combined public sector; EA = extrabudgetary units; FC = financial public corporations; GG = general government; LG = local governments; MPC = monetary public corporations, including central bank; NFPC = nonfinancial public corporations; NFPS = nonfinancial public sector; NMPC = nonmonetary financial public corporations; PS = public sector; SG = state governments; SS = social security funds. Accounting standard: A = accrual; C = cash.

<sup>1</sup> For most countries, fiscal data follow the IMF's *Government Finance Statistics Manual 2001*. The concept of overall fiscal balance refers to net lending (+) / borrowing (-) of the general government. In some cases, however, the overall balance refers to total revenue and grants minus total expenditure and net lending.

<sup>2</sup> Lao P.D.R.'s fiscal spending includes capital spending by local governments financed by loans provided by the central bank.

<sup>3</sup> Overall and primary balances in 2012 are based on the monetary statistics and are different from the balances calculated from expenditure and revenue data.

<sup>4</sup> Uzbekistan's listing includes the Fund for Reconstruction and Development.

**Table A1. Advanced Economies: General Government Overall Balance, 2006–20**  
(Percent of GDP)

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Australia	1.8	1.5	-1.1	-4.6	-5.1	-4.5	-3.5	-2.8	-2.8	-2.4	-1.8	-0.9	-0.2	0.1	0.2
Austria	-2.5	-1.3	-1.4	-5.3	-4.4	-2.6	-2.2	-1.3	-2.4	-2.0	-1.7	-1.3	-1.1	-0.9	-0.9
Belgium	0.2	0.0	-1.1	-5.5	-4.0	-4.1	-4.1	-2.9	-3.2	-2.8	-2.3	-1.6	-1.0	-0.7	-0.4
Canada	1.8	1.5	-0.3	-4.5	-4.9	-3.7	-3.1	-2.7	-1.6	-1.7	-1.3	-1.0	-0.7	-0.6	-0.3
Cyprus	-1.1	3.3	0.9	-5.5	-4.8	-5.8	-5.8	-4.4	-0.2	-1.3	0.1	0.9	1.7	1.7	1.7
Czech Republic	-2.3	-0.7	-2.1	-5.5	-4.4	-2.7	-3.9	-1.2	-2.0	-1.8	-1.1	-1.0	-0.9	-1.0	-1.0
Denmark	5.0	5.0	3.2	-2.8	-2.7	-2.1	-3.7	-1.1	1.8	-2.7	-2.8	-2.4	-1.9	-1.5	-1.0
Estonia	2.4	2.4	-2.9	-1.9	0.2	1.0	-0.3	-0.5	0.6	-0.7	-0.5	-0.5	-0.5	-0.5	-0.4
Finland	3.9	5.1	4.2	-2.5	-2.5	-1.0	-2.1	-2.5	-3.2	-3.2	-2.8	-2.6	-2.3	-1.9	-1.4
France	-2.3	-2.5	-3.2	-7.2	-6.8	-5.1	-4.8	-4.1	-4.0	-3.8	-3.4	-2.8	-2.1	-1.4	-0.7
Germany	-1.5	0.3	0.0	-3.0	-4.1	-0.9	0.1	0.1	0.3	0.5	0.3	0.4	0.6	1.0	1.0
Greece	-6.1	-6.7	-9.9	-15.3	-11.1	-10.2	-6.4	-2.9	-3.9	-4.2	-3.6	-2.4	-1.0	-0.1	-0.3
Hong Kong SAR	4.1	8.1	0.1	1.5	4.4	4.1	3.3	1.1	3.8	3.5	2.7	2.1	2.8	3.7	3.7
Iceland	5.9	4.9	-13.1	-9.7	-9.7	-5.6	-3.7	-1.7	-0.2	1.3	0.4	1.0	-0.1	-0.3	0.3
Ireland <sup>1</sup>	2.8	0.2	-7.0	-13.8	-32.2	-12.4	-8.0	-5.6	-4.0	-2.0	-1.3	-0.4	0.0	0.0	0.0
Israel	-2.2	-1.2	-3.3	-6.2	-4.6	-3.9	-5.1	-4.1	-3.6	-3.7	-3.8	-3.8	-3.8	-3.8	-3.8
Italy	-3.6	-1.5	-2.7	-5.3	-4.2	-3.5	-3.0	-2.9	-3.0	-2.7	-2.0	-1.2	-0.8	-0.4	-0.2
Japan	-3.7	-2.1	-4.1	-10.4	-9.3	-9.8	-8.8	-8.5	-7.3	-5.9	-4.5	-4.1	-3.8	-3.8	-4.1
Korea	1.1	2.2	1.5	0.0	1.5	1.7	1.6	0.6	0.8	-0.5	0.3	0.6	0.8	1.1	1.4
Latvia	-0.5	0.6	-3.1	-7.0	-6.4	-3.1	0.1	-0.6	-1.7	-1.4	-1.1	-1.8	-0.6	-0.4	-0.5
Lithuania	-0.4	-1.0	-3.3	-9.3	-6.9	-9.0	-3.2	-2.6	-0.7	-1.2	-1.4	-1.4	-1.3	-1.3	-1.1
Luxembourg	1.4	4.1	3.3	-0.5	-0.5	0.4	0.1	0.8	0.6	0.1	0.5	0.3	0.3	0.1	0.1
Malta	-2.6	-2.3	-4.2	-3.3	-3.3	-2.6	-3.6	-2.6	-2.1	-1.7	-1.4	-1.1	-0.9	-0.9	-0.8
Netherlands	0.2	0.2	0.2	-5.5	-5.0	-4.3	-3.9	-2.2	-2.3	-2.1	-1.8	-1.6	-1.4	-1.1	-0.9
New Zealand	3.7	2.8	0.8	-2.2	-6.6	-6.2	-2.6	-1.6	-0.8	-0.3	-0.1	0.1	0.4	0.7	0.8
Norway	18.0	17.0	18.5	10.3	10.9	13.2	13.5	11.0	8.8	6.0	6.2	6.7	7.0	7.0	6.7
Portugal	-2.0	-3.0	-3.8	-9.8	-11.2	-7.4	-5.6	-4.8	-4.5	-3.1	-2.7	-2.5	-2.4	-2.3	-2.3
Singapore	7.0	11.8	6.4	-0.6	6.6	8.5	7.8	5.5	3.3	1.1	2.1	2.2	2.3	2.5	2.5
Slovak Republic	-3.6	-1.9	-2.4	-7.9	-7.5	-4.1	-4.2	-2.6	-2.9	-2.5	-2.6	-2.2	-1.9	-1.8	-1.7
Slovenia	-0.8	0.3	-0.3	-5.4	-5.2	-5.5	-3.1	-13.9	-5.8	-3.7	-5.3	-5.0	-5.1	-5.2	-5.1
Spain <sup>1</sup>	2.2	2.0	-4.4	-11.0	-9.4	-9.4	-10.3	-6.8	-5.8	-4.4	-3.2	-2.5	-2.0	-1.5	-1.5
Sweden	2.1	3.4	2.1	-0.9	0.0	0.0	-0.7	-1.4	-1.9	-1.4	-0.7	-0.4	0.0	0.4	0.7
Switzerland	0.9	1.3	1.7	0.5	0.1	0.3	-0.1	-0.1	-0.1	-0.2	-0.2	-0.1	-0.1	0.0	0.0
United Kingdom	-2.9	-3.0	-5.1	-10.8	-9.7	-7.6	-7.8	-5.7	-5.7	-4.2	-2.8	-1.6	-0.8	0.0	0.1
United States <sup>2</sup>	-2.0	-2.9	-6.7	-13.1	-10.9	-9.6	-7.9	-4.7	-4.1	-3.8	-3.6	-3.3	-3.4	-3.9	-4.2
Average	-1.4	-1.1	-3.5	-8.8	-7.7	-6.3	-5.5	-3.8	-3.4	-3.1	-2.6	-2.2	-2.0	-2.0	-2.0
Euro Area	-1.4	-0.6	-2.1	-6.2	-6.1	-4.1	-3.6	-2.9	-2.4	-2.0	-1.7	-1.2	-0.8	-0.4	-0.2
G7	-2.3	-2.1	-4.5	-10.0	-8.8	-7.5	-6.4	-4.5	-4.0	-3.5	-3.1	-2.6	-2.5	-2.6	-2.6
G20 Advanced	-2.1	-1.9	-4.2	-9.6	-8.3	-7.0	-6.1	-4.3	-3.8	-3.4	-2.9	-2.5	-2.3	-2.3	-2.4

Source: IMF staff estimates and projections. Projections are based on staff assessment of current policies (see Fiscal Policy Assumptions in text).

Note: For country-specific details, see Data and Conventions in text, and Table A.

<sup>1</sup> Data include financial sector support, estimated for Spain at 0.04 percent of GDP for 2010; 0.5 percent of GDP for 2011; 3.7 percent of GDP for 2012; 0.5 percent of GDP in 2013. For 2014, they include one-offs of 0.5 percent of GDP, of which financial sector support of 0.1 percent of GDP. For 2015 and 2016, they include one-offs of 0.4 percent of GDP and no financial support.

<sup>2</sup> For cross-country comparability, expenditure and fiscal balances of the United States are adjusted to exclude the imputed interest on unfunded pension liabilities and the imputed compensation of employees, which are counted as expenditures under the 2008 System of National Accounts (2008 SNA) recently adopted by the United States, but not in countries that have not yet adopted the 2008 SNA. Data for the United States in this table may thus differ from data published by the U.S. Bureau of Economic Analysis.

**Table A2. Advanced Economies: General Government Primary Balance, 2006–20**  
(Percent of GDP)

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Australia	1.5	1.3	-1.1	-4.5	-4.8	-4.0	-2.8	-2.0	-1.9	-1.4	-0.7	0.1	0.8	1.1	1.2
Austria	-0.2	0.9	0.8	-3.1	-2.3	-0.4	-0.1	0.7	-0.5	-0.1	0.1	0.2	0.4	0.6	0.7
Belgium	3.9	3.6	2.4	-2.1	-0.8	-1.0	-1.0	0.0	-0.4	-0.2	0.1	0.7	1.1	1.4	1.6
Canada	2.4	2.0	-0.2	-3.7	-4.3	-3.3	-2.5	-2.3	-1.3	-1.3	-1.0	-0.8	-0.5	-0.4	-0.1
Cyprus	1.4	5.4	3.1	-3.5	-3.2	-4.0	-3.3	-2.0	2.3	1.3	2.4	3.0	3.6	3.6	3.6
Czech Republic	-1.6	0.0	-1.4	-4.5	-3.3	-1.6	-2.7	-0.1	-0.9	-0.9	-0.2	-0.1	0.0	-0.1	-0.1
Denmark	5.8	5.6	3.4	-2.4	-2.1	-1.5	-3.1	-0.6	2.2	-2.1	-2.1	-1.8	-1.6	-1.3	-0.8
Estonia	2.2	2.0	-3.3	-2.2	0.0	0.9	-0.3	-0.5	0.6	-0.8	-0.6	-0.4	-0.4	-0.4	-0.3
Finland	3.7	4.8	3.6	-2.9	-2.5	-1.0	-1.9	-2.4	-2.9	-2.9	-2.6	-2.5	-2.4	-1.9	-1.4
France	0.0	-0.1	-0.5	-4.9	-4.5	-2.6	-2.4	-1.9	-1.9	-1.8	-1.6	-1.0	-0.3	0.4	1.0
Germany	0.9	2.7	2.3	-0.6	-1.9	1.2	2.0	1.8	1.7	1.7	1.2	1.2	1.3	1.7	1.7
Greece	-1.6	-2.2	-5.0	-10.3	-5.3	-3.0	-1.4	1.0	0.0	-0.5	0.0	1.3	2.5	3.5	3.5
Hong Kong SAR	2.1	6.3	-2.6	-0.4	2.5	2.0	1.4	-0.7	1.7	1.4	0.6	0.2	0.8	1.8	1.7
Iceland	6.3	5.1	-13.3	-6.6	-6.8	-2.7	-0.2	1.9	3.5	4.0	2.6	3.3	2.3	2.4	2.8
Ireland <sup>1</sup>	3.5	0.8	-6.3	-12.4	-29.7	-9.6	-4.3	-1.8	-0.6	0.8	1.2	2.1	2.4	2.5	2.3
Israel	2.9	3.4	0.8	-2.2	-0.7	-0.2	-1.4	-0.5	-0.1	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3
Italy	0.6	3.0	2.0	-1.1	-0.2	0.9	1.9	1.7	1.4	1.3	2.0	2.6	2.8	3.2	3.4
Japan	-3.7	-2.1	-3.8	-9.9	-8.6	-9.0	-7.9	-7.8	-6.7	-5.4	-4.0	-3.5	-3.2	-3.2	-3.2
Korea	2.3	1.4	1.2	-0.7	0.8	0.9	0.8	-0.2	-0.1	-1.0	0.0	0.6	0.8	1.1	1.6
Latvia	-0.1	0.8	-3.0	-6.3	-5.4	-2.2	1.3	0.6	-0.4	-0.2	-0.1	-0.8	0.7	0.6	0.4
Lithuania	0.1	-0.5	-2.8	-8.2	-5.2	-7.2	-1.2	-0.9	0.9	0.4	0.2	0.2	0.4	0.4	0.7
Luxembourg	0.6	3.1	2.0	-1.1	-0.8	0.2	-0.1	0.7	0.3	-0.1	0.3	0.1	0.0	-0.3	-0.4
Malta	1.1	1.2	-0.8	0.0	-0.2	0.6	-0.6	0.3	0.8	1.0	1.2	1.4	1.5	1.6	1.7
Netherlands	1.6	1.5	1.6	-4.2	-3.9	-3.1	-2.8	-1.1	-1.1	-0.9	-0.7	-0.5	-0.3	-0.1	0.1
New Zealand	4.3	3.2	1.1	-1.9	-6.1	-5.6	-1.8	-0.9	-0.2	0.2	0.3	0.6	0.9	1.2	1.2
Norway	15.9	14.1	15.5	8.0	8.8	11.1	11.7	9.2	6.7	3.9	4.1	4.6	4.9	4.9	4.5
Portugal	-0.1	-0.9	-1.7	-7.8	-9.1	-4.1	-1.9	0.1	0.5	1.7	1.8	1.9	1.8	1.8	1.8
Singapore	5.6	10.4	5.0	-2.0	5.1	7.0	6.4	4.1	1.8	-0.3	0.7	0.8	0.9	1.0	0.9
Slovak Republic	-2.7	-1.0	-1.5	-6.8	-6.4	-2.8	-2.6	-0.9	-1.2	-1.2	-1.3	-1.0	-0.9	-0.8	-0.7
Slovenia	0.3	1.2	0.5	-4.6	-4.0	-4.2	-1.4	-11.6	-2.8	-0.8	-2.5	-2.2	-2.0	-1.9	-1.8
Spain <sup>1</sup>	3.5	3.1	-3.4	-9.6	-7.8	-7.5	-7.9	-4.0	-2.9	-1.8	-0.7	-0.1	0.4	0.9	0.9
Sweden	2.9	4.0	2.5	-0.7	0.2	0.3	-0.6	-1.4	-2.0	-1.6	-0.9	-0.6	-0.2	0.3	0.7
Switzerland	1.8	1.9	2.3	1.1	0.7	0.8	0.4	0.2	0.3	0.2	0.2	0.2	0.3	0.3	0.3
United Kingdom	-1.3	-1.3	-3.6	-9.4	-7.2	-4.9	-5.4	-4.4	-3.8	-2.6	-1.1	0.3	1.2	1.9	2.0
United States	-0.1	-0.8	-4.6	-11.2	-8.9	-7.3	-5.7	-2.7	-2.0	-1.8	-1.5	-1.1	-1.0	-1.3	-1.4
Average	0.2	0.5	-1.9	-7.2	-6.0	-4.5	-3.7	-2.2	-1.7	-1.5	-1.0	-0.6	-0.3	-0.2	-0.2
Euro Area	1.1	1.9	0.4	-3.8	-3.7	-1.5	-1.0	-0.4	-0.1	0.1	0.3	0.7	1.0	1.4	1.6
G7	-0.5	-0.2	-2.6	-8.2	-6.8	-5.4	-4.4	-2.7	-2.1	-1.8	-1.3	-0.8	-0.6	-0.5	-0.5
G20 Advanced	-0.3	-0.1	-2.4	-7.8	-6.5	-5.1	-4.1	-2.6	-2.0	-1.7	-1.2	-0.8	-0.5	-0.4	-0.4

Source: IMF staff estimates and projections. Projections are based on staff assessment of current policies (see Fiscal Policy Assumptions in text).

Note: Primary balance is defined as the overall balance excluding net interest payments. For country-specific details, see Data and Conventions in text, and Table A.

<sup>1</sup> Data include financial sector support, estimated for Spain at 0.04 percent of GDP for 2010; 0.5 percent of GDP for 2011; 3.7 percent of GDP for 2012; 0.5 percent of GDP in 2013. For 2014, they include one-offs of 0.5 percent of GDP, of which financial sector support of 0.1 percent of GDP. For 2015 and 2016, they include one-offs of 0.4 percent of GDP and no financial support.

**Table A3. Advanced Economies: General Government Cyclically Adjusted Balance, 2006–20**  
(Percent of potential GDP)

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Australia	1.7	1.2	-1.4	-4.5	-4.9	-4.2	-3.2	-2.4	-2.3	-1.8	-1.2	-0.4	0.2	0.3	0.3
Austria	-3.1	-3.3	-3.5	-4.2	-3.8	-3.0	-2.4	-1.1	-1.9	-1.3	-1.4	-1.3	-1.1	-1.0	-0.9
Belgium	-0.5	-1.3	-2.2	-4.7	-3.9	-4.3	-3.8	-2.2	-2.6	-2.2	-1.8	-1.2	-0.8	-0.6	-0.4
Canada	1.0	0.8	-0.6	-3.0	-4.1	-3.3	-2.7	-2.3	-1.5	-1.2	-0.8	-0.7	-0.6	-0.6	-0.3
Cyprus	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Czech Republic	-3.9	-3.0	-4.3	-5.3	-4.3	-2.8	-3.2	0.0	-1.1	-1.7	-1.1	-1.1	-1.0	-1.0	-1.0
Denmark	3.3	3.3	1.6	-1.9	-1.7	-1.3	-2.7	0.0	2.5	-2.4	-2.7	-2.6	-2.2	-1.8	-1.3
Estonia	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Finland	2.2	2.1	1.7	-0.1	-1.3	-0.9	-1.1	-0.9	-1.0	-0.9	-1.0	-1.2	-1.2	-1.2	-1.1
France	-2.9	-3.6	-3.8	-5.7	-5.9	-4.8	-4.1	-3.2	-2.7	-2.5	-2.3	-2.0	-1.6	-1.1	-0.7
Germany	-1.6	-0.9	-1.1	-0.9	-3.4	-1.4	-0.1	0.4	0.4	0.5	0.2	0.2	0.4	0.8	0.8
Greece	-8.4	-10.4	-13.9	-18.6	-12.1	-8.6	-2.9	0.9	-0.4	-0.7	-0.1	0.3	0.7	0.9	0.3
Hong Kong SAR <sup>1</sup>	1.8	4.2	-0.6	-0.9	0.9	0.4	0.4	-1.2	0.8	1.0	-0.1	-0.6	0.0	0.9	0.8
Iceland	4.3	2.8	-4.4	-10.0	-7.6	-4.6	-2.8	-1.3	-0.1	1.0	-0.1	0.7	-0.3	-0.4	0.3
Ireland <sup>1</sup>	-5.6	-9.9	-13.1	-11.0	-8.8	-6.1	-4.6	-3.7	-2.5	-1.4	-1.0	-0.3	0.0	0.0	0.0
Israel	-1.9	-1.7	-3.5	-5.3	-4.3	-4.2	-5.3	-4.2	-3.5	-3.5	-3.7	-3.8	-3.8	-3.8	-3.8
Italy	-4.4	-2.9	-3.6	-3.6	-3.5	-3.2	-1.4	-0.7	-0.6	-0.6	-0.4	0.0	0.1	0.2	0.1
Japan	-3.5	-2.2	-3.5	-7.4	-7.8	-8.4	-7.8	-8.2	-6.8	-5.5	-4.3	-3.8	-3.6	-3.8	-4.1
Korea	0.9	1.8	1.3	1.2	1.4	1.5	1.6	0.8	0.9	-0.3	0.4	0.6	0.8	1.1	1.3
Latvia	-1.4	-1.0	-8.4	-3.2	-3.2	-1.3	0.8	-0.9	-1.5	-1.2	-0.9	-1.7	-0.5	-0.3	-0.5
Lithuania	-0.4	-1.0	-3.3	-9.3	-6.9	-8.9	-3.1	-2.6	-0.7	-1.2	-1.4	-1.4	-1.3	-1.2	-1.1
Luxembourg	1.4	2.1	2.2	1.3	-0.5	0.1	1.2	1.4	0.4	-0.3	0.2	0.2	0.3	0.1	0.1
Malta	-2.7	-3.1	-5.6	-2.4	-3.1	-2.4	-3.7	-2.9	-2.5	-2.1	-1.8	-1.3	-1.0	-0.9	-0.8
Netherlands	0.5	-0.1	0.6	-3.0	-2.8	-2.5	-1.5	0.3	0.2	-0.2	-0.1	0.0	0.0	0.1	0.1
New Zealand	3.1	2.6	1.2	-1.8	-6.1	-5.9	-2.4	-1.4	-0.7	-0.3	-0.1	0.1	0.4	0.7	0.3
Norway <sup>1</sup>	-3.5	-3.3	-3.4	-5.7	-5.5	-4.6	-5.1	-5.3	-6.1	-7.0	-7.5	-7.3	-7.2	-7.2	-7.3
Portugal	-1.9	-3.7	-4.2	-8.9	-10.8	-6.3	-3.1	-1.7	-2.1	-1.6	-1.9	-2.1	-2.2	-2.2	-2.3
Singapore	7.0	11.5	6.6	1.0	6.2	8.0	7.7	5.2	3.1	1.3	2.3	2.4	2.5	2.6	2.4
Slovak Republic	-4.1	-4.3	-5.0	-7.2	-7.6	-4.0	-3.8	-2.0	-2.4	-2.0	-2.5	-2.3	-2.0	-1.9	-1.7
Slovenia	-2.0	-2.4	-2.9	-4.1	-4.4	-3.9	-1.6	-1.4	-2.5	-1.8	-4.5	-4.7	-5.0	-5.3	-5.3
Spain <sup>1</sup>	1.2	0.5	-5.6	-9.5	-7.8	-7.0	-3.7	-3.0	-2.5	-2.3	-1.8	-2.0	-2.0	-1.7	-1.9
Sweden <sup>1</sup>	1.1	1.4	0.8	-0.1	0.7	0.1	0.0	-0.6	-1.1	-1.0	-0.8	-0.7	-0.4	0.0	0.4
Switzerland <sup>1</sup>	0.5	0.4	0.8	0.8	0.2	0.4	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
United Kingdom <sup>1</sup>	-4.7	-5.4	-6.7	-9.7	-8.0	-5.8	-5.6	-3.6	-4.3	-3.6	-2.5	-1.5	-0.7	0.0	0.1
United States <sup>1,2</sup>	-3.2	-4.0	-5.9	-7.6	-9.4	-8.1	-6.2	-4.1	-3.6	-3.1	-3.0	-3.0	-3.3	-3.8	-4.1
Average	-2.4	-2.5	-4.0	-5.9	-6.6	-5.6	-4.4	-3.2	-2.8	-2.5	-2.2	-2.0	-2.0	-2.1	-2.1
Euro Area	-2.0	-2.0	-3.2	-4.5	-4.8	-3.7	-2.5	-1.3	-1.1	-1.0	-1.0	-0.8	-0.6	-0.3	-0.2
G7	-3.1	-3.2	-4.5	-6.4	-7.5	-6.4	-5.2	-3.8	-3.3	-2.8	-2.5	-2.3	-2.3	-2.5	-2.6
G20 Advanced	-2.8	-2.9	-4.2	-6.1	-7.2	-6.1	-4.9	-3.6	-3.1	-2.7	-2.4	-2.1	-2.1	-2.3	-2.3

