INTERNATIONAL MONETARY FUND

MACROECONOMIC POLICY FRAMEWORKS FOR RESOURCE-RICH DEVELOPING COUNTRIES—BACKGROUND PAPER 1—SUPPLEMENT 1

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Abbreviations and Acronyms

BoB	Bank of Botswana
CSO	Civil Society Organization
EIA	Energy Information Agency
EITI	Extractive Industries Transparency Initiative
ESI	Estimated Sustainable Income
ESSF	Economic and Social Stabilization Fund
FRL	Fiscal Responsibility Law
FSF	Financial Sustainability Framework
FSL	Fiscal Stability Law
GFMIS	Government Financial Management Information System
HIC	High Income Country
IFSWF	International Forum of Sovereign Wealth Funds
IWG	International Working Group
IWG SWF	International Working Group of Sovereign Wealth Funds
LIA	Libyan Investment Authority
LIC	Low-Income Country
LMIC	Lower-Middle Income Country
MR	Mining Revenue
MTEF	Medium-Term Expenditure Framework
NDP	National Development Plan
NMR	Non-Mining Revenue
NPV	Net Present Value
NRPB	Non-resource Primary Balance
OIF	Oil for Infrastructure Fund
ORSA	Oil Revenue Stabilization Account
OT	Oyu Tolgoi (copper mine)
PFM	Public Financial Management
PIH	Permanent Income Hypothesis
PIMI	Public Investment Management Index
PNG	Papua New Guinea
PRF	Pension Reserve Fund
RRDC	Resource Rich Developing Country
SALM	Sovereign Asset and Liability Management
SSA	Sub-Saharan Africa
SWF	Sovereign Wealth Fund
TA	Technical Assistance
UMIC	Upper Middle-Income Countries
TTF	Topical Trust Fund

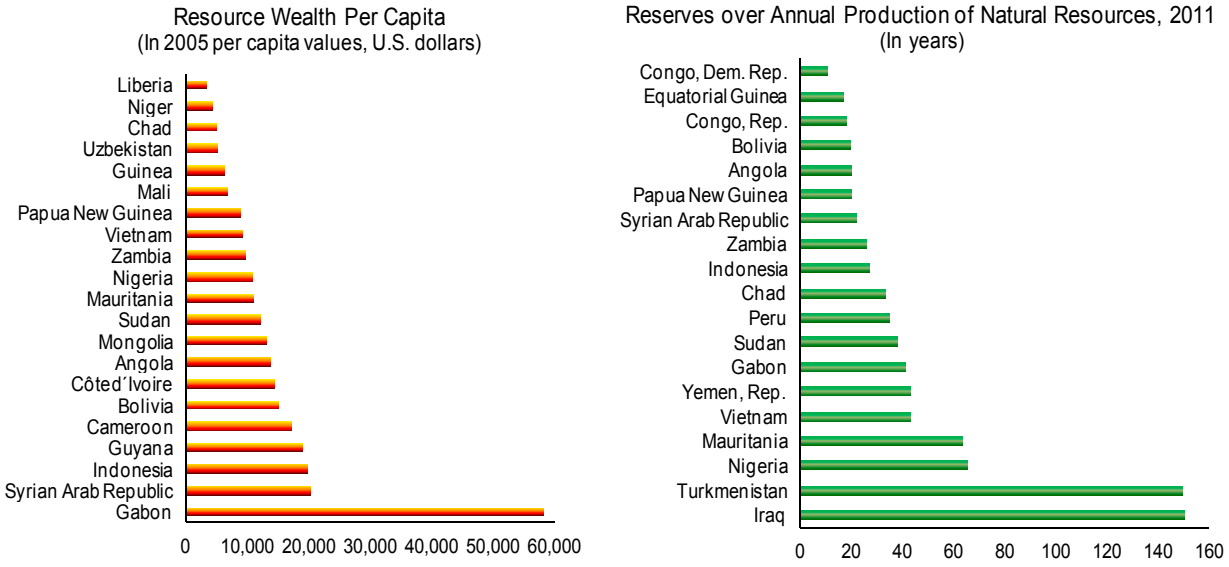
I. STYLIZED FACTS

A. Stylized Facts in Resource-Rich Developing Countries

1. **Many developing countries are endowed with natural resources that could help them achieve their economic development objectives**. Reserves in several countries are large enough to sustain extraction rates for several generations, although for others the depletion horizon is much closer. A number of countries plan to increase extraction soon (e.g., Guinea and Liberia in iron ore), and others are just discovering resources (e.g., Ghana, Côte d'Ivoire, and Uganda)[1] (Figure 1).

Many developing countries have substantial natural resource wealth. While for some countries extraction could continue for several generations, extraction horizons are relatively short for others.

Figure 1. Resource Wealth Per Capita and Reserves Horizon of Natural Resources



Sources: World Bank (2011); and British Petroleum (2011).

2. **Exhaustible natural resources account for a substantial share of export and government revenues in many countries.** In some, such resource dependence exceeds 75 percent of total exports and of fiscal revenues (Figure 2). (See Appendix 1, Table 1-2 in main paper). Oil

[1] This section uses a sample of 29 RRDCs and a comparator of 64 non-resource-rich LICs/LMICs. The first group was based on two criteria: (i) being either a LIC or LMIC as classified by the World Bank using 2010 GNI per capita; and (ii) depending on natural resources for at least 20 percent of export or fiscal revenue using average data for 2006–10. Gabon and Equatorial Guinea are considered RRDCs because of their membership in the CEMAC monetary union. Sample size varies for different tables and graphs due to data availability. For the full list of resource-rich countries, see Appendix 1 in the main paper.

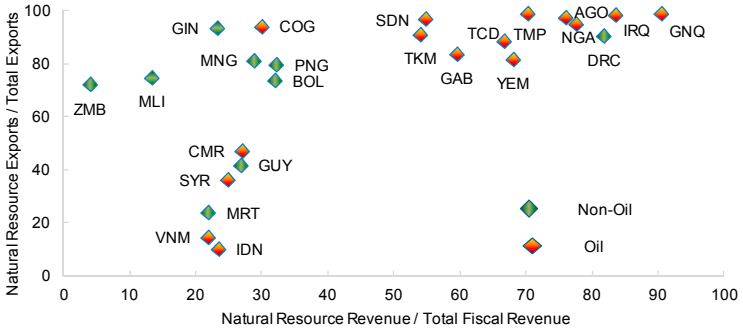
exporters tend to have high shares in both exports and revenues; for exporters of other types of resources, export shares can be high but revenue shares low.[2]

3. **In spite of the additional economic opportunities offered by resource abundance, economic growth in resource-rich developing countries (RRDCs) has been mixed.** In a number of these countries economic growth has been disappointing—a phenomenon also known as the "natural resource curse"[3] (Figure 3). Economists have advanced possible explanations for this phenomenon, among them (i) Dutch disease[4]; (ii) transmission of global commodity price volatility (especially when exports and revenues are concentrated); and (iii) increased rent-seeking, deterioration of institutions, and risk of conflict.

4. **A natural resource "curse" is neither universal nor inevitable; growth may depend heavily on other factors, such as policies and the quality of institutions**.[5] For resource-dependent economies it has been found that where growth is concerned the adverse indirect impact of high volatility ("volatility channel") may dwarf the otherwise positive impact of the natural

Several RRDCs are highly dependent on exhaustible natural resources for fiscal revenue and exports.

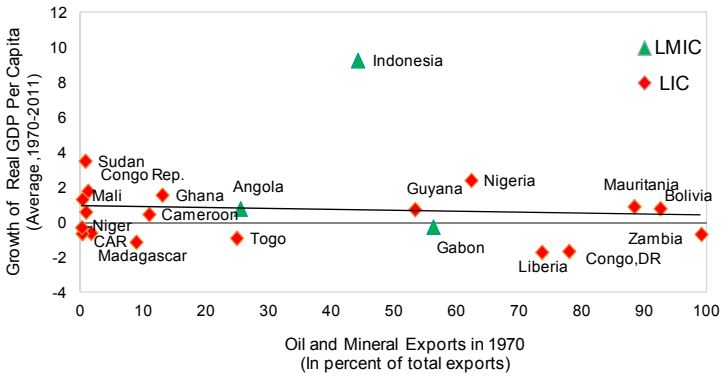
Figure 2. Share of Exports and Fiscal Revenue from Natural Resources
(Average 2006–10, in percent)[1]



Sources: World Development Indicators, World Bank; and IMF staff estimates.
[1]Three-letter country abbreviations are explained in Appendix 1.

Being rich in natural resources has not necessarily led to sustained strong growth.

Figure 3. Average Annual Real GDP Growth Per Capita (1970-2011), and Natural Resource Dependence (1970)[1]



Sources: World Economic Outlook; World Development Indicators, World Bank.
[1]Uses data from 1970 onwards (except for Liberia which starts later).

[2] The IMF staff paper "Fiscal Regimes for Extractive Industries: Design and Implementation" discusses taxation of different types of exhaustible resources (IMF, 2012a).

[3] The seminal work on the natural resource curse is Sachs and Warner (1995, 2001); the vast literature is reviewed in van der Ploeg (2011) and Frankel (2011).

[4] Dutch disease describes the situation where natural resource windfalls increase the demand for non-traded goods, which would then draw production factors away from non-resource-traded sectors. See Corden and Neary (1982) and Torvik (2001), among others, for a theoretical perspective.

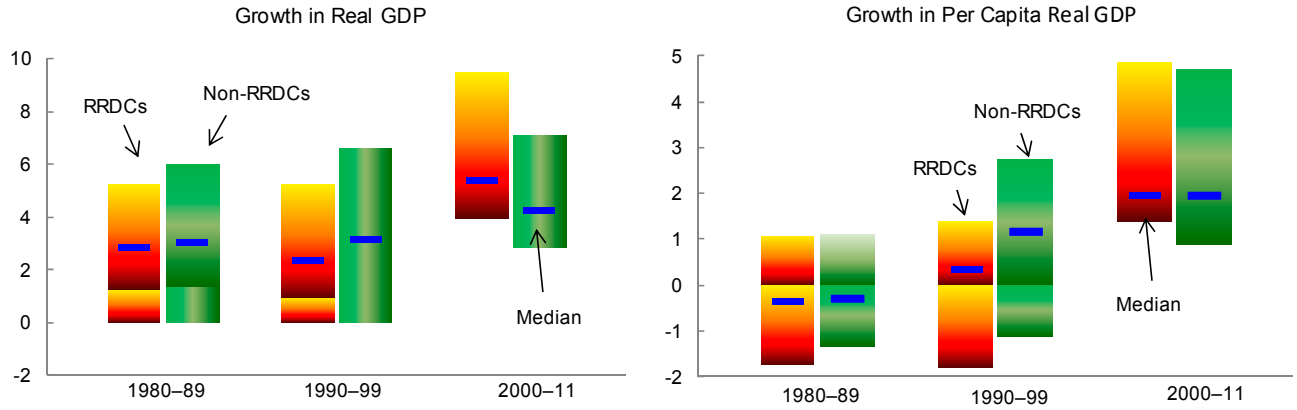
[5] Alexeev and Conrad (2009) find that the oil curse, including an adverse impact from institutions, is elusive. They argue that the econometrics used in previous work had flaws. The link between volatility, natural resources, and growth is discussed in van der Ploeg and Poelhekke (2009).

resource endowment. This suggests that having well-developed financial markets may be beneficial and underscores the importance of properly designed fiscal and other policies that cope well with volatility. Other work has stressed the importance of institutions: natural resource abundance would raise incomes in economies that are producer-friendly but lower them when weak institutions push scarce resources into unproductive activities by fostering rent-seeking behavior.[6]

5. **Recently, however, natural resource exporters have been growing faster than non-resource-rich counterparts, reflecting both the commodity boom and improved economic policies** (Figure 4). Rising world commodity prices, accompanied by new discoveries (particularly in sub-Saharan Africa [SSA]), have stimulated growth in these economies for the past decade. For example, in 2000–11, resource-rich SSA countries grew faster than their counterparts.[7] Contrary to experience in the 1980s and 1990s, GDP per capita and real GDP growth have in the past 10 years been higher on average in RRDCs.

6. **In addition to mixed outcomes on economic growth, many RRDCs have yet to lift their populations out of poverty.** This is evidenced by widespread poverty, low social indicators, and large infrastructure gaps (Figure 5).

Figure 4. Growth in Real GDP and Per Capita Real GDP for RRDCs and Non-RRDCs: 1980-2011
(Median and interquartile range, in percent)



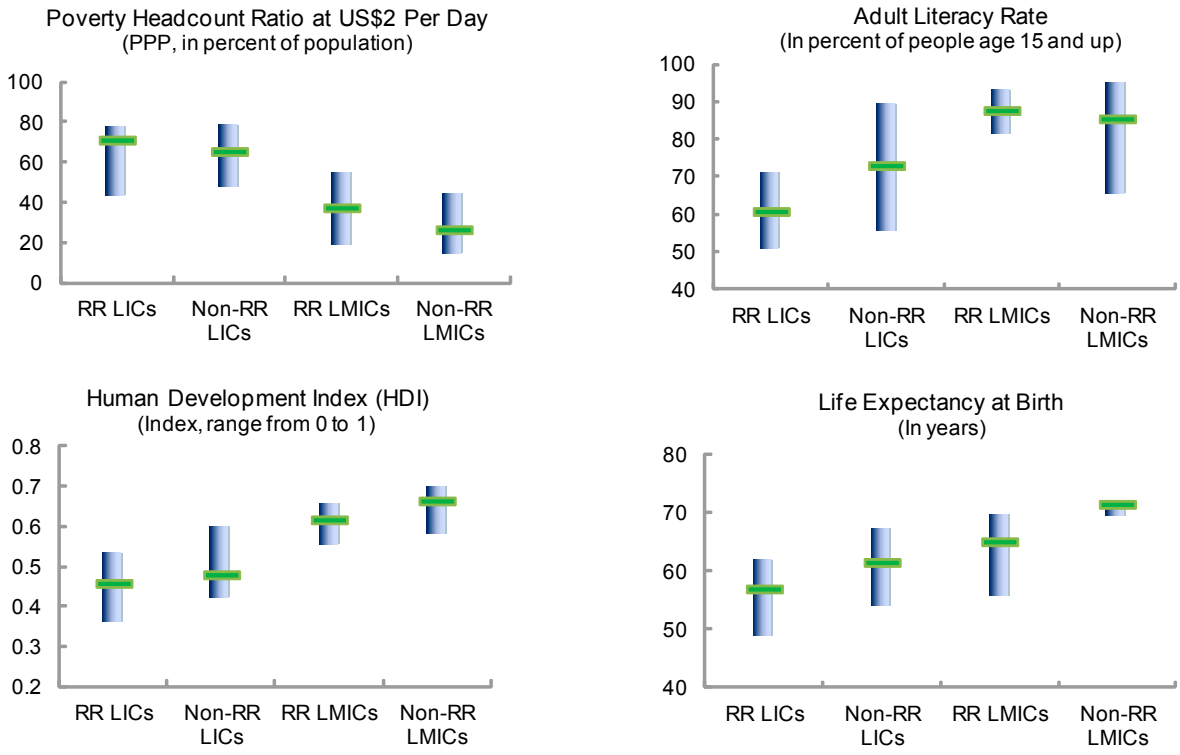
Sources: World Economic Outlook; and IMF staff estimates.

[6] See Mehlum, Moene, and Torvik (2006). This study uses a measure of institutional quality that proxies the rule of law, bureaucratic quality, government corruption, a risk of expropriation, and government repudiation of contracts.

[7] See *Sub-Saharan Africa Regional Economic Outlook*, April 2012. SSA resource-rich countries have also been improving their institutions faster than their counterparts, which may have contributed to strong growth.

High poverty rates reflect large unmet development needs, in spite of natural resource abundance.

Figure 5. Development Indicators for Resource-Rich and Non-Resource-Rich Developing Countries
(Median and interquartile range)[1]

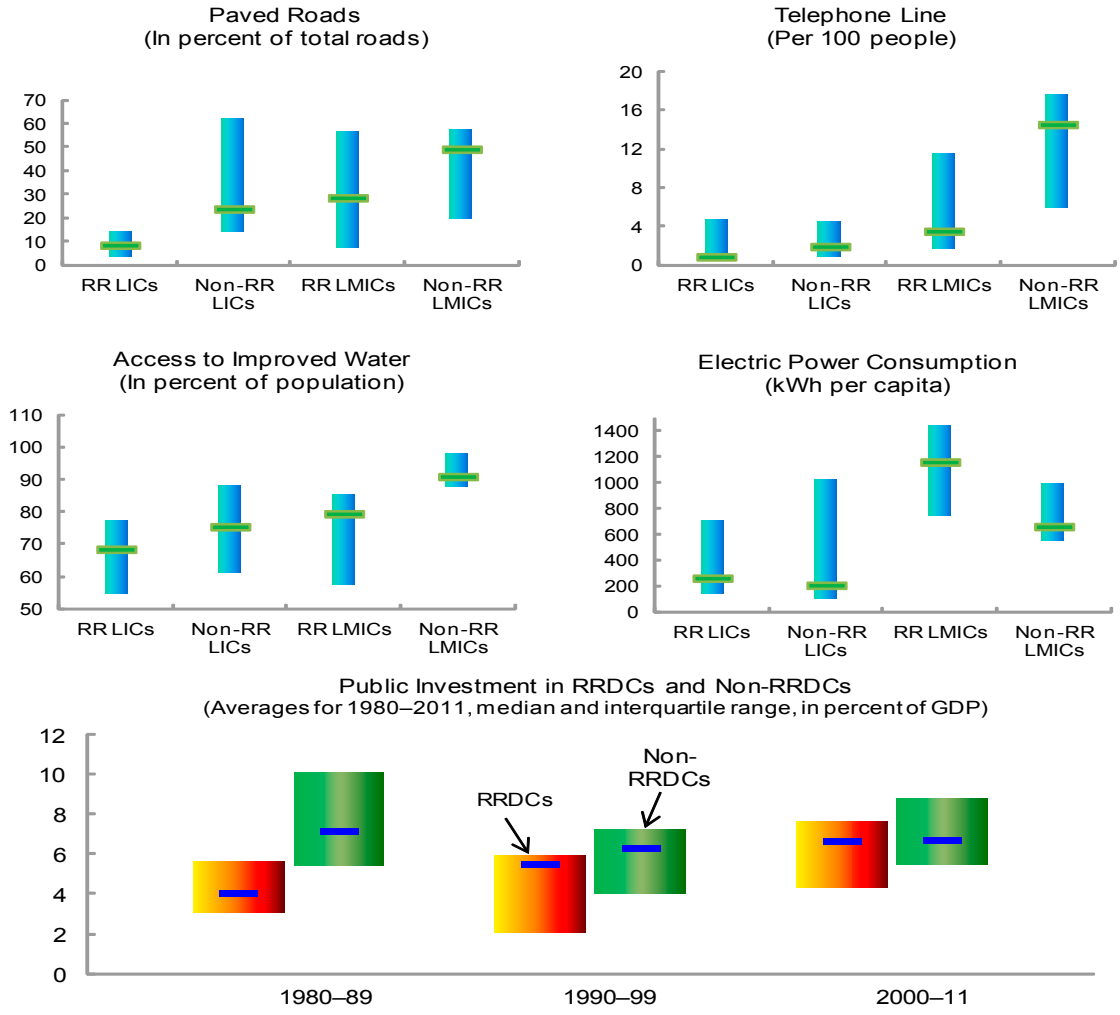


Sources: World Bank; UNDP; and IMF staff estimates.
[1]Using latest available data since 2000. RR: Resource-rich; Non-RR: Non-resource-rich.

7. **Infrastructure gaps—which are bottlenecks to growth in most developing countries—are even wider in RRDCs** (Figure 6)**.** Several indicators for public infrastructure show that RRDCs trail their counterparts; the gap is even higher for those that are LICs. However, their public investment ratios are becoming more like those in comparator countries.

In spite of natural resource abundance, public infrastructure and access to it is still low.

Figure 6. Infrastructure Indicators for Resource-Rich and Non-Resource-Rich Developing Countries
(Median and interquartile range)[1]



Sources: World Economic Outlook; and IMF staff estimates.
[1]Using latest available data since 2000. RR: Resource-rich; NRR: Non-resource-rich.

8. **Resource-rich developing countries have a poor record of transforming resource wealth into other types of assets.** Although RRDCs need to be using depletable resources to build other financial and physical assets, in fact higher resource rents are associated with *lower* stocks of public capital (Bhattacharya and Collier, 2011). The negative relationship is even stronger between resource rents and an estimate of "actual" capital, adjusted by investment efficiency levels (Gupta et. al., 2011). According to the World Bank measure of "genuine savings," these countries are running down rather than building total wealth. Conventional savings measures may paint a misleading picture when resource revenue is counted as income: they may mask lower savings from resource depletion. Based on the World Bank's adjusted savings measure, which, among other

things, takes into account that resource rents are wealth flows rather than income, in several RRDCs genuine savings are small or even negative (Figures 7 and 8).

"Genuine" saving is small, or even negative, in several RRDCs. Improvement in public investment is still accompanied by poor record of transforming resource abundance to assets.

Figure 7. Adjusted Net Savings and Exhaustible Resource Rent[1]
(Average: 2000–09, in percent of GDP)

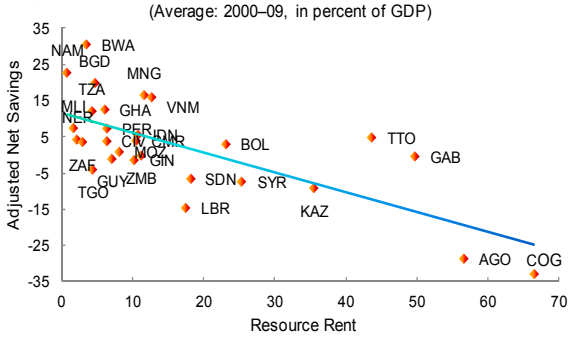
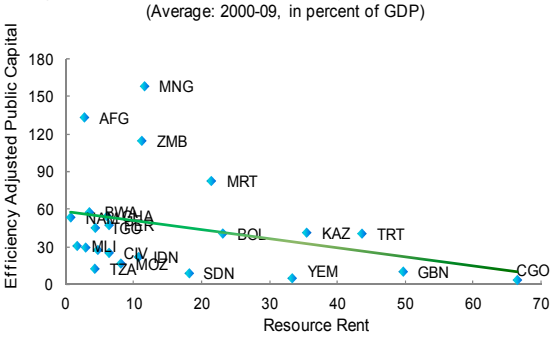


Figure 8. Resource Rent and Efficiency-Adjusted Public Capital
(Average: 2000-09, in percent of GDP)



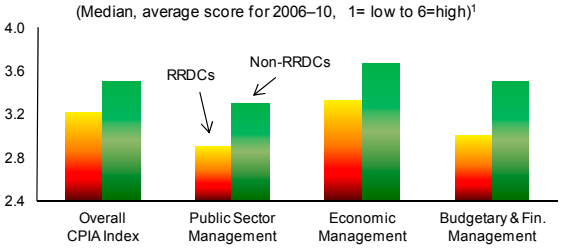
Sources: World Development Indicators, World Bank; and IMF staff estimates.