Source: IMF staff estimates and projections. Projections are based on staff assessment of current policies (see Fiscal Policy Assumptions in text).

<sup>1</sup> The data for these countries include adjustments beyond the output cycle. For country-specific details, see Data and Conventions in text, and Table A.

<sup>2</sup> For cross-country comparability, expenditure and fiscal balances of the United States are adjusted to exclude the imputed interest on unfunded pension liabilities and the imputed compensation of employees, which are counted as expenditures under the 2008 System of National Accounts (2008 SNA) recently adopted by the United States, but not in countries that have not yet adopted the 2008 SNA. Data for the United States in this table may thus differ from data published by the U.S. Bureau of Economic Analysis.

**Table A4. Advanced Economies: General Government Cyclically Adjusted Primary Balance, 2006–20**  
(Percent of potential GDP)

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Australia	1.4	1.0	-1.4	-4.4	-4.6	-3.7	-2.5	-1.6	-1.4	-0.8	-0.1	0.6	1.2	1.3	1.3
Austria	-0.7	-1.0	-1.2	-2.0	-1.7	-0.8	-0.3	0.9	0.0	0.5	0.3	0.3	0.3	0.6	0.7
Belgium	3.3	2.4	1.4	-1.4	-0.7	-1.1	-0.7	0.6	0.3	0.3	0.5	1.0	1.3	1.5	1.6
Canada	1.6	1.4	-0.5	-2.2	-3.4	-2.9	-2.1	-2.0	-1.1	-0.8	-0.5	-0.5	-0.4	-0.3	-0.1
Cyprus	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Czech Republic	-3.2	-2.2	-3.5	-4.3	-3.3	-1.7	-2.1	1.1	0.0	-0.8	-0.2	-0.2	-0.1	-0.1	-0.1
Denmark	4.1	3.9	1.7	-1.5	-1.1	-0.7	-2.2	0.4	2.9	-1.8	-2.0	-2.0	-1.9	-1.6	-1.1
Estonia	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Finland	2.0	1.7	1.1	-0.4	-1.3	-0.9	-0.9	-0.8	-0.8	-0.7	-0.8	-1.1	-1.3	-1.1	-1.1
France	-0.5	-1.1	-1.1	-3.5	-3.6	-2.3	-1.7	-1.1	-0.7	-0.7	-0.5	-0.2	0.2	0.6	1.0
Germany	0.8	1.6	1.3	1.4	-1.2	0.7	1.8	2.0	1.8	1.7	1.1	1.0	1.1	1.6	1.5
Greece	-3.6	-5.4	-8.4	-13.2	-6.1	-1.6	1.8	4.6	3.2	2.7	3.2	3.7	4.1	4.4	4.0
Hong Kong SAR <sup>1</sup>	-0.3	2.4	-3.4	-2.8	-1.0	-1.6	-1.5	-3.0	-1.3	-1.1	-2.1	-2.5	-1.9	-1.0	-1.1
Iceland	4.7	3.1	-4.6	-6.9	-4.7	-1.7	0.6	2.3	3.8	4.1	2.3	3.4	2.4	2.8	3.2
Ireland <sup>1</sup>	-4.8	-9.2	-12.4	-9.6	-6.5	-3.4	-1.2	-0.1	0.9	1.3	1.5	2.2	2.5	2.5	2.3
Israel	3.1	2.9	0.6	-1.4	-0.5	-0.5	-1.6	-0.7	0.0	-0.1	-0.2	-0.3	-0.3	-0.3	-0.3
Italy	-0.1	1.7	1.1	0.5	0.5	1.2	3.3	3.8	3.6	3.3	3.5	3.7	3.7	3.7	3.8
Japan	-3.6	-2.2	-3.2	-6.9	-7.2	-7.6	-6.9	-7.5	-6.2	-5.0	-3.8	-3.3	-3.0	-3.1	-3.2
Korea	2.2	1.0	0.9	0.5	0.7	0.8	0.8	-0.1	0.1	-0.9	0.0	0.6	0.8	1.0	1.6
Latvia	-1.0	-0.8	-8.3	-2.6	-2.3	-0.5	2.0	0.2	-0.2	0.1	0.1	-0.7	0.7	0.6	0.5
Lithuania	0.1	-0.5	-2.7	-8.3	-5.3	-7.3	-1.2	-0.8	0.9	0.4	0.2	0.2	0.4	0.5	0.8
Luxembourg	0.6	1.0	0.9	0.8	-0.8	-0.1	1.0	1.2	0.1	-0.6	0.0	-0.1	0.0	-0.3	-0.4
Malta	1.1	0.6	-2.0	0.9	0.1	0.8	-0.6	0.2	0.5	0.8	0.9	1.4	1.5	1.7	1.8
Netherlands	2.0	1.2	2.0	-1.8	-1.7	-1.3	-0.5	1.4	1.3	0.9	1.0	1.0	1.0	1.1	1.2
New Zealand	3.8	3.1	1.5	-1.5	-5.6	-5.2	-1.7	-0.8	-0.1	0.2	0.4	0.6	0.9	1.1	0.8
Norway <sup>1</sup>	-6.5	-7.3	-7.4	-8.8	-8.2	-7.3	-7.5	-7.7	-8.9	-9.6	-10.1	-10.0	-9.9	-9.8	-9.9
Portugal	0.0	-1.6	-2.1	-6.9	-8.7	-3.1	0.4	2.9	2.6	3.1	2.6	2.2	2.0	1.9	1.8
Singapore	5.5	10.0	5.1	-0.4	4.6	6.5	6.2	3.7	1.6	-0.1	0.9	1.0	1.1	1.1	1.0
Slovak Republic	-3.2	-3.3	-4.1	-6.1	-6.4	-2.7	-2.2	-0.3	-0.7	-0.7	-1.2	-1.0	-1.0	-0.9	-0.7
Slovenia	-0.8	-1.4	-2.1	-3.3	-3.2	-2.6	0.0	0.7	0.4	0.9	-1.8	-1.9	-2.0	-2.0	-1.9
Spain <sup>1</sup>	2.5	1.6	-4.5	-8.2	-6.3	-5.1	-1.4	-0.4	0.2	0.3	0.6	0.4	0.4	0.7	0.5
Sweden <sup>1</sup>	2.0	2.1	1.2	0.1	0.9	0.3	0.0	-0.7	-1.2	-1.2	-1.0	-0.9	-0.6	-0.1	0.4
Switzerland <sup>1</sup>	1.4	1.1	1.4	1.4	0.8	0.9	0.7	0.5	0.4	0.4	0.4	0.4	0.3	0.3	0.3
United Kingdom <sup>1</sup>	-3.1	-3.7	-5.2	-8.4	-5.6	-3.1	-3.3	-2.3	-2.5	-2.0	-0.8	0.4	1.2	1.9	1.9
United States <sup>1</sup>	-1.2	-1.9	-3.8	-5.8	-7.5	-5.8	-4.0	-2.1	-1.5	-1.1	-0.9	-0.8	-0.9	-1.3	-1.3
Average	-0.8	-0.9	-2.3	-4.4	-5.0	-3.8	-2.6	-1.6	-1.2	-0.9	-0.6	-0.4	-0.3	-0.3	-0.3
Euro Area	0.6	0.6	-0.5	-2.1	-2.4	-1.1	0.1	1.1	1.2	1.1	1.0	1.1	1.2	1.5	1.6
G7	-1.3	-1.3	-2.5	-4.6	-5.6	-4.4	-3.2	-2.0	-1.5	-1.1	-0.8	-0.5	-0.4	-0.5	-0.5
G20 Advanced	-1.1	-1.1	-2.4	-4.5	-5.4	-4.2	-3.0	-1.9	-1.4	-1.0	-0.7	-0.4	-0.3	-0.4	-0.3

Source: IMF staff estimates and projections. Projections are based on staff assessment of current policies (see Fiscal Policy Assumptions in text).

Note: Cyclically adjusted primary balance is defined as the cyclically adjusted balance excluding net interest payments.

<sup>1</sup> The data for these countries include adjustments beyond the output cycle. For country-specific details, see Data and Conventions in text, and Table A.

**Table A5. Advanced Economies: General Government Revenue, 2006–20**  
 (Percent of GDP)

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Australia	36.4	35.8	34.0	33.4	32.0	32.1	33.4	34.1	34.2	34.8	35.1	35.5	35.9	36.3	36.4
Austria	47.7	47.8	48.3	48.8	48.3	48.2	48.7	49.5	49.8	50.0	49.4	49.5	49.6	49.6	49.7
Belgium	47.9	47.6	48.3	47.7	48.4	49.3	50.7	51.5	51.1	50.6	50.4	50.4	50.4	50.4	50.4
Canada	40.4	40.1	38.9	39.1	38.3	38.0	38.0	38.0	37.7	38.1	38.1	38.3	38.3	38.4	38.7
Cyprus	38.7	41.5	39.8	37.1	37.7	37.0	36.3	37.6	40.2	39.6	39.1	38.8	38.8	38.8	38.9
Czech Republic	38.5	39.3	38.1	38.1	38.6	39.7	39.9	40.9	40.1	40.2	39.2	39.5	39.6	39.7	39.7
Denmark	54.8	54.6	53.7	54.0	54.3	54.8	55.1	56.0	58.7	51.7	51.3	50.0	50.0	50.1	50.3
Estonia	35.7	36.0	36.1	42.3	40.6	38.4	38.7	37.9	38.4	38.4	38.9	39.4	39.8	40.0	40.1
Finland	52.3	51.9	52.4	52.3	52.2	53.4	54.0	55.0	55.2	55.6	55.2	54.8	54.8	55.0	55.2
France	50.2	49.7	49.8	49.6	49.6	50.8	52.0	52.9	53.5	53.2	53.1	52.9	53.0	53.0	53.0
Germany	42.9	43.0	43.4	44.3	43.0	43.6	44.1	44.2	44.6	44.4	43.8	43.9	43.9	44.1	44.1
Greece	38.7	40.2	40.6	38.7	41.1	43.8	45.0	45.7	45.4	45.9	44.2	43.6	42.4	41.8	41.2
Hong Kong SAR	20.0	23.4	18.8	19.0	22.2	24.1	22.6	22.1	22.1	21.9	21.8	21.3	21.7	21.6	21.6
Iceland	47.0	45.9	42.5	38.9	39.6	40.1	41.8	42.4	45.4	44.9	44.2	43.7	42.6	42.6	42.6
Ireland	36.7	36.1	34.9	33.4	33.4	33.0	33.8	33.9	34.2	33.7	32.8	32.6	32.5	32.4	32.3
Israel	42.3	41.4	39.0	36.2	37.1	37.3	36.2	36.9	37.3	37.3	37.3	37.3	37.3	37.3	37.3
Italy	44.0	45.2	45.1	45.9	45.6	45.6	47.8	48.0	48.1	48.0	48.0	47.9	47.9	47.9	47.9
Japan	30.8	31.2	31.6	29.6	29.6	30.8	31.1	32.0	33.0	33.7	34.0	34.5	35.3	35.5	36.0
Korea	21.3	22.6	22.3	21.3	21.0	21.6	22.1	21.5	20.7	20.3	19.9	19.9	20.0	20.0	20.0
Latvia	33.5	33.8	33.4	35.7	36.1	35.6	37.1	36.1	35.5	35.1	33.9	32.7	33.5	33.3	32.7
Lithuania	33.3	33.4	33.8	34.3	34.3	32.6	32.1	32.1	33.5	32.9	32.4	32.1	32.6	33.0	33.3
Luxembourg	40.9	41.4	42.6	44.3	43.3	42.9	43.9	43.4	42.6	41.9	42.0	41.7	41.7	41.6	41.6
Malta	39.7	38.9	38.4	38.6	37.8	38.3	38.9	40.0	42.0	43.2	41.7	40.8	40.3	40.2	40.1
Netherlands	43.2	42.6	43.8	42.7	43.2	42.7	43.2	44.0	43.8	42.4	41.8	41.7	41.6	41.4	41.3
New Zealand	38.3	36.8	36.4	35.1	34.3	34.4	34.3	34.1	34.1	34.9	34.9	34.7	34.7	34.6	34.6
Norway	57.4	56.5	57.4	55.4	55.0	56.2	55.8	54.4	53.7	53.9	52.7	53.2	53.3	53.3	53.2
Portugal	40.9	41.5	41.6	40.4	40.6	42.6	42.9	45.2	44.5	44.8	44.8	44.8	44.7	44.7	44.7
Singapore	19.8	23.8	24.0	17.4	21.1	23.2	22.3	21.5	21.4	21.5	21.7	21.9	22.3	22.6	22.7
Slovak Republic	34.9	34.1	34.3	35.9	34.5	36.4	36.0	38.4	38.9	39.3	38.7	38.6	38.4	38.4	38.3
Slovenia	41.1	39.8	40.4	39.8	40.8	40.6	41.7	41.0	41.5	40.8	38.7	38.4	38.4	38.3	38.4
Spain	40.5	40.9	36.7	34.8	36.2	36.0	37.0	37.5	37.8	37.6	37.6	37.6	37.7	37.7	37.6
Sweden	52.2	51.7	51.0	51.0	49.6	49.0	49.5	49.3	48.5	48.7	49.1	49.4	49.6	49.6	49.6
Switzerland	33.4	32.7	31.4	31.8	31.2	31.7	31.3	31.4	31.4	31.4	31.4	31.4	31.4	31.4	31.4
United Kingdom	36.8	36.5	37.0	35.1	35.6	36.1	36.3	36.8	35.7	36.0	36.3	36.5	36.4	36.5	36.5
United States	31.5	31.6	30.1	28.4	28.7	29.0	29.4	31.5	31.6	32.2	32.3	32.0	31.5	31.2	31.1
Average	36.5	36.9	36.4	35.1	34.9	35.5	35.7	36.9	36.9	36.6	36.6	36.5	36.4	36.3	36.3
Euro Area	44.5	44.6	44.4	44.3	44.2	44.8	45.8	46.4	46.6	46.3	46.0	45.9	45.9	45.9	45.9
G7	35.7	36.1	35.7	34.3	34.1	34.8	35.0	36.4	36.6	36.5	36.5	36.4	36.3	36.1	36.2
G20 Advanced	35.3	35.7	35.3	33.9	33.7	34.2	34.5	35.8	35.9	35.8	35.9	35.7	35.6	35.5	35.5

Source: IMF staff estimates and projections. Projections are based on staff assessment of current policies (see Fiscal Policy Assumptions in text).

Note: For country-specific details, see Data and Conventions in text, and Table A.

**Table A6. Advanced Economies: General Government Expenditure, 2006–20**  
(Percent of GDP)

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Australia	34.6	34.3	35.1	38.0	37.1	36.6	36.9	36.9	37.0	37.3	36.9	36.4	36.1	36.2	36.2
Austria	50.2	49.1	49.8	54.1	52.7	50.8	50.9	50.8	52.2	52.0	51.1	50.8	50.7	50.5	50.5
Belgium	47.7	47.6	49.4	53.2	52.3	53.4	54.8	54.5	54.4	53.4	52.7	52.0	51.4	51.1	50.8
Canada	38.6	38.6	39.2	43.7	43.3	41.7	41.1	40.7	39.4	39.7	39.5	39.2	39.1	39.0	39.0
Cyprus	39.7	38.2	38.9	42.6	42.5	42.8	42.1	42.0	40.4	40.9	38.9	37.8	37.2	37.0	37.2
Czech Republic	40.8	40.0	40.2	43.6	43.0	42.4	43.8	42.0	42.1	42.0	40.3	40.4	40.5	40.6	40.7
Denmark	49.8	49.6	50.5	56.8	57.1	56.8	58.8	57.1	56.9	54.4	54.0	52.4	52.0	51.6	51.3
Estonia	33.3	33.6	39.0	44.2	40.4	37.4	38.9	38.3	37.8	39.1	39.4	39.9	40.2	40.4	40.5
Finland	48.3	46.8	48.3	54.8	54.8	54.4	56.1	57.6	58.3	58.7	58.0	57.5	57.2	56.9	56.7
France	52.5	52.2	53.0	56.8	56.4	55.9	56.8	57.0	57.5	57.0	56.5	55.7	55.1	54.4	53.7
Germany	44.5	42.7	43.4	47.3	47.0	44.4	44.0	44.1	44.3	43.9	43.5	43.5	43.4	43.1	43.1
Greece	44.9	46.9	50.6	54.0	52.2	54.0	51.4	48.6	49.3	50.1	47.8	46.0	43.4	42.0	41.5
Hong Kong SAR	15.9	15.4	18.7	17.4	17.8	20.0	19.3	21.0	18.3	18.3	19.2	19.1	18.9	17.9	17.9
Iceland	41.1	41.0	55.7	48.5	49.4	45.7	45.5	44.1	45.5	43.6	43.8	42.7	42.7	42.9	42.4
Ireland	33.9	35.9	41.9	47.2	65.6	45.4	41.7	39.5	38.3	35.6	34.1	33.1	32.5	32.4	32.3
Israel	44.4	42.6	42.3	42.4	41.7	41.2	41.3	41.0	40.8	41.1	41.1	41.1	41.1	41.1	41.1
Italy	47.6	46.8	47.8	51.1	49.9	49.1	50.8	50.9	51.1	50.7	50.0	49.1	48.7	48.3	48.1
Japan	34.5	33.3	35.7	40.0	38.9	40.6	39.8	40.5	40.3	39.7	38.5	38.6	39.0	39.4	40.1
Korea	20.3	20.5	20.8	21.3	19.5	19.9	20.6	20.9	20.0	20.8	19.5	19.3	19.2	18.9	18.6
Latvia	33.9	33.2	36.5	42.6	42.5	38.7	37.0	36.6	37.1	36.5	34.9	34.5	34.1	33.7	33.2
Lithuania	33.7	34.4	37.0	43.6	41.2	41.5	35.3	34.7	34.1	34.1	33.8	33.5	33.9	34.2	34.4
Luxembourg	39.5	37.3	39.3	44.9	43.8	42.5	43.7	42.6	42.0	41.8	41.5	41.4	41.4	41.4	41.5
Malta	42.3	41.1	42.6	41.9	41.0	40.9	42.5	42.6	44.1	44.9	43.1	41.9	41.2	41.0	40.9
Netherlands	43.0	42.5	43.6	48.2	48.2	47.0	47.1	46.2	46.1	44.5	43.6	43.3	42.9	42.6	42.2
New Zealand	34.7	34.1	35.6	37.3	40.9	40.6	36.9	35.7	34.8	35.3	35.0	34.5	34.2	33.9	33.8
Norway	39.3	39.5	38.9	45.0	44.1	43.0	42.2	43.3	44.9	47.9	46.5	46.4	46.2	46.2	46.5
Portugal	42.9	44.5	45.3	50.2	51.8	50.0	48.5	50.1	49.0	47.9	47.5	47.3	47.1	47.0	46.9
Singapore	12.8	12.0	17.6	18.0	14.5	14.7	14.5	16.0	18.2	20.4	19.6	19.8	20.0	20.1	20.2
Slovak Republic	38.5	36.1	36.7	43.8	42.0	40.6	40.2	41.0	41.8	41.8	41.4	40.8	40.3	40.2	39.9
Slovenia	41.9	39.6	40.7	45.3	46.0	46.1	44.8	54.9	47.4	44.5	44.0	43.4	43.4	43.5	43.5
Spain	38.3	38.9	41.1	45.8	45.6	45.4	47.3	44.3	43.6	42.0	40.8	40.1	39.7	39.1	39.0
Sweden	50.1	48.3	48.9	51.9	49.6	49.0	50.2	50.7	50.4	50.1	49.8	49.8	49.6	49.2	48.8
Switzerland	32.5	31.5	29.7	31.3	31.0	31.4	31.4	31.5	31.4	31.6	31.6	31.5	31.4	31.4	31.4
United Kingdom	39.7	39.5	42.1	45.9	45.2	43.8	44.1	42.5	41.4	40.3	39.2	38.1	37.2	36.5	36.4
United States	33.6	34.5	36.8	41.5	39.7	38.6	37.3	36.2	35.7	36.0	35.9	35.3	34.9	35.1	35.3
Average	37.9	38.0	39.9	43.9	42.6	41.8	41.2	40.7	40.3	39.7	39.2	38.7	38.3	38.2	38.3
Euro Area	45.9	45.2	46.5	50.5	50.4	48.9	49.5	49.3	49.0	48.3	47.6	47.1	46.7	46.3	46.0
G7	38.0	38.2	40.2	44.3	42.9	42.2	41.4	41.0	40.6	40.0	39.6	39.0	38.7	38.7	38.8
G20 Advanced	37.3	37.5	39.5	43.5	42.0	41.3	40.6	40.1	39.7	39.2	38.7	38.2	37.9	37.8	37.9

Source: IMF staff estimates and projections. Projections are based on staff assessment of current policies (see Fiscal Policy Assumptions in text).