[1]Three-letter country abbreviations are explained in Appendix 1. Adjusted net savings are equal to net national savings including education expenditure, minus energy depletion, mineral depletion, net forest depletion, and carbon dioxide and particulate emissions damage.

9. **Inadequacies in capacity may in some countries help to explain why public spending is relatively inefficient and complicates efforts to scale up physical and social infrastructure.** Public sector economic and financial management is worse in RRDCs than in non-resource comparators. Staff analysis suggests that there is considerable variation in the quality of the public investment process in developing countries, based on a Public Investment Management Index (PIMI) that combines elements of various stages of the investment process—appraisal, selection, implementation, and evaluation (Dabla-Norris et al., 2011). As a result of the inefficiencies, the effective capital stock may be barely half of the stock that the accumulated amount of investment would suggest (Gupta et al., 2011) (Figures 9 and 10).

Several RRDCs lag with overall management of the public sector, the economy, and finances.

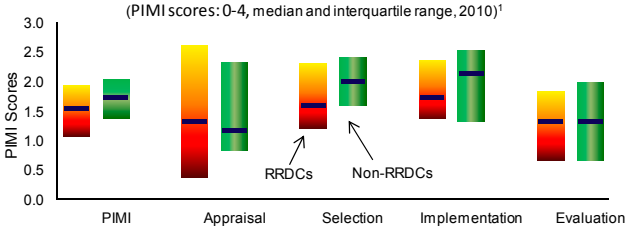
Figure 9. CPIA Index for RRDCs and Non-RRDCs
(Median, average score for 2006–10, 1= low to 6=high)[1]



Source: WDI, World Bank.
[1]Based on a sample of 28 RRDCsand 64 Non-RRDCs. The CPIA is the Country Policy and Institutional Assessment (CPIA) index.

The relatively low capacity to manage public investment poses challenges to scaling up investment spending.

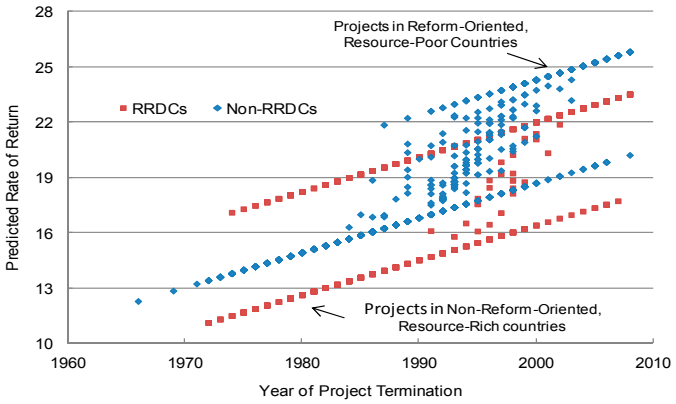
Figure 10. Public Investment Management Index for RRDCs and Non-RRDCs
(PIMI scores: 0-4, median and interquartile range, 2010)[1]



Sources: Dabla-Norris et al.(2011).
[1]Based on a sample of 26 RRDCs and 45 Non-RRDCs. The PIMI captures (in a scale of 0 to 4) the institutional environment underpinning public investment management across four stages.

10. **Economic rates of return on World Bank investment projects can provide some information on potential returns to public investment in RRDCs.** The effect of resource-rich status on investment project returns was examined using data from World Bank, Independent Evaluation Group (2010) on rates of return over the period 1966-2009. Regression results indicate that while in the overall sample investment returns have been increasing at a rate of 0.19 percentage points per year (equivalent to a rise of 3.8 percentage points over two decades), RRDC-status was associated with a 2.6 percentage point lower return. Market-oriented reform, measured by a variable indicating whether and when a country adopted a major market-oriented reform program, was associated with a 5.6 percentage point increase in project investment returns.[8] Figure 11 summarizes graphically the influence of these variables on rates of returns (note that the figure shows the predicted values and not the underlying data points). The four lines correspond to the four possible combinations of the two indicator variables (reform-oriented RRDCs, non-reform-oriented RRDCs, reform-oriented non-RRDCs, and non-reform-oriented non-RRDCs). The highest line corresponds to investment projects in reform-oriented, non-RRDCs, while the lowest line corresponds to those in non-reform-oriented RRDCs. It should be noted that World Bank-supported investment projects are only part of all public investment projects in a country, and so would not be fully representative of average public investment returns.

Figure 11. Rates of Return on World Bank Projects



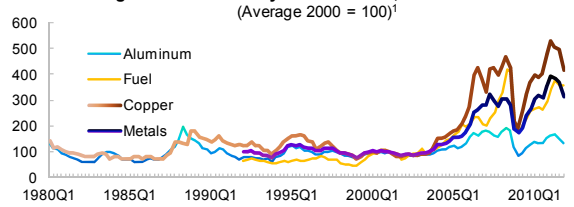
Sources: Authors' calculations using data from World Bank, Independent Evaluation Group (2010).
Notes: Predicted values from a regression of end-project rates of return on an economic reform varaible, an RRDC indicator variable, and a time trend.

[8] The economic reform variable is an indicator taking the value 1 if the project was conducted in a country rated to be a significant market-oriented reformer by the World Bank or a fraction if only part of the project was conducted under reform conditions. The "off the line" data points in Figure 11 correspond to fractional values of this reform variable. See World Bank (1996, 2010) for details. Analysis prepared by Andrew Warner (RES).

11. **Exporters of natural resources are also exposed to considerable volatility, as was made clear by the rollercoaster ride global commodity prices have taken in the past few years.**

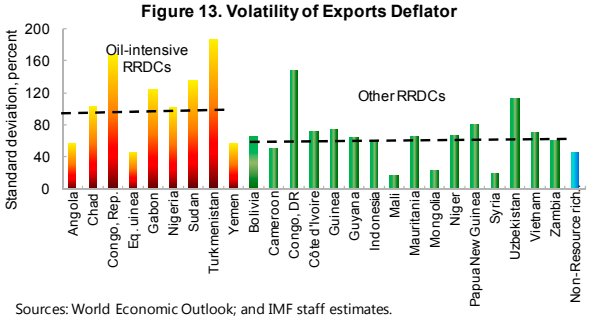
Natural resource exporters are exposed to substantial volatility in the world prices for their commodities.

Figure 12. Commodity Price Indexes, 1980Q1–2011Q4
(Average 2000 = 100)[1]



Source: World Economic Outlook.
[1]Fuel: composite of crude oil, natural gas, and coal prices; Metals: composite of prices for copper, aluminum, iron ore, nickel, zinc, lead, and uranium.

Figure 13. Volatility of Exports Deflator



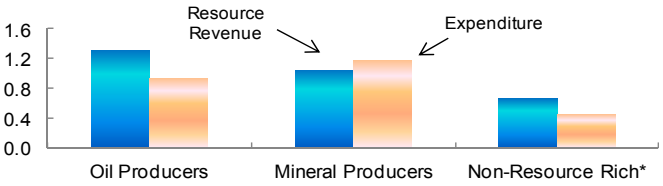
Sources: World Economic Outlook; and IMF staff estimates.

Exporters of resources, particularly oil, must deal with more volatility in export prices than other countries. Because global prices for natural resources are more volatile than prices of other goods, it is not a surprise that the standard deviation for export prices among resource-rich countries is higher than for counterparts; this may also translate into more volatile budgetary revenues (Figures 12 and 13).

12. **The volatility of revenues and spending has also been much higher among RRDCs.** Revenues are on average at least 60 percent more volatile for resource-rich countries, and spending volatility has been even greater. The volatility of revenue (hedging is rare) and spending is an indication that use of revenue-smoothing short-run fiscal frameworks is limited (Figure 14).

RRDCs exhibit greater volatility in revenues and expenditures than non-resource rich ones.

Figure 14. Volatility of Real Resource Revenue and Expenditure
(Coefficient of variation, averages for 1992–2011)



Sources: WEO and IMF staff estimates.
* Real total revenue.

13. **Evidence for oil producers suggests that fiscal policy moves in line with swings in the commodity cycle, though the share of additional revenue "used" (rather than saved) has changed over time.**[9,10] For 1992–96, a

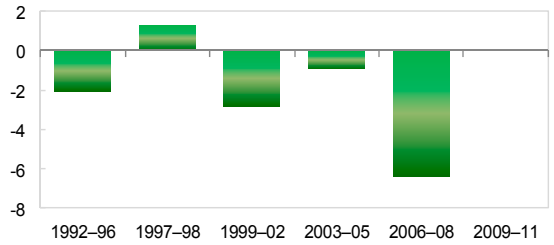
[9] The stance of fiscal policy is tracked through the change in the non-resource primary balance (as a percent of non-resource GDP), which does not mask the underlying stance or confound results due to sharp changes in the commodity price deflator.

[10] One way of measuring the extent of the use of additional resource revenue is by comparing the absolute change in the fiscal balance excluding oil revenue (the non-resource balance) relative to the increase in resource revenue. This paper derived "used" and "saved" additional revenue from the following equations: Oil revenue (OR) + non-oil revenue (NOR)-spending (G) = overall balance (OB). Then ΔOB= ΔOR + ΔNOR - ΔG. Rearranging it: Δ OR= ΔOB+ (ΔG- ΔNOR) = ΔOB- ΔNOB= savings +use. See Villafuerte and Murphy (2010) for details.

period of relatively low oil prices, oil producers on average used all the increases in resource revenue (the increase in the non-oil primary deficit averaged 100 percent of the incremental increase in oil revenues).[11] The share of investment in total spending has not risen, though there has been a sizable increase in savings during the first part of the most recent boom. Early in the more recent oil boom (2003–05), producers did not relax their fiscal stance much (on average the non-oil primary balance widened by 1 percentage point of non-oil GDP) and countries used less than half the incremental resources, suggesting they judged the boom to be temporary. However, later in the boom (2006–08) their fiscal stance was highly expansionary (on average the non-oil primary balance widened by 6 percentage points of non-oil GDP), and countries used an increasing share of incremental resources. After the boom, on average in relation to 2008 the non-oil primary balance did not adjust between 2009 and 2011 as oil prices recovered to previous highs (Figures 15 and 16).

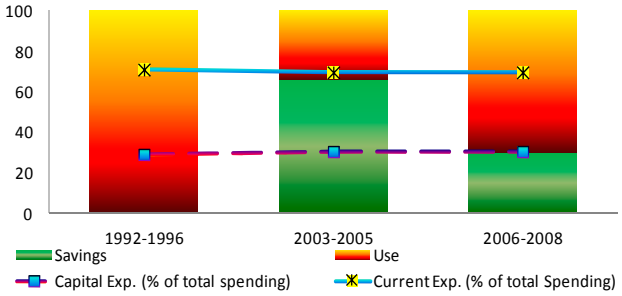
The fiscal policy stance has tended to swing along with the commodity cycle, while the relative use of resource revenue has changed over time as suggested by an analysis for oil producers.

Figure 15. Average Change in Non-Oil Primary Balance
(In percent of non-oil GDP)



Sources: World Economic Outlook; and IMFstaff estimates.

Figure 16. Use and Savings of Additional Resource Revenue of Oil Producers
(Percent of additional resource revenue)



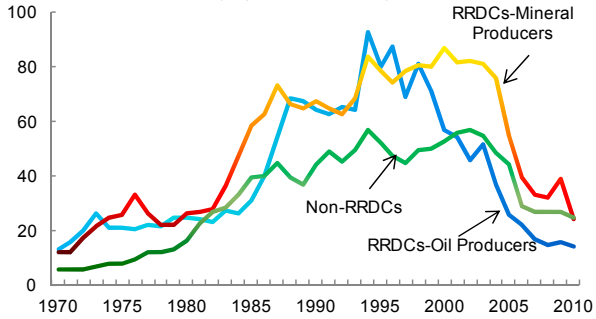
Sources: World Economic Outlook; and IMF staff estimates.

14. **Public external debt has also moved in line with commodity revenue cycles.** While all groups of countries have seen public external debt ratios decline in the past decade for a number of reasons (debt write-offs, higher growth, etc.), the most significant declines have been in resource-rich countries. This evolution contrasts noticeably with the 1970s boom, which did not reduce debt ratios because overall fiscal balances were, on average, lower than during the more recent boom. The difference would be mostly explained by the impact of falling resource prices on nominal GDP and relatively weaker fiscal balances (Figures 17 and 18).

[11] In contrast, additional spending exceeded 100 percent of additional real revenue during the 1973–80 boom.

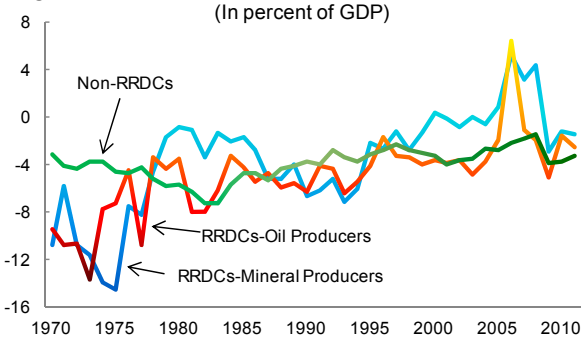
Resource-rich countries have taken advantage of the recent commodity boom to reduce public external debt.

Figure 17. Public External Debt of RRDCs and Non-RRDCs
(In percent of GDP)



Sources: World Economic Outlook; and IMF staff estimates.

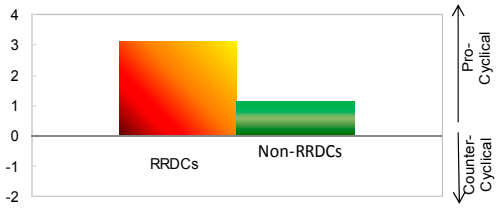
Figure 18. Overall Fiscal Balance of RRDCs and Non-RRDCs
(In percent of GDP)



Sources: World Economic Outlook; and IMF staff estimates.

15. **Recently, however, RRDCs have shifted from procyclical to counter-cyclical fiscal stances as their institutions improved**[12] (Figure 19)**.** Staff analysis of government spending in RRDCs and comparators during boom and bust commodity price episodes finds that government spending was more procyclical in RRDCs than comparators during 1970-2011. However, while government spending (and most of its main subcomponents) in RRDCs was mainly procyclical in 1970–1999 it has since become largely counter-cyclical.[13][14] A possible explanation for this is improving institutions: the fiscal policies of natural resource exporters that have weaker institutions still tend to be procyclical. This finding is consistent across various institutional measures, in particular the quality of budget institutions, fiscal rules, and political and economic institutions indicators; it is also consistent with other studies (Figures 20 and 21).

Figure 19. Fiscal Stance in RRDCs and Non-RRDCs, 1970–2011[1]
Real expenditure growth in boom times minus real expenditure growth in busts (in percent)



Sources: IMF Commodity database, IFS, World Develoment Indicators, World Economic Outlook; and IMF staff estimates.

[1] Drawing on Kaminsky et al (2004), "good times" are identified as years in which the commodity export price exceeds the 25th percentile and "bad times" as years when it is below the 25th percentile. Booms are defined as years when "good times" coincide with a positive GDP cycle and "busts" as years when "good times" coincide with negative GDP cycles. The GDP cycles are defined using a Hodrik Prescott filter. Fiscal stance is classified as procyclical (countercyclical) if the average difference in real government spending growth between booms and busts is positive (negative).

[12] Drawing on Kaminsky et al. (2004), fiscal cycles are identified by decomposing commodity export price episodes into "booms" and "busts" using a nonparametric approach. In boom years the commodity export price is above the 75th percentile and in bust years it is below the 25th percentile. Actual boom and bust episodes differ by country because country-specific commodity export price series are used.

[13] The focus of the analysis is government spending. This is consistent with the literature which has noted that to assess fiscal stance, policy instruments such as government spending should be examined rather than outcomes that policy makers do not have direct control over (such as fiscal balances and tax revenues).

[14] The dataset covers 1970–2011; the sample, chosen based on data availability, begins in 1970 for real government spending and 1980 for real government spending and capital spending.

Natural Resource-Rich Developing Countries: Fiscal Stance, 1970–2011

Figure 20. Fiscal Stance by Component of Spending, 1970–2011[1]

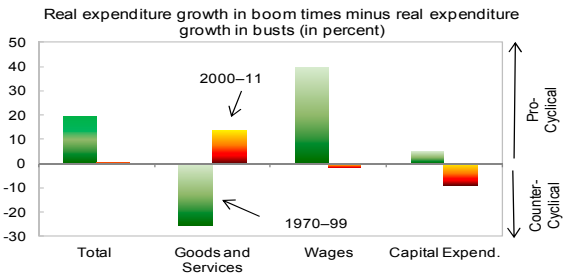
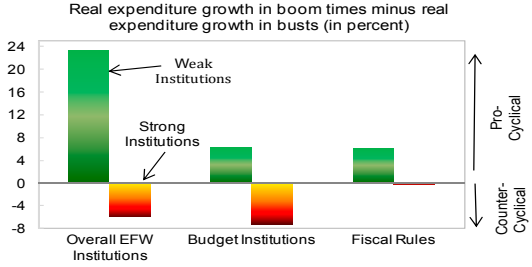


Figure 21. Fiscal Stance by Institutional Quality, 1970–2011[1,2]



Sources: Fraser Institute, Economic Freedom of the World (EFW) , IMF Commodity database, IMF Fiscal Rules Dataset 2012, Comtrade, IFS, World Develoment Indicators, World Economic Outlook; and IMF staff estimates.
[1]Drawing on Kaminsky et al (2004), "good times" are identified as years in which the commodity export price exceeds the 25th percentile and "bad times" as years when it is below the 25th percentile. Booms are defined as years when "good times" coincide with a positive GDP cycle and "busts" as years when "good times" coincide with negative GDP cycles. The GDP cycles are defined using a Hodrik Prescott filter. Fiscal stance is classified as procyclical (countercyclical) if the average difference in real government spending growth between booms and busts is positive (negative).
[2]The analysis reflects the data availability, with EFW analysis: 1970–2009, budget institutions: 2006–11, and fiscal rules: 1985–2011.

16. **Studies suggest that managing resource revenue volatility, particularly through limiting procyclical policies, is associated with improved macroeconomic outcomes.** Several studies have found that Chile's structural balance budget rule and the resulting counter-cyclical fiscal policy has led to improved macroeconomic outcomes, including mitigating the impact of copper price shocks on output volatility, sovereign risk premiums, growth and employment (Medina and Sota, 2007, Schmidt-Hebbel, 2012, Rodriguez et al., 2007). Rodriguez et al. (2007) also find that in Chile the increase in public savings during periods of strong growth has helped to limit currency appreciation and safeguard the competitiveness of the export sector. Results from a model calibrated to an average Latin American commodity exporter have also supported the role of a counter-cyclical structural balanced budget rule (combined with inflation targeting) as the most successful policy mix in isolating output from commodity price swings such as the 2007-09 commodity price boom-bust cycle (IMF, 2012b). A recent IMF WEO chapter also found that a counter-cyclical policy stance dampens the macroeconomic volatility arising from commodity price fluctuations (IMF, 2012c). Finally, there is evidence that more developing countries are beginning to conduct counter-cyclical fiscal policy, and that this "graduation" from procyclicality has had a positive impact on other macroeconomic outcomes, including lower debt/GDP ratios and sovereign spreads as well as improved rankings by rating agencies (Frankel et al., 2011).

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B. Macroeconomic Outcomes of Oil and Mineral Revenue Surges[15]

17. **Because surges in revenue from natural resources, such as oil and minerals, can finance sustained economic development in developing countries, it is crucial to explore what happens after such surges**. Do the countries benefitting save the windfall? If they do, are the savings accumulated as domestic or as foreign assets? Does accumulating domestic assets in the form of increases in investment run into supply-side constraints in the form of higher prices for investment goods and real exchange rate appreciation? Do surges lead to sustained growth? To what extent does it matter how long the surge lasts? To answer these questions, this section isolates surges in oil and mineral revenues as a percent of GDP and establishes whether surges are associated with savings, domestic or foreign asset accumulation, and sustained growth.

18. **Surges in oil and mineral revenue are identified by applying a filter to oil and mineral revenue, as a percent of GDP[16], in a sample of 78 developing countries, of which 30 are resource-rich, for 51 years from 1960 to 2010**.[17] The filter satisfies the following criteria: (i) the 5-year moving average of the revenue is above 5 percent; (ii) the average increases by at least one-fifth plus 5 percentage points relative to the previous average; (iii) the average exceeds the previous 5-year moving average. The filter identified 84 surges in oil and mineral revenue in 43 developing countries—about 2 surges per country. The average duration of the surges was three years. To see whether duration matters, the isolated surges are categorized as short-lived if they lasted less than three years, or long-lived if they lasted longer. In what follows, average changes during surges are compared to average changes five years before the surge started. All variables, except the real exchange rate, the price of investment goods and growth of real GDP per capita, are in percent of current total GDP.

19. **On average, surges are associated with a significant decline in total consumption and a significant increase in total saving** (Figure 22). Total investment does increase, but not as much as savings. Changes in total consumption, savings, and investment are to a large extent driven by private sector responses. The aggregate savings response suggests that the revenue surges were perceived as transitory. The stronger increase in private saving is consistent with the view that most surges directly benefit the private sector (Collier and Gunning, 1999).[18]

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[15] Prepared by Salifou Issoufou and Nicola Spatafora (RES).

[16] See Freund (2005); Hausmann, Pritchett, and Rodrik (2005); and Freund and Pierola (2008).

[17] Of the 30 resource-rich countries, 22 are low-income countries (LICs) and 8 are lower-middle-income countries (LMICs).

[18] These results may differ if some key macro variables were not in percent of current total GDP. Current total GDP includes resource GDP and as such it can be subject to resource price changes that could affect the results. Also, the strong response of private investment could be driven by investments in the natural resource sector. Data limitations, especially resource and non-resource GDP and investments, prevented such robustness checks.