Note: For country-specific details, see Data and Conventions in text, and Table A.

**Table A7. Advanced Economies: General Government Gross Debt, 2006–20**  
(Percent of GDP)

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Australia <sup>1</sup>	10.0	9.7	11.7	16.8	20.5	24.2	27.9	30.9	33.9	36.0	37.3	37.6	36.6	35.4	33.9
Austria	67.0	64.8	68.5	79.7	82.3	82.1	81.5	80.8	84.4	86.7	85.6	84.1	82.7	81.2	79.8
Belgium	90.7	86.8	92.2	99.2	99.5	102.0	103.9	104.4	106.6	106.7	106.2	104.9	102.9	100.5	97.9
Canada <sup>1</sup>	70.4	66.7	70.8	83.0	84.6	85.3	87.9	87.7	87.9	90.4	89.4	86.7	84.3	82.1	79.9
Cyprus	59.6	53.7	44.7	53.5	56.5	66.0	79.5	102.2	107.5	106.4	98.4	93.2	87.3	82.4	77.8
Czech Republic	27.9	27.8	28.7	34.1	38.2	39.9	44.6	45.1	42.6	40.6	40.0	39.4	38.8	38.4	38.1
Denmark	31.5	27.3	33.4	40.4	42.9	46.4	45.6	45.0	45.2	47.0	48.0	48.4	48.1	47.5	46.3
Estonia	4.4	3.7	4.5	7.0	6.5	5.9	9.5	9.9	10.4	10.8	10.8	10.6	10.5	10.4	10.1
Finland	38.1	34.0	32.7	41.7	47.1	48.5	52.9	55.6	59.0	61.9	64.0	65.4	66.7	67.0	66.6
France	64.2	64.2	67.9	78.8	81.5	85.0	89.4	92.3	95.6	97.1	98.0	98.0	97.2	95.5	93.1
Germany	66.6	63.8	65.2	72.7	80.6	77.9	79.3	77.0	74.6	70.7	68.2	65.9	63.4	60.4	57.9
Greece	102.9	102.8	108.8	126.2	145.7	171.0	156.5	175.0	177.1	196.9	206.6	203.6	197.0	189.4	182.5
Hong Kong SAR <sup>1</sup>	1.2	1.1	0.9	0.7	0.7	0.6	0.6	0.5	0.1	0.1	0.1	0.1	0.1	0.0	0.0
Iceland	29.3	27.3	67.6	82.9	88.3	95.1	92.7	85.3	82.5	75.3	69.5	63.5	58.4	57.0	54.9
Ireland	23.6	23.9	42.4	61.8	86.8	109.3	120.2	120.0	107.6	100.6	95.9	92.9	88.9	85.7	82.9
Israel	79.8	72.7	71.6	74.3	70.6	68.8	67.9	67.2	67.1	67.2	67.2	67.8	68.6	69.4	70.1
Italy	102.5	99.7	102.3	112.5	115.3	116.4	123.1	128.5	132.1	133.1	132.3	130.5	128.3	125.8	123.0
Japan	186.0	183.0	191.8	210.2	215.8	229.7	236.6	242.6	246.2	245.9	247.8	248.8	250.4	250.9	251.7
Korea	29.3	28.7	28.0	31.2	31.0	31.7	32.3	34.5	36.0	38.2	39.3	40.2	40.7	40.6	40.2
Latvia	9.2	7.2	16.1	32.3	39.8	37.5	36.5	35.2	37.8	37.8	37.0	36.7	35.1	33.6	32.0
Lithuania	18.0	16.7	15.4	29.0	36.3	37.3	39.8	38.8	40.9	38.8	38.5	37.9	38.0	37.8	37.1
Luxembourg	7.0	7.0	14.4	15.4	19.6	18.6	21.5	23.0	22.1	22.8	23.2	23.7	24.2	24.8	25.3
Malta	64.6	62.4	62.7	67.8	67.6	69.7	67.6	69.8	68.5	67.2	66.9	64.7	63.2	61.4	59.6
Netherlands	47.4	45.3	58.5	60.8	59.0	61.3	66.1	67.6	67.9	67.6	65.6	65.3	64.5	63.4	62.0
New Zealand	16.4	14.6	17.0	21.8	27.1	31.9	32.4	31.0	30.4	30.3	30.7	30.0	27.5	25.5	24.0
Norway	52.3	49.2	47.3	42.0	42.4	28.9	29.9	30.3	28.1	28.1	28.1	28.1	28.1	28.1	28.1
Portugal	61.6	68.4	71.7	83.6	96.2	111.1	125.8	129.7	130.2	127.8	125.0	122.6	121.0	119.9	118.9
Singapore	85.1	84.7	95.3	99.7	97.0	101.0	105.5	102.1	98.6	98.7	95.8	92.7	89.9	91.0	92.3
Slovak Republic	30.7	29.8	28.2	36.0	40.9	43.4	52.1	54.6	53.6	53.3	53.6	53.2	52.6	51.9	51.0
Slovenia	26.0	22.7	21.6	34.4	37.9	46.1	53.4	70.5	80.8	81.8	82.7	85.7	88.5	91.2	93.7
Spain	38.9	35.5	39.4	52.7	60.1	69.2	84.4	92.1	97.7	98.6	98.8	98.3	97.5	95.9	94.2
Sweden	43.0	38.1	36.7	40.2	36.8	36.2	36.6	38.7	43.8	43.9	42.6	41.3	39.7	37.9	35.8
Switzerland	59.7	53.3	48.7	47.9	47.1	47.4	48.2	47.1	46.3	46.2	45.5	44.6	43.4	42.2	41.0
United Kingdom	42.5	43.6	51.8	65.8	76.4	81.8	85.8	87.3	89.4	88.9	88.0	86.7	84.6	81.3	77.8
United States <sup>1</sup>	63.6	64.0	72.8	86.0	94.7	99.0	102.5	104.8	104.8	104.9	106.0	105.8	105.3	105.5	106.2
Average	74.7	72.1	78.9	92.2	98.6	102.5	106.8	105.6	105.4	105.2	105.4	104.8	103.6	102.7	101.7
Euro Area	67.3	65.1	68.8	78.6	83.9	86.4	91.0	93.1	94.2	93.7	92.8	91.5	89.8	87.6	85.2
G7	83.2	81.1	89.3	104.1	112.0	117.0	121.3	119.5	118.6	117.4	117.5	116.9	115.8	114.9	114.1
G20 Advanced	79.6	77.4	85.2	99.5	106.2	110.5	114.5	113.0	112.4	111.7	111.9	111.3	110.2	109.2	108.4

Source: IMF staff estimates and projections. Projections are based on staff assessment of current policies (see Fiscal Policy Assumptions in text).

Note: For country-specific details, see Data and Conventions in text, and Table A.

<sup>1</sup> For cross-country comparability, gross debt levels reported by national statistical agencies for countries that have adopted the 2008 System of National Accounts (Australia, Canada, Hong Kong SAR, United States) are adjusted to exclude unfunded pension liabilities of government employees' defined-benefit pension plans.

**Table A8. Advanced Economies: General Government Net Debt, 2006–20**  
(Percent of GDP)

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Australia <sup>1</sup>	-6.3	-7.3	-5.3	-0.6	3.9	8.1	11.2	13.2	15.6	17.5	18.3	18.2	17.2	16.1	14.9
Austria	...	...	...	...	...	...	49.4	49.2	47.9	48.7	47.8	46.7	45.6	44.4	43.3
Belgium	60.8	54.3	55.0	60.9	59.5	60.6	62.3	64.0	64.6	65.8	66.3	66.1	65.2	64.0	62.4
Canada <sup>1</sup>	27.8	24.3	24.3	29.9	32.9	34.6	36.4	37.1	36.4	37.8	38.0	37.2	36.2	35.3	34.1
Cyprus	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Czech Republic	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Denmark	1.1	-4.6	-6.7	-5.9	-3.3	1.1	6.7	3.4	3.6	6.3	8.8	10.8	12.3	13.2	13.6
Estonia	-9.7	-9.5	-6.8	-8.2	-6.9	-5.1	-1.5	-0.3	-0.2	0.5	1.0	1.4	1.8	2.1	2.4
Finland	-66.5	-69.7	-50.0	-59.6	-61.8	-48.8	-50.3	-54.0	-50.2	-46.5	-42.7	-38.9	-35.4	-32.3	-29.7
France	57.8	57.7	60.3	70.1	73.7	76.4	81.7	84.6	87.9	89.4	90.3	90.3	89.5	87.8	85.4
Germany	51.3	48.4	48.1	54.5	56.2	54.6	54.0	53.1	51.4	48.4	46.4	44.6	42.6	40.2	38.1
Greece	...	...	...	...	...	...	152.8	172.1	175.0	194.1	202.8	199.1	192.7	185.2	178.5
Hong Kong SAR	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Iceland	20.4	17.6	53.3	66.3	65.7	61.7	63.9	62.6	55.8	50.8	46.3	41.9	40.7	40.1	38.7
Ireland	14.3	14.2	22.5	36.6	66.6	77.6	86.7	89.8	88.2	82.4	78.7	76.4	73.1	70.6	68.3
Israel	71.8	65.8	65.0	66.7	64.5	64.0	63.0	62.7	63.4	63.7	63.9	64.6	65.6	66.5	67.4
Italy	86.3	84.1	86.2	94.2	96.3	98.4	102.9	109.6	112.6	113.5	112.8	111.2	109.4	107.2	104.8
Japan	81.0	80.5	95.3	106.2	113.1	127.2	129.0	122.9	126.1	126.0	128.1	129.2	130.8	131.3	132.1
Korea	28.2	27.4	27.3	30.5	30.3	31.1	31.1	33.9	35.4	37.7	38.7	39.7	40.2	40.2	39.8
Latvia	7.0	4.5	11.0	21.3	28.4	30.0	29.4	32.2	34.9	34.9	34.3	34.0	32.6	31.1	29.6
Lithuania	11.0	11.0	12.6	23.0	29.2	32.9	33.6	16.2	19.2	17.8	18.8	19.3	20.1	20.8	20.9
Luxembourg	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Malta	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Netherlands	20.7	17.7	16.2	20.2	23.3	26.4	27.9	31.7	33.4	34.8	35.4	35.8	35.9	35.8	35.4
New Zealand	-0.6	-0.4	-0.5	-0.8	2.3	6.1	7.7	7.7	8.2	8.8	8.6	8.1	7.4	6.3	5.2
Norway	-137.4	-143.7	-128.8	-158.3	-167.6	-162.4	-171.4	-205.4	-244.3	-261.7	-269.2	-268.6	-268.0	-269.5	-272.9
Portugal	56.7	61.4	67.2	79.3	91.6	100.7	115.4	119.0	120.3	120.6	118.0	117.3	116.9	116.3	115.5
Singapore	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Slovak Republic	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Slovenia	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Spain	30.0	26.0	30.0	24.0	32.2	38.6	51.0	58.8	62.6	64.8	66.0	66.5	66.6	66.0	65.3
Sweden	-12.0	-16.2	-11.6	-18.2	-17.2	-14.1	-17.9	-20.2	-20.7	-18.4	-16.9	-15.8	-15.1	-14.8	-15.0
Switzerland	37.5	30.2	28.5	27.9	27.3	27.4	26.9	25.7	24.9	24.9	24.2	23.2	22.0	20.8	19.6
United Kingdom	37.9	38.3	45.7	58.8	69.1	73.4	77.1	78.7	80.9	80.3	79.5	78.1	76.0	72.7	69.3
United States <sup>1</sup>	44.7	44.5	50.4	62.0	69.5	76.0	79.3	80.8	80.1	79.9	80.7	80.3	79.9	80.3	81.2
Average	45.5	43.6	48.9	58.2	63.3	68.0	71.3	70.3	70.4	71.3	71.9	71.4	70.8	70.2	69.7
Euro Area	47.9	45.5	47.2	52.5	56.1	58.2	66.3	69.0	70.0	70.1	69.7	68.9	67.7	66.0	64.1
G7	53.2	52.2	58.6	69.6	75.7	81.5	84.4	83.4	83.4	82.9	83.3	82.7	82.0	81.4	81.0
G20 Advanced	50.9	49.7	55.8	66.5	71.7	77.0	79.7	78.9	79.1	79.0	79.4	78.9	78.2	77.6	77.1

Source: IMF staff estimates and projections. Projections are based on staff assessment of current policies (see Fiscal Policy Assumptions in text).

Note: For country-specific details, see Data and Conventions in text, and Table A.

<sup>1</sup> For cross-country comparability, net debt levels reported by national statistical agencies for countries that have adopted the 2008 System of National Accounts (Australia, Canada, United States) are adjusted to exclude unfunded pension liabilities of government employees' defined-benefit pension plans.

**Table A9. Emerging Market and Middle-Income Economies: General Government Overall Balance, 2006–20**  
(Percent of GDP)

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Algeria	13.9	6.1	9.1	-5.5	-0.4	-0.4	-4.1	-0.4	-7.3	-13.7	-11.2	-8.5	-6.4	-5.1	-4.1
Angola	11.8	4.7	-4.5	-7.4	3.4	8.7	4.6	-0.3	-6.4	-3.5	-1.4	-2.0	-0.7	0.0	0.5
Argentina	1.8	0.3	0.8	-1.6	0.0	-1.9	-2.4	-2.0	-2.7	-4.9	-4.8	-5.3	-5.6	-5.9	-6.4
Azerbaijan	1.1	2.3	20.0	6.6	14.0	11.6	3.8	1.4	-0.4	-7.9	-4.0	-3.0	-1.8	0.3	0.2
Belarus	1.2	1.5	1.9	-0.4	-0.5	4.2	1.7	-0.9	0.2	-2.4	-2.3	-2.2	-1.7	-1.8	-1.7
Brazil	-3.6	-2.7	-1.5	-3.2	-2.7	-2.5	-2.6	-3.1	-6.2	-7.7	-7.2	-5.4	-3.9	-3.3	-3.2
Chile	7.4	7.9	4.1	-4.1	-0.4	1.4	0.7	-0.5	-1.5	-3.3	-2.3	-1.8	-1.1	-1.2	-1.2
China	-1.2	0.1	0.0	-1.8	-1.2	0.5	0.0	-1.1	-1.2	-1.9	-2.3	-2.1	-2.1	-1.9	-1.7
Colombia	-1.0	-0.8	-0.3	-2.8	-3.3	-2.0	0.1	-0.9	-1.8	-3.1	-3.0	-2.6	-2.1	-1.6	-1.2
Croatia	-3.3	-2.5	-2.7	-5.9	-6.0	-7.5	-5.3	-5.4	-5.7	-5.1	-4.4	-3.6	-2.9	-2.9	-2.9
Dominican Republic	-0.9	0.1	-3.3	-3.0	-2.7	-3.0	-6.6	-3.6	-3.0	-0.6	-3.9	-4.2	-3.6	-3.8	-3.8
Ecuador	2.9	1.8	0.5	-3.6	-1.3	0.0	-0.9	-4.6	-5.4	-5.1	-3.7	-1.9	-1.4	-0.7	-0.4
Egypt <sup>1</sup>	-9.2	-7.5	-8.0	-6.9	-8.3	-9.8	-10.5	-14.1	-13.6	-11.7	-9.4	-7.4	-7.2	-6.8	-6.7
Hungary	-9.4	-5.1	-3.7	-4.6	-4.5	-5.5	-2.3	-2.5	-2.6	-2.7	-2.3	-2.2	-2.0	-1.9	-1.8
India	-6.2	-4.4	-10.0	-9.8	-8.4	-8.1	-7.4	-7.6	-7.0	-7.2	-7.0	-6.7	-6.5	-6.3	-6.1
Indonesia	0.4	-0.9	0.1	-1.6	-1.2	-0.6	-1.6	-2.0	-2.1	-2.3	-2.3	-2.2	-2.0	-2.0	-1.9
Iran	2.0	6.7	0.6	0.8	2.8	0.2	-0.3	-0.9	-1.1	-2.9	-1.6	-0.7	-0.6	-0.6	-0.5
Kazakhstan	7.7	5.1	1.2	-1.3	1.5	6.0	4.5	5.0	1.8	-3.2	-0.2	0.5	0.8	0.8	0.9
Kuwait	31.9	37.4	20.2	27.2	25.9	33.0	34.7	34.0	26.3	1.3	0.1	2.5	3.9	3.8	2.7
Libya	31.8	28.6	27.5	-5.3	11.6	-15.9	27.8	-4.0	-43.5	-79.1	-63.4	-55.7	-45.7	-36.2	-24.2
Malaysia	-2.6	-2.6	-3.5	-6.5	-4.5	-3.6	-3.8	-4.3	-3.6	-3.5	-3.2	-2.8	-2.3	-1.8	-1.2
Mexico	-1.0	-1.1	-0.8	-5.0	-3.9	-3.4	-3.8	-3.7	-4.6	-4.0	-3.5	-3.0	-2.5	-2.5	-2.5
Morocco	-1.9	-0.1	0.7	-1.8	-4.3	-6.6	-7.3	-5.2	-4.9	-4.3	-3.5	-3.0	-2.9	-2.5	-2.3
Oman	14.4	12.4	17.3	-0.3	5.7	9.4	4.7	3.2	-1.5	-17.7	-20.0	-18.5	-17.6	-16.9	-18.1
Pakistan	-3.4	-5.1	-7.1	-5.0	-6.0	-6.7	-8.6	-8.4	-4.9	-5.3	-4.2	-3.3	-2.9	-2.7	-2.4
Peru	2.0	3.3	2.7	-1.4	0.1	2.0	2.1	0.8	-0.3	-1.9	-2.2	-1.9	-1.4	-1.0	-0.8
Philippines	0.0	-0.3	0.0	-2.7	-2.4	-0.4	-0.3	0.2	0.9	-0.1	-0.6	-0.8	-0.9	-1.0	-1.1
Poland	-4.0	-2.1	-3.6	-7.2	-7.6	-4.9	-3.7	-4.0	-3.2	-2.8	-2.5	-2.6	-2.3	-2.0	-2.0
Qatar	8.5	10.4	10.8	15.5	6.1	10.2	14.2	20.7	14.7	4.5	-1.5	-2.5	-1.7	-1.5	-1.9
Romania	-1.3	-3.1	-4.7	-7.1	-6.3	-4.2	-2.5	-2.5	-1.9	-1.8	-2.6	-3.0	-3.0	-3.0	-3.0
Russia	8.4	6.0	4.9	-6.3	-3.4	1.5	0.4	-1.3	-1.2	-5.7	-3.9	-2.2	-1.7	0.0	-0.3
Saudi Arabia	20.8	11.8	29.8	-5.4	3.6	11.2	12.0	5.8	-3.4	-21.6	-19.4	-17.6	-16.2	-14.8	-14.0
South Africa	0.7	1.2	-0.5	-4.7	-4.8	-3.9	-4.1	-4.1	-3.8	-4.1	-3.7	-3.4	-3.3	-3.3	-3.1
Sri Lanka	-7.0	-6.9	-7.0	-9.9	-8.0	-6.9	-6.5	-5.9	-6.0	-5.9	-6.4	-6.2	-6.0	-6.0	-5.9
Thailand	2.0	0.2	0.8	-2.2	-1.3	0.0	-0.9	0.4	-0.8	-1.2	-1.4	-1.4	-1.4	-1.3	-1.1
Turkey	-0.7	-2.0	-2.7	-6.0	-3.4	-0.6	-1.7	-1.3	-1.0	-0.8	-0.8	-0.8	-0.9	-1.1	-1.4
Ukraine	-1.3	-1.9	-3.0	-6.0	-5.8	-2.8	-4.3	-4.8	-4.5	-4.2	-3.7	-3.1	-2.6	-2.4	-2.2
United Arab Emirates	25.3	21.8	20.1	-4.3	2.0	6.3	10.9	10.4	5.0	-5.5	-4.0	-1.8	0.6	2.0	2.7
Uruguay	-0.5	0.0	-1.6	-1.6	-1.4	-0.9	-2.7	-2.3	-3.5	-3.3	-3.2	-3.0	-2.8	-2.5	-2.4
Venezuela	-1.6	-2.8	-3.5	-8.7	-10.4	-11.6	-16.5	-14.5	-15.0	-24.4	-25.0	-25.6	-26.3	-26.8	-27.3
Average	1.2	1.0	0.8	-3.7	-2.4	-0.7	-0.8	-1.6	-2.5	-4.1	-3.9	-3.5	-3.1	-2.8	-2.7
Asia	-2.0	-1.1	-1.9	-3.4	-2.7	-1.2	-1.4	-2.1	-2.1	-2.7	-3.0	-2.8	-2.7	-2.6	-2.4
Europe	2.4	1.5	0.8	-5.8	-3.8	-0.1	-0.7	-1.5	-1.5	-3.6	-2.6	-1.9	-1.6	-0.9	-1.0
Latin America	-1.1	-1.1	-0.8	-3.7	-3.0	-2.7	-3.1	-3.1	-5.0	-5.9	-5.5	-4.7	-4.0	-3.8	-3.8
MENAP	13.0	10.7	12.9	-1.0	2.3	4.4	5.9	4.1	-0.9	-10.2	-9.1	-7.5	-6.4	-5.6	-5.2
G20 Emerging	0.3	0.1	0.5	-3.9	-2.6	-0.8	-1.1	-2.0	-2.7	-4.0	-3.9	-3.4	-3.2	-2.9	-2.7

Source: IMF staff estimates and projections. Projections are based on staff assessment of current policies (see Fiscal Policy Assumptions in text).

Note: For country-specific details, see Data and Conventions in text, and Table B. MENAP = Middle East, North Africa, and Pakistan.

<sup>1</sup> Based on nominal GDP series prior to the recent revision. Therefore, figures are not comparable to the authorities' numbers because of a different denominator.

**Table A10. Emerging Market and Middle-Income Economies: General Government Primary Balance, 2006–20**  
(Percent of GDP)

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Algeria	13.8	6.0	8.8	-6.0	-0.8	-1.7	-5.0	-0.5	-7.4	-14.5	-11.7	-8.7	-6.5	-5.0	-3.9
Angola	13.4	5.8	-2.5	-5.6	4.6	9.6	5.5	0.5	-5.3	-2.0	0.6	-0.1	1.2	2.0	2.4
Argentina	3.2	1.9	2.3	0.2	1.3	-0.4	-0.5	-0.7	-1.0	-2.5	-2.2	-2.0	-1.8	-1.6	-1.5
Azerbaijan	1.2	2.4	20.1	6.7	14.1	12.0	4.0	1.7	-0.2	-7.8	-3.7	-2.7	-1.4	0.7	0.7
Belarus	1.6	1.9	2.5	0.4	0.2	5.3	3.1	0.1	1.5	-0.2	-0.5	-0.3	0.5	0.8	1.2
Brazil	3.2	3.2	3.8	1.9	2.3	2.9	2.0	1.8	-0.6	-0.4	-0.9	0.8	2.0	2.5	2.5
Chile	7.6	7.7	3.8	-4.3	-0.3	1.5	0.8	-0.4	-1.4	-3.1	-1.6	-1.0	-0.3	-0.3	-0.3
China	-0.7	0.5	0.4	-1.4	-0.8	1.0	0.5	-0.6	-0.6	-1.4	-1.7	-1.5	-1.4	-1.3	-1.1
Colombia	1.7	1.8	1.9	-1.1	-1.6	-0.1	1.6	1.2	0.3	-0.2	0.0	0.2	0.6	1.1	1.3
Croatia	-1.8	-1.1	-1.2	-3.9	-3.8	-4.8	-2.3	-2.3	-2.7	-2.0	-1.0	-0.2	0.6	0.7	0.8
Dominican Republic	0.4	1.6	-1.7	-1.2	-0.9	-1.0	-4.2	-1.2	-0.5	2.3	-1.5	-1.5	-0.9	-1.0	-1.0
Ecuador	4.8	3.4	1.6	-3.0	-0.8	0.6	-0.2	-3.6	-4.3	-3.7	-1.6	0.4	1.0	1.9	2.3
Egypt <sup>1</sup>	-4.2	-3.0	-3.9	-3.7	-3.8	-4.7	-5.1	-6.6	-6.1	-4.4	-1.9	-0.1	0.3	0.7	0.9
Hungary	-5.7	-1.3	0.0	-0.6	-0.7	-1.7	1.6	1.9	1.4	0.8	0.9	1.1	1.2	1.3	1.4
India	-1.3	0.4	-5.3	-5.2	-4.2	-3.8	-3.1	-3.1	-2.5	-2.8	-2.4	-2.3	-2.2	-2.1	-2.0
Indonesia	2.5	0.9	1.7	-0.1	0.0	0.6	-0.4	-0.8	-0.8	-1.1	-0.9	-0.7	-0.5	-0.4	-0.4
Iran	2.0	6.8	0.7	0.8	2.7	0.3	-0.2	-0.9	-1.0	-2.6	-1.0	0.0	0.2	0.3	0.4
Kazakhstan	7.2	4.2	1.5	-1.4	1.8	5.8	3.9	4.5	1.4	-3.7	-0.7	0.0	0.4	0.4	0.6
Kuwait	19.2	25.5	11.1	18.1	16.9	26.5	28.0	25.8	17.3	-11.3	-12.5	-9.3	-7.1	-6.6	-7.3
Libya	31.8	28.6	27.5	-5.3	11.6	-15.9	27.8	-4.0	-43.5	-79.1	-63.4	-55.7	-45.7	-36.2	-24.2
Malaysia	-1.7	-1.9	-2.1	-5.0	-2.9	-2.0	-2.0	-2.4	-1.7	-1.8	-1.5	-0.8	-0.3	0.2	0.6
Mexico	1.8	1.5	1.7	-2.3	-1.4	-1.0	-1.2	-1.2	-1.9	-1.2	-0.5	0.2	0.8	0.9	1.0
Morocco	1.1	2.8	3.2	0.6	-2.0	-4.4	-4.8	-2.6	-2.2	-1.6	-0.8	-0.3	0.0	0.3	0.6
Oman	13.0	10.8	16.0	-1.4	4.8	9.0	3.4	2.6	-2.2	-18.8	-21.3	-19.7	-18.3	-17.1	-17.5
Pakistan	-0.5	-1.1	-2.5	-0.2	-1.7	-2.9	-4.2	-3.9	-0.3	-0.5	0.1	1.2	1.5	1.7	1.6
Peru	3.9	5.2	4.1	-0.3	1.2	3.0	3.0	1.7	0.6	-1.0	-1.2	-0.8	-0.3	0.1	0.1
Philippines	4.8	3.4	3.4	0.6	0.7	2.2	2.3	2.7	3.1	2.3	1.6	1.4	1.1	0.9	0.5
Poland	-1.4	0.2	-1.5	-4.7	-5.1	-2.4	-1.1	-1.5	-1.2	-1.0	-0.8	-1.1	-0.7	-0.4	-0.4
Qatar	9.3	11.0	11.4	16.6	7.2	11.7	15.6	21.7	15.7	5.4	-0.7	-1.7	-1.1	-1.0	-1.5
Romania	-0.7	-2.5	-4.1	-6.1	-5.0	-2.8	-0.7	-0.8	-0.4	-0.4	-1.2	-1.3	-1.1	-0.9	-0.6
Russia	8.9	6.0	5.1	-6.6	-3.3	1.8	0.7	-0.9	-0.7	-5.0	-3.0	-1.1	-0.4	1.3	1.1
Saudi Arabia	21.8	11.5	29.2	-5.2	4.0	11.3	11.9	5.4	-4.1	-22.1	-19.7	-17.6	-15.7	-13.5	-12.1
South Africa	3.5	3.7	2.0	-2.4	-2.2	-1.2	-1.3	-1.1	-0.7	-0.8	-0.3	0.0	0.2	0.5	0.7
Sri Lanka	-1.9	-1.8	-2.2	-3.4	-1.7	-1.4	-1.1	-0.7	-1.6	-1.4	-1.7	-1.7	-1.5	-1.5	-1.6
Thailand	3.3	1.1	1.6	-1.5	-0.7	0.8	-0.1	1.1	-0.1	-0.5	-0.7	-0.7	-0.7	-0.6	-0.4
Turkey	4.4	2.9	1.7	-1.4	0.3	2.1	1.1	1.4	1.3	1.3	1.4	1.3	1.4	1.5	1.6
Ukraine	-0.7	-1.4	-2.5	-4.9	-4.1	-0.8	-2.4	-2.3	-1.2	1.1	1.4	1.6	1.6	1.6	1.6
United Arab Emirates	25.3	21.8	20.1	-4.1	2.3	6.5	11.2	10.8	5.2	-5.2	-3.8	-1.6	0.9	2.2	2.9
Uruguay	3.7	3.6	1.4	1.1	1.5	1.9	-0.2	0.4	-0.6	0.0	0.1	0.3	0.6	1.0	1.0
Venezuela	0.5	-1.2	-2.0	-7.2	-8.6	-9.4	-13.8	-11.6	-11.3	-21.3	-22.9	-23.7	-24.5	-25.0	-25.2
Average	3.3	2.9	2.5	-1.9	-0.6	1.0	0.8	0.0	-0.8	-2.4	-2.2	-1.7	-1.4	-1.0	-0.9
Asia	-0.3	0.5	-0.5	-2.0	-1.4	0.1	-0.2	-0.9	-0.8	-1.5	-1.7	-1.5	-1.4	-1.3	-1.1
Europe	4.3	3.1	2.3	-4.3	-2.3	1.2	0.6	-0.2	-0.2	-2.2	-1.1	-0.4	0.1	0.9	0.9
Latin America	2.7	2.5	2.5	-0.4	0.3	0.8	0.0	0.0	-1.4	-1.6	-1.6	-0.7	0.0	0.3	0.3
MENAP	13.1	10.7	12.9	-0.6	2.9	5.0	6.4	4.8	-0.3	-9.4	-8.1	-6.5	-5.1	-4.1	-3.5
G20 Emerging	2.8	2.3	2.4	-2.0	-0.7	1.1	0.6	-0.3	-0.9	-2.2	-2.1	-1.7	-1.4	-1.1	-0.9

Source: IMF staff estimates and projections. Projections are based on staff assessment of current policies (see Fiscal Policy Assumptions in text).

Note: Primary balance is defined as the overall balance excluding net interest payments. For country-specific details, see Data and Conventions in text, and Table B. MENAP = Middle East, North Africa, and Pakistan.

<sup>1</sup> Based on nominal GDP series prior to the recent revision. Therefore, figures are not comparable to the authorities' numbers because of a different denominator.

**Table A11. Emerging Market and Middle-Income Economies: General Government Cyclically Adjusted Balance, 2006–20**  
(Percent of potential GDP)

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Algeria	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Angola	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Argentina	1.3	-0.5	0.7	-0.2	0.2	-2.9	-2.5	-2.5	-3.1	-5.3	-4.8	-5.3	-5.6	-6.0	-6.6
Azerbaijan	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Belarus	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Brazil	-3.4	-3.2	-2.3	-2.5	-3.4	-3.3	-3.1	-3.8	-6.5	-6.4	-5.4	-4.3	-3.3	-3.1	-3.2
Chile <sup>1</sup>	0.8	0.5	-1.5	-4.3	-2.5	-1.0	-0.1	-1.1	-1.5	-3.0	-2.0	-1.2	-0.8	-0.8	-0.9
China	-0.7	-0.1	-0.3	-1.8	-1.3	0.6	0.2	-0.7	-0.7	-1.6	-2.1	-2.0	-2.0	-1.9	-1.7
Colombia	-1.1	-1.6	-0.7	-2.4	-2.8	-2.1	0.1	-1.0	-1.9	-3.1	-2.9	-2.4	-2.1	-1.6	-1.2
Croatia	-4.4	-4.3	-4.5	-5.5	-5.2	-6.7	-4.1	-3.9	-4.3	-3.9	-3.4	-3.0	-2.6	-2.9	-2.9
Dominican Republic	-1.2	-0.1	-3.9	-2.4	-3.2	-2.6	-6.3	-2.7	-2.7	0.6	-2.4	-2.7	-2.9	-3.0	-2.9
Ecuador	4.6	2.8	-1.0	-1.0	0.3	-0.7	-1.6	-5.0	-5.2	-2.2	0.6	2.0	2.1	2.7	3.0
Egypt <sup>2</sup>	-9.2	-7.7	-8.3	-7.0	-8.3	-9.5	-10.0	-13.4	-13.0	-11.5	-9.2	-7.3	-7.2	-6.8	-6.7
Hungary <sup>1</sup>	-12.4	-7.5	-6.0	-3.1	-3.2	-15.4	-0.3	-0.6	-1.7	-2.3	-2.2	-2.2	-2.0	-1.8	-1.8
India	-6.3	-4.9	-9.6	-9.6	-8.8	-8.4	-7.3	-7.5	-6.9	-7.1	-6.9	-6.6	-6.5	-6.3	-6.1
Indonesia	0.4	-0.9	-0.1	-1.6	-1.2	-0.6	-1.6	-2.1	-2.1	-2.2	-2.1	-2.0	-2.0	-2.0	-1.9
Iran	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Kazakhstan	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Kuwait	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Libya	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Malaysia	-2.9	-3.0	-3.3	-5.3	-4.0	-2.6	-3.4	-3.3	-3.0	-3.3	-2.7	-2.2	-1.7	-1.3	-0.7
Mexico	-1.2	-1.6	-1.2	-4.0	-3.5	-3.3	-3.9	-3.7	-4.5	-3.8	-3.4	-3.0	-2.5	-2.5	-2.5
Morocco	-2.4	-1.1	-0.4	-2.0	-4.2	-6.7	-7.5	-5.6	-5.8	-5.4	-4.4	-3.9	-3.0	-2.7	-2.5
Oman	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Pakistan	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Peru <sup>1</sup>	0.2	1.6	1.0	-0.1	-0.4	1.2	1.5	0.4	0.0	-1.0	-1.1	-1.3	-1.1	-0.9	-0.8
Philippines	-0.1	-0.7	-0.5	-1.8	-2.5	0.0	-0.3	0.1	0.6	-0.4	-0.9	-1.0	-1.2	-1.3	-1.4
Poland	-4.3	-2.6	-4.2	-7.1	-7.6	-5.5	-3.8	-3.3	-3.0	-2.7	-2.5	-2.6	-2.3	-2.0	-2.0
Qatar	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Romania	-2.9	-5.8	-9.4	-8.0	-6.1	-3.8	-1.6	-1.9	-1.4	-1.5	-2.6	-3.1	-3.1	-3.0	-3.0
Russia	8.3	5.4	4.6	-5.4	-3.1	1.5	0.3	-1.4	0.1	-4.5	-3.6	-2.1	-1.6	0.0	-0.3
Saudi Arabia	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
South Africa	1.5	1.0	-0.7	-3.1	-3.6	-3.6	-3.9	-3.9	-3.5	-3.6	-3.0	-2.8	-2.8	-2.9	-2.9
Sri Lanka	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Thailand	1.9	-0.2	0.5	-1.4	-1.4	0.0	-0.7	0.2	-0.4	-0.7	-1.0	-1.3	-1.4	-1.3	-1.1
Turkey	-1.8	-3.2	-3.1	-3.6	-2.7	-1.4	-1.8	-1.6	-1.1	-0.7	-0.6	-0.6	-0.5	-0.6	-0.7
Ukraine	-1.9	-3.7	-3.5	-2.2	-2.7	-3.2	-4.6	-4.6	-3.3	-1.8	-2.3	-2.4	-2.3	-2.3	-2.2
United Arab Emirates	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Uruguay	1.2	1.1	-1.1	-1.1	-1.9	-1.6	-3.3	-3.3	-4.4	-3.9	-3.4	-3.0	-2.8	-2.5	-2.4
Venezuela	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Average	-0.9	-1.1	-1.5	-3.5	-3.0	-1.8	-1.7	-2.3	-2.4	-3.1	-3.1	-2.8	-2.6	-2.4	-2.3
Asia	-1.7	-1.3	-2.0	-3.3	-2.7	-1.1	-1.2	-1.8	-1.7	-2.4	-2.8	-2.6	-2.6	-2.5	-2.3
Europe	1.7	0.4	-0.1	-5.2	-3.8	-1.3	-1.1	-1.9	-1.0	-2.9	-2.5	-1.9	-1.6	-0.9	-1.0
Latin America	-1.6	-1.8	-1.4	-2.6	-2.8	-2.9	-2.7	-3.1	-4.7	-4.8	-4.1	-3.4	-2.9	-2.8	-2.8
MENAP	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
G20 Emerging	-0.6	-0.8	-1.1	-3.4	-2.9	-1.4	-1.6	-2.2	-2.3	-3.1	-3.1	-2.8	-2.7	-2.5	-2.4

Source: IMF staff estimates and projections. Projections are based on staff assessment of current policies (see Fiscal Policy Assumptions in text).

Note: MENAP = Middle East, North Africa, and Pakistan.

<sup>1</sup> The data for these countries include adjustments beyond the output cycle. For country-specific details, see Data and Conventions in text, and Table B.<sup>2</sup> Based on nominal GDP series prior to the recent revision. Therefore, figures are not comparable to the authorities' numbers because of a different denominator.