20. **The high aggregate savings push up demand for assets, which can be acquired domestically or abroad**. On average, surges are associated with domestic asset accumulation, no significant increase in the current account or in net foreign assets, but a slight increase in growth. Surges are also associated with real exchange rate depreciation, on average.[19]

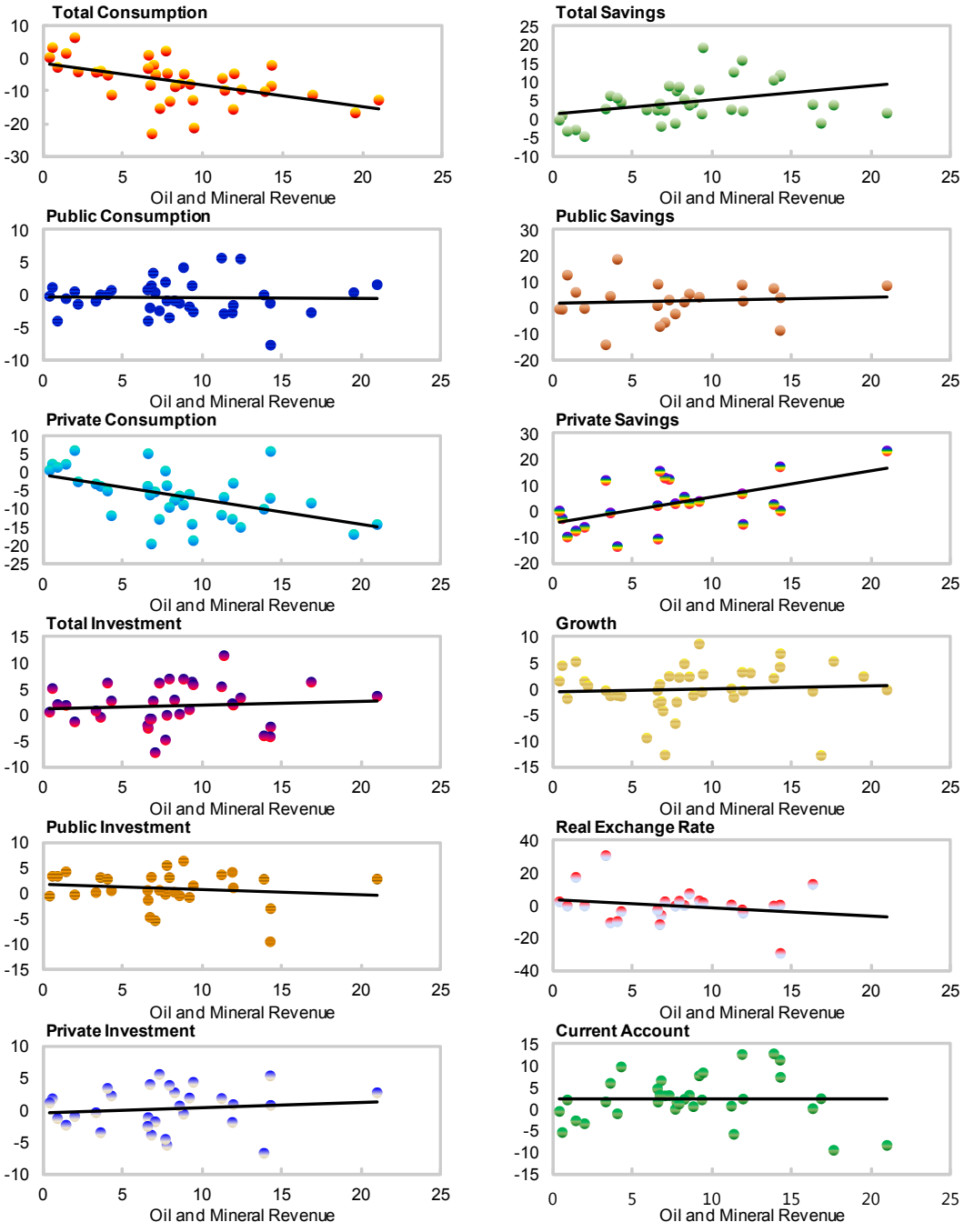
21. **When surges in the sample are split into short-lived and long-lived, the responses of some key macro variables differ.** The short-lived surges are associated with a larger drop in consumption and greater rises in savings, the current account, and net foreign assets (Figure 23). Long-lived surges are associated with increases in investment and some increase in growth.

22. **Increases in investment run into supply-side constraints, as demonstrated by rising prices for investment goods and a real (though limited) appreciation, which may stem from the significant import content of increases in investment (note the rise in imports)** (Figure 24). On average the impact of investment does not differ significantly whether the investment is public or private.

[19] Berg et al. (2007) also found real exchange rate depreciation in response to aid surges. The result might seem puzzling given that an influx of foreign exchange could trigger higher demand for nontradables leading to real appreciation. In particular, increases in public consumption tend to be concentrated on nontradables (Froot and Rogoff, 1991), and should therefore be associated with increases in the relative price of nontradables. A partial resolution of the puzzle comes from observing that, on average, public consumption does not change while private consumption decreases significantly; further, public investment declines while private investment increases (Figure 1). Even if the increased private investment is concentrated in nontradables, there are two possible explanations for the absence of real appreciation. First, the higher desired private investment could be met by a highly elastic supply of nontradables. Second, and related, the increased investment can lead to improved productivity in nontradables, leading to a decrease in their price.

Figure 22. How Macro Variables Respond to Changes in Oil and Mineral Revenue[1]

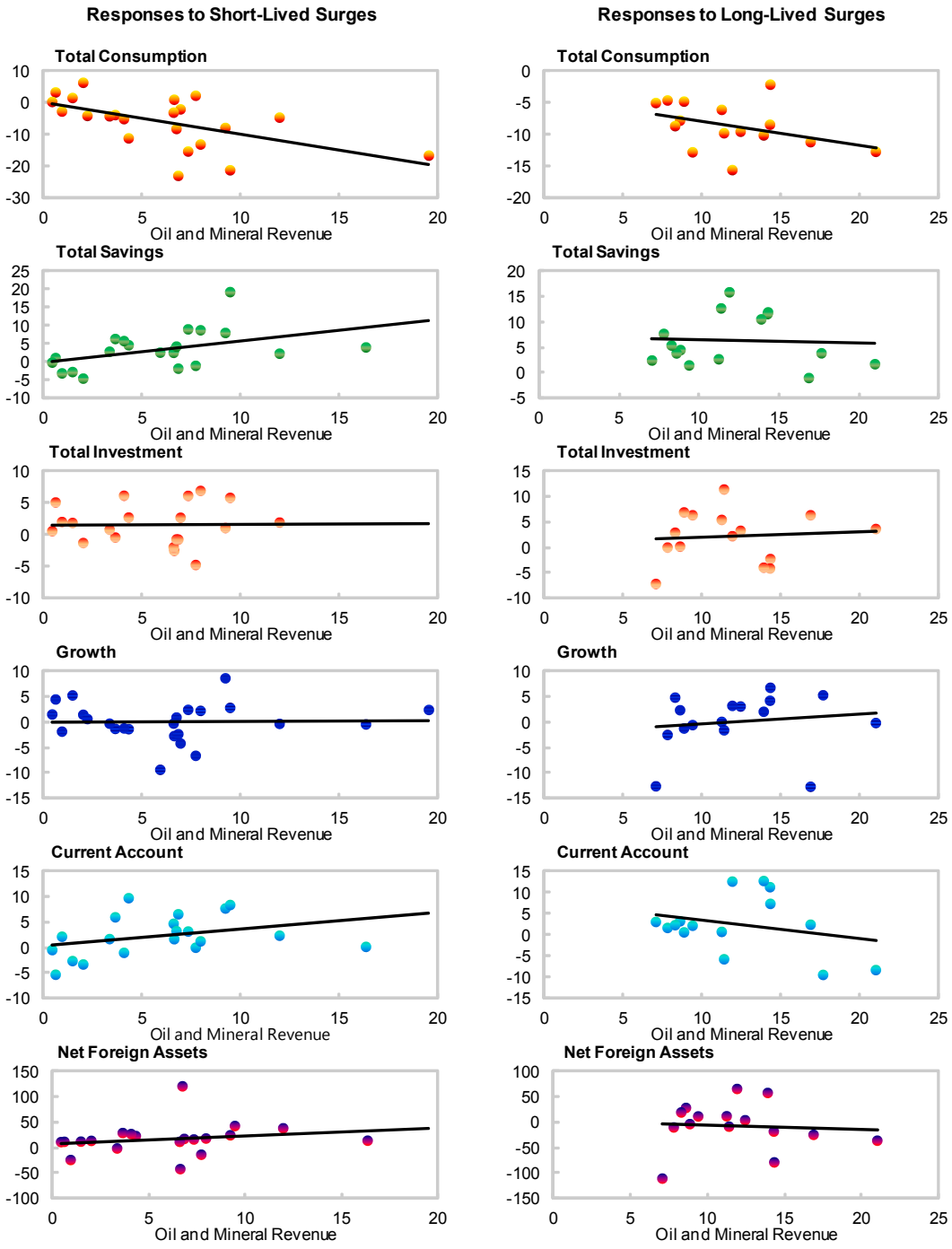
(In percent of GDP)



Sources: WEO database; WDI database; and IMF staff estimates.

[1]The scattergrams plot key macro variables against oil and mineral revenue (all, except growth, real exchange rate, and price of investment goods, are in percent of current total GDP). Each point in a given scattergram represents average changes during, minus average changes five years before, a surge in oil and mineral revenue for both variables (key macro and the oil and mineral revenue variables).

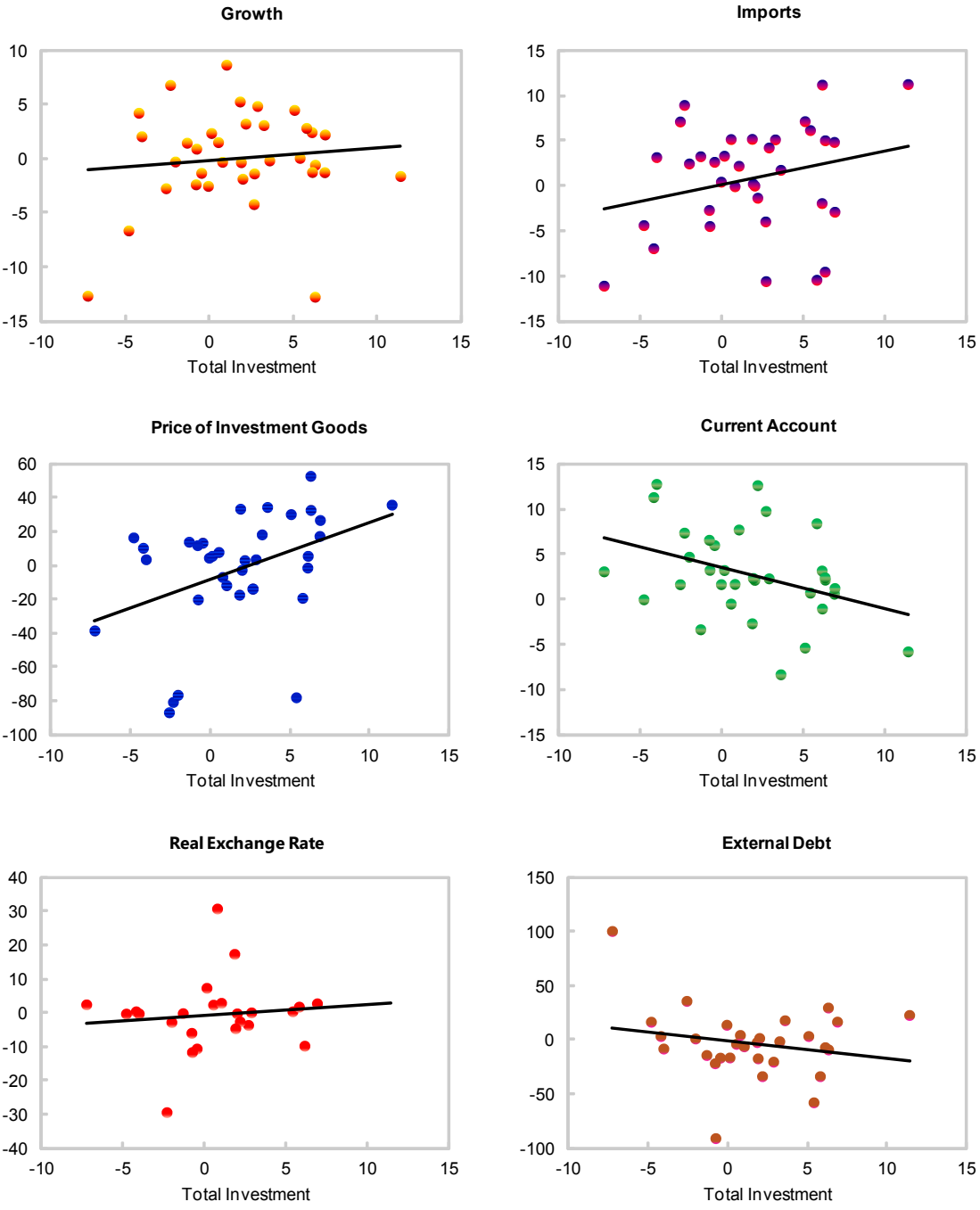
Figure 23. How Key Macro Variables Respond to Changes in Oil and Mineral Revenue[1]
(In percent of GDP)



Sources: WEO database; WDI database; and IMF staff estimates.
[1]The scattergrams plot key macro variables against oil and mineral revenue (all, except growth, real exchange rate, and price of investment goods, are in percent of current total GDP). Each point in a given scattergram represents average changes during, minus average changes five years before, a surge in oil and mineral revenue for both variables (key macro and the oil and mineral revenue variables). The left (right) column depicts responses to changes in revenue during short-lived (long-lived) surges.

Figure 24. How Key Macro Variables Respond to Changes in Total Investment[1]

(In percent of GDP)



Sources: WEO database; WDI database; Penn World Table 7.0; and IMF staff estimates.
[1]The scattergrams plot key macro variables against total investment (Percent of GDP). The points in each scattergram represent the difference between average changes during and average changes five years before surges in oil and mineral revenue for both variables.

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II. FUND ENGAGEMENT IN RESOURCE-RICH COUNTRIES[20]

23. **The Fund has had considerable engagement in resource-rich countries through macroeconomic policy advice in the context of surveillance, programs, and technical assistance (TA)**. This chapter examines Fund involvement in these countries based on such country characteristics as income level, degree of resource revenue dependence, and extraction horizon. The findings are based on a review of more than 120 staff reports and selected issues papers for 51 countries between 2002 and 2011; 20 country TA reports; and a survey of Fund staff working with these countries.[21] Analyses of programs are based on a comparison of structural conditionality in RRDCs and non-RRDCs with Fund-supported programs, including General Resource Account (GRA) and Poverty Reduction and Growth Facility (PRGT)-supported programs during the period.

24. **In what follows, Section A discusses Fund advice on macrofiscal frameworks and institutions in the context of surveillance and programs, as well as country responsiveness to that advice**. It compares the experiences in the 29 RRDCs and 22 resource-rich UMICs/HICs (upper-middle- and high-income countries that are rich in natural resources). Fund advice and analysis are compared with what the authorities chose to do. Section B discusses TA experience. Section C covers experience with Fund conditionality, comparing RRDCs and non-RRDCs. Section D offers suggestions for future Fund engagement in RRDCs.

A. Fund Macrofiscal Advice

Long-term Fiscal Sustainability

25. **Long-term fiscal sustainability is an important consideration for RRDCs, particularly those with short reserve horizons**.[22] It appears that the permanent income hypothesis (PIH) has dominated Fund staff analysis and advice on long-term fiscal policy (Figure 25); its application was geared to deriving a sustainable level of non-resource balance to anchor long-term sustainability. The PIH, however, featured more prominently in Fund analysis and advice for resource-rich-UMICs/HICs than for RRDCs, though in both groups staff chose to emphasize the PIH more because of high resource dependency than because of a short resource horizon (Figure 26).[23]

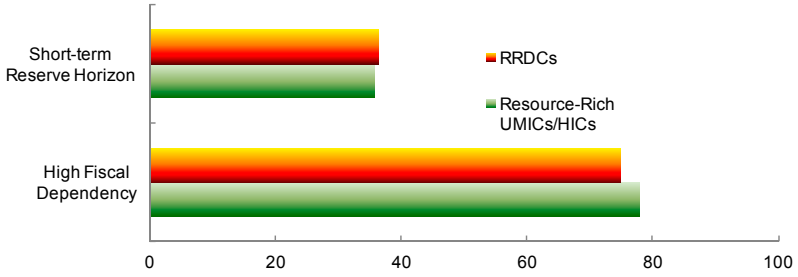
[20] Prepared by Armine Khachatryan (SPR).

[21] The sample of 51 countries consists of 29 RRDCs and 22 upper middle and high income countries (UMICs/HICs) that are rich in natural resources (for the list of countries see Appendix 1, Tables 1-3 of the main paper).

[22] Defined as a resource horizon of less than 35 years, consistent with IMF SDN/12/04 (Baunsgaard et al., *Fiscal Frameworks for Resource Rich Developing Countries*).

[23] Defined as a ratio of fiscal revenue from natural resources to total revenues that exceeds 50 percent.

Figure 25. Fund Advice on the PIH: By Country Resource Horizon and Dependency
(In percent of countries advised to use PIH framework)



Sources: IMF Survey; and IMF staff estimates.

Figure 26. Fiscal Frameworks: Fund Advice and Country Adherence in RRDCs and Resource-Rich UMICs / HICs
(In percent of countries advised to use PIH framework)

Sources: IMF Survey; and IMF staff estimates.

26. **When spending was adjudged to significantly deviate from the PIH benchmark and where there were challenges to debt sustainability, Fund advice was to frontload fiscal adjustment**. In effect, however, the choice mattered little because in both RRDCs and resource-rich UMICs/HICs, the authorities did not adhere to the PIH. Recently there is evidence that staff advocacy for the PIH has decreased, probably because it did not allow for scaling up domestic investment to meet development needs. Other long-term fiscal policy frameworks (e.g., a debt rule) were rarely featured in Fund analysis or adopted by the authorities.

- *RRDCs.* For the full set of 29 countries, the PIH was applied by the staff to about 39 percent of cases (Figure 26). The PIH was anchored on steady current and capital spending over time (typically in relation to non-resource GDP). In most instances, since actual projected spending was higher than the level the PIH implied, staff advised bringing spending down to the PIH level over the medium term. In some instances (e.g., Angola, Chad, and the Republic of Congo), the authorities questioned whether the PIH was the best way to anchor fiscal policy discussions given large development and infrastructure needs. In these circumstances, within the spending envelope implied by the PIH framework, Fund advice was to better prioritize and rationalize low-priority spending and improve governance and public financial management (PFM). Contrary to

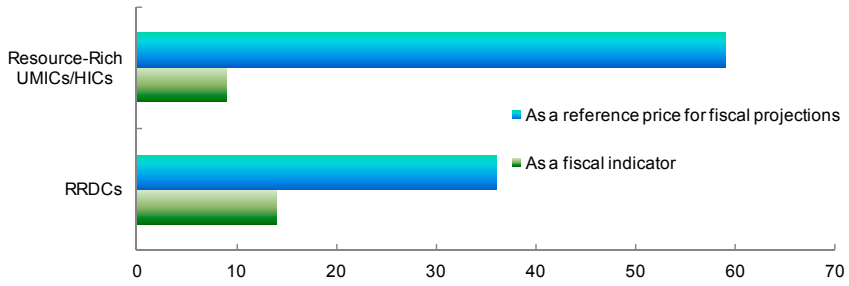
expectations, the resource extraction horizon was not a prominent factor in Fund staff advice; rather, resource dependency was prominent in staff advocacy of the PIH (in 6 out of 8 resource-dependent cases). However, in only 14 percent of the cases did country authorities adhere to some form of the PIH. In most cases, the Fund PIH analysis used some form of non-resource fiscal balance as the main indicator for anchoring fiscal sustainability. Fund advice and country adherence to alternative long-term fiscal frameworks (e.g., the debt rule) featured only in two cases.

- *Resource-rich UMICs/HICs.* Fund staff used the PIH more widely (Figure 26) for long-term fiscal analysis and advice in resource-rich UMICs and HICs (64 percent of cases) than in RRDCs. However, as with RRDCs, resource dependency rather than resource horizon dominated the choice (Figure 25); and again adherence of the authorities to the PIH was low (27 percent of cases). The concept of the non-resource budget balance was widely applied with the PIH.

Short- to Medium-term Macrofiscal Stance

27. **Key near-term objectives of macrofiscal policy in resource-rich countries are to enable a country to efficiently absorb spending without creating inflationary pressures, and to minimize the disruptions caused by revenue volatility**. Among the tools available to achieve these objectives are a careful choice of fiscal indicators and some form of fiscal rule. Fund staff more often advised RRDCs to use a fiscal rule (commonly anchored by some form of non-resource primary budget balance) than resource-rich UMICs/HICs (Figure 27), usually complemented by further advice on an appropriate institutional framework (e.g., a medium-term expenditure framework [MTEF] or a fiscal responsibility law [FRL]). Price rules did not receive much attention from the Fund in either group. However, country adherence to some form of price rule was greater than the Fund advised, typically used as a conservative reference price for the annual budget (i.e., not as a rule to anchor medium-term fiscal policies; Figure 27).

Figure 27. Price Rule: Application in the Context of Country Adherence



Sources: IMF Survey; and IMF staff estimates.

- *RRDCs.* Fund advice focused relatively more (36 percent of cases) on some form of fiscal rule (e.g., the non-resource primary balance [NRPB]) than on price-based rules (21 percent) (Figure 26). Country authorities did use a price rule more often (Figure 27), though they typically used a conservative yearly reference price to prepare the annual budget rather than using such a rule to anchor medium-term fiscal policy. While Fund advice on and country adherence to fiscal rules are the same at 40 percent of the countries reviewed (Figure 26), they differ in terms of the indicators used to anchor fiscal policies. Rather than following the Fund in emphasizing the

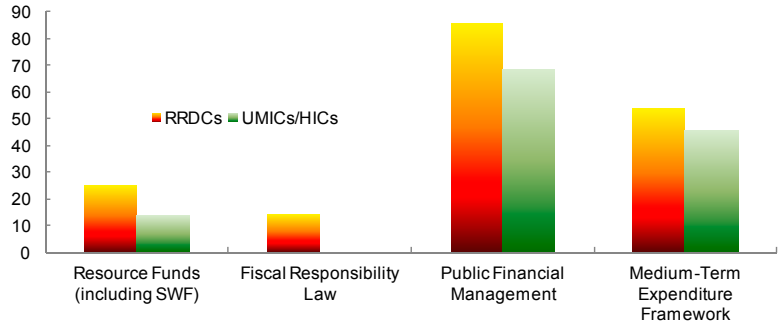
NRPB, countries chose a wider range of indicators (e.g., overall fiscal balance, level of expenditures, balanced budget).

- *Resource-rich UMICs/HICs.* Although short- to medium-term fiscal considerations (fiscal rules and price rules) rarely featured in Fund analysis and advice (Figure 27), authorities in resource-rich UMICs/HICs used these rules more often. In addition, in some cases where a reference price was used, budget amendments allowed for higher spending when actual prices were higher than budgeted (e.g., Azerbaijan). In these cases, to avoid procyclical fiscal policy the Fund recommended supplementing the oil-price rule with a ceiling on expenditure.

Institutions

28. **Resource-rich countries need sound fiscal institutions that enjoy political support and help to implement sustainable macrofiscal policies, such as MTEFs, FRLs, PFM systems, and natural resource funds**. Much of the focus of Fund advice for both RRDCs and resource-rich UMICs/HICs had to do with PFM and MTEFs; other aspects of institution-building (resource funds, FRLs) received much less attention. However, the Fund provided TA to several countries to put in place or improve institutional frameworks (see Section C).

Figure 28. Fiscal Institutions: Fund Advice on Fiscal Institutions
(In percent of each category of reviewed countries)



Sources: IMF Survey; and IMF staff estimates.