**Table A12. Emerging Market and Middle-Income Economies: General Government Cyclically Adjusted Primary Balance, 2006–20**  
(Percent of potential GDP)

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Algeria	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Angola	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Argentina	2.8	1.2	2.1	1.5	1.5	-1.3	-0.6	-1.2	-1.4	-2.8	-2.2	-1.9	-1.6	-1.4	-1.3
Azerbaijan	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Belarus	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Brazil	3.3	2.9	3.1	2.6	1.8	2.2	1.5	1.1	-0.8	0.7	0.6	1.7	2.5	2.7	2.5
Chile <sup>1</sup>	1.0	0.3	-1.9	-4.5	-2.4	-0.9	0.0	-1.0	-1.4	-2.8	-1.4	-0.5	0.0	0.1	0.0
China	-0.2	0.3	0.1	-1.4	-0.8	1.1	0.7	-0.2	-0.1	-1.1	-1.5	-1.4	-1.4	-1.3	-1.1
Colombia	1.5	1.1	1.5	-0.7	-1.1	-0.2	1.6	1.1	0.2	-0.2	0.1	0.3	0.7	1.1	1.3
Croatia	-2.8	-2.7	-2.8	-3.5	-3.0	-4.1	-1.2	-1.0	-1.4	-0.9	-0.2	0.4	0.8	0.8	0.8
Dominican Republic	0.2	1.4	-2.3	-0.6	-1.3	-0.5	-4.0	-0.4	-0.2	3.6	0.0	0.0	-0.1	-0.2	-0.2
Ecuador	6.6	4.4	0.1	-0.4	0.9	-0.1	-0.8	-4.0	-4.2	-0.8	2.5	4.3	4.5	5.2	5.6
Egypt <sup>2</sup>	-4.2	-3.1	-4.2	-3.8	-3.8	-4.4	-4.8	-6.2	-5.7	-4.3	-1.8	-0.1	0.3	0.7	0.9
Hungary <sup>1</sup>	-8.5	-3.5	-2.2	0.8	0.5	-11.7	3.4	3.5	2.1	1.1	1.0	1.2	1.2	1.4	1.5
India	-1.4	0.0	-5.0	-5.0	-4.6	-4.1	-3.0	-3.0	-2.4	-2.7	-2.3	-2.2	-2.2	-2.1	-2.0
Indonesia	2.6	0.9	1.5	0.0	0.1	0.6	-0.4	-0.9	-0.8	-1.0	-0.7	-0.5	-0.5	-0.4	-0.4
Iran	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Kazakhstan	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Kuwait	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Libya	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Malaysia	-1.9	-2.3	-1.9	-3.8	-2.4	-1.0	-1.7	-1.5	-1.1	-1.6	-1.1	-0.3	0.2	0.7	1.1
Mexico	1.6	1.1	1.4	-1.4	-1.0	-0.9	-1.4	-1.2	-1.8	-1.0	-0.4	0.2	0.8	0.9	1.0
Morocco	0.7	1.9	2.2	0.4	-2.0	-4.5	-5.0	-3.0	-3.0	-2.7	-1.6	-1.1	-0.2	0.1	0.4
Oman	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Pakistan	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Peru <sup>1</sup>	2.1	3.4	2.4	1.0	0.6	2.2	2.4	1.3	1.0	-0.1	-0.1	-0.2	0.0	0.2	0.2
Philippines	4.7	3.1	3.0	1.5	0.6	2.5	2.3	2.6	2.9	2.0	1.3	1.1	0.8	0.5	0.2
Poland	-1.7	-0.3	-2.1	-4.7	-5.1	-2.9	-1.1	-0.8	-1.0	-0.9	-0.8	-1.1	-0.7	-0.4	-0.4
Qatar	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Romania	-2.3	-5.2	-8.7	-7.0	-4.9	-2.3	0.1	-0.3	0.1	-0.2	-1.2	-1.4	-1.2	-0.9	-0.6
Russia	8.9	5.4	4.8	-5.8	-2.9	1.8	0.6	-1.0	0.5	-3.8	-2.7	-1.0	-0.4	1.3	1.1
Saudi Arabia	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
South Africa	4.3	3.5	1.7	-0.8	-1.0	-0.9	-1.2	-1.0	-0.4	-0.4	0.3	0.6	0.7	0.8	0.9
Sri Lanka	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Thailand	3.2	0.7	1.3	-0.7	-0.8	0.9	0.2	1.0	0.3	-0.1	-0.3	-0.6	-0.7	-0.6	-0.4
Turkey	3.5	1.8	1.3	0.6	0.9	1.4	1.0	1.1	1.2	1.4	1.5	1.6	1.7	1.9	2.2
Ukraine	-1.3	-3.2	-3.0	-1.1	-1.2	-1.2	-2.6	-2.2	-0.1	3.2	2.7	2.2	1.8	1.6	1.6
United Arab Emirates	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Uruguay	5.2	4.6	1.7	1.6	1.1	1.3	-0.7	-0.5	-1.5	-0.5	-0.1	0.2	0.6	1.0	1.0
Venezuela	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Average	1.6	1.2	0.6	-1.6	-1.1	0.2	0.1	-0.5	-0.5	-1.1	-1.2	-0.9	-0.7	-0.5	-0.4
Asia	0.0	0.3	-0.6	-1.9	-1.4	0.2	0.0	-0.6	-0.5	-1.2	-1.5	-1.4	-1.4	-1.2	-1.1
Europe	3.8	2.1	1.5	-3.6	-2.3	0.1	0.3	-0.4	0.4	-1.3	-0.8	-0.2	0.2	1.0	1.0
Latin America	2.4	2.0	2.0	0.7	0.6	0.8	0.4	0.1	-1.1	-0.5	-0.2	0.6	1.2	1.3	1.3
MENAP	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
G20 Emerging	2.0	1.6	1.0	-1.4	-0.9	0.5	0.2	-0.5	-0.5	-1.2	-1.3	-1.0	-0.8	-0.6	-0.5

Source: IMF staff estimates and projections. Projections are based on staff assessment of current policies (see Fiscal Policy Assumptions in text).

Note: Cyclically adjusted primary balance is defined as the cyclically adjusted balance excluding net interest payments. For country-specific details, see Data and Conventions in text, and Table B. MENAP = Middle East, North Africa, and Pakistan.

<sup>1</sup> The data for these countries include adjustments beyond the output cycle. For country-specific details, see Data and Conventions in text, and Table B.<sup>2</sup> Based on nominal GDP series prior to the recent revision. Therefore, figures are not comparable to the authorities' numbers because of a different denominator.

**Table A13. Emerging Market and Middle-Income Economies: General Government Revenue, 2006–20**  
(Percent of GDP)

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Algeria	42.8	39.4	47.0	36.9	36.6	39.9	39.5	35.8	33.2	29.6	28.9	29.7	30.4	30.6	30.7
Angola	50.2	45.8	50.9	34.6	43.5	48.8	45.9	40.5	34.6	27.4	27.6	27.9	27.9	27.6	27.2
Argentina	24.1	24.9	26.9	27.8	29.6	29.8	31.5	33.4	35.5	35.5	35.1	35.0	34.9	34.8	34.7
Azerbaijan	28.0	28.2	51.1	40.4	45.7	45.5	40.5	39.4	38.8	26.8	27.9	27.8	30.4	30.0	30.2
Belarus	49.1	49.5	50.7	45.8	41.6	38.8	40.5	41.2	40.3	41.4	40.0	39.7	39.4	39.4	39.4
Brazil	35.6	34.9	35.9	34.0	36.1	35.1	35.4	35.6	34.0	33.5	35.0	35.1	35.6	35.9	36.0
Chile	26.2	27.3	25.8	20.6	23.5	24.7	24.4	23.4	23.4	22.9	24.8	25.7	26.7	26.7	26.7
China	17.3	18.4	22.6	24.0	24.7	27.0	28.1	28.1	28.5	28.8	28.2	28.1	27.9	27.5	27.3
Colombia	27.3	27.2	26.4	26.7	26.1	26.7	28.3	28.1	27.7	26.8	26.7	26.5	26.4	26.2	26.0
Croatia	41.6	42.2	41.6	41.2	40.8	41.0	41.7	42.5	42.3	43.4	44.4	45.0	45.8	46.4	46.7
Dominican Republic	15.1	16.4	15.1	13.3	13.1	12.8	13.6	14.6	15.1	17.7	14.6	14.5	14.4	14.3	14.3
Ecuador	24.1	26.4	35.7	29.4	33.3	39.3	39.5	39.4	38.8	35.4	33.7	33.4	33.4	33.6	33.5
Egypt <sup>1</sup>	28.6	27.7	28.0	27.7	25.1	22.0	22.1	23.0	25.0	23.7	25.5	26.1	25.9	25.7	25.9
Hungary	42.5	45.2	45.3	46.2	45.2	44.4	46.4	47.3	47.4	46.4	44.2	44.8	45.5	46.4	47.3
India	20.3	22.0	19.7	18.5	18.8	19.1	19.7	19.8	19.6	19.9	20.1	20.3	20.4	20.5	20.6
Indonesia	18.9	17.8	19.4	15.4	15.6	17.1	17.2	17.1	16.7	14.6	15.1	15.3	15.6	15.7	15.9
Iran	25.8	26.5	22.7	21.4	21.9	19.2	14.2	14.1	14.6	13.9	15.1	16.2	16.3	16.2	16.1
Kazakhstan	27.5	28.8	28.3	22.1	23.9	27.7	26.9	25.3	24.3	20.4	23.0	22.9	22.6	22.1	21.8
Kuwait	63.8	67.5	60.6	69.4	70.7	72.1	72.1	71.8	68.7	55.6	52.3	52.6	52.2	51.2	49.8
Libya	63.0	62.3	68.4	52.9	64.9	39.1	72.3	65.7	40.9	21.3	23.2	27.0	31.3	34.4	40.0
Malaysia	23.3	23.6	23.8	24.8	22.5	23.9	25.0	24.1	23.3	22.1	21.9	21.8	22.3	22.8	22.8
Mexico	21.9	22.2	25.0	23.3	22.8	23.7	23.9	24.3	23.5	24.1	23.6	23.8	24.0	24.1	24.3
Morocco	26.2	28.5	31.3	28.7	26.8	27.2	28.0	27.7	28.0	25.8	26.5	26.9	26.8	26.9	27.1
Oman	49.8	48.8	47.4	39.3	40.6	48.9	49.5	49.1	47.3	40.5	39.6	39.9	38.9	38.3	36.2
Pakistan	13.6	14.4	14.4	14.2	14.3	12.6	13.0	13.5	15.3	14.6	15.4	16.3	16.7	17.4	17.7
Peru	21.1	21.9	22.2	20.1	21.1	21.8	22.4	22.4	22.3	20.7	20.6	20.4	20.6	20.7	20.7
Philippines	19.0	18.7	18.7	17.4	16.8	17.6	18.6	18.8	19.3	19.6	19.7	19.7	19.7	19.8	19.7
Poland	41.2	41.1	40.8	37.9	38.2	39.0	39.2	38.2	38.6	39.1	38.9	38.6	38.7	38.9	39.0
Qatar	36.6	37.2	35.6	47.7	35.0	38.7	45.1	52.2	47.4	40.2	34.0	30.9	30.0	29.1	28.1
Romania	32.1	32.1	31.6	30.6	31.6	32.1	32.4	31.4	32.1	32.0	30.1	28.9	28.8	28.7	28.6
Russia	39.5	40.2	39.2	35.0	34.6	37.3	37.7	36.9	37.5	33.9	34.5	35.5	35.6	35.3	35.0
Saudi Arabia	48.1	41.2	56.5	31.7	37.5	44.5	45.3	41.4	37.3	28.9	27.3	27.7	27.7	26.9	25.9
South Africa	27.8	28.4	28.2	27.0	26.7	27.0	27.2	27.6	28.2	29.1	29.5	29.5	29.6	29.8	29.9
Sri Lanka	17.3	16.6	15.6	15.0	14.9	14.5	13.2	12.4	11.7	12.8	12.7	13.0	13.3	13.5	13.7
Thailand	20.8	20.2	20.0	19.5	20.7	21.1	21.3	22.3	21.3	21.5	21.5	21.5	21.5	21.6	21.6
Turkey	32.8	31.6	31.8	32.6	33.3	34.6	35.0	37.2	36.3	35.6	35.6	35.7	35.8	35.8	35.7
Ukraine	41.6	40.2	42.4	40.8	43.4	42.9	44.7	43.3	40.8	40.8	39.7	40.0	40.0	40.0	39.9
United Arab Emirates	40.9	39.5	42.0	30.7	34.7	37.8	40.1	41.0	37.8	31.3	29.9	30.1	30.7	30.6	29.8
Uruguay	28.6	28.9	27.1	28.1	29.0	28.3	27.7	29.5	28.7	28.9	29.0	29.1	29.3	29.5	29.5
Venezuela	37.7	33.1	31.4	24.6	21.2	27.9	23.5	23.4	28.4	18.1	16.2	15.4	14.6	14.1	13.9
Average	27.9	27.9	29.8	27.1	27.7	29.1	29.8	29.8	29.2	27.9	27.6	27.6	27.6	27.4	27.2
Asia	18.5	19.3	21.6	22.1	22.5	24.4	25.5	25.7	26.0	26.2	25.8	25.8	25.6	25.4	25.3
Europe	37.8	38.0	38.0	35.3	35.4	37.0	37.3	37.0	37.0	35.0	35.2	35.5	35.6	35.5	35.3
Latin America	28.5	28.6	30.2	28.4	29.7	30.2	30.2	30.5	29.9	29.2	29.4	29.4	29.6	29.6	29.6
MENAP	38.7	36.7	40.9	31.6	33.1	34.3	35.6	36.2	33.3	27.0	26.3	26.7	26.8	26.6	26.2
G20 Emerging	26.0	26.2	28.5	26.2	27.1	28.8	29.5	29.4	29.0	28.2	27.8	27.8	27.8	27.6	27.4

Source: IMF staff estimates and projections. Projections are based on staff assessment of current policies (see Fiscal Policy Assumptions in text).

Note: For country-specific details, see Data and Conventions in text, and Table B. MENAP = Middle East, North Africa, and Pakistan.

<sup>1</sup> Based on nominal GDP series prior to the recent revision. Therefore, figures are not comparable to the authorities' numbers because of a different denominator.

**Table A14. Emerging Market and Middle-Income Economies: General Government Expenditure, 2006–20**  
(Percent of GDP)

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Algeria	28.9	33.3	37.9	42.3	37.0	40.3	43.5	36.2	40.6	43.3	40.1	38.3	36.8	35.7	34.8
Angola	38.4	41.2	55.4	41.9	40.0	40.2	41.3	40.8	41.1	30.9	29.0	29.8	28.6	27.5	26.7
Argentina	22.4	24.6	26.1	29.4	29.6	31.7	33.9	35.4	38.1	40.3	40.0	40.3	40.5	40.8	41.1
Azerbaijan	26.9	25.9	31.1	33.8	31.7	34.0	36.7	38.0	39.2	34.7	31.9	30.8	32.2	29.7	29.9
Belarus	47.9	47.9	48.8	46.2	42.1	34.5	38.9	42.1	40.1	43.8	42.3	41.9	41.1	41.1	41.1
Brazil	39.2	37.7	37.4	37.2	38.8	37.6	38.0	38.6	40.2	41.2	42.1	40.5	39.5	39.2	39.2
Chile	18.7	19.4	21.7	24.7	23.9	23.3	23.7	23.9	24.9	26.2	27.1	27.5	27.8	27.9	27.8
China	18.5	18.3	22.6	25.8	25.9	26.5	28.1	29.2	29.7	30.8	30.5	30.2	29.9	29.5	29.0
Colombia	28.3	28.0	26.6	29.5	29.4	28.6	28.3	29.0	29.5	29.9	29.7	29.0	28.5	27.8	27.2
Croatia	44.9	44.7	44.3	47.2	46.8	48.5	47.0	47.8	48.1	48.5	48.7	48.7	48.6	49.3	49.6
Dominican Republic	16.1	16.3	18.3	16.3	15.8	15.9	20.2	18.1	18.1	18.3	18.5	18.7	18.0	18.1	18.1
Ecuador	21.2	24.6	35.2	33.0	34.7	39.3	40.4	44.0	44.2	40.6	37.4	35.3	34.9	34.3	33.9
Egypt <sup>1</sup>	37.8	35.3	36.0	34.6	33.4	31.8	32.7	37.1	38.6	35.4	34.9	33.5	33.1	32.6	32.5
Hungary	51.9	50.2	48.9	50.8	49.8	49.9	48.7	49.8	50.0	49.1	46.5	47.1	47.6	48.3	49.1
India	26.5	26.4	29.7	28.3	27.2	27.2	27.2	27.4	26.6	27.2	27.1	27.0	26.9	26.8	26.7
Indonesia	18.5	18.7	19.4	17.0	16.9	17.7	18.8	19.1	18.8	17.0	17.4	17.5	17.6	17.7	17.7
Iran	23.8	19.7	22.1	20.6	19.1	18.9	14.5	15.0	15.7	16.8	16.7	16.9	16.9	16.8	16.7
Kazakhstan	19.8	23.7	27.1	23.5	22.5	21.8	22.4	20.2	22.5	23.6	23.2	22.5	21.8	21.4	20.8
Kuwait	31.9	30.1	40.4	42.2	44.8	39.1	37.4	37.8	42.4	54.3	52.3	50.1	48.4	47.4	47.1
Libya	31.2	33.7	40.8	58.2	53.4	55.0	44.5	69.8	84.4	100.4	86.6	82.7	77.0	70.6	64.1
Malaysia	25.9	26.3	27.3	31.3	27.0	27.5	28.8	28.4	26.9	25.6	25.1	24.6	24.6	24.6	24.1
Mexico	22.9	23.4	25.8	28.2	26.7	27.1	27.7	28.0	28.1	28.1	27.1	26.8	26.5	26.6	26.8
Morocco	28.1	28.6	30.6	30.4	31.1	33.8	35.3	32.9	33.0	30.0	30.0	30.0	29.7	29.5	29.4
Oman	35.4	36.4	30.1	39.6	35.0	39.5	44.8	45.9	48.8	58.2	59.6	58.4	56.5	55.2	54.3
Pakistan	17.1	19.5	21.4	19.3	20.3	19.3	21.7	21.8	20.2	19.8	19.6	19.6	19.6	20.1	20.1
Peru	19.1	18.6	19.6	21.4	21.0	19.8	20.3	21.6	22.5	22.6	22.8	22.4	21.9	21.6	21.5
Philippines	19.1	19.0	18.6	20.1	19.2	18.0	18.9	18.6	18.4	19.7	20.3	20.5	20.6	20.8	20.9
Poland	45.2	43.3	44.3	45.1	45.9	43.9	42.9	42.2	41.8	41.8	41.4	41.2	41.0	40.9	41.0
Qatar	28.1	26.7	24.8	32.2	29.0	28.5	30.9	31.6	32.7	35.7	35.6	33.4	31.7	30.6	30.0
Romania	33.4	35.2	36.3	37.8	37.9	36.3	34.8	33.8	34.0	33.8	32.7	32.0	31.9	31.8	31.7
Russia	31.1	34.2	34.3	41.4	38.0	35.7	37.3	38.2	38.7	39.6	38.4	37.7	37.3	35.4	35.3
Saudi Arabia	27.3	29.5	26.7	37.1	34.0	33.4	33.3	35.6	40.8	50.4	46.7	45.2	43.9	41.6	39.9
South Africa	27.1	27.2	28.7	31.7	31.5	30.9	31.3	31.7	32.0	33.2	33.2	33.0	33.0	33.0	33.0
Sri Lanka	24.3	23.5	22.6	24.9	22.8	21.4	19.7	18.3	17.7	18.7	19.1	19.2	19.3	19.5	19.6
Thailand	18.7	20.0	19.2	21.7	22.0	21.1	22.2	21.9	22.2	22.6	22.8	22.9	23.0	22.9	22.7
Turkey	33.5	33.6	34.5	38.6	36.7	35.2	36.6	38.4	37.3	36.5	36.4	36.5	36.6	36.8	37.1
Ukraine	42.9	42.1	45.4	46.8	49.2	45.7	49.0	48.1	45.4	45.0	43.4	43.1	42.6	42.4	42.0
United Arab Emirates	15.6	17.7	21.9	35.0	32.7	31.5	29.2	30.6	32.8	36.8	33.9	31.8	30.0	28.5	27.1
Uruguay	29.1	28.9	28.7	29.7	30.5	29.2	30.4	31.8	32.2	32.1	32.2	32.1	32.1	32.0	31.9
Venezuela	39.3	35.9	34.9	33.3	31.6	39.5	40.0	37.9	43.4	42.5	41.2	40.9	40.9	41.0	41.1
Average	26.7	27.0	29.0	30.8	30.1	29.8	30.5	31.3	31.7	32.1	31.5	31.1	30.7	30.3	29.9
Asia	20.5	20.4	23.5	25.5	25.2	25.5	26.9	27.8	28.0	28.9	28.8	28.5	28.3	28.0	27.6
Europe	35.4	36.5	37.1	41.2	39.1	37.1	38.0	38.5	38.5	38.5	37.8	37.4	37.2	36.3	36.3
Latin America	29.7	29.7	31.0	32.2	32.7	32.9	33.3	33.6	34.9	35.1	34.9	34.1	33.6	33.4	33.4
MENAP	25.7	26.0	28.0	32.6	30.7	29.9	29.7	32.1	34.2	37.3	35.4	34.2	33.2	32.2	31.3
G20 Emerging	25.7	26.0	28.0	30.2	29.8	29.6	30.5	31.4	31.7	32.2	31.7	31.3	31.0	30.5	30.1

Source: IMF staff estimates and projections. Projections are based on staff assessment of current policies (see Fiscal Policy Assumptions in text).

Note: For country-specific details, see Data and Conventions in text, and Table B. MENAP = Middle East, North Africa, and Pakistan.

<sup>1</sup> Based on nominal GDP series prior to the recent revision. Therefore, figures are not comparable to the authorities' numbers because of a different denominator.