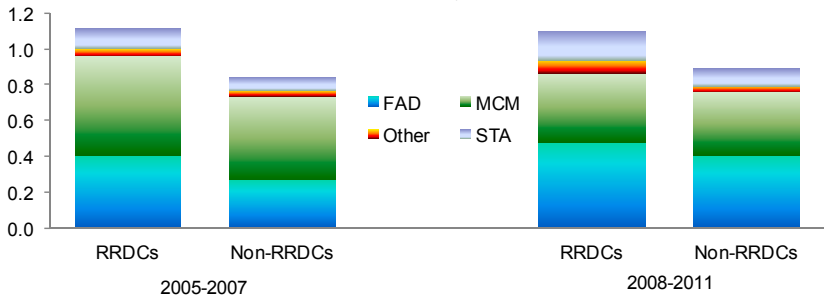
- *MTEFs.* The complexities of applying long-term and short- to medium-term fiscal sustainability frameworks make clear the importance of reinforcing fiscal processes by, e.g., adopting multiyear fiscal planning. The Fund advised development of MTEFs to about half of the RRDCs and resource-rich UMICs/HICs. In terms of degree of complexity, both IMF advice and country adherence vary; some countries simply moved from annual to three-year budgeting, while others worked on prioritizing sectoral spending and making sure the MTEF accurately evaluates recurrent costs and better prioritizes expenditures.
- *PFM.* The Fund advised the majority of RRDCs reviewed (86 percent) and more than two-thirds of the resource-rich UMICs/HICs on aspects of PFM (Figure 28). While the main topics of Fund advice seem to be similar for both groups of countries, RRDCs have more PFM weaknesses. Although varying with a country's development and PFM sophistication, RRDCs and resource-rich UMICs/HICs face challenges in (i) installing a modern treasury management system, such as the Government Financial Management Information System (GFMIS); (ii) enhancing coverage of the government budget; (iii) analyzing and incorporating extra-budgetary operations into PFM; (iv) introducing or improving medium-term macroeconomic forecasts; (v) budget preparation; (vi) clarifying the budgetary responsibilities of line ministries and setting expenditure ceilings; (vii) preparing government audits and parliamentary oversight of the budget; (viii) calculating and allocating resource-related royalties; and (ix) setting financial restrictions and debt limits.

B. Technical Assistance and Advice

29. **RRDCs receive more TA than their non-RRDC peers, particularly from the Fiscal Affairs department (FAD) and Monetary and Capital Markets department (MCM)** (Figure 29). FAD TA is primarily concerned with PFM, where RRDCs face the most challenges (Figure 30), but it also covered areas that apply only to RRDCs, such as:

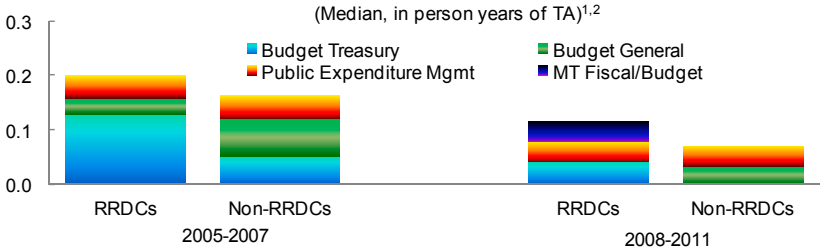
- Establishing a clear legal framework, with a broad definition and coverage of resource revenues, including appropriate accounting for resource reserves and their depletion.
- Institutionalizing revenue management systems and ensuring that the chart of accounts incorporates the specificities of natural resource revenues and is in line with international accounting standards.
- Improving budget classification (including resource revenues and expenditures) in order to improve the planning and execution of annual budgets.
- Integrating the cash plan and the treasury management system to encompass revenues from natural resources.

Figure 29. IMF Technical Assistance to RRDCs and Non-RRDCs
(Mean, in person years of TA)[1]



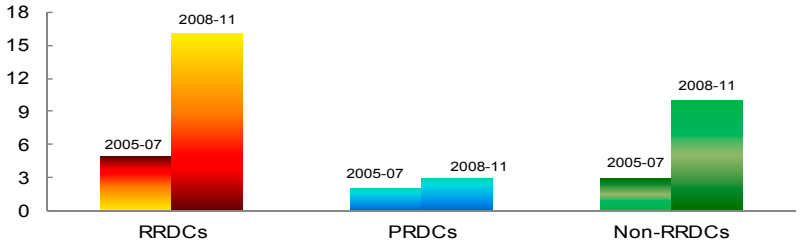
Source: Institute for Capacity Building, IMF
[1] A person year is total TA in the field per total working days.

Figure 30. Public Financial Management Technical Assistance to RRDCs and Non-RRDCs
(Median, in person years of TA)[1,2]



Source: Institute for Capacity Building, IMF.
[1]A person year is total TA in the field per total working days.
[2]Selected sub-components of public financial management are shown.

Figure 31. Number of TA Missions on Extractive Industry Fiscal Regimes[1]



Source: FAD, IMF; and IMF staff estimates.
[1]RRDCs refer to 29 resource-rich countries; PRDCs refer to 11 prospective resource-rich countries; and Non-RRDCs refer to 50 non-resource rich countries. Data are for LICs and LMICs only. TA includes a small number of Article IV consultations where Selected Issues Papers on EI fiscal regimes were prepared.

30. **MCM TA focuses on asset and liability management so as to facilitate management and investment of resource revenues**. The TA from the Statistics department (STA) emphasizes development of national accounts and government finance statistics to allow consistent assessment of natural resource wealth (Figure 31).

31. **There has been a sharp increase in TA on natural resource taxation in recent years.** Establishment of a multidonor topical trust fund (TTF) has helped to enhance TA on taxation of natural resources, which has become one of the key TTF modules (Box 1).

Box 1. The Multidonor Topical Trust Fund

In 2010, the IMF established a multidonor topical trust fund (TTF) to help 50 LICs and LMICs with substantial current or prospective hydrocarbon and mineral exploitation. The IMF has a long track record of supporting management of natural resource wealth based on its recognized expertise in fiscal policies, public financial management (PFM), fiscal transparency, and legislative aspects of establishing fiscal frameworks and institutions. The TTF concentrates on capacity building in five areas: (i) the extractive industries (EI) fiscal regime; (ii) EI revenue administration; (iii) macrofiscal policies and PFM; (iv) asset and liability management; and (v) natural resources statistics.

The TTF leverages the IMF's in-house expertise by scaling up the supply of TA to meet the growing demand from developing countries with EIs. It is programmatic, covering all economic topics related to transforming natural resource wealth into development, and delivering TA flexibly in the form of modules tailored to country circumstances. The promotion of transparent institutions and policies covers areas consistent with the IMF's *Guide on Resource Revenue Transparency*. IMF experts not only work with the authorities but also systematically reach out to broader government and civil society. The TTF also supports membership in the Extractive Industries Transparency Initiative (EITI).

As of mid-2012, 19 country modules are approved, and preparations for more are well advanced. The TTF also organizes conferences and workshops to discuss the macroeconomic challenges of managing large resource flows and the practical problems facing countries in terms of tax collection, institutional capacity, and governance problems. The TTF has also begun to fund research projects on such topics as savings and consumption guidelines for oil and mineral producers, mining tax administration, resource revenue databases, and government revenue statistics.

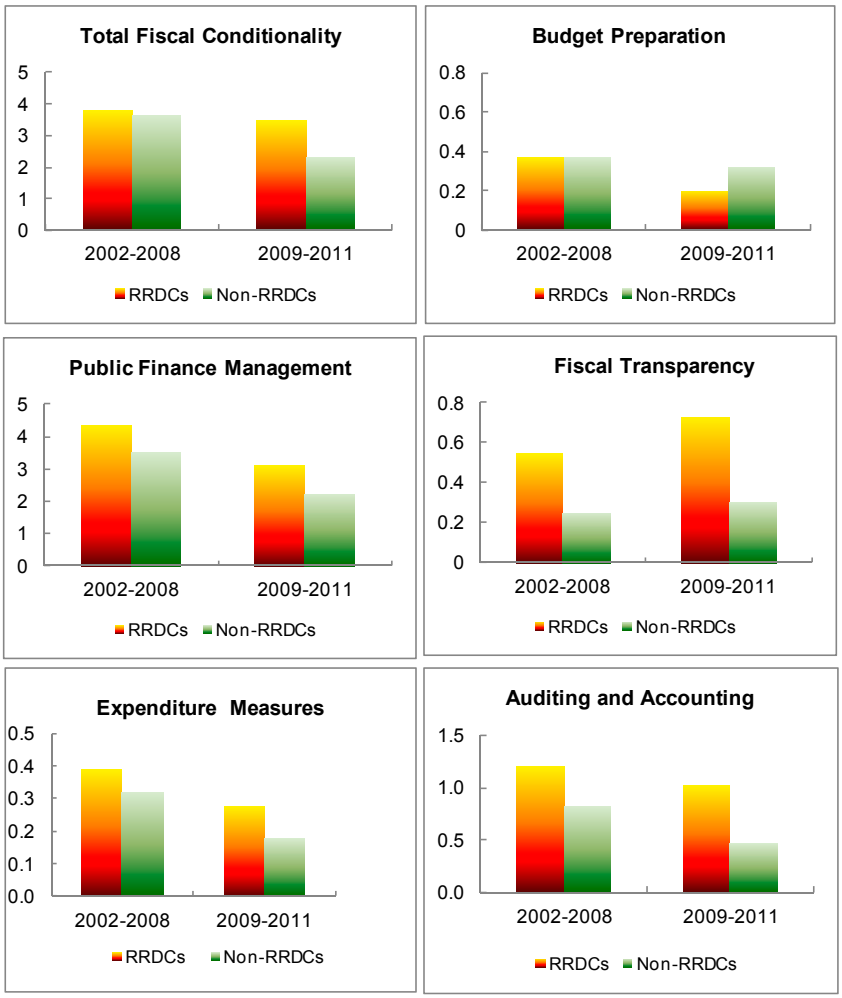
Source: IMF Fiscal Affairs Department, TTF reports (IMF, 2012), Managing Natural Resource Wealth (MNRW-TTF).

C. Fund Conditionality

32. **Fund program conditionality for RRDCs has been instrumental in focusing attention on the structural challenges these economies face.**[24] An assessment of conditionality in terms of overall fiscal and budget preparation and transparency and PFM systems found that (Figure 32):

- Fiscal conditionality seems to be more intensive in RRDCs than in non-resource peers, with over three structural benchmarks per review.
- Structural benchmarks for PFM systems have also been higher for RRDCs, though there has been a decline in recent years as conditionality was being streamlined.
- The number of structural benchmarks on fiscal transparency has increased, approaching one per program review. The related conditionality aims at enhancing the transparency of government structure and functions as well as policies and outcomes; growing importance is attached to fiscal transparency in RRDCs. It also partly supports the efforts of the EITI,[25] which is well-placed to help RRDCs to make both resource industries and fiscal operations more transparent.

Figure 32. Fiscal Conditionality in Fund-Supported Programs
(Average number of structural conditions per review)



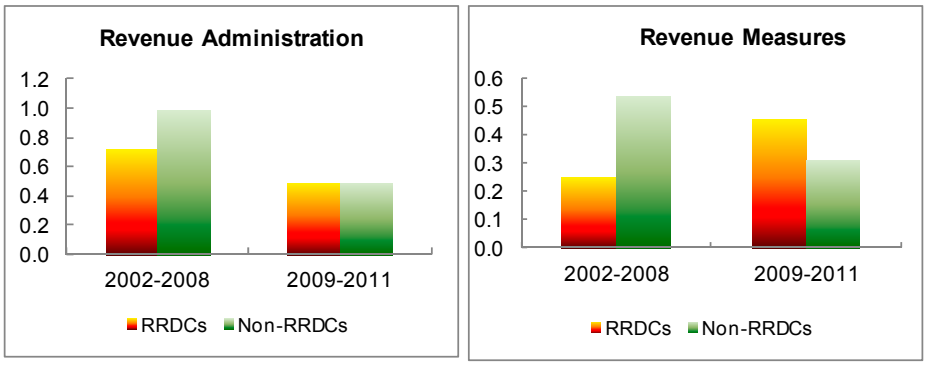
Sources: MONA Database; and IMF staff estimates.

[24] Conditions are normalized by the number of reviews during a year (each providing information on conditionality) or by the number of current programs per year, with current programs defined by the number of quarters during which they are being implemented. On the basis of this approach, the numbers of conditions set in current and expired programs are comparable; in addition, the impact of policy changes on conditionality can be identified more effectively. See IMF (2009).

- The number of structural benchmarks on expenditure measures and auditing and accounting has been higher for RRDCs than for non-RRDCs, though there has been a decline in recent years as conditionality was streamlined.
- Budget preparation measures seem to be given less attention in RRDCs.

33. **Revenue measures in general and those related to revenue administration in particular received less attention for the whole period, though recently (2009–11) revenue administration has received more attention** (Figure 33)**.**

Figure 33. Revenue Administration Conditionality in Fund-Supported Programs
(Average number of structural conditions per review)



Sources: MONA Database; and IMF staff estimates.

D. Lessons for Future Fund Engagement

34. **There is scope to enhance Fund policy analysis and advice to RRDCs with regard to both long-term and short- to medium-term macrofiscal considerations**. For long-term sustainability frameworks, Fund advice and analysis were more likely to focus on the PIH, though few countries applied it; this raises the issue of its relevance for RRDCs. Alternative long-term fiscal frameworks (e.g., a debt rule) could usefully be added in analyzing RRDC fiscal issues. Fund advice on fiscal rules (including price-based rules) is relatively minimal; the non-resource balance is the indicator used most often to anchor both PIH and fiscal rules. For countries relying on using the resource price as a reference price to build into fiscal projections, the expenditure growth rule could be a useful complementary anchor for avoiding procyclical fiscal policies.

35. **The Fund can help countries build the institutions they need for efficient, sustainable, and transparent use of natural resources**. Given RRDC capacity and absorption constraints, there is scope for tightening the links between fiscal sustainability analysis, model-based tools, and fiscal institutions. There is also scope in Fund programs to focus more tightly on non-resource revenue mobilization.

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[25] For details please visit www.eiti.org.

36. **The new IMF Managing Natural Resource Wealth Topical Trust Fund (TTF) is scaling up and transforming Fund TA.** Its work began in 2011, and most of the country TA modules it has produced have related to the extractive industry fiscal regime (such as license and contracting), but it is also creating modules on revenue administration, macrofiscal considerations, PFM, and expenditure policy, and natural resource asset and liability management.

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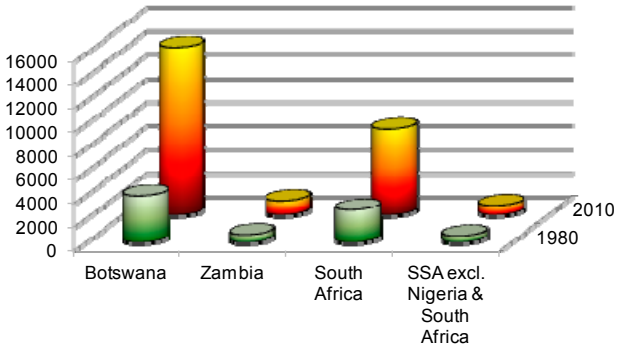
III. CASE STUDIES

A. Botswana—Fiscal Policy Practices in a Natural Resource-Rich Economy[26]

37. **Botswana's management of its mineral revenues has been justly acclaimed.** Commentators have lauded Botswana's ability to avoid the resource curse by prudently managing its mineral wealth, in the process transforming itself from one of the world's most impoverished countries into an upper-middle-income country through five decades of virtually uninterrupted growth.[27] Botswana has also earned a reputation for good governance, prudent macroeconomic policies, and sound management of mineral resources. This section describes mechanisms and institutions the Government of Botswana has used to manage fiscal policy.

38. **Botswana has been able to sustain high economic growth for five decades.** It has been the best performer in sub-Saharan Africa and one of the best among developing countries worldwide. In effect, real GDP per capita (adjusted for purchasing power parity) grew from about US$3,500 in 1980 to almost US$12,500 in 2010 (in constant 2005 international dollars)—an average annual growth rate of 4.3 percent (Figure 34).

Figure 34. GDP per Capita, 1980 and 2010
(In current U.S. dollars)



Sources: World Economic Outlook; and IMF staff estimates.

39. **Its performance is all the more impressive considering the country's unpropitious initial conditions**. Botswana is a landlocked country that after independence in 1966 had a very low level of GDP per capita, grossly inadequate infrastructure (it had just 12 kilometers of paved roads), and very low levels of human capital (only 22 citizens had graduated from university and 100 from secondary school; see Acemoglu, Johnson, and Robinson, 2003, and Table 1 for other economic and social indicators). Most of the country had no electricity, no telephone system, and no water or sewage systems. Thus, the odds were low that it would attain upper-middle-income status. Furthermore, both output and exports have historically been highly concentrated, in agriculture (mainly livestock farming) until the discovery of kimberlites in the early 1970s and in mining thereafter. Diamonds now account for over 80 percent of exports and about one-fifth of output.

[26] Prepared by Lamin Leigh and Rodrigo Garcia-Verdu, both AFR.

[27] See, for example, Chapter 14 in Acemoglu and Robinson (2012); Acemoglu, Johnson, and Robinson (2003); Leith (2005); Maipose (2008); and Mohohlo (2007).

Table 1. Botswana: Selected Economic and Social Indicators

	GDP Per Capita	Real GDP Per Capita Growth	Gross Fixed Capital Formation	Life Expectancy at Birth	Mortality Rate Infant
	(Constant 2000 U.S. dollars)	(In percent)	(In percent of GDP)	(Total, in years)	(Per 1,000 live births)
1960s	284	4.7	22.9	52	104
1970s	757	10.9	33.9	57	76
1980s	1,592	7.5	29.0	63	51
1990s	2,593	3.1	27.2	59	55
2000s	3,778	2.5	24.7	51	49

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

40. **Botswana's sustained growth has been attributed to prudent management of its mineral wealth.** Botswana's remarkable economic performance is ascribed to sound macroeconomic management, in particular the country's ability to manage revenues from its vast deposits of diamonds, copper, soda ash, coal, and nickel (see, for example, Leith, 2005; Maipose, 2008; and Acemoglu et al., 2003). More generally, Botswana's economic success can be seen as a result of "inclusive institutions" (Acemoglu and Robinson, 2012, Chapter 14).

41. **Botswana's mineral wealth has been managed based on a rule that allocates revenue from nonrenewable resources to investment spending, together with a medium-term fiscal objective and the Pula Fund**. Since 1994 fiscal policy in Botswana has been guided by a sustainable budget index (SBI) principle, which seeks to ensure that current spending is financed only with non-resource revenues; resource revenues are either used to finance investment or saved in the Pula Fund to transfer mineral wealth to future generations (see Box 2). There is also a medium-term fiscal objective for the cumulative budget balance over the five-year period of each National Development Plan (NDP) and a cap on the expenditure-to-GDP ratio; these, however, are objectives rather than binding constraints and have been generally observed with some flexibility.[28] Over time, the government of Botswana has accumulated large financial savings in its Pula Fund,[29] managed by the Bank of Botswana (BoB).

[28] Since Independence in 1966, Botswana has produced a series of National Development Plans (NDPs) starting with the Transitional Plan for Social and Economic Development in 1965. The NDP is one of the top official documents endorsed by the chief executive of the land (the President) and subsequently approved by the Parliament. The government calls fiscal rules "fiscal objectives." The latest plan is known as NDP 10.

[29] "Pula" means rain in Tswana, the local language.

Box 2. The Pula Fund

The Pula Fund was established in November 1993 by the 1975 Bank of Botswana Act. It was re-established in its current form by the 1996 Bank of Botswana Act to provide more flexibility in management of international reserves and greater certainty in the forecasting of annual "dividend" payments to the government from the BoB. The act came into operation on January 1, 1997.

Botswana's international reserves are now split into two portfolios: the Liquidity Portfolio, to provide the foreign exchange needed for normal day-to-day international transactions; and the Pula Fund, to be invested in long-term assets to achieve higher returns. The Pula Fund, managed by the BoB, is composed of the Government Investment Account, which reflects both savings from accumulated fiscal surpluses and inflows of additional government debt, and the broader accumulation of national savings in excess of the BoB's target for liquid reserves. This target is based on six months of import cover, and when import cover deviates from this level by more than three months in either direction, resources are transferred, as appropriate, into or out of the Liquidity Portfolio. Pula Fund assets are invested in long-term instruments overseas in a range of major currencies and in a mix of long-term fixed-income securities and equities. The act charges the BoB with managing and determining the investment policy of and the payment of dividends accruing from the Pula Fund, in consultation with the Minister of Finance and Development Planning. Together with the Liquidity Portfolio, the Pula Fund has been held with a global custodian since 1993.

42. **While the Bank of Botswana Act (1975) laid the legal foundation for establishment, management, and auditing of the Pula Fund, it does not specify the Fund's objectives in terms of fiscal policy generally or set rules for its operation, particularly for payments into it and how withdrawals can be used (Kojo, 2010)**. However, since the fund's inception it has been generally understood that, as well as serving to stabilize revenue when resource revenues fell sharply (for example during the 2008–09 global economic crisis), the Pula Fund is mainly intended to hold resources for future generations. Although the original BoB act does not specify explicitly the linkage between the Pula Fund and fiscal policy, Botswana's macroeconomic policy framework has the elements required to govern flows into and out of the Fund. In particular, any revenues the government is not able to invest productively at home are transferred to the Pula Fund. Thus, in the event of external shocks, the first line of defense is through macroeconomic policy adjustments. If such measures prove insufficient to stabilize the reserve level, the Pula Fund is used to bridge the residual gap. The authorities have emphasized that while these overarching principles that govern the Pula Fund lack specific linkage to fiscal developments, they do provide the needed flexibility that has served Botswana well over the years.

43. **The Pula Fund and the restrictions on use of nonrenewable resource revenue for investment have allowed Botswana to smooth government expenditure and sustain high growth** (Figures 35–41). Botswana has been able to (i) smooth out government spending despite the volatility of natural resource revenues by accumulating reserves during periods of relatively high commodity prices and then drawing them down when prices slacken; and (ii) transform revenue from natural resources into sustained economic growth by reinvesting it effectively in additional productive capacity, such as education, training, health, and infrastructure. The first fact can be observed through the evolution over time of the levels of foreign exchange reserves at the BoB and assets in the Pula Fund, where an increase in the rate of accumulation of reserves or assets has coincided with periods during which Botswana's terms of trade have increased, while declines in the

amount of the reserves or fund assets have coincided with periods when the terms of trade have deteriorated. It is also noticeable that fiscal policy has in general been counter-cyclical or at most a-cyclical (see Leith, 2005).

Figure 35. Foreign Exchange Reserves
(In millions of U.S. dollars)

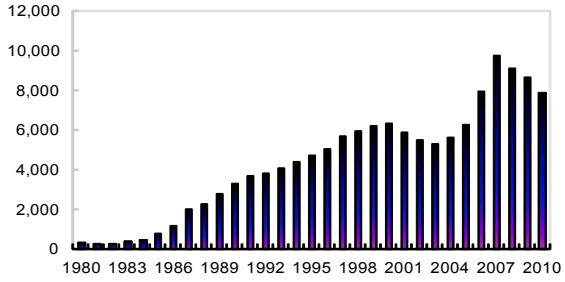


Figure 36. Revenue and Expenditure: Growth Rates
(Annual percent change)

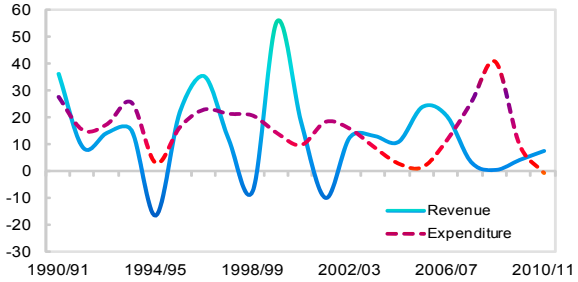


Figure 37. Revenue and Expenditure
(In millions of pula)

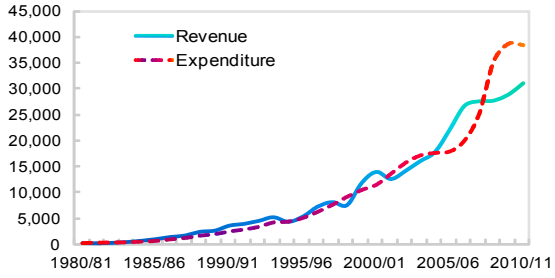


Figure 38. Actual vs. Budgeted Revenue and Expenditure
(Percent difference)

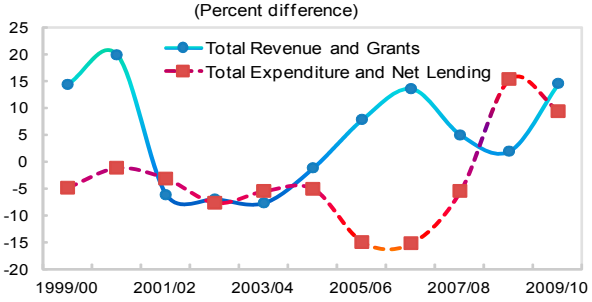


Figure 39. Terms of Trade and Foreign Exchange Reserves
(Annual percent change)

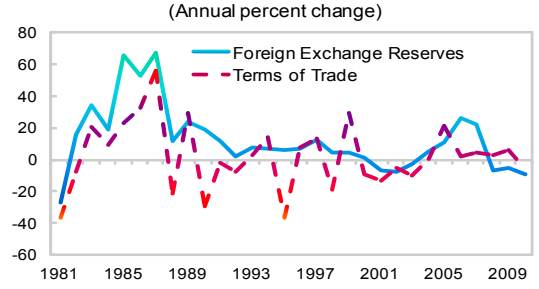


Figure 40. Resource Revenue and Gross Fixed Capital Formation
(In millions of pula)

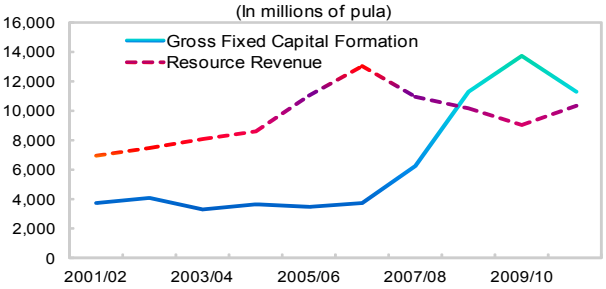
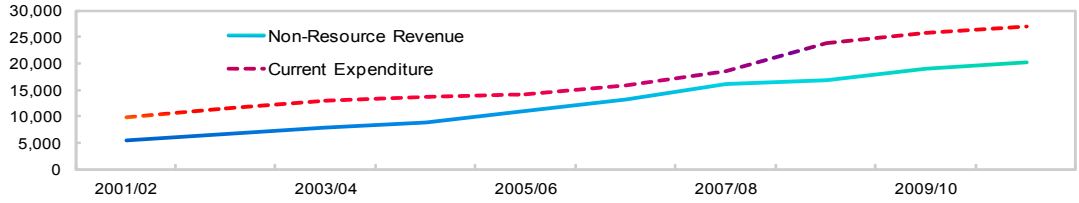


Figure 41. Non-Resource Revenue and Current Expenditure
(In millions of pula)



Sources: Country authorities; and IMF staff estimates.

44. **The second fact is reflected in the high investment rate (over 25 percent of GDP on average for the past two decades), the high share of government revenues allocated to infrastructure and human capital expenditures (close to 40 percent of total revenues); and the fact that the public capital stock accounts for about 40 percent of the total capital stock (Leith, 2005)**.

45. **Botswana has managed rents from natural resources by accumulating official foreign exchange reserves at the BoB, as well as through the Pula Fund.**

- These practices have allowed the government to avoid the boom-bust commodity price cycles that affect government revenues. The relatively high official foreign exchange reserves at the BoB are the result of a deliberate policy of accumulating reserves whenever prices for the country's main exports are high and drawing them down whenever the terms of trade reverse themselves (Leith, 2005 and Maipose, 2008).
- The Pula Fund has been the main domestic source of financing for capital spending. Funds intended for capital expenditure together with financing from official development agencies are deposited into this fund and then used for approved capital projects. The fund helps avoid costly delays in project implementation by allowing donor-funded projects to be launched on a reimbursement basis (see Maipose, 2008).
- As a revenue stabilization fund the Pula Fund is used to finance budget deficits, as was done in fiscal years 1998/99, 2002/03, 2008/09, 2009/10, and 2010/11, which helped Botswana to avoid inflationary forms of deficit financing (see Maipose, 2008). Until the 2008–09 global financial crisis, resource revenues were on average 11 percentage points of GDP higher than gross fixed capital formation, and the large gap between the two more than offset the higher current expenditures compared to non-resource revenues. The result was a fiscal surplus that was partly used to build up the Pula Fund. After the 2008–09 financial crisis, as part of the government's counter-cyclical policy response, gross fixed capital formation was higher than mineral revenues. Combined with current spending that was slightly higher than non-resource revenues, this caused fiscal deficits, which were financed by withdrawals from the Pula Fund and a budget support loan from the African Development Bank.
- In addition to using these funds to stabilize revenues, the government has been able to form stable, long-lasting partnerships with mining companies, leaving company management in the hands of private firms (see Leith, 2005, and Maipose, 2008). Moreover, the government has also been able to increase its share of equity or revenue through skillful renegotiation of contracts.

Key Policies and Lessons

46. **Over the past five decades, Botswana has established a reputation for good macroeconomic policies and prudent management of its diamond wealth.** Botswana's prudent management of mineral wealth helped it to sustain high and virtually uninterrupted growth over five decades and accumulate relatively high official foreign exchange reserves. The Pula Fund has served

as a good vehicle for revenue stabilization during periods of economic downturns as well as a means to transfer mineral wealth across generations.

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B. Chile's Fiscal Rule[30]

47. **Chile produces about one-third of the world's copper.** Copper exports represented 55 percent of its goods exports (18 percent of GDP) in 2011, and copper revenues accounted for close to 19 percent of fiscal revenues (4¼ percent of GDP). Because they affect macroeconomic variables such as output, investment, and the real exchange rate, commodity prices and production volumes also have an important indirect effect on government finances.

48. **The Chilean economy has a strong record of macroeconomic stability and growing living standards**. Average annual real GDP growth was 5.3 percent for 1991–2011. The economic stability has been underpinned by a strong policy framework, based on inflation targeting, a flexible exchange rate regime, and a fiscal rule. The fiscal buffers accumulated in the mid-1990s created space for a strong counter-cyclical policy response that has helped the economy recover rapidly from the 2008–09 crisis.

49. **Chile has pursued a policy of prudent fiscal management since the late 1980s**. As a result, government debt has declined steadily since. Prudent fiscal spending helped cushion revenue shocks related to copper price volatility even before a formal fiscal rule was introduced.

50. **The current structural balance rule, adopted in 2001, had two main objectives.** The first was to contribute to fiscal and macroeconomic stability by protecting public spending from the effects of cyclical variations in copper prices and economic activity. This is still the main objective of the fiscal rule. The second was to improve the net asset position of the central government so that it could meet contingent obligations such as paying minimum pension guarantees and covering the central bank operating deficit. To achieve these objectives, an annual structural balance target was set (initially at a surplus of 1 percent of GDP).[31]

51. **The Fiscal Responsibility Law (FRL) enacted in 2006 provided a formal legal foundation for the fiscal rule**. The FRL set guidelines for computing the structural balance and mandated that each administration must announce a structural balance target within 90 days of taking office. The announcement should specify targets for the whole term of the administration. The FRL also established rules for accumulating and managing fiscal resources and set up two sovereign wealth funds (SWFs). The Pension Reserve Fund (PRF), set up to help cover pension guarantees, receives 0.2 to 0.5 percent of GDP a year, depending on the fiscal outturn. The Economic and Social Stabilization Fund (ESSF) is designed as a fiscal buffer. It receives any budget surplus left after payment to the PRF and debt amortization, and funds from it may be used for deficit financing as an alternative to borrowing. The resources of the two funds (US$19.5 billion as of February 2012) are

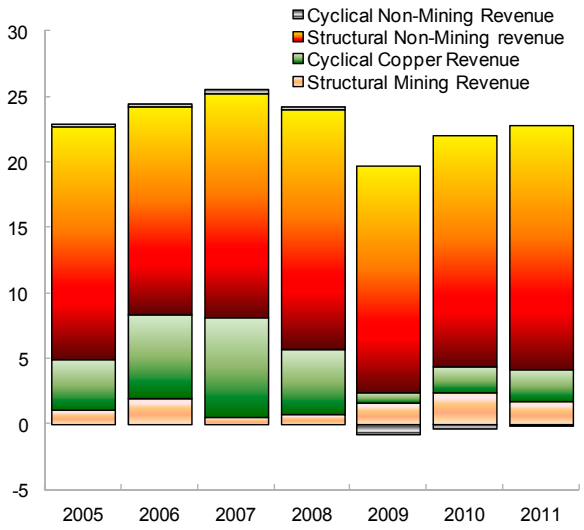
[30] Prepared by Dora Iakova and Daniel Rodríguez-Delgado (both WHD).

[31] Intergenerational considerations—often present in the fiscal frameworks of resource-rich countries—did not play a major role in the design of the Chilean rule. This is probably because Chile has copper reserves estimated to last for at least 50 years, so copper revenues are not considered temporary.

invested abroad. General investment regulations and allocation of investments are determined by the Ministry of Finance in consultation with an independent Advisory Financial Committee. This formal legal framework was established several years *after* implementation of the fiscal rule, which up to that point had operated successfully as a high-level political commitment.

52. **The structural balance is defined as the difference between trend revenues (consistent with trend estimates for output and the price of copper) and public expenditure**. While the exact formula is relatively complicated (see Larraín et al., 2011), equations 1–4 give an overview of the calculation of the structural balance. The overall balance (OB) is defined by the difference between revenue (R) and expenditure (E). Revenue can be further decomposed into mining revenues (MR) and non-mining revenues (NMR). The difference between the headline overall balance (OB) and the structural balance (SB) is the cyclical portion of MR and NMR. Expenditures (E) are not cyclically adjusted because they are not very sensitive to economic activity and copper prices. The adjustment to NMR depends on the difference between potential GDP (Y_t^*) and actual GDP (Y_t), and assumes a revenue elasticity with respect to output ε; while the MR are adjusted by multiplying the difference between the current price ($P_{c,t}$) and the long-run copper price[32] ($P_{c,LP}$) by total copper sales (Q_t) and the effective tax rate ($\tau_{c,t}$). In practice, most of the cyclical adjustment in recent years has been due to the adjustment of copper revenues, since actual copper prices have deviated significantly from long-run copper prices (Figure 42).[33] During 2005–11, structural revenues averaged 19 percent of GDP, 4 percentage points lower than headline revenues.

Figure 42. Chile: Structural and Cyclical Fiscal Revenues
(In percent of GDP)



Sources: Country authorities and IMF staff estimates.

[32] The long-run copper price is determined by an expert committee. Each member of the committee is asked to submit an estimate of average copper prices for the next 10 years. The reference price is computed as the average of these estimates, after removing the highest and lowest submissions.

[33] The cyclical component of non-mining revenue in the figure is negative because in 2009 the GDP cycle was in recession (the GDP was lower than potential). In contrast, for all these years copper has been in a boom period, as the copper price during these years was always above the long-run price. Hence, the cyclical component has been positive.

$$OB_t = R_t - E_t \quad (1)$$

$$OB_t = MR_t + NMR_t - E_t \quad (2)$$

$$SB_t = SR_t - E_t \quad (3)$$

$$SR_t = [MR_t - (P_{c,t} - P_{c,LP})\tau_{c,t}Q_t] + [NMR_t(\frac{Y_t^*}{Y_t})^{\varepsilon}] \quad (4)$$

53. **Over the years the target for the structural balance has been adjusted in response to changing economic needs**. As required by the FRL, four-year targets are set at the beginning of each administration, conditional on the macroeconomic forecast. Since the fiscal rule was set up, there have been four different targets: (1) from 2001–07, the structural balance target was set at a constant surplus of 1 percent of GDP; (2) in 2008, the target was a surplus of 0.5 percent of GDP, after downward revision of the estimates of fiscal contingencies; (3) for 2009, the initial target was a zero balance but a de facto escape clause was later applied to provide fiscal stimulus during the financial crisis; and (4) for 2010–14, a target path was set to achieve a deficit of 1 percent of GDP by 2014. Thus, the fiscal rule has been applied flexibly, while still providing an anchor for fiscal management.

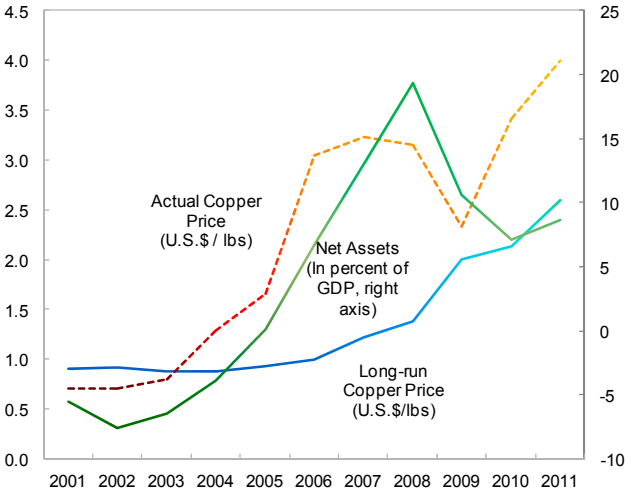
54. **Several features of the fiscal framework enhance the transparency of the rule**. An important element of the framework is that the values for potential GDP and long-run copper prices are determined by independent expert committees. The reliance on independent experts for setting the main parameters of the fiscal rule (and for advice on SWF investments) has helped protect the operation of the rule from political interference and enhanced its transparency and credibility. The overall rationale and methodology of the fiscal rule, including detailed explanations of all methodological changes, are described in policy papers published by the Budget Directorate and annual budget reports, which include the structural balance targets for the next four years and a detailed review of the implementation of the previous year's budget. Other annual publications include reports on estimates of fiscal contingencies and SWF financial statements. Generally, the fiscal rule is well understood by both the public and market participants (Dabán, 2011).

55. **Over time, methodological improvements have been made to the definition of the structural balance**. In 2005, as the importance of fiscal revenues from molybdenum and private copper mining increased, the structural balance formula was modified to incorporate these sources of revenue into the cyclical adjustment (initially, only revenues from Codelco, the state mining company, were cyclically adjusted). In 2009, the adjustment for non-mining taxes was refined by applying different elasticities for each tax category (e.g., personal income tax, non-mining corporate taxes) to better capture the effect of the economic cycle on each tax base. In 2010, the authorities invited an independent advisory committee to make recommendations for improving the methodology for estimating the structural balance and propose reforms to strengthen the fiscal framework. In 2011, the authorities adopted some of the committee's recommendations, such as streamlining the calculation of structural adjustments. They also announced that they plan to

establish an independent fiscal council to supervise the estimation of structural variables and advise the Ministry of Finance on issues related to the definition of the structural balance.[34]

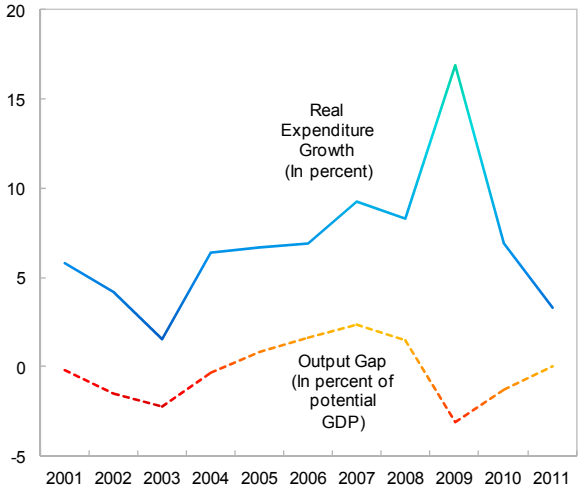
56. **The operation of Chile's fiscal rule so far has been consistent with its original objectives and has helped to improve fiscal and macroeconomic performance**. During the first decade of operation of the fiscal rule, the net asset position of the government strengthened from - 3¼ percent of GDP in 2000 to 19½ percent in 2008, supported by an upward trend in copper prices. The fiscal discipline enforced by the rule helped shield public spending from the large upswing in revenues during 2003–08 (Figures 43 and 44). Conversely, during the 2009 recession, the assets accumulated in the ESSF allowed the government to finance a large counter-cyclical stimulus. There have also been notable gains in the credibility of the fiscal framework, reflected in lower sovereign bond premiums. It has been suggested that the rule has also helped reduce output and exchange rate volatility and protect social spending during cyclical downturns (Rodríguez et al., 2006).

Figure 43. Chile: Asset Accumulation and Copper Prices



Sources: World Economic Outlook; Country authorities and IMF staff estimates.

Figure 44. Chile: Public Expenditure and Output Gap



Sources: Country authorities; and IMF staff estimates.

57. **Nonetheless, recent studies of the Chilean fiscal rule have highlighted several areas for further improvement**.[35] First, the rule could lead to unintended procyclicality of government spending in years when there is a substantial change in the long-term copper price (which affects the estimate of structural copper revenues). To minimize this effect, the rule could be amended to smooth the convergence to a new long-run price. Alternatively, the rule could be complemented

[34] For a complete list of the recommendations see Corbo et al. (2011).

[35] Corbo et al. (2011); Dabán (2011); OECD (2011).

with an expenditure growth ceiling. Second, the fiscal framework could be strengthened by defining an explicit target for net assets as a medium-term fiscal anchor. The net asset target should take into account potential long-term pressures on revenues and expenditures. A net asset target would improve the link between the intermediate fiscal goal (the structural balance target) and the fundamental objective of ensuring fiscal sustainability. Third, in its current form the law provides little guidance on operational issues. For example, the FRL does not specify explicitly the objective of the fiscal rule; nor does it address the basis for assessing compliance (see Dabán, 2011). Finally, the rule could be made more flexible by defining explicit escape clauses to be activated in case of large shocks. The rule should be complemented with a medium-term policy framework that provides a clear path for returning to the fiscal target after temporary deviations (Corbo et al., 2011; OECD, 2011).

Key Policies and Lessons

58. **Prudent fiscal policy has been a driver of Chile's strong macroeconomic performance in the last two decades.** The adoption of the structural balance rule in 2001 further enhanced the policy framework by establishing a rigorous methodology for calculating the structural balance and increasing the transparency of fiscal targets. A major strength of the operation of the rule is reliance on independent expert committees to determine the parameters used in the cyclical adjustment of revenues (long-term copper prices and the output gap). Chile's experience shows the benefits of having a flexible framework that can be adjusted over time as circumstances change. Of course, a necessary condition for such a framework to ensure fiscal discipline is continued political commitment to adhere to prudent fiscal policy.

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C. Timor-Leste's Fiscal Framework and Petroleum Fund[3637]

Background

59. **Petroleum is the mainstay of the economy in Timor-Leste**. Although modest by international standards in terms of the absolute level of reserves, reliance on petroleum is extremely important to Timor-Leste given its small non-oil GDP. In fact, income from petroleum currently accounts for over 70 percent of GDP and over 95 percent of total revenues. On the one hand, such a revenue source provides an opportunity to develop the economy and raise living standards. On the other hand, petroleum revenue is very volatile, concentrated (mainly from a single field), and temporary. The present value of total government wealth from oil in 2012 is estimated to be US$22.2 billion.[38] A critical issue for the authorities has therefore been how to manage petroleum revenue and put it to productive use. Because Timor-Leste is a fully dollarized economy, fiscal policy is the only instrument available to the authorities for macroeconomic management.

The Fiscal Framework and the Petroleum Fund

60. **The fiscal framework in Timor-Leste is centered on two elements: a Petroleum Fund and a guideline focused on long-term fiscal sustainability**.

61. **Timor-Leste's petroleum revenue is managed by the Petroleum Fund, which was established in 2005 and invests its assets abroad**. The fund is intended to provide transparency and accountability for the management of petroleum revenue and help insulate the public finances and the economy from income volatility. All petroleum revenue goes into the fund. Withdrawals can only be used to finance expenditures of the state budget. Transfers from the fund to the budget are guided by the principle of maintaining the real value of government wealth (defined as the sum of financial assets in the fund and petroleum wealth in the ground). To that effect, annual transfers are linked to estimated sustainable income (ESI), which is computed according to the following formula:

$$ESI = r\left[V + \sum_{t=0}^{n} \frac{R_t}{(1+i)^t}\right]$$

where r is the specified real rate of return, V is the balance of the fund at the start of the fiscal year, R_t is the budget projection for petroleum revenue in year t, n is the last year of projected receipts, and i is the discount factor, specified as the nominal yield on U.S. government securities averaged over years 0 to n. Thus calculated ESI is the annuity value of government wealth in general and expected future petroleum revenue in particular. This formulation is similar to the standard permanent income hypothesis (PIH) approach. The ESI is updated annually.

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[36] Prepared by Byung K. Jang (APD) and Takuji Komatsuzaki (FAD).

[37] This section is based on IMF (2009, 2010, 2011); Rasmussen (2009); and other references cited.

[38] The calculation of the petroleum resource is conservative. It would be higher if WEO oil price assumptions were used and the Greater Sunrise oil field were included.