**Table A15. Emerging Market and Middle-Income Economies: General Government Gross Debt, 2006–20**  
(Percent of GDP)

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Algeria	26.9	13.9	8.8	10.8	11.7	9.9	9.9	8.3	8.8	10.2	13.6	19.6	23.4	26.0	27.6
Angola	18.7	16.4	16.6	49.9	38.8	31.4	28.7	36.2	42.2	57.4	53.0	50.0	46.1	42.3	38.4
Argentina	61.8	53.2	47.0	47.6	39.2	35.8	37.3	40.2	45.3	52.1	55.1	56.5	59.5	62.0	65.0
Azerbaijan	10.2	8.6	7.3	11.8	11.1	10.1	11.6	13.8	15.9	20.6	22.7	22.7	24.4	24.3	26.1
Belarus	11.1	18.3	21.5	34.7	39.5	45.9	39.0	38.1	40.5	40.4	44.6	44.4	43.5	42.4	41.7
Brazil <sup>1</sup>	65.8	63.8	61.9	65.0	63.0	61.2	63.5	62.2	65.2	69.9	74.5	75.8	76.5	76.7	76.1
Chile	5.0	3.9	4.9	5.8	8.6	11.2	12.0	12.8	15.1	18.1	20.0	21.5	22.3	22.8	23.2
China	32.2	34.6	31.6	36.1	36.0	35.6	37.1	39.4	41.1	43.2	46.0	48.3	50.0	51.0	51.4
Colombia	35.8	32.5	32.1	35.2	36.4	35.6	34.1	37.8	44.3	50.9	48.9	47.6	45.9	43.8	41.5
Croatia	36.1	34.4	36.0	44.5	52.8	63.7	69.2	80.8	85.1	89.3	91.8	92.5	91.8	91.1	90.4
Dominican Republic	19.4	17.5	19.6	22.7	23.8	25.7	30.5	34.6	35.0	33.3	34.6	36.2	37.1	38.1	39.0
Ecuador	28.8	27.2	22.2	17.7	19.7	19.4	21.7	26.0	31.3	37.4	40.4	41.2	41.2	40.5	39.6
Egypt <sup>2</sup>	90.3	80.2	70.2	73.0	73.2	76.6	78.9	89.0	90.5	90.0	89.3	84.8	81.7	79.3	77.0
Hungary	64.9	65.8	71.9	78.1	80.9	81.0	78.5	77.3	77.0	75.3	74.2	73.1	72.0	70.7	69.7
India	77.1	74.0	74.5	72.5	67.5	68.1	67.5	65.8	66.1	65.3	63.9	62.8	61.7	60.5	59.3
Indonesia	35.8	32.3	30.3	26.5	24.5	23.1	23.0	24.9	25.0	26.5	26.7	26.9	26.7	26.4	26.1
Iran	12.5	12.0	9.3	10.4	12.2	8.9	16.8	15.4	15.8	16.4	15.3	14.8	14.7	14.3	13.9
Kazakhstan	6.7	5.9	6.8	10.2	10.7	10.4	12.4	12.9	14.9	18.3	18.8	19.3	20.5	22.0	23.4
Kuwait	10.6	11.8	9.6	11.0	11.3	8.5	6.8	6.4	6.9	9.9	9.8	9.2	8.6	8.2	7.9
Libya	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Malaysia	40.2	39.9	39.9	51.1	51.9	52.6	54.6	55.9	55.2	55.6	53.6	51.8	49.7	47.3	44.5
Mexico	37.8	37.5	42.8	43.9	42.2	43.2	43.2	46.4	49.8	52.0	52.1	52.0	51.5	50.8	50.0
Morocco	56.8	52.0	45.4	46.1	49.0	52.5	58.3	61.5	63.4	63.9	63.9	63.2	62.2	60.6	58.7
Oman	8.9	7.1	4.8	6.9	5.9	5.2	4.9	5.1	5.1	9.3	12.2	14.1	20.4	27.1	34.4
Pakistan	54.4	52.6	57.9	59.1	61.5	59.5	64.0	64.8	64.9	64.7	64.4	62.8	61.2	60.4	59.2
Peru	34.8	31.9	28.0	28.4	25.4	23.0	21.2	20.3	20.7	22.4	24.6	24.8	24.5	24.1	24.3
Philippines	51.6	44.6	44.2	44.3	43.5	41.4	40.6	39.2	36.4	35.9	33.9	32.0	30.3	28.8	27.3
Poland	47.5	44.6	47.0	50.3	53.6	54.8	54.4	55.7	50.1	51.1	51.0	51.1	50.7	49.7	48.8
Qatar	12.5	8.0	11.5	33.6	38.4	34.5	36.0	32.3	31.7	29.9	27.8	23.6	18.5	15.2	12.8
Romania	12.5	12.7	13.4	23.3	30.5	33.9	37.5	38.8	40.6	40.9	41.5	42.2	42.8	43.5	44.1
Russia	10.5	8.6	8.0	10.6	11.3	11.6	12.7	14.0	17.8	20.4	21.0	21.9	22.8	23.0	23.0
Saudi Arabia	25.8	17.1	12.1	14.0	8.4	5.4	3.6	2.2	1.6	6.7	17.3	25.8	32.8	38.8	44.3
South Africa	29.8	27.1	25.9	30.3	34.4	37.6	40.5	43.3	46.0	48.4	49.8	50.8	52.5	53.8	54.3
Sri Lanka	87.9	85.0	81.4	86.1	81.9	78.5	79.2	78.3	75.5	76.7	76.3	75.5	74.3	73.1	72.3
Thailand	39.2	36.0	34.9	42.4	39.9	39.1	41.9	42.2	43.5	43.5	42.6	42.2	42.0	42.0	41.5
Turkey	46.5	39.9	40.0	46.1	42.3	39.1	36.2	36.1	33.6	32.1	32.6	34.5	35.6	37.5	40.7
Ukraine	14.3	11.8	19.7	34.1	40.6	36.9	37.5	40.7	71.2	94.4	92.1	87.8	82.4	76.9	70.8
United Arab Emirates	6.8	7.9	12.5	24.1	22.2	17.6	17.0	15.9	15.7	18.9	18.3	17.4	16.5	15.8	15.0
Uruguay	75.7	68.0	67.8	63.1	59.4	58.1	57.9	60.2	61.3	64.1	65.3	66.8	67.4	67.7	67.7
Venezuela	34.5	29.1	23.1	27.7	34.6	43.8	44.3	52.1	51.8	53.0	44.1	41.4	41.5	42.4	44.4
Average	38.6	37.0	35.1	39.8	39.1	38.1	38.4	39.8	41.9	44.6	46.3	47.5	48.3	48.7	48.7
Asia	43.2	43.5	39.9	42.9	41.8	40.9	41.4	42.8	44.2	45.7	47.5	49.0	50.1	50.5	50.5
Europe	27.0	23.7	23.8	29.6	29.4	28.1	27.3	28.5	31.2	34.2	35.4	35.8	36.0	36.0	36.2
Latin America	47.9	46.4	46.5	49.2	48.3	48.0	48.3	49.2	52.6	55.6	57.2	57.8	58.1	58.1	57.8
MENAP	26.5	22.1	19.7	25.6	24.6	22.1	23.4	24.3	25.6	30.5	33.1	34.8	36.0	37.1	38.0
G20 Emerging	41.2	40.0	37.6	41.5	40.2	39.0	39.2	40.3	42.5	45.1	47.3	48.9	50.2	50.8	51.1

Source: IMF staff estimates and projections. Projections are based on staff assessment of current policies (see Fiscal Policy Assumptions in text).

Note: For country-specific details, see Data and Conventions in text, and Table B. MENAP = Middle East, North Africa, and Pakistan.

<sup>1</sup> Gross debt refers to the nonfinancial public sector, excluding Eletrobras and Petrobras, and includes sovereign debt held on the balance sheet of the central bank.

<sup>2</sup> Based on nominal GDP series prior to the recent revision. Therefore, figures are not comparable to the authorities' numbers because of a different denominator.

**Table A16. Emerging Market and Middle-Income Economies: General Government Net Debt, 2006–20**  
(Percent of GDP)

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Algeria	-7.6	-20.4	-29.9	-32.5	-28.7	-27.1	-23.3	-25.1	-16.8	-6.4	3.7	10.6	15.2	18.5	20.6
Angola	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Argentina	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Azerbaijan	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Belarus	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Brazil	46.5	44.2	37.1	40.4	38.0	34.5	32.9	31.5	34.1	38.0	42.1	43.5	44.4	44.8	44.5
Chile	-6.6	-13.0	-19.3	-10.6	-7.0	-8.6	-6.8	-5.7	-4.4	-2.1	0.3	2.1	3.2	4.1	5.1
China	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Colombia	25.3	22.5	22.3	26.1	28.4	27.1	24.9	27.0	33.8	41.5	40.0	39.2	38.0	36.5	34.7
Croatia	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Dominican Republic	19.4	17.5	19.6	22.7	23.8	25.7	30.5	34.6	35.0	33.3	34.6	36.2	37.1	38.1	39.0
Ecuador	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Egypt <sup>1</sup>	71.4	64.5	55.6	58.7	60.0	64.5	67.9	78.1	81.9	82.6	82.8	79.1	76.7	74.9	73.1
Hungary	62.4	63.4	63.8	72.4	75.5	74.7	72.3	71.7	71.7	70.3	69.5	68.6	67.7	66.6	66.7
India	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Indonesia	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Iran	-0.9	-2.7	-2.8	2.5	2.0	-2.7	5.8	-1.7	-2.0	1.5	1.2	0.1	-0.8	-1.7	-2.6
Kazakhstan	-10.9	-13.8	-13.9	-11.0	-10.2	-13.0	-16.3	-18.0	-19.8	-28.4	-25.5	-23.1	-21.4	-20.0	-19.1
Kuwait	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Libya	-77.8	-77.6	-70.2	-93.6	-86.9	-170.5	-83.6	-92.9	-99.7	-53.1	14.8	68.8	106.3	130.5	137.6
Malaysia	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Mexico	29.8	29.1	33.2	36.2	36.2	37.5	37.7	40.4	43.4	45.6	45.7	45.6	45.1	44.4	43.6
Morocco	54.4	50.5	44.7	45.5	48.5	52.1	57.8	61.0	62.9	63.3	63.4	62.7	61.7	60.1	58.2
Oman	-33.3	-37.3	-30.2	-40.1	-36.0	-35.0	-34.5	-49.9	-50.6	-51.7	-34.4	-16.2	-14.7	-4.2	6.9
Pakistan	49.2	47.1	53.4	55.1	57.4	56.5	59.9	61.1	59.4	59.6	59.7	58.5	57.2	56.8	55.8
Peru	24.0	16.7	13.0	12.2	10.3	7.2	4.5	3.5	3.6	5.3	7.3	8.7	9.4	9.8	10.1
Philippines	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Poland	14.9	10.1	9.9	14.7	19.7	26.7	24.8	28.7	24.2	26.1	27.1	28.2	28.7	28.7	28.8
Qatar	-17.2	-22.2	-33.0	-32.0	-29.5	-41.8	-60.3	-84.4	-105.8	-118.5	-114.7	-103.3	-96.3	-90.7	-86.6
Romania	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Russia	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Saudi Arabia	1.8	-16.1	-42.2	-43.4	-41.8	-41.9	-51.5	-56.7	-54.2	-41.4	-20.2	-0.2	16.8	31.3	44.1
South Africa	25.9	22.8	21.7	25.4	28.5	31.3	34.7	37.6	41.0	43.9	45.6	47.0	48.6	50.3	51.1
Sri Lanka	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Thailand	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Turkey	39.0	32.7	32.5	37.5	34.7	31.3	27.8	27.3	25.1	24.1	25.0	26.6	28.5	31.0	34.0
Ukraine	11.3	9.7	17.5	30.8	38.5	34.5	35.3	38.4	69.7	88.8	88.9	85.0	79.9	74.6	68.7
United Arab Emirates	-222.4	-215.1	-203.0	-247.1	-228.0	-201.6	-209.0	-216.1	-223.2	-267.3	-260.1	-249.6	-241.2	-235.7	-230.2
Uruguay	47.4	37.8	31.6	30.7	30.6	28.3	25.3	24.2	22.5	23.0	24.3	25.8	26.4	26.7	27.0
Venezuela	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Average	16.4	13.0	9.3	12.6	14.1	12.9	9.8	9.0	10.0	11.6	14.9	17.8	20.0	21.8	23.1
Asia	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Europe	28.2	23.3	23.3	29.1	29.8	29.0	25.8	26.4	26.2	25.4	27.3	28.2	28.8	29.4	30.2
Latin America	34.3	32.7	30.7	34.0	33.1	31.2	29.9	30.1	33.1	36.2	38.2	39.0	39.3	39.3	38.7
MENAP	-26.5	-32.3	-39.2	-37.8	-34.5	-33.8	-35.8	-43.7	-43.3	-38.2	-29.4	-21.1	-14.8	-9.4	-5.1
G20 Emerging	33.4	29.8	24.8	28.6	27.8	25.4	22.1	21.6	23.5	27.3	31.8	35.3	38.3	...	...

Source: IMF staff estimates and projections. Projections are based on staff assessment of current policies (see Fiscal Policy Assumptions in text).

Note: For country-specific details, see Data and Conventions in text, and Table B. MENAP = Middle East, North Africa, and Pakistan.

<sup>1</sup> Based on nominal GDP series prior to the recent revision. Therefore, figures are not comparable to the authorities' numbers because of a different denominator.

**Table A17. Low-Income Developing Countries: General Government Overall Balance, 2006–20**  
(Percent of GDP)

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Bangladesh	-2.6	-2.2	-4.0	-3.2	-2.7	-3.6	-3.0	-3.4	-3.1	-3.2	-3.8	-3.6	-3.7	-3.7	-3.5
Benin	-0.2	0.3	-0.1	-3.3	-0.4	-1.4	-0.3	-2.1	-2.5	-2.6	-3.5	-3.5	-3.4	-1.9	-1.5
Bolivia	4.5	1.7	3.6	0.0	1.7	0.8	1.8	0.7	-3.4	-5.3	-5.7	-5.6	-5.2	-4.7	-4.3
Burkina Faso	16.1	-5.6	-4.1	-4.7	-3.0	-1.4	-3.1	-3.9	-1.9	-2.5	-3.0	-3.7	-4.1	-4.0	-4.0
Cambodia	-0.2	-0.5	0.5	-4.1	-2.8	-4.1	-3.8	-2.1	-1.3	-2.0	-2.6	-2.9	-3.2	-3.1	-2.9
Cameroon	32.8	4.7	2.2	0.0	-1.1	-2.6	-1.6	-4.0	-5.2	-5.1	-5.6	-5.0	-4.3	-4.0	-3.6
Chad	2.2	2.5	3.6	-9.2	-4.2	2.4	0.5	-2.1	-4.2	-1.1	-0.9	-0.3	2.7	2.1	1.7
Democratic Republic of the Congo	1.9	-0.2	-1.1	1.3	2.4	-0.5	1.8	3.0	1.3	1.9	1.2	1.2	1.4	1.1	1.0
Republic of Congo	16.6	9.4	23.4	4.8	16.1	16.5	6.4	-1.8	-7.7	-9.4	-2.6	3.0	8.2	8.3	6.6
Côte d'Ivoire	-1.5	-0.5	-0.4	-1.4	-1.8	-5.4	-3.1	-2.2	-2.3	-3.2	-3.2	-3.1	-3.0	-2.9	-1.5
Ethiopia	-3.8	-3.6	-2.9	-0.9	-1.3	-1.6	-1.2	-1.9	-2.6	-2.8	-2.8	-2.6	-2.7	-2.6	-2.5
Ghana	-4.7	-5.4	-8.4	-7.0	-9.4	-7.3	-12.2	-11.1	-10.9	-5.9	-4.3	-2.4	-1.7	-1.7	-1.5
Guinea	-3.1	1.9	0.6	-7.1	-14.0	-1.3	-3.3	-5.2	-4.1	-6.7	-3.3	-2.0	-1.5	-1.6	-0.8
Haiti	-1.7	0.2	-2.8	-4.6	1.1	-3.6	-4.8	-7.2	-6.3	-2.7	-2.0	-2.4	-2.2	-2.2	-2.3
Honduras	-2.7	-1.6	-1.7	-4.5	-2.8	-2.8	-4.2	-7.6	-4.3	-2.5	-2.0	-1.9	-1.5	-1.0	-0.9
Kenya	-2.1	-2.4	-3.4	-4.3	-4.4	-4.1	-5.0	-5.7	-7.2	-8.1	-7.3	-6.1	-5.2	-4.6	-3.9
Kyrgyz Republic	-2.7	-0.6	1.0	-1.1	-5.8	-4.6	-5.7	-3.7	0.1	-2.5	-3.7	-2.8	-2.6	-1.1	-1.1
Lao P.D.R.	-2.9	-2.7	-1.4	-4.1	-3.2	-1.7	-0.5	-5.6	-3.8	-5.3	-6.0	-6.4	-6.6	-7.1	-6.6
Madagascar	-0.5	-2.7	-2.0	-2.5	-0.9	-2.4	-2.6	-4.0	-2.3	-4.4	-2.8	-2.9	-2.7	-2.7	-2.6
Mali	31.3	-3.2	-2.2	-4.2	-2.9	-4.2	-1.1	-2.8	-3.5	-3.2	-4.0	-3.5	-3.0	-3.0	-3.0
Moldova	-0.3	0.3	-0.9	-6.3	-2.5	-2.4	-2.2	-1.8	-1.7	-3.9	-3.7	-3.3	-3.2	-3.2	-3.0
Mongolia	6.4	2.1	-3.1	-4.0	0.4	-4.0	-9.1	-8.9	-10.9	-9.7	-8.0	-6.7	-5.3	-4.3	-4.3
Mozambique	-3.5	-2.6	-2.2	-5.0	-3.9	-4.8	-3.9	-2.7	-10.3	-6.5	-5.1	-5.5	-5.7	-4.5	-3.7
Myanmar	-3.6	-3.3	-2.4	-4.9	-5.4	-4.6	-1.7	-1.8	-2.9	-4.8	-4.7	-4.6	-4.4	-4.4	-4.3
Nepal	0.3	-0.8	-0.4	-2.6	-0.8	-1.0	-0.6	2.1	2.2	1.4	-2.2	-2.0	-1.4	0.0	-0.1
Nicaragua	1.1	1.5	-0.2	-1.5	0.1	0.1	-0.1	-0.6	-1.2	-1.0	-1.3	-0.8	-0.9	-1.0	-1.2
Niger	40.3	-1.0	1.5	-5.3	-2.4	-1.5	-1.1	-2.6	-8.3	-8.0	-5.3	-3.5	-2.5	-1.9	-1.3
Nigeria	8.9	-1.1	5.8	-6.0	-4.2	0.4	0.3	-2.3	-2.0	-3.9	-3.2	-3.3	-3.4	-3.6	-3.8
Papua New Guinea	6.5	9.0	2.5	-9.6	3.1	1.7	-3.2	-8.0	-7.2	-5.8	-1.1	-0.6	0.5	1.3	2.0
Rwanda	0.2	-1.7	0.9	0.3	0.4	-1.8	-1.6	-2.6	-3.6	-3.2	-3.1	-2.9	-2.9	-1.3	-1.2
Senegal	-5.4	-3.8	-4.7	-4.9	-5.2	-6.1	-5.2	-5.5	-4.9	-4.7	-4.2	-3.6	-3.0	-2.8	-2.6
Sudan	-1.4	-3.5	0.6	-5.1	0.3	0.1	-3.3	-2.3	-1.1	-1.8	-1.3	-1.1	-0.9	-0.7	-0.6
Tajikistan	1.7	-5.5	-5.1	-5.2	-3.0	-2.1	0.6	-0.8	0.0	-1.9	-2.6	-2.6	-2.9	-3.2	-3.5
Tanzania	-3.4	-1.5	-1.9	-4.5	-4.8	-3.6	-4.1	-3.9	-3.2	-4.0	-3.9	-3.3	-3.3	-3.2	-3.0
Uganda	-0.7	-0.9	-2.5	-2.1	-5.7	-2.7	-3.0	-4.0	-3.5	-3.6	-4.2	-4.3	-5.0	-4.9	-3.1
Uzbekistan	3.7	4.6	7.7	2.5	3.6	7.8	7.8	2.4	2.2	0.1	0.8	0.8	0.8	0.8	0.9
Vietnam	0.3	-2.0	-0.5	-6.0	-2.8	-1.1	-6.8	-7.4	-6.1	-6.9	-6.7	-5.9	-5.2	-5.0	-4.8
Yemen	1.2	-7.2	-4.5	-10.2	-4.1	-4.5	-6.3	-6.9	-4.1	-8.5	-9.2	-8.5	-8.5	-8.5	-8.7
Zambia	16.9	-1.0	-0.7	-2.1	-2.4	-1.8	-2.9	-6.5	-6.1	-7.8	-6.5	-5.6	-5.2	-3.9	-3.3
Zimbabwe	-2.5	-3.0	-2.0	-2.1	0.7	-1.3	-0.6	-1.9	-1.5	-1.3	-0.5	-1.0	-0.4	0.5	0.5
Average	3.8	-1.4	1.0	-4.3	-2.8	-1.1	-2.0	-3.4	-3.2	-4.1	-3.8	-3.5	-3.3	-3.2	-3.1
Oil Producers	7.4	-1.0	3.8	-5.3	-3.1	-0.1	-1.5	-3.4	-3.0	-4.5	-4.1	-3.9	-3.7	-3.7	-3.7
Asia	-0.9	-1.7	-1.9	-4.7	-2.8	-2.5	-4.3	-4.8	-4.3	-4.8	-4.9	-4.5	-4.2	-4.0	-3.8
Latin America	0.6	0.4	0.4	-2.3	-0.1	-0.9	-1.1	-2.7	-3.6	-3.5	-3.6	-3.5	-3.3	-2.9	-2.8
Sub-Saharan Africa	6.6	-1.2	2.4	-4.3	-3.5	-1.0	-1.4	-3.1	-3.2	-4.1	-3.5	-3.2	-3.1	-3.0	-2.9
Others	0.4	-2.3	0.8	-4.0	-0.2	0.9	-0.5	-1.8	-0.7	-2.4	-2.4	-2.2	-2.1	-2.0	-2.0

Source: IMF staff estimates and projections. Projections are based on staff assessment of current policies (see Fiscal Policy Assumptions in text).

Note: For country-specific details, see Data and Conventions in text, and Table C.

**Table A18. Low-Income Developing Countries: General Government Primary Balance, 2006–20**  
(Percent of GDP)

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Bangladesh	-1.0	-0.6	-1.9	-1.0	-0.8	-1.9	-1.1	-1.4	-1.0	-1.2	-1.8	-1.5	-1.5	-1.6	-1.3
Benin	0.0	1.9	0.3	-2.8	0.1	-1.0	0.3	-1.6	-2.1	-1.7	-3.0	-2.9	-2.8	-1.2	-0.8
Bolivia	7.0	4.3	5.5	1.7	3.1	2.1	2.8	1.6	-2.4	-4.3	-4.6	-4.4	-4.0	-3.4	-3.0
Burkina Faso	16.7	-5.2	-3.7	-4.3	-2.6	-0.8	-2.4	-3.3	-1.2	-1.9	-2.4	-3.1	-3.5	-3.3	-3.3
Cambodia	0.0	-0.3	0.7	-3.8	-2.5	-3.8	-3.3	-1.4	-1.0	-1.6	-2.2	-2.5	-2.9	-2.8	-2.6
Cameroon	33.8	5.2	2.6	0.2	-0.8	-2.2	-1.2	-3.6	-4.8	-4.6	-4.8	-4.1	-3.3	-2.9	-2.4
Chad	2.6	2.8	3.8	-8.8	-3.6	3.0	0.9	-1.5	-3.6	-0.5	-0.1	0.5	3.2	2.6	2.1
Democratic Republic of the Congo	3.1	0.9	-0.1	2.7	3.9	1.3	3.3	4.2	2.3	2.8	2.0	2.1	2.2	1.8	1.7
Republic of Congo	21.1	11.9	25.8	6.1	17.0	16.5	6.5	-1.5	-7.5	-9.3	-2.4	3.2	8.4	8.5	6.8
Côte d'Ivoire	0.2	1.2	1.3	0.1	-0.3	-2.9	-1.4	-0.9	-1.1	-2.0	-2.0	-2.0	-1.9	-1.9	-0.6
Ethiopia	-3.0	-2.9	-2.4	-0.6	-0.9	-1.2	-0.9	-1.6	-2.3	-2.2	-2.1	-1.9	-1.9	-1.8	-1.7
Ghana	-2.6	-3.5	-6.2	-4.2	-6.2	-4.6	-8.7	-6.3	-4.6	1.1	1.6	2.8	3.2	2.6	2.3
Guinea	0.4	4.3	3.2	-5.0	-12.0	0.7	-1.6	-4.1	-2.9	-5.6	-2.0	-0.9	-0.5	-0.6	0.0
Haiti	-1.2	1.3	-2.1	-3.8	1.7	-3.2	-4.4	-6.7	-5.9	-2.3	-1.3	-1.7	-1.5	-1.4	-1.7
Honduras	-3.1	-2.2	-2.7	-5.4	-3.4	-3.0	-4.3	-7.1	-3.8	-1.3	-0.4	-0.4	-0.1	0.3	0.3
Kenya	-0.5	-0.8	-1.8	-2.7	-2.5	-2.2	-2.9	-3.3	-4.8	-5.7	-4.9	-3.8	-3.1	-2.6	-2.0
Kyrgyz Republic	-1.8	0.0	1.7	-0.3	-5.0	-3.6	-4.7	-2.9	1.0	-1.5	-2.9	-1.9	-1.8	-0.2	-0.4
Lao P.D.R.	-2.2	-2.2	-0.8	-3.8	-2.8	-1.2	0.2	-4.5	-3.0	-4.1	-4.9	-4.5	-4.2	-4.0	-3.5
Madagascar	2.0	-1.5	-1.2	-1.8	-0.1	-1.5	-1.9	-3.3	-1.7	-3.4	-1.6	-1.8	-1.6	-1.6	-1.5
Mali	31.8	-2.8	-1.9	-3.9	-2.5	-3.5	-0.5	-2.2	-2.8	-2.4	-3.3	-2.7	-2.3	-2.3	-2.2
Moldova	0.7	1.5	0.2	-4.9	-1.7	-1.6	-1.4	-1.2	-1.2	-2.3	-2.1	-1.6	-1.4	-1.2	-1.1
Mongolia	6.7	2.4	-2.9	-3.6	0.9	-3.7	-8.3	-7.5	-8.6	-7.2	-4.8	-3.7	-0.7	-0.2	-0.4
Mozambique	-2.9	-2.0	-1.8	-4.5	-3.2	-3.9	-2.9	-1.8	-9.2	-5.1	-3.8	-4.2	-4.4	-3.2	-2.3
Myanmar	-3.0	-2.7	-1.9	-4.2	-4.5	-3.5	-0.4	-0.2	-1.3	-3.3	-3.1	-3.1	-2.9	-2.9	-2.8
Nepal	0.9	-0.1	0.3	-1.9	0.0	-0.1	0.2	2.8	2.8	2.4	-1.8	-1.6	-0.9	0.6	0.4
Nicaragua	2.1	1.9	-0.1	-1.2	0.3	0.5	0.5	-0.2	-0.7	-0.6	-0.8	-0.1	-0.2	-0.3	-0.4
Niger	40.6	-0.7	1.7	-5.1	-2.2	-1.1	-0.8	-2.3	-7.9	-7.2	-4.1	-2.2	-1.2	-0.8	-0.3
Nigeria	9.6	-0.5	6.5	-5.2	-3.6	1.3	1.2	-1.3	-1.0	-2.8	-2.0	-2.0	-2.0	-1.9	-2.0
Papua New Guinea	8.3	10.9	4.3	-7.6	4.4	3.0	-1.8	-6.6	-4.9	-3.7	1.0	1.5	2.8	3.4	3.8
Rwanda	1.0	-1.2	1.4	0.6	0.9	-1.4	-1.1	-1.8	-2.8	-2.5	-2.3	-2.0	-2.0	-0.5	-0.4
Senegal	-4.5	-3.2	-4.0	-4.2	-4.3	-4.6	-3.7	-4.0	-3.2	-2.9	-2.4	-1.9	-1.3	-1.3	-1.1
Sudan	-0.2	-2.5	1.5	-4.1	1.4	1.3	-2.2	-1.8	-0.3	-1.2	-0.7	-0.6	-0.4	-0.3	-0.2
Tajikistan	2.2	-5.1	-4.8	-4.7	-2.5	-1.6	1.1	0.1	0.4	-1.2	-1.9	-2.0	-2.3	-2.6	-3.0
Tanzania	-2.5	-0.6	-1.2	-3.8	-4.1	-2.8	-3.1	-2.7	-1.8	-2.4	-2.2	-1.4	-1.2	-1.1	-1.0
Uganda	0.4	0.1	-1.4	-1.1	-4.8	-1.7	-1.7	-2.7	-1.9	-1.7	-2.2	-2.1	-2.6	-2.2	0.0
Uzbekistan	3.8	4.7	7.8	2.5	3.6	7.8	7.8	2.4	2.2	0.1	0.8	0.8	0.8	0.9	0.9
Vietnam	1.0	-1.0	0.5	-4.9	-1.6	0.0	-5.6	-5.9	-4.5	-5.0	-4.9	-3.9	-3.1	-2.9	-2.7
Yemen	3.5	-4.9	-2.1	-7.7	-1.7	-0.2	-0.9	-1.5	1.5	-2.5	-3.4	-2.1	-1.5	-1.2	-1.0
Zambia	18.5	0.3	0.7	-0.7	-1.0	-0.8	-1.5	-4.9	-3.8	-5.1	-3.2	-2.0	-1.3	0.1	0.7
Zimbabwe	0.0	-1.2	0.3	0.4	1.9	-0.2	0.4	-1.0	-0.4	0.1	0.9	0.4	1.0	1.9	1.9
Average	4.8	-0.4	2.0	-3.2	-1.8	0.0	-0.8	-2.1	-1.8	-2.6	-2.3	-1.9	-1.6	-1.5	-1.3
Oil Producers	8.3	-0.1	4.7	-4.3	-2.2	1.0	-0.3	-2.1	-1.7	-3.1	-2.7	-2.2	-1.9	-1.8	-1.7
Asia	0.1	-0.5	-0.6	-3.3	-1.5	-1.3	-2.9	-3.2	-2.5	-3.0	-3.2	-2.6	-2.2	-2.1	-1.9
Latin America	1.7	1.3	0.9	-1.8	0.4	-0.4	-0.5	-2.0	-2.9	-2.6	-2.5	-2.4	-2.1	-1.7	-1.6
Sub-Saharan Africa	7.6	-0.2	3.3	-3.4	-2.6	0.1	-0.2	-1.9	-1.9	-2.7	-2.0	-1.7	-1.5	-1.3	-1.2
Others	1.6	-1.3	1.9	-3.0	0.9	2.4	1.1	-0.4	0.9	-1.0	-0.9	-0.6	-0.4	-0.2	-0.2

Source: IMF staff estimates and projections. Projections are based on staff assessment of current policies (see Fiscal Policy Assumptions in text).

Note: Primary balance is defined as the overall balance excluding net interest payments. For country-specific details, see Data and Conventions in text, and Table C.

**Table A19. Low-Income Developing Countries: General Government Revenue, 2006–20**  
(Percent of GDP)

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Bangladesh	9.6	9.3	9.8	9.5	10.0	10.4	11.2	11.2	10.9	11.0	11.3	12.3	12.8	13.2	13.4
Benin	19.2	23.8	21.3	21.7	20.0	20.1	20.7	20.4	19.2	21.2	21.2	21.3	21.3	21.4	21.7
Bolivia	34.3	34.4	38.9	35.8	33.2	36.2	37.8	39.1	39.9	35.1	32.6	32.8	32.9	33.1	33.0
Burkina Faso	40.8	20.0	16.8	19.5	19.8	20.7	22.4	23.9	21.4	22.3	22.6	23.0	23.0	23.0	23.0
Cambodia	12.8	13.7	15.9	15.8	17.1	15.6	16.9	18.4	19.8	19.4	19.4	19.6	19.6	19.8	19.9
Cameroon	47.4	20.3	21.2	17.4	16.6	17.9	17.9	18.0	18.3	17.3	16.6	16.7	16.9	16.9	16.9
Chad	16.2	19.7	22.5	15.0	20.2	24.8	24.4	20.8	17.9	16.5	17.4	17.9	23.8	25.2	25.3
Democratic Republic of the Congo	11.8	10.4	11.5	15.2	20.2	15.2	17.2	15.3	14.6	16.1	16.8	16.6	16.9	17.2	17.5
Republic of Congo	44.4	39.3	47.0	29.5	37.5	42.5	42.6	46.9	42.3	41.2	42.9	40.7	40.9	40.5	39.4
Côte d'Ivoire	18.6	19.2	19.9	18.5	18.1	19.2	18.9	19.8	20.9	19.5	19.8	20.1	20.3	20.5	21.6
Ethiopia	18.3	17.0	15.9	16.2	17.2	16.6	15.5	15.9	15.1	16.1	15.6	16.0	16.2	16.5	16.6
Ghana	17.1	17.5	15.9	16.4	16.7	19.1	18.5	16.7	18.4	19.7	20.5	20.6	21.3	21.1	20.6
Guinea	15.9	15.1	16.1	16.5	15.7	20.2	22.9	19.8	21.9	23.3	23.4	23.8	24.1	24.0	22.0
Haiti	13.5	15.8	15.1	17.8	23.9	21.9	23.4	20.9	19.0	19.9	19.8	19.8	19.6	19.5	19.9
Honduras	23.3	24.5	26.4	24.4	24.1	23.1	22.5	22.9	24.4	25.8	26.0	26.3	26.5	26.7	27.0
Kenya	19.3	19.7	19.4	18.8	19.8	19.5	19.1	19.8	19.7	20.4	21.4	21.6	21.8	22.0	22.2
Kyrgyz Republic	27.4	31.2	30.3	33.3	31.3	32.8	34.9	34.4	35.9	35.8	34.7	34.8	34.7	34.6	34.6
Lao P.D.R.	14.5	15.6	15.9	17.1	22.6	22.4	24.1	23.9	24.2	22.8	22.2	22.1	22.2	22.2	22.6
Madagascar	21.0	16.0	15.9	11.5	13.2	11.7	10.8	10.9	12.4	12.3	12.6	13.1	13.6	14.0	14.3
Mali	56.2	21.3	19.0	21.7	20.1	20.8	17.4	20.7	20.3	23.3	22.0	22.5	22.9	23.2	23.5
Moldova	39.9	42.9	40.6	38.9	38.3	36.6	37.9	36.7	38.0	36.0	34.6	34.3	34.1	33.8	33.8
Mongolia	28.3	29.9	23.0	23.2	32.0	33.9	29.8	31.2	27.9	24.2	24.2	24.3	24.7	24.8	25.1
Mozambique	19.9	22.0	22.7	24.4	26.1	27.1	27.5	32.2	32.9	30.4	29.1	28.7	28.4	28.1	27.6
Myanmar	12.8	12.3	11.6	10.7	11.4	12.1	23.4	23.3	26.4	20.8	20.6	20.8	21.5	22.0	22.3
Nepal	13.0	14.2	14.9	16.8	18.0	17.7	18.7	19.3	20.8	20.8	21.8	21.9	22.2	22.3	22.4
Nicaragua	22.3	22.7	21.5	21.1	22.5	23.5	24.1	24.0	23.6	24.1	24.4	24.4	24.3	24.4	24.4
Niger	60.1	22.2	24.1	18.6	18.2	17.9	21.2	25.2	23.6	23.6	23.6	24.2	24.4	24.4	24.9
Nigeria	21.6	17.6	20.6	11.2	12.4	17.7	14.3	11.0	10.5	7.5	7.6	8.0	8.1	7.9	7.9
Papua New Guinea	37.2	37.3	32.6	27.3	31.3	30.4	29.2	28.2	27.3	23.8	24.7	24.7	24.6	24.8	24.9
Rwanda	21.9	21.2	25.2	24.1	26.3	24.6	24.2	25.1	24.1	22.6	21.0	22.2	22.1	22.4	22.4
Senegal	21.2	23.6	21.6	21.6	21.9	22.7	23.3	22.5	24.2	23.7	24.2	24.0	24.0	24.1	23.9
Sudan	22.4	21.9	24.0	15.5	19.3	18.1	9.9	10.8	11.5	9.8	10.3	10.1	10.0	9.4	9.5
Tajikistan	23.6	22.5	22.1	23.4	23.2	24.9	25.1	26.9	28.4	26.3	26.7	26.5	26.4	26.3	26.2
Tanzania	14.4	16.6	16.6	15.7	15.5	15.6	15.7	15.5	14.9	15.1	15.9	15.9	15.9	16.0	16.2
Uganda	14.9	14.3	13.5	13.2	13.2	14.5	13.5	12.8	13.6	15.2	15.3	15.4	15.7	16.1	16.9
Uzbekistan	34.4	35.6	40.7	36.7	37.0	40.2	41.5	36.3	35.5	35.3	35.1	35.1	35.0	35.0	35.0
Vietnam	26.3	26.1	26.6	25.6	27.3	25.9	22.6	23.1	21.9	20.9	20.8	21.3	21.3	21.4	21.2
Yemen	38.6	33.2	36.7	25.0	26.1	25.3	29.9	23.9	23.6	11.3	13.8	15.8	16.6	16.6	17.1
Zambia	36.6	18.9	18.8	15.7	15.6	17.5	19.1	18.4	19.3	17.9	16.8	17.1	17.6	18.1	18.1
Zimbabwe	7.3	2.9	2.2	12.0	23.3	26.7	28.0	27.7	27.3	28.1	27.0	26.7	26.6	26.6	26.6
Average	22.3	19.5	21.0	17.1	18.0	20.0	19.0	17.8	17.5	16.1	16.4	16.8	17.1	17.2	17.3
Oil Producers	24.4	20.3	22.8	16.2	17.2	20.3	17.8	15.5	14.8	12.4	12.9	13.5	13.8	13.8	13.9
Asia	17.6	17.5	17.8	16.9	18.2	18.3	19.2	19.2	18.9	17.5	17.7	18.2	18.5	18.7	18.8
Latin America	25.5	26.2	28.5	27.1	27.3	28.4	29.4	30.1	30.7	29.0	28.0	28.2	28.4	28.6	28.7
Sub-Saharan Africa	22.7	18.1	19.7	14.7	15.5	18.6	16.8	15.0	14.6	13.4	13.8	14.2	14.6	14.6	14.8
Others	29.7	28.6	31.5	25.0	26.5	27.2	26.4	24.1	24.1	20.5	21.0	21.1	21.1	20.8	20.9

Source: IMF staff estimates and projections. Projections are based on staff assessment of current policies (see Fiscal Policy Assumptions in text).

Note: For country-specific details, see Data and Conventions in text, and Table C.