62. **The ESI formulation also helps to deal with the volatility of petroleum prices and limit the exposure of the public finances to depressed petroleum production**. However, the ESI is sensitive to the methods chosen for calculating its parameters. In fact, V and R depend on judgments about which assets to include and assumptions about oil prices, reserves, production, and operational and capital costs. The following prudent practices have been applied:

- *A low-case production scenario* is used for reserve and production forecasts, consistent with a 90 percent probability that actual figures will exceed the forecasts.
- *Since 2011, oil price forecasts, the single most important element*, are given by the simple average of the "low case" and "reference" (mid-case) prices from the Energy Information Agency's (EIA) annual energy outlook. Before then, the assumption was more conservative—only the EIA low-case price was used.
- *Central estimates of future capital and operating costs* provided by project operators are used to forecast project operating and capital costs.
- *Calculation of the discount rate i* implies several stages. First, a specific discount rate is calculated for each year of the petroleum revenue forecast using the 10-year average of the U.S. bond rate for each maturity date. Then, *i* is calculated as the weighted average of those discount rates that results in the same net present value as is arrived at using the specific discount rates. The real rate of return *r* is set at 3 percentage points.[39]

63. **Note that the ESI is a benchmark or guideline, not a legal obligation**. In fact, transfers in excess of the ESI are allowed, but only after the government provides parliament with justification and also documents the resulting future reduction in ESI, certified by an independent auditor, for parliament's approval. The intention is to place reasonable constraints on the ability of governments to spend fund resources without taking into account long-term fiscal sustainability. This flexibility represents a departure from the standard PIH approach, allowing for a more front-loaded use of petroleum wealth.

64. **While the ESI as a guideline is calculated from the standpoint of long-term fiscal sustainability, actual transfers from the Petroleum Fund to the budget are determined during discussion of the state budget**. The fund is thus coherently integrated with the budget and the budget process. In principle, absorption capacity constraints in terms of both macroeconomic stability (inflation and real exchange rate appreciation) and project implementation would be taken into account in formulating annual budgets and the associated fund transfers.

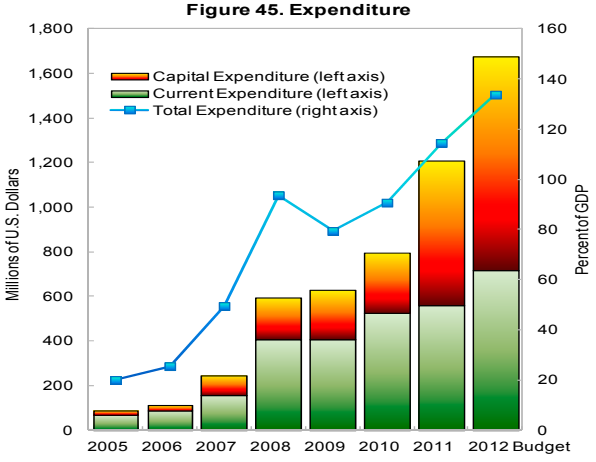
[39] In fact, the fund used to have a conservative investment strategy, with at least 90 percent in U.S. dollar-denominated fixed-income instruments, but an amendment in 2011 allows more investment in equity (up to 50 percent). It will take some time before the investment portfolio is transitioned to a higher proportion of equities, and higher returns are demonstrated. Furthermore, the 3 percent rate represents the real return that the investment strategy will likely be designed to target.

65. **The fiscal framework in Timor-Leste does not have explicit limits on borrowing**. Timor-Leste had no public debt as of 2011. However, to finance infrastructure projects, parliament for the first time approved concessional borrowing of US$43 million (1 percent of GDP) in 2012 from the World Bank, the ADB, and bilateral donors. More external loans are envisaged in the medium term. Concessional borrowing would help build the authorities' capacity to appraise and plan projects. The authorities stated that any borrowing would substitute for, not complement, withdrawals from the Petroleum Fund and that they are studying the pros and cons of public-private partnerships (PPPs), given the substantial costs they have incurred in other countries.

Track Record

66. **Timor-Leste's spending of oil revenue was initially conservative.** Until 2008 transfers to the state budget to finance the non-oil budget deficit were smaller than ESI. ESI grew rapidly in the early years of the Petroleum Fund. Government spending also surged, but with some lag and low rates of budget execution. Spending has accelerated in recent years (Figure 45). While spending grew only moderately in 2009, withdrawals from the Petroleum Fund for the first time exceeded ESI. The original 2010 budget foresaw moderate spending growth, but during the year the authorities introduced a supplemental budget. Capital expenditure shot up in 2011, with total government spending estimated to have risen to US$1.2 billion (115 percent of non-oil GDP) from US$0.8 billion (91 percent of non-oil GDP) in 2010. Moreover, the 2012 budget envisages further scaling up of capital spending, so total government spending would rise to US$1.7 billion—about 40 percent more than in 2011 and more than twice the ESI of US$0.7 billion. Given high oil revenues, the Petroleum Fund has risen to almost 900 percent of non-oil GDP as of 2011.

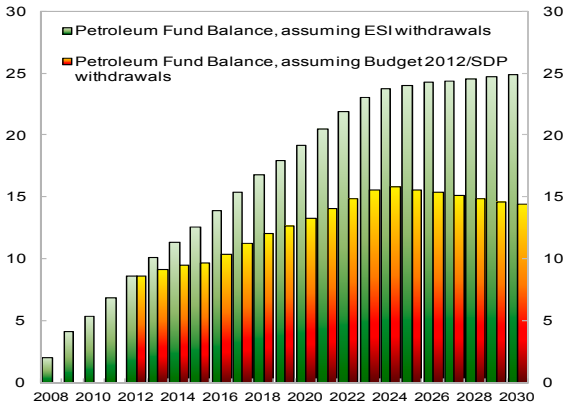
Figure 45. Expenditure



Sources: World Economic Outlook, and IMF staff estimates.

67. **The authorities intend to front-load capital spending over the medium term as part of the Strategic Development Plan (SDP) launched in 2011**. The government is focusing on improving inadequate infrastructure, particularly electricity and roads, to lessen constraints on the growth of the non-oil private sector and enhance growth potential. The SDP envisages withdrawals in excess of the ESI for the next two decades. This pace of spending would bring the ESI and Petroleum Fund down by about 40 percent in nominal U.S. dollar terms by 2030

Figure 46. Petroleum Fund Balance
(In billions of U.S. dollars)



Sources: Country authorities and IMF staff estimates.

(Figure 46). Large infrastructure spending will mainly be financed by withdrawals from the Petroleum Fund (the government is also considering other financing options, such as borrowing and PPPs).

68. **To better manage large public investment programs, the government has established several new institutions responsible for project appraisal, procurement, and monitoring against budget**. The Infrastructure Fund was set up to facilitate large, multiyear projects. The Ministry of Finance's Secretariat of Major Projects was given responsibility for reviewing projects proposed by line ministries, and final approval is decided either by the Board of the Infrastructure Fund (for projects costing less than US$5 million) or by the Council of Ministers (for projects costing US$5 million or more). The National Development Agency supervises project implementation and the Procurement Commission assists with procurement for Infrastructure Fund projects.

69. **Deviation from the ESI does not necessarily suggest that policies are inappropriate; scaling up growth-enhancing expenditure is warranted for Timor-Leste, a low-income country.** There are, however, concerns associated with the strategy. Major projects need to be carefully selected to have sufficiently high returns to justify withdrawals from the Petroleum Fund that exceed the ESI. Moreover, to ensure longer-term fiscal sustainability, the medium-term budget needs to reflect the full costs of planned projects and recurrent costs. Spending for large, multiyear projects needs to be phased so as to align with capacity constraints and the absorption capacity of the economy. Here the new institutions should be helpful. Because Timor-Leste has no monetary policy, the authorities need to pay extra attention to its effect on inflation. Inflation is currently in double digits and broad-based—not limited to import prices. Domestic inflationary pressures risk Dutch disease, which would jeopardize long-run development of the non-oil tradable sector. Furthermore, the authorities may need to take substantial measures to reduce the non-oil fiscal balance to the ESI over the next 10 years. While Timor-Leste's public debt is still very small, it might consider limits on borrowing as it plans to expand external borrowing.

Policy Lessons and Issues

70. **Timor-Leste's fiscal framework has been an important anchor to ensure fiscal sustainability.** In particular, ESI has provided a PIH-based benchmark that preserves the real value of government wealth from oil. At the same time, Timor-Leste's pressing development needs as a low-income country have led to higher public spending in recent years. Balancing fiscal sustainability and addressing development need is a critical policy issue for RRDCs.[40]

71. **There are a number of important policy issues that warrant continuous attention.** As the authorities plan high medium-term public spending, large investment projects need to be carefully selected and implemented to ensure efficiency and the full costs of projects and recurrent costs need to be reflected in the medium-term budget to properly assess fiscal sustainability. Lack

[40] See Baunsgaard et al. (2012) for further analysis and guidance.

of monetary policy suggests that fiscal policy also needs to take into account its implications for inflation. As Timor-Leste has started external borrowing and plans to continue to do so, it might consider borrowing limits.

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D. Mongolia's Fiscal Framework for Dealing with Nonrenewable Resources[41]

Background

72. **The mining sector's share of Mongolia's export earnings increased from about 55 percent in the early 2000s to 87 percent in 2011 and is projected to reach over 95 percent by 2013 when the Oyu Tolgoi (OT) copper mine[42] becomes operational**. Mining also contributed about 24 percent of total government revenues in 2011, with a further increase expected over the medium term. On this basis, many Mongolians expected the country's mineral wealth to quickly lead to lasting economic prosperity.

73. **However, the global financial crisis was associated with an abrupt end to the global commodity boom, causing the price of copper—Mongolia's primary export—to decline by 70 percent from its July 2008 peak.** The resulting decline in exports and the government's mineral revenues weighed heavily on the economy and opened up large deficits in both fiscal and external accounts, heightening the risk of a disruptive contraction in economic activity. Macroeconomic policy was not robust enough to withstand an external shock of this magnitude. Government spending had expanded with the rise in mineral revenues, pushing the non-mineral deficit to nearly 10 percent of GDP in 2007; there was no ready replacement for a shortfall in mineral revenues.

74. **Mongolia has reformulated its management of mineral revenues in light of the lessons from the recent crisis and in anticipation of the OT project coming on stream.** A fiscal stability law (FSL) setting new fiscal rules and a stabilization (and savings) fund was approved in 2010. The FSL benefitted from technical assistance (TA) from various partners, including the Fund. However, as described below, some provisions in the final version of the law deviated from their advice.

Objectives of the FSL

75. **The main objective of the FSL is to improve fiscal discipline and stability.** The FSL aims to dampen the macroeconomic effects of mineral price fluctuations by smoothing spending (insulating the fiscal spending path from fluctuations in mineral revenue) in order to improve management of macroeconomic demand. The law imposes fiscal discipline to avoid the temptation to spend mineral revenue immediately and supports a stability-oriented fiscal policy. The FSL also aims to address the likely large increase in revenue from copper production when the OT project starts up, which unless carefully managed will infuse considerable demand into the economy.

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[41] Prepared by Kyung-Seol Min (FAD).

[42] Oyu Tolgoi is the largest known undeveloped copper-gold mine in the world. It is projected to be in operation for 60 years.

76. **In addition to numerical rules, the FSL also incorporates procedural and transparency reforms to strengthen budget discipline.** For example, the law specifies that decisions on fiscal policy must be taken first within a medium-term fiscal framework. The budget is then decided on within the approved framework. The fact that amendments to the FSL require a two-thirds parliamentary majority signals that the authorities are fully committed to the rules-based approach.

Fiscal Rules in the FSL

77. **The FSL put in place three complementary fiscal rules to function together as a circuit breaker to ensure fiscal discipline:**

- A ceiling on the structural deficit of 2 percent of GDP (effective in 2013);
- A ceiling on expenditure growth linked to the rate of growth of non-mineral GDP (effective in 2013); and
- A public debt ceiling of 40 percent of nominal GDP (in net present value [NPV] terms, effective in 2014).

78. **The main fiscal rule targets a "structural" balance.** The structural balance is defined as the difference between "structural" revenues and overall expenditures. Structural revenues are defined as revenues that would be received if the prices of major minerals[43] were at a particular level, defined as a 16-year moving average of mineral prices.[44] The use of structural revenues helps to insulate spending plans from revenue fluctuations caused by short-term changes in prices. Originally, a zero or positive target was recommended to allow the build-up of stabilization buffers and reduce debt-to-GDP ratios. However, the political process led to the approval of a 2 percent of GDP target. Based on medium- to long-term simulations, that deficit target was deemed appropriate assuming Mongolia's future borrowing strategy relies mostly on concessional borrowing to ensure stabilization of the debt-to-GDP and debt service ratios.

79. **By restricting the maximum expansion of expenditures in any given year, the expenditure rule functions as a secondary check for managing macroeconomic demand.** The rule constrains total expenditure growth to a rate consistent with the economy's capacity to absorb the spending without triggering a surge in inflation or an overshooting of the real exchange rate. This rule is a critical complement to the structural (price-based) rule because of potentially substantial increases in total mineral revenue with the start-up of large projects like OT. In the FSL,

[43] Major minerals are ones that generate revenues of at least 3 percent of total revenues. In 2011, the major minerals were copper and coal.

[44] This comprised actual prices of the past 12 years and projected prices for the current year and the next 3 years. This unusually long period was adopted on the political economy grounds of prudence. However, the use of a formula that looks back a long time may lead to major forecast errors and long periods of undershooting or overshooting of actual prices, which could eventually undermine the credibility of the rule.

the expenditure growth ceiling is the greater of the current year's nominal non-mineral GDP growth rate, and the 12-year moving average of nominal non-mineral GDP growth. This rule does not distinguish between current and capital expenditures.

80. **The gross debt rule is a secondary constraint to ensure that policy under the fiscal rules is consistent with keeping debt sustainable.** The primary guarantor of debt sustainability is the choice of the structural balance target itself, which determines the required financing and thereby the trajectory of public debt. The gross debt rule is a transparent, though indirect, anchor for fiscal policy by implicitly limiting the maximum deficit the structural balance rule can target. The NPV of public debt should be no greater than 40 percent of nominal GDP, and the coverage of public debt includes all the types of financial obligations of fully and partly state-owned legal entities. This provision takes effect in 2014. In the interim, to account for expected debt dynamics, the FSL sets ceilings of 50 percent of GDP in 2011, 60 percent in 2012, and 50 percent in 2013.

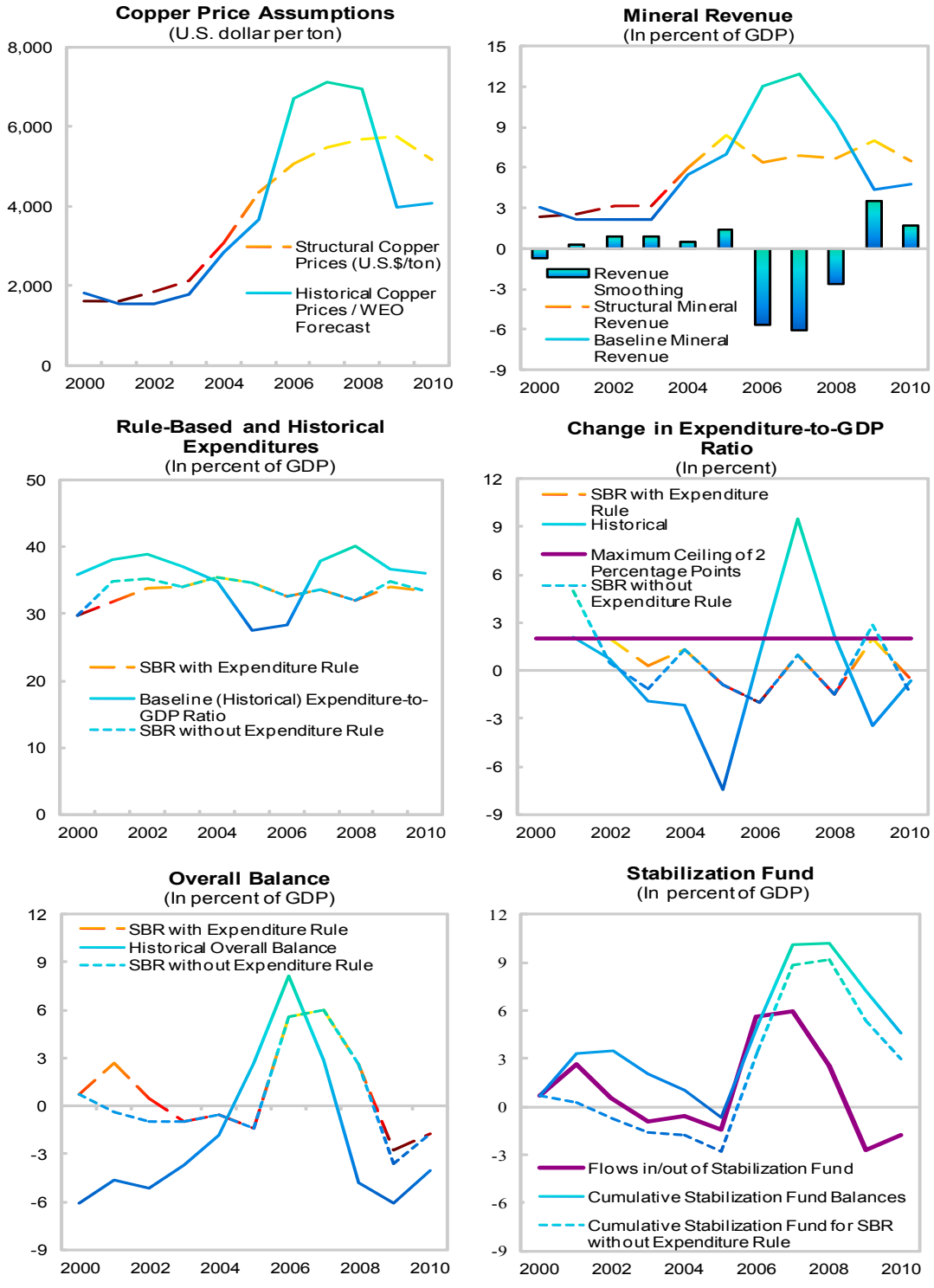
81. **A further consideration is that fiscal rules have to strike a balance between economic strictness and political reality.** Too strict and they risk breaking down due to political pressures; too lax and they provide no benefits to the economy. To ensure some inherent flexibility in the rules, the FSL foresees recalibrating the main fiscal target (the structural balance) every four years at the beginning of a new government term. The law also has an escape clause in case of national emergencies or economic crises.

82. **A simulation in 2009 illustrated how fiscal indicators would have behaved for 2000–10 if the fiscal framework had been constrained by both a structural balance rule and an expenditure growth rule** (Figure 47)**.**[45] The simulation implies substantive smoothing for both mineral revenue and expenditure due to the structural balance rule, which stabilizes fiscal policy even when mineral prices are very volatile. The expenditure rule is binding only occasionally because the price smoothing built into the structural balance rule is already very effective in limiting the effect of mineral price volatility on expenditures.

[45] The parameters used in this simulation exercise were different from the ones adopted in the FSL in that:

- Structural mineral prices were based on a 5-year moving average of actual and projected prices. For example, the structural price in 2005 is the average actual and projected price for 2003–07.
- The structural balance ceiling is 0.
- An expenditure growth rule limits the annual increase in the expenditure-to-GDP ratio to 2 percentage points. For example, if the expenditure-to-GDP ratio in 2011 is 45 percent, the ratio in 2012 is limited to 47 percent.

Figure 47. Simulation Results of Fiscal Indicators, Structural Balance Rule and Expenditure Growth Rule



Source: Technical Memorandum on the Fiscal Stability Law of Mongolia (IMF FAD), July 14, 2009.

Fiscal Stability Fund

83. **The fiscal framework is supported by a stabilization fund for mineral revenue.** When actual mineral revenue exceeds structural mineral revenue, the difference has to be placed in the stabilization fund. Contrary to recommended practice, this applies even if there is an overall fiscal deficit, in which case the government has to borrow to make the transfers into the stabilization fund. On the other hand, when structural mineral revenue exceeds actual mineral revenue and there is an overall fiscal deficit, the fund can be used to finance that deficit. With the start-up of OT operations, the expenditure rule would become binding, and large balances would accumulate in the fund.

84. **The fund will also function as a savings account to build wealth for future generations.** To promote a minimum savings effort by the government, the FSL requires that the fund should be greater than 5 percent of GDP from FY 2018 onward, with excesses invested with a longer-term perspective. The fund balance is expected to be used mainly after the mineral reserves are depleted. Current projections suggest that the goal is attainable. However, this provision could create inconsistencies among rules if a gap between actual and structural revenues is not high enough to meet the 5 percent of GDP floor.

Recent Developments

85. **The FSL was a milestone in tackling the procyclicality of Mongolia's fiscal policy, but there are questions concerning its full implementation in 2013.**[46] Government spending rose by about 60 percent in 2011 and is expected to grow by another 30 percent in 2012, which would add to pressures on both inflation and non-mining imports. Full implementation of the 2012 budget would force a steep adjustment in 2013 when the main parameters of the budget will for the first time be governed by the FSL. Moreover, there is a concern that the government-owned Development Bank of Mongolia will be used as an off-budget vehicle for spending outside the constraints of the FSL. In March 2012 the DBM raised US$580 million (5.5 percent of GDP) by issuing 5-year government-guaranteed bonds.

86. **At the same time, there have been some improvements in the structural underpinnings for fiscal policy.** The Integrated Budget Law passed in December 2011 should help support fiscal sustainability and implementation of the FSL by mandating that the budget meet the FSL's requirements and by spelling out sanctions if they are violated. The Social Welfare Law approved in January 2012 takes a significant step forward in efficiently fighting poverty by introducing a means-tested benefit to replace costly universal cash transfers.

[46] See IMF (2012).

Key Policies and Lessons

87. **The Mongolian fiscal policy framework constitutes a relevant example for other lower-income countries with large revenue from nonrenewable resources.** The framework is comprehensive, focused on fiscal rules specifically tailored for producers of nonrenewable resources and supported by a resource fund. The combination of a price-based rule and an expenditure growth limit is attractive in terms of public communication—because of its focus on highly visible mineral prices—while also delinking public expenditure from revenue volatility due to other factors (like the expected large increase in mineral production). Going forward, while it is the case that some parameters of the fiscal framework (like the structural balance target or the maximum expenditure growth limit) might need to be refined over time, the main challenge will be to meet the framework's provisions. Political commitment will be tested in coming years in the face of substantial expenditure pressures.

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IV. MANAGEMENT OF RESOURCE FUNDS AND COUNTRY EXPERIENCES[47]

88. **Managing natural resources in resource-rich developing economies (RRDCs) entails challenges.** With their balance sheets tilted toward the asset side, for RRDCs a major political decision is whether to accumulate "excess" financial assets and how to design resource fund arrangements that further the government's macroeconomic objectives. This chapter discusses macrofinancial and risk management aspects of these arrangements. Most RRDCs direct major effort to two objectives: (i) stabilization to cope with jumps and drops in resource revenue and "stop and go" public expenditure plans, and (ii) savings and development for intergenerational transfers of natural endowments or optimization of investment policies and risk management of accumulated resources.

Funds Arrangements: The Santiago Principles and Practices

89. **Sovereign wealth fund (SWF) arrangements are special-purpose investment arrangements with minimal associated liabilities and typically focused on overseas investment.** Often SWFs have no liabilities beyond those of the government, the owner of the fund.[48] Driven by different objectives and economic vulnerabilities, governments have opted for different types of arrangements. These range from pure government accounts at the central bank to more institutionalized structures, such as the SWF arrangements guided by the Santiago Principles. SWFs are typically funded primarily from excess official reserves, fiscal surpluses, and receipts from nonrenewable resource exports.

90. **There is no unique definition and classification of SWF arrangements.** To date, using the IMF staff definition based on adherence to the International Forum of Sovereign Wealth Fund (IWG) there are about 28 SWF arrangements,[49] only two of which belong to RRDCs: Timor Leste's Petroleum Fund and the Mineral Resource Stabilization Fund of Papua New Guinea (PNG). Using broader notions, the SWF Institute reports 68 SWFs and SMC Global Securities Limited (2012) lists 64; fund composition across these institutions differs somewhat. Using all three sources, this chapter examines 73 arrangements (Table 3), of which 16 belong to LICs or LMICs.[50] Most (62 percent) were established since 2000; only 13 percent were set up before 1980 (Figure 48). The bulk of these

[47] Prepared by Maria Oliva (MCM).

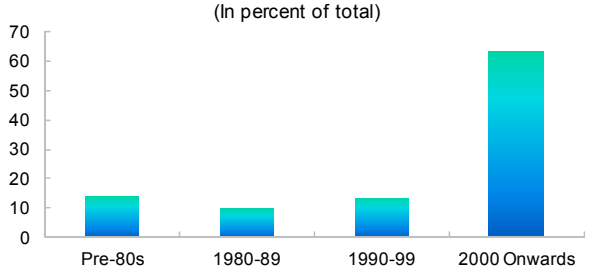
[48] As a legal principle, when SWFs are incorporated as separate entities, they would be liable only for obligations undertaken by them, and they would not be responsible for obligations of the government.

[49] Indeed, the list includes the members of the International Working Group of SWFs plus two new funds, in Panama and Papua New Guinea.

[50] These are Angola, Chad, Equatorial Guinea, Guinea, Gabon, Indonesia, Kiribati, Libya, Mauritania, Mongolia, Nigeria, Papua New Guinea, Timor Leste, São Tomé, Sudan, and Vietnam.

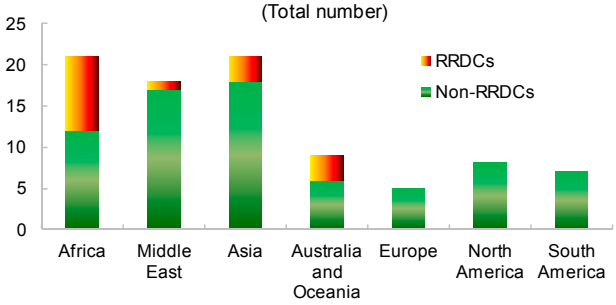
arrangements are in Asia, the Middle East, and Africa (Figure 49); with regard to low- and lower-middle-income resource-rich economies, however, Africa dominates with seven arrangements.[51] SWFs are not homogeneous structures; they are country-specific (Tables 4 and 5).

Figure 48. Sovereign Wealth Funds, by Age
(In percent of total)



Source: IMF staff estimates.

Figure 49.Sovereign Wealth Funds by Region, 2012
(Total number)



Source: IMF staff estimates.

91. **SWF design and management are guided by the generally accepted Santiago Principles** (Box 3). These voluntary principles guide the conduct of investment practices and the governance and accountability arrangements of SWFs. Establishing a fund arrangement is often a political decision based on the country having built up a critical mass in balance of payments foreign reserves or surplus fiscal balances.[52]

92. **Even though they are established for very different reasons, SWFs have similar macroeconomic objectives.** They are intended to reduce the domestic pressures created by fluctuations in endowment. Their structure makes it easier to manage or administer financial assets to attain specified financial objectives. Many fund arrangements are set up as intergenerational transfers of the benefits of natural endowments; as fiscal or macroeconomic stabilization mechanisms, others are often used to smooth the negative fiscal impact of commodity price volatility[53] or to avoid surges in domestic liquidity that fuel asset price appreciation or pressures on the real exchange rate (i.e., to avoid Dutch disease); others are designed to cover particular future expenses, such as eventual pension fund liabilities.[54] Very few funds are defined to be profit-seeking.

[51] Angola's Fundo Soberano Angolano, Chad's Revenue Management Plan, Guinea's Fund for the Future, Mauritania's National Fund for Hydrocarbon Reserves, Nigeria's Excess Crude Account and the Nigerian Sovereign Investment Authority, São Tomé's National Oil Account, and Sudan's Oil Revenues Stabilization Account.

[52] The decision to establish a fund entails a number of challenges, including identifying the level of "excessive" resources to be in the arrangement, identifying the objectives, and specifying the appropriate asset management framework.

[53] Stabilization funds are distinguishable from cash management and treasury accounts because they are intended to deal with sudden jumps in resource revenues, not normal price fluctuations.

[54] According to the 2010 IFSWF Survey, over half of the funds had long-term savings and stabilization purposes.

Box 3. The Santiago Principles[1]

In 2008 the IMF and the International Working Group of Sovereign Wealth Funds (IWG-SWFs) agreed on 24 voluntary "best practice" guidelines for managing SWFs. These, known as the Santiago Principles, have so far been signed by 25 countries.[2]

The Santiago Principles, like the OECD investment code for liberalization of capital movements, were designed to make cross-border investing more effective. The principles provide a framework of generally accepted principles and practices that reflect both appropriate governance and accountability arrangements and prudent and sound investment practices. Implementation is voluntary and subject to the laws of signatories being made compatible with the principles. Some funds conduct self-assessments to help reassure markets that the rationale guiding SWF activities is solely based on economics.

The Santiago Principles[3] cover three main areas:

- Legal framework, objectives, and coordination with macroeconomic policies
- Institutional framework and governance structure
- Investment and risk management framework

The principles have four guiding objectives:

- A transparent and sound SWF governance structure that provides for adequate operational controls, risk management, and accountability;
- Compliance with all regulatory and disclosure requirements in the countries where SWFs invest;
- Conduct of SWF investments on the basis of economic and financial risk and return-related considerations; and
- Maintenance of a stable global financial system and free flow of capital and investment.

[1] Based on Press Release No. 08/06. http://www.iwg-swf.org/pr/swfpr0806.htm.

[2] Members of the IWG-SWF are Australia, Azerbaijan, Bahrain, Botswana, Canada, Chile, China, Equatorial Guinea, Republic of Iran, Ireland, Korea, Kuwait, Libya, Mexico, New Zealand, Norway, Qatar, Russia, Singapore, Timor-Leste, Trinidad and Tobago, the United Arab Emirates, and the United States. Oman, Saudi Arabia, Vietnam, the OECD, and the World Bank are permanent observers.

[3] A discussion and listing of principles can be found at http://www.iwg-swf.org/pubs/gapplist.htm.

93. **SWFs can have different governance structures,** ranging from separate financial institutions, operating as autonomous entities (e.g., the Libyan Investment Authority, Iran's Foreign Investment Company), to simply another government account (e.g., Algeria's Revenue Regulation Fund, a local-currency account at the central bank). Some "SWFs" are simply managed as international reserves or as cash (Box 4). Also, it is often the case in practice that funds defined as a pool of assets tend to be legally set up under the Ministry of Finance and are operated by the

central bank. Some, though, operate as separate entities or as arm's-length entities from the government and are managed by a board of directors. In most cases, the ownership of the assets, together with the policy aspects of the management of the assets, is retained by the government (typically the Ministry of Finance), while the investment management of the assets is delegated to (a) relevant institution(s) (central bank, a specialized agency or both in some cases) that can in turn contract external managers to manage some assets/portfolios.[55]

Box 4. Examples of Fund Arrangements in Developing Economies

The *Development Fund for Iraq* is a government account at the Federal Reserve Bank of New York; 95 percent of all export sales of petroleum and petroleum products are deposited in this account, which is treated in practice as a pure cash management account. Funds required to finance the budget are disbursed to the government's account at the central bank, and part of the other resources are invested in very liquid instruments.

Before the secession in 2011, *Sudan's Stabilization Account* (ORSA) was a locked government subaccount at the Central Bank of Sudan that was used to finance government spending.

The *Fiscal Stability Fund (FSF) of Mongolia* is a unique treasury account at the Central Bank of Mongolia established as a stabilization fund to be used during economic downturns, but not as an instrument for cash management.

Angola's *Oil for Infrastructure Fund (OIF)* was considered a first step in mitigating the negative impact of volatility on investment spending; the central bank manages it as part of its international reserves, and some of the funds are invested for domestic infrastructure projects in the government budget.

94. **SWF design and operational considerations also vary with country circumstances and capacity levels.** Other variables taken into consideration include relevant jurisdiction laws and regulations. And practices in fact evolve over time to adjust to new macroeconomic and financial market realities. In each case, resource funds need to be consistent with the country's medium-term fiscal policy ("above the line") and the medium-term funding and investment policies ("below the line") so that the two aspects go hand-in-hand. They should be integrated into the budget, with no authorization of spending outside it. Separate funds that could fragment the budget process should be avoided.

[55] In some cases the institutional manager is incorporated with paid-in capital and manages what are formally its own assets; in others an asset management company manages assets that constitute a liability to the central government as the owner of the SWF.

SWF Management Best Practices

95. **In establishing an SWF, the authorities need to ensure that its objectives are consistent with the general macroeconomic framework and decide on appropriate institutional arrangements**. These should cover (see Table 6): (i) roles and responsibilities of the SWF and related agencies and people; (ii) risk management, investment strategy and investment management mandate; and (iii) transparency, disclosure, and accountability issues. Box 5 gives some examples.

Box 5. Examples of Natural Resource Fund Arrangements

In March 2007, *Trinidad and Tobago* set up the Heritage and Stabilization Fund,[56] which replaced the Interim Stabilization Fund that had been created in 2000 to enhance fiscal discipline and help the authorities better manage energy revenues. The fund was created to manage the potential negative macroeconomic effects of higher revenues, and thus avoid past mistakes.[57] Originally, the Interim Fund received US$66 million (1 percent of GDP). By September 2011, the Heritage Fund had US$4.1 billion (about 18 percent of GDP). The Heritage Fund expanded the Interim Fund stabilization objectives and adjusted its governance and deposit and withdrawal rules.

In *Papua New Guinea,* completion of a major liquefied natural gas project (known as PNG LNG) and prospects for other gas and mineral projects are projected to significantly increase the country's revenue over the medium to long term, which could destabilize the economy and generate Dutch disease-type pressures. To better manage these resources, reduce macroeconomic risks, and ensure macroeconomic stability, parliament in February 2012 approved legislation to set up an SWF, to be integrated with the fiscal framework and the budget. It was announced on February 2012 and funded with US$30 billion.

Mongolia's Fiscal Stability Fund was established in 2011, after the Fiscal Stability Law was passed in 2010. It consists of a unique treasury account to be used in case of economic downturns.

Nigeria had established an excess crude account in 2004 with US$0.5 billion in assets. In 2011 the Investment Authority Establishment Act established the *Future Generation Fund,* the *Nigerian Infrastructure Fund,* and the *Stabilization Fund*. The law details investment policy, management, and auditing and reporting requirements for all three funds.

Botswana's Pula Fund was established under the Bank of Botswana Act in 1994. It is a long-term investment portfolio arrangement aimed at savings for future generations. It is part of the Bank of Botswana's balance sheet and of the overall foreign exchange reserves. It is owned by the government and the Central Bank; and it is funded from balance of payments surpluses deriving from diamond export receipts. The asset portfolio includes only foreign currency denominated assets, the bulk of which are long-term instruments (equity and fixed income instruments).

96. **SWFs with different purposes are expected to have different operational structures and investment rules.** For instance, because withdrawals from natural resource stabilization funds are contingent (wealth is accumulated when prices are increasing and spent in downturns to smooth domestic consumption and support the domestic economy), to protect the total wealth of the

[56] See the Selected Issues Paper "The Heritage and Stabilization Fund: Key Issues for the 2012 Review" for Trinidad and Tobago, March 2012, and the International Forum Website http://ifswf.org/.

[57] In the 1970s the economy benefitted from higher oil prices. With higher revenues, the fiscal stance became overly expansionary, putting the country on a path that was unsustainable when prices dropped in the 1980s.

economy, their investment guidelines need to be more liquid and should target assets that correlate negatively with resource-export price movements.

97. **Deposit and withdrawal rules are usually defined by the laws that establish the arrangement.** Assets are held in stabilization fund arrangements or accounts to cope with economic downturns and temporary declines in government revenues. Savings accounts, in contrast, have a longer investment horizon because those assets are held against future liabilities (funding needs). It is important that the deposit and withdrawal rules guiding the arrangement are consistent with the country's medium-term fiscal stance. In practice, stabilization funds tend to be funded from revenue-contingent deposits when revenues exceed a target (see the examples of Trinidad and Tobago and Papua New Guinea in Table 6); savings funds tend to rely on revenue-share rules; and investment funds tend to have more flexible schemes.[58]

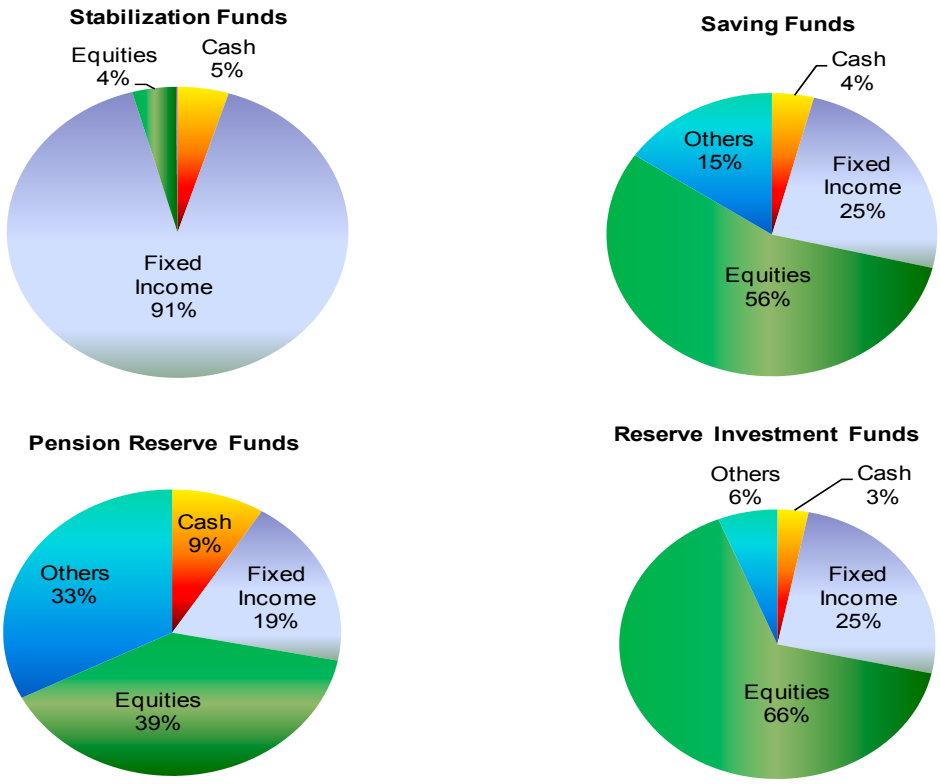
98. **Deposit and withdrawal rules need to be clearly defined and provide some flexibility in case of adverse conditions.** Rules should be defined in line with country needs, and it is important that countries clearly state what those rules are when the fund or account is set up—and then abide by them. Because, for instance, stabilization fund arrangements or accounts are more likely to be needed on short notice, their withdrawals are somewhat more uncertain. For a savings account, the presumption is that withdrawals are predictable and not to be used soon; it should therefore be capitalized second. As a result, the asset allocation of the fund will start with a conservative, very liquid and low-risk, investment portfolio, especially since at first investment expertise may not yet be fully developed. In any case, to deal with unexpected and adverse economic circumstances (such as significant economic downturns, abnormal drops in revenue), it is important to ensure that the asset allocation strategies of and between various portfolios is flexible enough to ensure that the withdrawals that may be needed for government's liquidity needs can be met without incurring penalizing day-to-day borrowing or other financial costs.

99. **Asset operational investment policies need to reflect the inherent characteristics of each type of fund arrangements** (see Figure 50)**.** For instance, stabilization funds are typically invested in bonds that mature within 10 years and instruments that correlate negatively with the source of the risk the fund addresses. About 90 percent of all total stabilization fund assets have been found to be invested in fixed-income instruments. If Russia and Chile's funds are excluded, the share of sovereign bonds declines to 69 percent and of corporate bonds increases to 22 percent. Savings funds, instead, tend to be tilted toward equity, which means higher risk of volatility but

[58] Pension funds are typically funded by required minimum contributions. Withdrawals from stabilization funds tend to be defined to meet specific budgetary or funding targets. Investment funds sourced from international reserves are often linked to reserve requirements. Also, some funds pay out defined dividends but in others earnings are reinvested.

longer-term returns. Pension funds tend to have more diversified investment portfolios, and reserve investment funds[59] hold significant shares of equity.

Figure 50. Sovereign Wealth Funds: Assets and Portfolio Allocation
(In percent, in each type)



Source: GFSR 2012; International Monetary Fund.

100. **Furthermore, the strategic allocation of SWF assets needs to be consistent with the sources of funding and vulnerabilities in the sovereign balance sheet** (Kunzel et al., 2011). Arrangements financed through fiscal surpluses need to be influenced by budget dynamics. Funds sourced from international reserves, however, also need to account, for instance, for the dynamics of private capital flows and the composition of private sector debt.

Table 2. Sovereign Wealth Funds: Nominal Rates of Return
(In percent)

	Fiscal Year	2008	2009	2010	2011
Azerbaijan	December	3.8	3.3	1.0	..
Trinidad & Tobago	September	3.6	2.8	6.1	..
Chile (ESSF)[1]	December	7.6	2.5	1.8	3.5
Timor-Leste	December	6.9	0.6	3.8	..
Norway	December	-23.3	25.6	9.6	..
Singapore (Temasek)	March	7.0	-30.0	42.7	4.6
UAE (ADIA)[3]	December	..	6.5	7.6	..

Sources: SWFs' annual reports and reviews.

[1] For 2011, the return as of November 2011.

[2] The annualized rolling 20-year "real" rate of returns.

[3] The annualized 20-year rate of returns.

[59] Reserve investment corporations are intended to rec
higher return on ample reserves while the assets in the

101. **Investment returns show the conservative approach of many of these fund arrangements** (Table 2). In general, the return-risk mix of the invested asset portfolio tends to be tilted toward low risk, with "zero-risk" sovereign debt having a significant weight. For instance, because stabilization funds typically have a conservative asset allocation policy and emphasize high-quality sovereign instruments, their investment horizons and liquidity targets tend to be close to those that central banks apply in managing reserves.

102. **Many SWFs are subject to external as well as internal supervision.** Typically, the internal auditor verifies that fund management is operating within the law. The external auditor, usually appointed by the government, validates accounts and fund operations. Most funds are accountable to both the administration and the legislature. Annual reporting to parliament, externally audited accounts, and public disclosure of financial statements, are just some of the accountability and transparency requirements applied to many of the funds. Botswana's Pula Fund financial statements are published monthly in the *Government Gazette*. Timor Leste's annual and quarterly reports, with details on asset allocation, benchmarks, fund performance, and financial statements, are published on the Ministry of Finance and central bank websites.

Funds Arrangements and Severe Capacity Constraints

103. **Capacity constraints need to be considered in determining how funds should be structured.** These are of two types: (i) absorption capacity constraints on the economy to properly manage large inflows; and (ii) institutional capacity constraints related to the financial management of arrangements. Public finance management (PFM) systems are expected to address the first type of constraints which affect the size of "excess" resources to be added into an arrangement. Institutional capacity constraints, however, impinge on the establishment and design of the arrangement. For instance, setting up a fund arrangement may require that a new entity be created with enough capable staff for managing portfolios, investing in financial instruments, collecting information, and making projections; and with internal and external auditing mechanisms. Setting up a new arrangement also requires capacity to make decisions on the exact roles and responsibilities of each institution involved; setting up an inter-ministerial technical (not political) coordinating committee to monitor the progress of the arrangement; make realistic projections about resource proceeds and related government revenues over the extraction horizon; and estimate how much of the revenues the government will need for cash management purposes. In practice, if resources are limited, these cost constraints argue in favor of using existing institutions and outsourcing services as necessary (see below). Capacity constraints are more likely to be binding in RRDCs than in developed economies.

104. **The design underpinning the structure of fund arrangements varies with country circumstances and capacity levels, and can evolve over time to adjust to new macroeconomic and financial market realities.** If there were no capacity constraints, the ideal solution in managing natural resources from a macrofinancial perspective would be to have one fund arrangement per objective. Where there are a critical mass of assets and adequate managerial capacity, SWF objectives can be aligned with its design. Where there are separate legal entities subject to checks and balances, political interference that might give rise to suboptimal investment decisions can be

minimized. Furthermore, different objectives entail different asset allocation strategies; different types of instruments that have different currency denominations, risk, and profit targets; and therefore different types of technical, managerial, and supervisory expertise. Examples of fund arrangements established as separate legal entities with their own management board are Iran's Oil Stabilization Fund, Libya's Libyan Investment Authority, Azerbaijan's SOFAZ, and United Arab Emirates' Funds.

105. **A number of countries have different SWF arrangements or a "fund of funds" arrangement managed by the same legal authority instead.** For instance, Chile has two funds, the Pension Reserve Fund and the Economic and Social Stabilization Fund, both managed by the central bank as agent for the government. A Financial Committee recommends investment policies to the Minister of Finance, and the central bank manages and invests the funds' resources following the specific guidelines issued by the government. The Financial Committee also reports on the state of the funds to the ministry and to congress. In Nigeria, for instance, the Excess Crude Account was replaced by a Sovereign Wealth Fund that encompasses three Funds: the Future Generation Fund, the Nigerian Infrastructure Fund, and the Stabilization Fund. Each fund has a separate ring-fenced investment portfolio in line with their objectives. The Libyan Investment Authority (LIA) and PNG also have funds of funds (Box 5 and Table 6).

106. **Where institutional capacity is inadequate, it might be advisable for an RRDC to have only one natural resource fund with sub-portfolios per objective along with a well-specified asset management framework.** This permits each account to be ruled by its own investment strategy, benchmarks, performance targets, and reporting requirements. Each account is expected to be managed in line with the requirements associated to each objective. Furthermore, having a fund of sub-accounts is often a less costly option than operating separate funds as measured by lower duplication of resources and institutional infrastructure and less managerial and institutional capacity needs. Panama's Sovereign Wealth Fund (the *Fondo de Ahorro de Panama,* FAP),[60] established on May 31, 2012, encompasses two accounts: a stabilization account to help insulate the budget and the macroeconomic outlook against commodity price swings and external shocks; and a savings account to cope with consumption by future generations and possible future long-term liabilities, such as underfunded pension liabilities. Investments are defined by the FAP Board of Directors, which acts on behalf of the government.