**Table A20. Low-Income Developing Countries: General Government Expenditure, 2006–20**  
(Percent of GDP)

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Bangladesh	12.1	11.5	13.8	12.7	12.7	14.0	14.2	14.6	14.0	14.2	15.1	15.9	16.5	16.9	16.9
Benin	19.4	23.4	21.4	25.0	20.4	21.6	21.0	22.4	21.8	23.8	24.8	24.8	24.7	23.2	23.1
Bolivia	29.8	32.7	35.3	35.8	31.5	35.4	36.0	38.4	43.3	40.4	38.3	38.4	38.1	37.7	37.3
Burkina Faso	24.6	25.7	20.9	24.2	22.8	22.1	25.5	27.8	23.3	24.8	25.6	26.7	27.1	27.0	27.0
Cambodia	13.0	14.3	15.4	19.9	19.9	19.7	20.7	20.5	21.2	21.4	22.0	22.5	22.8	22.8	22.8
Cameroon	14.6	15.6	19.0	17.5	17.7	20.5	19.5	21.9	23.5	22.4	22.1	21.7	21.1	20.8	20.5
Chad	14.0	17.1	18.9	24.2	24.4	22.4	23.9	22.9	22.1	17.6	18.3	18.1	21.2	23.1	23.6
Democratic Republic of the Congo	9.9	10.6	12.6	13.9	17.7	15.7	15.4	12.2	13.3	14.2	15.5	15.4	15.5	16.1	16.4
Republic of Congo	27.8	29.9	23.6	24.7	21.4	26.1	36.2	48.7	50.1	50.6	45.5	37.6	32.7	32.1	32.7
Côte d'Ivoire	20.1	19.7	20.3	19.9	20.0	24.6	22.1	22.1	23.2	22.7	22.9	23.2	23.3	23.4	23.2
Ethiopia	22.1	20.5	18.8	17.1	18.5	18.2	16.6	17.8	17.7	18.8	18.4	18.6	18.9	19.1	19.1
Ghana	21.8	22.9	24.4	23.5	26.1	26.5	30.7	27.8	29.3	25.6	24.9	23.0	23.0	22.8	22.1
Guinea	19.0	13.2	15.6	23.7	29.7	21.5	26.1	25.1	26.1	30.0	26.7	25.9	25.6	25.6	22.8
Haiti	15.2	15.6	17.9	22.4	22.8	25.5	28.2	28.1	25.4	22.7	21.9	22.1	21.8	21.7	22.2
Honduras	26.0	26.1	28.1	28.9	27.0	25.9	26.7	30.6	28.7	28.3	28.1	28.2	28.0	27.7	27.9
Kenya	21.5	22.1	22.8	23.1	24.2	23.6	24.2	25.5	27.0	28.5	28.7	27.7	27.0	26.6	26.1
Kyrgyz Republic	30.1	31.8	29.3	34.4	37.1	37.4	40.6	38.1	35.9	38.2	38.5	37.5	37.3	35.7	35.7
Lao P.D.R.	17.4	18.3	17.3	21.3	25.9	24.1	24.6	29.6	28.1	28.1	28.2	28.5	28.8	29.3	29.2
Madagascar	21.4	18.7	17.9	14.1	14.0	14.1	13.4	14.9	14.7	16.7	15.4	16.1	16.3	16.7	16.9
Mali	24.9	24.5	21.2	25.9	23.0	25.0	18.5	23.5	23.8	26.5	26.0	25.9	25.9	26.2	26.5
Moldova	40.2	42.6	41.6	45.3	40.8	39.0	40.1	38.5	39.7	39.9	38.3	37.6	37.3	37.0	36.8
Mongolia	21.9	27.8	26.1	27.2	31.6	37.9	38.9	40.1	38.8	33.8	32.2	31.0	30.0	29.0	29.3
Mozambique	23.5	24.6	24.9	29.4	30.0	31.9	31.4	34.9	43.2	36.9	34.3	34.2	34.1	32.6	31.3
Myanmar	16.4	15.5	14.0	15.6	16.9	16.7	25.1	25.1	29.3	25.6	25.2	25.3	25.9	26.4	26.6
Nepal	12.7	15.0	15.4	19.4	18.8	18.7	19.3	17.2	18.6	19.5	23.9	23.9	23.5	22.3	22.6
Nicaragua	21.2	21.2	21.7	22.6	22.4	23.4	24.2	24.7	24.8	25.1	25.7	25.2	25.2	25.4	25.6
Niger	19.7	23.2	22.6	23.9	20.6	19.4	22.3	27.8	31.9	31.6	29.0	27.7	26.8	26.3	26.2
Nigeria	12.7	18.7	14.7	17.2	16.7	17.3	14.0	13.4	12.5	11.3	10.7	11.3	11.5	11.4	11.6
Papua New Guinea	30.7	28.3	30.1	36.9	28.2	28.7	32.4	36.1	34.5	29.6	25.8	25.3	24.1	23.4	22.9
Rwanda	21.7	22.9	24.3	23.9	25.9	26.5	25.9	27.6	27.7	25.7	24.0	25.1	24.9	23.7	23.6
Senegal	26.6	27.5	26.3	26.5	27.1	28.8	28.5	27.9	29.2	28.4	28.4	27.6	27.0	26.8	26.5
Sudan	23.8	25.4	23.5	20.6	19.0	18.0	13.3	13.1	12.7	11.6	11.6	11.2	10.9	10.1	10.1
Tajikistan	21.9	28.0	27.2	28.6	26.1	27.0	24.6	27.7	28.4	28.2	29.2	29.1	29.3	29.5	29.7
Tanzania	17.9	18.1	18.5	20.2	20.2	19.1	19.8	19.4	18.0	19.1	19.9	19.3	19.2	19.2	19.2
Uganda	15.6	15.2	16.0	15.3	18.8	17.2	16.5	16.8	17.1	18.7	19.5	19.7	20.8	21.0	19.9
Uzbekistan	30.7	31.0	33.0	34.3	33.4	32.4	33.7	33.9	33.4	35.2	34.3	34.3	34.2	34.2	34.1
Vietnam	26.1	28.1	27.1	31.6	30.0	26.9	29.4	30.5	28.0	27.8	27.5	27.1	26.5	26.3	26.0
Yemen	37.4	40.3	41.2	35.2	30.2	29.8	36.2	30.8	27.8	19.8	23.0	24.3	25.1	25.2	25.8
Zambia	19.7	19.9	19.5	17.8	18.1	19.3	22.0	24.9	25.4	25.7	23.3	22.7	22.8	22.0	21.4
Zimbabwe	9.7	5.9	4.3	14.0	22.6	27.9	28.6	29.7	28.7	29.3	27.5	27.7	27.0	26.1	26.1
Average	18.5	20.9	20.0	21.4	20.8	21.1	21.1	21.1	20.7	20.2	20.2	20.3	20.4	20.4	20.4
Oil Producers	17.0	21.3	18.9	21.5	20.3	20.4	19.3	18.9	17.8	17.0	17.1	17.4	17.5	17.5	17.6
Asia	18.5	19.2	19.8	21.6	21.0	20.8	23.5	24.0	23.2	22.4	22.6	22.7	22.7	22.7	22.6
Latin America	24.8	25.8	28.1	29.4	27.4	29.3	30.4	32.9	34.3	32.5	31.6	31.7	31.6	31.5	31.5
Sub-Saharan Africa	16.1	19.3	17.4	19.0	19.0	19.6	18.2	18.1	17.8	17.4	17.3	17.5	17.6	17.6	17.7
Others	29.3	30.9	30.7	29.0	26.7	26.3	26.9	25.9	24.8	22.9	23.3	23.3	23.2	22.8	22.9

Source: IMF staff estimates and projections. Projections are based on staff assessment of current policies (see Fiscal Policy Assumptions in text).

Note: For country-specific details, see Data and Conventions in text, and Table C.

**Table A21. Low-Income Developing Countries: General Government Gross Debt, 2006–20**  
(Percent of GDP)

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Bangladesh	42.3	41.9	40.6	39.5	36.6	35.3	33.8	34.5	33.9	33.2	33.0	32.4	31.9	31.7	31.1
Benin	12.5	21.2	26.9	27.3	30.2	31.9	29.2	29.8	34.0	35.2	36.1	36.6	36.9	36.0	34.7
Bolivia	55.2	40.5	37.2	40.0	38.5	34.7	33.3	32.5	33.0	38.0	41.9	44.3	46.0	47.1	47.8
Burkina Faso	22.6	25.3	25.2	28.5	29.3	29.8	28.3	28.7	28.5	33.2	32.2	33.4	34.4	35.9	36.8
Cambodia	32.9	30.5	27.8	29.1	29.4	30.3	32.1	33.0	33.9	34.3	33.9	33.3	32.4	31.5	30.3
Cameroon	15.9	12.0	9.7	10.1	11.5	13.2	15.4	18.7	25.4	32.2	35.1	37.2	38.5	39.3	39.8
Chad	26.2	22.2	20.0	31.7	20.7	20.7	17.9	18.7	24.6	25.2	23.8	20.6	19.6	18.4	16.2
Democratic Republic of the Congo	100.0	83.4	87.0	89.8	27.0	22.3	19.9	18.3	19.0	20.5	21.5	23.8	25.9	26.9	27.4
Republic of Congo	98.8	98.0	68.1	61.6	22.9	33.1	34.1	38.2	41.8	57.5	54.1	44.8	42.1	41.9	42.0
Côte d'Ivoire	79.4	74.0	70.8	64.2	63.0	93.3	44.8	39.9	36.6	34.7	33.4	32.1	30.9	29.8	27.5
Ethiopia	38.7	36.6	30.2	24.9	27.4	25.7	20.9	21.6	22.3	22.6	23.5	24.0	24.5	24.9	25.1
Ghana	26.2	31.0	33.6	36.1	46.3	42.6	49.1	56.2	69.0	72.8	70.5	66.3	61.4	57.8	55.1
Guinea	137.1	92.4	90.2	89.3	99.6	77.8	35.4	39.5	41.1	40.9	36.3	31.7	27.7	24.8	19.6
Haiti	39.0	34.6	38.0	27.8	17.3	11.8	16.5	21.4	26.6	26.5	26.5	26.5	26.9	27.0	26.9
Honduras	40.3	24.7	23.0	27.5	30.7	32.0	34.7	45.3	45.7	48.4	50.1	51.1	51.4	50.9	50.0
Kenya	44.0	38.4	41.5	41.1	44.4	43.0	41.7	44.2	52.6	56.2	55.9	55.4	53.9	52.0	50.9
Kyrgyz Republic	72.5	56.8	48.5	58.1	59.7	49.4	49.0	46.1	53.0	60.0	62.0	62.3	59.2	56.3	55.3
Lao P.D.R.	71.9	64.2	60.3	63.2	62.1	56.9	62.2	60.1	62.5	63.4	66.5	68.8	69.6	71.8	73.3
Madagascar	37.3	32.8	31.8	33.4	31.9	32.4	33.7	34.0	34.7	35.4	43.6	43.6	43.8	44.3	45.0
Mali	19.4	20.0	24.3	23.9	28.8	30.5	29.8	30.6	36.7	42.5	41.7	42.0	42.3	42.7	43.3
Moldova	30.9	24.6	19.3	29.1	26.9	24.1	24.5	23.8	31.5	44.8	44.9	45.0	46.0	47.4	48.4
Mongolia	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Mozambique	46.6	36.6	37.8	42.5	43.1	37.6	40.8	52.2	57.5	61.0	59.6	58.3	57.4	55.5	49.1
Myanmar	90.3	62.3	53.0	55.0	49.5	49.3	43.1	34.8	31.6	33.4	33.4	33.6	34.1	34.7	35.1
Nepal	49.5	43.2	41.9	39.3	35.4	33.2	34.5	31.9	27.7	23.4	24.5	25.5	25.9	25.3	24.9
Nicaragua	54.7	31.6	26.5	29.4	30.9	29.3	28.6	29.8	29.5	30.6	31.5	32.0	32.6	33.0	33.7
Niger	27.1	25.1	21.1	27.7	24.3	27.7	26.5	27.9	32.2	43.7	45.9	45.2	43.1	41.1	38.5
Nigeria	7.9	8.4	7.4	9.6	9.6	10.2	10.4	10.5	10.5	11.9	13.7	15.4	17.0	18.7	20.6
Papua New Guinea	39.6	33.7	31.7	31.4	25.6	23.0	26.7	34.0	35.6	33.6	32.4	31.2	28.9	26.3	23.3
Rwanda	26.6	26.7	20.9	22.4	22.6	23.1	20.1	27.6	30.2	32.7	34.8	37.9	38.6	37.5	36.5
Senegal	21.8	23.5	23.9	34.0	35.5	40.7	42.8	46.6	53.1	55.0	61.9	60.7	57.4	53.6	51.8
Sudan	75.0	70.7	68.8	72.1	73.1	70.6	94.8	89.9	74.0	71.5	74.0	64.4	61.0	57.9	55.3
Tajikistan	35.3	34.6	30.0	36.2	36.3	35.4	32.4	29.2	28.3	32.9	34.6	36.4	36.0	36.4	35.8
Tanzania	32.8	21.6	21.5	24.4	27.3	27.8	29.2	30.9	35.2	40.2	41.8	42.1	42.0	42.0	42.1
Uganda	31.7	19.6	19.3	19.2	22.9	23.6	24.2	27.6	31.4	35.0	37.9	41.1	44.0	45.6	46.2
Uzbekistan	21.3	15.8	12.7	11.0	10.0	9.1	8.6	8.3	8.5	11.6	16.0	14.8	13.5	12.0	11.9
Vietnam	38.4	40.9	39.4	45.2	48.1	46.5	48.6	52.6	57.2	61.2	63.7	66.1	67.1	67.9	68.1
Yemen	40.8	40.4	36.4	49.8	42.4	45.7	47.3	48.2	48.7	67.0	60.6	59.7	61.8	65.1	68.4
Zambia	25.0	21.9	19.2	20.5	18.9	20.6	25.5	28.6	35.2	41.9	44.9	46.5	47.7	47.2	46.2
Zimbabwe	44.7	50.1	68.9	68.3	63.2	51.8	56.7	54.2	53.4	69.3	57.5	58.3	59.4	59.5	55.0
Average	34.5	31.6	29.7	32.8	30.5	30.0	30.0	30.6	31.3	34.8	36.5	36.9	37.3	37.6	37.8
Oil Producers	24.8	24.0	22.1	26.5	21.7	22.6	22.2	22.9	24.0	28.3	30.8	32.6	34.1	35.5	36.8
Asia	45.8	43.6	41.5	43.5	42.5	41.3	41.2	42.0	43.0	44.3	45.2	45.8	45.9	46.0	45.7
Latin America	48.1	32.9	31.0	32.5	32.0	30.1	30.9	34.1	35.1	38.2	40.5	41.9	43.0	43.4	43.7
Sub-Saharan Africa	25.6	23.4	22.0	24.6	21.5	21.8	20.9	21.9	23.3	26.6	28.4	29.4	30.2	30.8	31.3
Others	52.3	48.4	44.5	47.8	47.1	44.6	51.5	48.9	44.2	48.9	50.4	46.6	45.3	44.3	43.9

Source: IMF staff estimates and projections. Projections are based on staff assessment of current policies (see Fiscal Policy Assumptions in text).

Note: For country-specific details, see Data and Conventions in text, and Table C.

**Table A22. Low-Income Developing Countries: General Government Net Debt, 2006–20**  
(Percent of GDP)

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Bangladesh	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Benin	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Bolivia	41.9	27.3	20.6	23.1	18.4	14.4	11.0	10.1	13.2	20.6	27.4	32.8	37.2	40.6	47.8
Burkina Faso	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Cambodia	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Cameroon	15.9	12.0	9.7	10.1	11.5	13.2	15.4	18.7	25.4	32.2	35.1	37.2	38.5	39.3	39.8
Chad	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Democratic Republic of the Congo	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Republic of Congo	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Côte d'Ivoire	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Ethiopia	29.0	28.7	25.4	20.9	23.3	20.4	15.8	16.0	17.7	17.6	19.2	20.4	21.4	22.2	22.8
Ghana	21.9	23.3	30.1	32.6	43.0	38.8	47.0	52.9	66.1	70.4	68.0	64.0	58.5	54.4	51.2
Guinea	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Haiti	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Honduras	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Kenya	39.9	34.4	37.1	36.9	40.2	39.1	38.0	40.3	48.9	53.5	53.8	53.3	51.9	50.1	48.9
Kyrgyz Republic	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Lao P.D.R.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Madagascar	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Mali	13.9	13.9	17.9	13.0	19.3	22.2	24.8	23.6	28.0	34.6	36.2	37.0	37.3	37.5	38.0
Moldova	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Mongolia	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Mozambique	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Myanmar	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Nepal	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Nicaragua	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Niger	-37.1	1.5	1.9	0.9	4.3	2.6	1.9	3.0	3.6	4.8	3.3	2.9	2.9	2.9	2.3
Nigeria	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Papua New Guinea	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Rwanda	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Senegal	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Sudan	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Tajikistan	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Tanzania	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Uganda	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Uzbekistan	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Vietnam	38.4	40.9	39.4	45.2	48.1	46.5	48.6	52.6	57.2	61.2	63.7	66.1	67.1	67.9	68.1
Yemen	33.0	35.2	31.4	43.6	38.3	42.3	45.3	46.7	47.8	65.9	59.7	59.0	61.2	64.5	67.9
Zambia	21.6	17.6	16.3	16.5	15.9	16.2	20.0	25.1	29.5	37.7	42.0	44.0	45.3	45.0	44.1
Zimbabwe	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Average	30.6	30.4	29.9	32.7	35.3	34.4	36.0	38.9	43.6	48.9	50.4	51.6	52.0	52.2	52.6
Oil Producers	33.5	34.9	33.3	39.4	41.1	41.3	44.0	47.4	51.8	58.7	60.1	61.9	63.1	64.2	64.9
Asia	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Latin America	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Sub-Saharan Africa	23.8	23.2	24.2	23.5	27.9	26.6	28.1	31.1	36.3	40.0	41.0	41.0	40.3	39.5	38.7
Others	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...

Source: IMF staff estimates and projections. Projections are based on staff assessment of current policies (see Fiscal Policy Assumptions in text).

Note: For country-specific details, see Data and Conventions in text, and Table C.

# FISCAL MONITOR

## SELECTED TOPICS

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Navigating the Fiscal Challenges Ahead	April 2010
Fiscal Exit: From Strategy to Implementation	November 2010
Shifting Gears	April 2011
Addressing Fiscal Challenges to Reduce Economic Risks	September 2011
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## IMF EXECUTIVE BOARD DISCUSSION OF THE OUTLOOK, SEPTEMBER 2015

*The following remarks were made by the Chair at the conclusion of the Executive Board's discussion of the World Economic Outlook, Global Financial Stability Report, and Fiscal Monitor on September 21, 2015.*

Executive Directors broadly shared the assessment of global economic prospects and risks. They noted that global growth remains modest and uneven across countries and regions, while financial market volatility has increased in recent months. Downside risks to the global outlook have risen, with emerging market and developing economies particularly exposed to the declining commodity prices and tighter global financial conditions. Directors observed that persistent weak growth in advanced economies and the fifth consecutive year of growth declines in emerging market economies reflect both country-specific developments and common forces of a medium- and long-term nature. Forceful policy action on all fronts, as well as enhanced international cooperation, has become more crucial than ever to reverse this trend and promote stronger, more balanced global growth.

Directors broadly concurred that, in advanced economies, the foundations for a modest recovery in 2015–16 are still intact, while financial stability has generally improved. They noted that a sustained recovery in the euro area, a return to positive growth in Japan, and continued robust activity in the United States are positive forces, although increased market volatility may pose financial stability challenges in the near term. Medium-term prospects remain subdued, reflecting unfavorable demographics, weak productivity growth, and high unemployment, as well as legacy issues from the crisis—including high indebtedness, low investment, and financial sector weakness. A key risk is a further decline of already-low growth that could turn into near stagnation, especially if slower growth in emerging market economies dampens global demand. In this context, persistent below-target inflation could become more entrenched.

Directors noted that the overall outlook for emerging market and developing economies is generally weakening, reflecting tighter global financial conditions, China's transition toward consumption-driven

sustainable growth, a weaker commodity market outlook, and geopolitical tensions. However, growth prospects differ considerably across countries. Emerging market economies are vulnerable to shifts in exchange rates and a reversal of capital flows. Meanwhile, further declines in commodity prices could weaken the outlook for commodity exporters. While China's transition and the ensuing slowdown have long been anticipated, a sharper-than-expected growth decline, if it materialized, could generate considerable spillovers and risks for other countries.

Directors acknowledged that the global financial outlook is clouded by increased emerging market vulnerabilities, legacy issues from the crisis in advanced economies, and concerns about weak market liquidity. They noted in particular high corporate leverage and foreign-currency exposures in emerging market economies, headwinds from balance sheet weaknesses in advanced economies, and remaining gaps in the euro area financial architecture. In the context of rising policy rates, the global financial system may see adjustment as financial conditions tighten and risk premiums rise from historically low levels. Directors recognized that interest rate normalization in the United States driven by robust activity will benefit the world economy and also reduce uncertainty—and hence should take place in a timely, data-dependent manner.

Directors underscored that raising both actual and potential output continues to be a policy priority, requiring mutually reinforcing measures for demand support and structural reforms. They concurred that the main policy recommendations are appropriate, although the right balance of policy mix will vary from country to country. A collective effort is needed to boost trade growth, avoid trade protectionist measures, refrain from competitive devaluations, and reduce the persistent global imbalances.

Directors agreed with the policy priorities for full employment and stable inflation in advanced

economies. Accommodative monetary policy remains essential, particularly in Japan and the euro area, while efforts should continue, where needed, to enhance policy transmission and address financial system risks through continued balance sheet repair and macro-prudential policies. Fiscal policy should remain prudent, yet flexible and growth friendly, anchored in sound medium-term strategies. Countries with fiscal space and sizable output gaps or significant current account surpluses should ease their fiscal stance in the near term, especially by increasing investment in high-quality, high-return infrastructure projects. Structural reforms should aim to strengthen labor force participation and trend employment, facilitate labor market adjustment, tackle legacy debt overhang, and lower barriers to entry in product markets, especially in services.

Directors recognized that emerging market and developing economies in general are now better prepared for the current, less favorable environment—with stronger fundamentals, buffers, and policy frameworks. Nevertheless, they face a difficult trade-off between supporting demand and reducing vulnerabilities. The scope for further easing macroeconomic policies varies considerably across countries, depending on the extent of economic slack and inflationary pressures and fiscal space, as well as external, financial, and fiscal vulnerabilities. Directors agreed that exchange rate flexibility, where feasible, in the context of a well-specified policy framework, can help absorb external shocks. They stressed that, in many countries, structural reforms are urgently needed to raise productivity and remove bottlenecks to production.

Directors concurred that, in a more difficult external environment, developments in low-income countries should be given particular attention. Many of these countries are commodity exporters whose initial conditions have already been strained, fiscal and external balances are deteriorating, and absorptive capacity is limited. Appropriate policy advice and adequate financial assistance from development partners, including the Fund, will be essential to support low-income countries in their adjustment efforts and advancement

toward the Sustainable Development Goals. Their priorities generally include economic diversification, domestic revenue mobilization, and financial sector deepening.

Directors highlighted the importance of preserving financial stability, safeguarding against market illiquidity, and maintaining confidence in policymaking. For advanced economies, priorities should include continued clear and effective communication of monetary policy intentions, and a comprehensive strategy to tackle nonperforming loans and complete the financial architecture in the euro area. Liquidity conditions, especially for nonbanks, should be closely monitored, and market structure solutions to liquidity shortages should be explored. Completing the global financial regulatory reform agenda requires further progress on implementation, finalization of outstanding reforms, and addressing emerging risks.

Directors emphasized the need to address both cyclical and structural challenges in emerging market economies. They agreed that policymakers should rely on micro- and macro-prudential tools to discourage the buildup of excessive leverage, strengthen provisioning by banks, and improve regulations on credit quality classification. Foreign-currency exposures warrant special attention and the reform of corporate insolvency regimes should continue. Rebalancing and deleveraging in China will require a careful pacing and sequencing of market-based reforms, a further strengthening of the financial system, and strong implementation of the reform agenda.

Directors noted that lower oil prices present both opportunities and challenges. In many oil-importing countries, lower oil prices have eased the burden on monetary policy and created some fiscal policy space. Exporters of oil and other commodities with worsening terms of trade will need to adjust public spending in the face of lower commodity-related revenue. These countries should also continue to upgrade their fiscal policy frameworks and provide a longer-term anchor to guide policy decisions. Reforms of energy subsidies and taxation remain an important priority for many countries.

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