107. **Countries define the operational mechanisms of the arrangements as a function of their own needs.** For instance, Timor-Leste established its Petroleum Fund in 2005 using the Norway model as an example. Its funding comes from all petroleum operations and all retained investment income (net of management expenses). Withdrawals are ruled by the estimated sustainable income model, set at 3 percent of the fund's balance based on the net present value of

[60] Panama's expected resource increase is linked to the enlargement of the Panama Canal, not to nonrenewable natural resources.

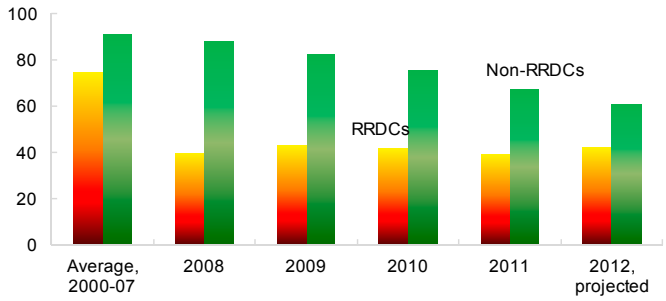
expected future petroleum receipts. Tables 3 and 4 show details of different rules that are applied to funds, but in a number of cases such rules are not made public. Deposit and withdrawal rules need to be consistent with the objectives of each fund and the country's use of the fiscal balances, and all expenses should be captured in the budget. Deposit and withdrawal rules are often detailed in the legislation establishing a fund.

108. **Strategic asset allocation skills might affect operational structures.** In practice, SWFs have a wide range of structures for different investment strategies. For instance, a number use external managers to create and manage active risk-adjusted-return portfolios to overcome domestic capacity limitations. Public investment managers (reserve managers at the central bank, for instance) usually have significant experience in investing in fixed-income market instruments (T-bills and T-bonds) but often have limited capacity for investing in other asset classes, such as equities. Moreover, in terms of eligible investment instruments, the majority of funds tend to invest only in publicly listed instruments, bonds and equities. A few SWFs do, however, invest across all major asset classes (fixed- and variable-income instruments, real estate, commodities, global stocks).

Coordination of Sovereign Asset and Liability Management

109. **RRDC efforts are typically tilted toward management of the asset side of the balance sheet.** Typically, the asset side of the balance sheet of these economies is skewed toward receipts from nonrenewable exports. Usually public debt-to-GDP ratios are relatively low (Figure 51), which explains why the focus is on managing assets rather than liabilities. Indeed, often RRDC liabilities expand only in relation to the need to ensure access to foreign debt markets, build domestic debt markets, support private sector activities, and better manage domestic liquidity. Issuance of government benchmark instruments makes it possible to expand the government's yield curve, which is necessary for pricing other securities and developing the market.

Figure 51. Public Debt in RRDCs and Non-RRDCs
(In percent of GDP)



Sources: World Economic Outlook; and IMF staff estimates.

110. **Some flexibility is needed to deal with unexpected events.** Borrowing may be attractive if the country can attract relatively low-cost funding, but savings are invested with a longer horizon in less liquid assets for a higher expected return. This may be the case especially if savings can be pledged as collateral against short-term loans. Short-term borrowing would have the additional benefit that countries are more likely to pay down debt than to rebuild depleted savings.

111. **Some RRDCs do hold liabilities and link some of the characteristics of those liabilities to the characteristics of their assets.** By linking the currency composition of short-term assets and short-term liabilities, for instance, foreign exchange mismatches are reduced. This natural hedging

strategy is especially useful when borrowing in a foreign currency is cheaper than borrowing domestically.

112. **Taking an integrated approach to managing the sovereign balance sheet constitutes a next step in managing resources.** RRDCs tend to have access to debt financing options that other economies at the same income level do not have. Transactions affecting the liability side include "carried-interest" loans. Sovereign asset and liability management (SALM) entails the coordination of asset and liability management decisions. The approach, designed to help countries reduce risk exposures by using a financial portfolio perspective, focuses not on the size of the balance sheet but on the characteristics of its components. By exploiting the characteristics of the balance sheet asset and liability portfolios, the authorities can attain a preferred risk-return combination. The importance of SALM is that it recognizes the need to avoid past economic pitfalls (e.g., the crisis of the 1990s). However, coordination of sovereign asset and liability management remains limited, the main reason being the existing fragmentation in the operational decision-taking process of asset and liability's portfolio investments within the countries, including RRDCs. Often, the portfolios have different mandates and operate as independent entities—debt management offices are traditionally part of the Ministry of Finance, and reserves are usually managed by the central bank. [61]

113. **A few RRDCs have started incorporating SALM-type asset and liability management approaches into their economic programs.** However, they are still in the early stages of the program; main efforts are in strengthening the management of their assets and revising their debt management practices. In RRDCs, these efforts are often anchored in SWFs. In the case of Angola, further development of an asset and liability framework was part of the discussions in late 2010 about setting up an SWF and took into account the need to reinforce debt management capacity.[62] In trying to delink the fiscal stance from oil revenue volatility, the draft legislation setting up the SWF linked withdrawals from the fund to the medium-term fiscal framework. The SWF investment strategy takes into account the characteristics of domestic liabilities, such as currency denomination. Coordinating management of asset and liability characteristics to minimize risks, however, is still a challenge for low-income and many emerging market economies.

114. **The SALM approach is especially relevant in managing risks in RRDCs that are accumulating sizeable debt levels**. Borrowing and holding assets simultaneously can be an optimal strategy as the sovereign debt market can serve as a platform in the development of private sector debt markets as well as a tool to naturally hedge against vulnerabilities. Should countries with large

[61] Both developed and developing economies are using SALM, in different forms. For instance, the authorities in Canada reported that they partially implemented SALM in 2008. In their case, efforts target coordinating decisions according to the characteristics of their assets and liabilities. New Zealand and South Africa both have a formal asset-liability management unit that examines sovereign balance sheet risk. Other variants include centralizing the evaluation of guarantees and risk-covering instruments monitored by other agencies, and evaluating the composition of liabilities and risk exposures in terms of the nature of country assets and fiscal revenues.

[62] IMF (2010a) and IMF (2010b).

debt accumulate assets in an SWF or pay down debt? Purchasing marketable debt in large amounts could alter market conditions and distort market prices. In such a case, options may encompass, among others, reducing issuance of new debt or designing opportunistic buy-back strategies to retire existing debt.

Conclusions and Lessons

115. **Resource funds are a key component of asset and liability management**. The design of resource funds should be considered holistically, taking into account the government's fiscal, balance of payments, and financial objectives. Resource funds should help the authorities attain predefined objectives while also avoiding fragmented planning and execution of the budget. Key financial objectives of any resource fund should be to preserve the real value of assets over time and generate a real rate of return consistent with the government's risk tolerance and income targets.

116. **Fund design and operational considerations vary with country circumstances and capacity levels and with current macroeconomic and financial market realities**. When institutional capacity is minimal, it might be advisable for a country to establish a single natural resource fund to serve both savings (real rate of return) and fiscal stabilization (liquidity) objectives, using subfunds for each objective that have clear goals and asset management objectives. Pooling resources in a single fund helps countries to minimize financing costs, maximize returns on pooled savings, and avoid the complexity associated with managing transfers to the budget from multiple funds.

117. **Each account should have a strategic asset allocation plan consistent with its objective, taking into account the risk tolerance of decision-makers and the investment expertise available, as well as the resources themselves**. Risk tolerance measures the losses that decision makers are prepared to incur over a certain horizon in order to generate higher returns. An independent risk management unit within the SWF is therefore crucial. Risk management must be built in, with clearly defined procedures and responsibilities assigned for identifying, assessing, and managing investment risks. Ultimate responsibility for risk management rests always on the representative of the asset owner.

118. **In countries that have solid institutional capacity, however, it is advisable to establish one portfolio per objective to increase flexibility to cope with multiple financial objectives**. Using such a strategy would manage the resources in an accountable way that is consistent with the strategic asset allocation framework; help preserve capital; and ensure that the net worth of assets from resource revenues is effectively managed.

119. **Regardless of its governance structure, an SWF should be managed independently to minimize political interference that could prevent it from achieving its objectives**. The decision process depends on the governance of the responsible agency (often the Ministry of Finance) as well as its capacity to manage assets.

120. **Checks and balances must ensure that the SWF and its decision-makers are held accountable.** Transparency and accountability are very important for building and retaining public support. Financial statements with detailed information about asset allocation and performance should be published regularly (e.g., professional web pages and SWF webpages could be used as a standard communication tool).

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Table 3. Sovereign Wealth Arrangements: SWFs and Others by Economic Level and Region

	Africa	Middle East	Asia	Australia & Oceania	Europe	North America	South America
LIC or LMIC Countries Rich in Non-Renewable National Resources	Angola - SWF Presumed Equatorial Guinea - FFG Chad - Revenue Management Plan (*) Gabon - SWF Ghana - Petroleum Funds Guinea - Fund for Future (*) Mauritania - NFHR Nigeria - Nigerian Sovereign Investment Authority Sudan	Libyan Investment Authority	Mongolia - Fiscal Stability Fund Turkmenistan - Stabilization Fund (*) Vietnam - State Capital Investment Corporation	Indonesia - Government Investment Unit Papua New Guinea - SWF Timor-Leste Petroleum Fund			
Other Countries Rich in Non-Renewable National Resources	Algeria - Revenue Regulation Fund Botswana - Pula Fund São Tomé and Príncipe- National Oil Account	Bahrain - Mumtalakat Holding Company Iran - Oil Stabilization Fund Kuwait Investment Authority Oman Investment Fund Oman - State General Reserve Fund Palestine Investment Fund Qatar Investment Authority Saudi Arabia - Public Investment Fund If the collapse is expecte UAE - Abu Dhabi Investment Authority UAE - Abu Dhabi Investment Council UAE - Emirates Investment Authority UAE - IPIC UAE - Investment Corporation of Dubai UAE - Mubadala Development Company UAE - RAK Investment Authority	Azerbaijan - State Oil Fund Brunei Investment Agency China-Africa Development Fund China Investment Corporation China - National Social Security Fund China - SAFE Investment Company Hong Kong - Monetary Authority IP Kazakhstan National Fund Kazakhstan - Samruk Kazyna (*) Korea Investment Corporation Malaysia - Khazanah Nasional Malaysia - Development Berhad (*) Singapore - GIC Singapore - Temasek Holdings Taiwan - National Stabilization Fund (*)	Australian Future Fund Kiribati - Revenue Equalization Reserve Fund New Zealand Superannuation Fund	Ireland - National Pensions Reserve Fund Italian Strategic Fund France - Strategic Investment Fund Norway - Government Pension Fund – Global Russia - National Welfare Fund	Canada - Alberta's Heritage Fund Mexico - Oil Fund USA - Alabama Trust Fund USA - Alaska Permanent Fund USA - New Mexico State IC USA - North Dakota LF USA - Texas Permanent School Fund USA - Permanent Wyoming Mineral Trust Fund	Brazil - Sovereign Fund of Brazil Chile - ES Fund Chile - PRF Colombia - Oil Stabilization Fund (*) Trinidad and Tobago - HSF Venezuela - Macroeconomic Stabilization Fund (FEM) Venezuela - National Development Fund

Sources: SWF annual reports and reviews.
(*) Not included in SWF Institute List.

Table 4. Sovereign Wealth Funds in RRDCs

Sovereign Wealth Funds	Economy	Establishment	Amount ($ billions)	Type	Type	Management	Investment Strategy	Deposit/Withdrawal Rule
Angola - Fundo Soberano Angolano	Lower-Middle Income	Projected 2011-12 (Cabinet approval still pending)	N.A.	Oil	N.A.	National Bank	Expected to follow the Government Pension Fund of Norway's strategy: purchases of small stakes of common stock in foreign companies.	N.A.
Equatorial Guinea - FFG	High-Income	2002	0	Oil	Fund for Future Generations	BEAC	N.A.	Deposits: 0.5 percent of oil revenues
Gabon - SWF	Upper-Middle Income	1998	0	Oil	Fund for Future Generations	BEAC	N.A.	Deposits: 10 percent of projected budgetary revenue and 50 percent of non-projected over performance.
Ghana Petroleum Holding Fund - Stabilization Fund	Lower-Middle Income	2011 expected	N.A.	Oil	Stabilization Fund/Heritage Fund	MoF, with CB having an operational role.	N.A.	All petroleum receipts are to be deposited into the Holding fund. Disbursements are: 70 percent of annual benchmark revenues to the budget; 21 percent
Indonesia - Government Investment Unit	Lower-Middle Income	2006	0.34	Non-Commodity	Stabilization and Development Fund	MoF	N.A.	In 2010, 84 percent for electricity investments, 16 percent in toil roads, 9.5 percent in equity, and 6 percent in loans.
Libyan Investment Authority	Upper-Middle Income	2006	65	Oil		Libyan Investment Authority	Portfolio invested in financial institutions, real estate and cash deposits.	Deposits: Excess Oil Revenues.
Mauritania - NFHR	Lower-Middle Income	2000	>0.3	Oil, gas	Stabilization Fund			
Mongolia - FSF	Lower-Middle Income	2011		Mining	Stabilization Fund	Central Bank of Mongolia		
Nigeria - Nigerian Sovereign Investment Authority	Lower-Middle Income	2011	1	Oil	3 Funds: the Future Generation Funds, the Nigerian Infrastructure Fund, and the Stabilization Fund.			
Papua New Guinea - SWF	Lower-Middle Income	2011		Gas	Stabilization Fund and Development Fund			
Timor-Leste Petroleum Fund	Lower-Middle Income	2005	9.9	Oil, gas	Oil and Gas	MoF, but delegated to the Banking and Payment Authority	Cash (0.1 percent); Fixed Income (98.6 percent) and Accrued Interest (1.3 percent) USD and sovereign instruments	
Vietnam - State Capital Investment Corporation	Lower-Middle Income	2005	0.5	Non-Commodity	Strategic Investment Corporation			N.A.

Sources: SWF annual reports and reviews.

Table 5. Sovereign Wealth Funds in Other Economies

Sovereign Wealth Funds	Economy	Establishment	Amount ($ bn)	Type of Resource	Type of SWF	Management	Investment Strategy	Deposit/Withdrawal Rule
Algeria - Revenue Regulation Fund	Upper-Middle Income	2000	56.7	Oil	Stabilization Fund	Banque d' Algerie	N.A.	
Azerbaijan - State Oil Fund	Upper-Middle Income	1999	30.2	Oil	Future Generations Fund	Supervisory Board- appointed by the President	Investment-grade securities; 85 percent in debt obligations and money market instruments; up to 5 percent in equity, real estate, and gold. 50 percent invested in USD-denominated assets; 40 percent in euro-denominated assets; and 5 percent in pounds.	N.A.
Bahrain - Mumtalakat Holding Company	High-Income	2006	9.1	Non-Commodity		Board of Directors. Independent Holding Company		
Botswana - Pula Fund	Upper-Middle Income	1994	6.9	Diamonds	Future Generations Fund	Bank of Botswana	Long-term investments in foreign currency denominated assets.	Excess or residual from the liquidity portfolio, or primary international reserves.
Brunei Investment Agency	High-Income	1983	N.A.	Oil				
Chile - ES Fund	Upper-Middle Income	2007		Copper	Stabilization Fund	Ministry of Finance	Liquid assets	
Chile - PRF	Upper-Middle Income	2006	0.6045	Copper	Pension Fund	Financial Committee appointed by the CB, but reports to MoF	Long-term investments	
Hong Kong - Monetary Authority IP							N.A.	
Iran - Oil Stabilisation Fund. Since 2011 National Development Fund	Upper-Middle Income	1999	23	Oil	Oil Stabilization and Development Fund	Held at Central Bank, but managed by a holding company (IFIC).	20 percent to joint ventures.	Deposits: 20 percent of oil income, 50 percent of end year remaining cash balances, Fund net profits, and others. Withdrawals: For production and investments approved.
Ireland - National Pensions Reserve Fund								
Kazakhstan National Fund	Upper-Middle Income	2000		Oil, Gas, Metals	Stabilization Fund	National Bank		
Kiribati - Revenue Equalization Reserve Fund	Lower-Middle Income	1956	0.391	Phosphates				
Kuwait Investment Authority								
Malaysia - Khazanah Nasional								
Mauritius - SWF		Expected	3			Bank of Mauritius		
New Zealand Superannuation Fund								
Norway - Government Pension Fund – Global								
Oman Investment Fund								
Oman - State General Reserve Fund								
Qatar Investment Authority								
Palestine Investment Fund			1					
Singapore - GIC								
Singapore - Temasek Holdings								
Trinidad and Tobago - HSF	High-Income	2000	2.9	Oil	Stabilization Fund	Central Bank		
UAE - Abu Dhabi Investment Authority								
UAE - Abu Dhabi Investment Council								
UAE - Emirates Investment Authority								
UAE - IPIC								
UAE - Investment Corporation of Dubai								
UAE - Mubadala Development Company								
UAE - RAK Investment Authority								
Venezuela - FIEM	Upper-Middle Income	1998	0.8	Oil	Stabilization Fund	Central Bank		Deposits: Oil revenue above a reference price.

Sources: SWF annual reports and reviews.

Table 6. Country Examples

Features	Trinidad and Tobago		Papua New Guinea
Fund	Heritage and Stabilization Fund		Mineral Resource Stabilization Fund
Objectives	The Fund has ***three main objectives***. It aims at mitigating the negative fiscal impact of economic or revenue downturns caused by a fall in prices of crude oil or natural gas; generating an alternative stream of income to fund in the future public expenditure capacity when non-renewable petroleum resources are depleted; and providing some savings for future generations.		The Fund has ***two main objectives***. It is defined as a stabilization fund that helps macroeconomic shocks and a development fund. The Fund aims to support macroeconomic stabilization, support authorities' long-term economic and social development goals and facilitate asset management practices for the revenue accrued from the investments of the Fund's assets.
Governance	The Fund is governed by a ***Board appointed by the President of the country***. The term of the five Board members is three years, and members are selected based on their proven competence in relevant fields. The Board's mandate includes the governance structure of the Fund and its operational and investment guidelines. The management of the Fund relies on the Central Bank, which is responsible for the transparent management and accountability of the holdings, performance, and risks of the Fund. By law, the Central Bank is required to report quarterly and annually to the Board with the annual audited financial statements and investments report on the performance of the Fund.		***The Fund is governed by the Minister and a Board.*** The operational aspects of the investment mandate are under the Board, which receives in written instructions from the Minister after engaging in a consultation with the members. The Minister defines the mandate, with investment policies and procedures, risk levels, restrictions, and others.
Deposits Rule	***The Fund is funded with estimated surplus petroleum revenues.*** Surplus revenues are defined as follows: in each quarter of any financial year, if actual petroleum revenues exceed its estimate for that quarter of a financial year by more than 10 percent, then the difference in U.S. dollars is to be transferred from the Consolidated Fund to the HSF. If the difference is positive but lower than 10 percent, then the decision is at the discretion of the Minister of Finance.		***Deposit rules vary according to the type of Fund.*** For instance, the Stabilization Fund is funded with all mineral and petroleum revenues, earnings from their investment and other public monies. The Development Fund is funded with an amount from the expected average PNG LNG dividends, earnings from the investments of the assets in the Fund, and other government contributions.
Withdrawal Rule	***Withdrawals from the Fund are also guided by a defined rule.*** If the deficit in petroleum revenues collected in any financial year falls below the estimated petroleum revenues for that financial year by at least 10 percent withdrawals can be made by a definite amount the minimum of either (i) 60 percent of the petroleum revenue shortfall for the year; or (ii) 25 percent of the outstanding credit balance of the Fund at the beginning of the financial year.		***Withdrawals rules also vary depending on the type of Fund***. Withdrawals from the Stabilization fund cannot exceed 15 percent of the long-term moving average of minerals and petroleum revenue as a share of non-mining revenue. Withdrawals from the Development Fund hinge on Parliamentarian approval.

V. KEY POINTS FROM THE CONSULTATION PROCESS[63]

121. **To enhance IMF understanding of natural resource wealth management, staff has engaged in a wide-ranging dialogue with external stakeholders**. There have been three venues for dialogue: a two-day conference in Kinshasa, an online consultation process, and a seminar with civil society organizations (CSOs) on the margins of the 2012 World Bank-IMF Spring Meetings in Washington. From these events emerged several themes[64]: invest resource wealth domestically; close infrastructure gaps; enhance absorptive capacity to scale up investment efficiently; address the macroeconomic challenges of inflation and wage pressures that scaling up presents; build buffers against market volatility; promote transparency of resource inflows, outflows, and use; and use resource wealth to make visible improvements in the lives of the country's citizens. In addition, staff had several meetings with Professors Collier and Venables to consult on aspects of managing natural resource wealth, particularly the analytics of consumption/savings and investment decisions, and the role of resource funds. The team also met with Professor van der Ploeg to consult on the analytic framework for assessing current account dynamics.

122. **The Kinshasa conference** (http://www.imf.org/external/np/seminars/eng/2012/kinshasa/index.htm). On March 21–22, 2012, the government of the Democratic Republic of Congo and the IMF co-hosted a conference in Kinshasa on "Management of Natural Resources in Sub-Saharan Africa." The conference brought together about 200 policymakers, leading academics, representatives of the private sector and CSOs, central bank officials, and media from across SSA to gather ideas about how best to use natural resources for boosting living standards in developing countries. Participants made the following points:

- Sub-Saharan African countries confronted with pressing development needs should invest resources now rather than saving most of the wealth for future generations. They underlined the importance of managing resource wealth to enhance economic diversification and job creation and thus promote more rapid, sustainable, and inclusive economic growth.
- It is vital to take advantage of current high commodity prices to scale up investment efficiently as a basis for broad-based and sustainable growth.
- Management of natural resources poses significant economic challenges, such as dealing with the volatility of commodity prices.

[63] Prepared by Lynge Nielsen (SPR).

[64] Themes related to taxation of natural resource wealth are addressed in the staff paper "Fiscal Regimes for Extractive Industries: Design and Implementation."

- Scaling up investment efficiently depends on improving absorptive capacity. Sound PFM is essential to ensuring that public spending is efficient and that investment is directed toward vital public infrastructure and basic social services.
- Good governance and transparency are critical for ensuring that all stakeholders—investors, governments, and citizens—feel they are being treated fairly.
- The conference ended on a note of optimism: natural resource wealth offers many African countries an opportunity to spur economic development and reduce poverty. Managing natural resources better is crucial for seizing this opportunity.

123. **Online consultation.** The online consultation from March 17 to April 27, 2012, gathered feedback on the draft main Board paper.[65] About a dozen comments were received from around the world, mostly from CSOs and academia, with the following messages:

- The IMF should deepen and broaden its engagement with the CSO community, not only to learn but also to become a full-fledged partner of the community. There were calls for the IMF to help build up CSOs so that they can more effectively engage with natural resource issues and to support closer relations between CSOs and the private and public sectors.
- The IMF was urged to use its leverage and technical assistance to ensure that RRDCs put in place mechanisms to inform citizens and civil society about taxes and other revenues from the extractive industries.
- The IMF was also urged to publicly lend full weight to setting a global standard of public disclosure of disaggregated project-by-project payments by extractive companies to each host government.
- There were also laments about too-generous tax concessions and lack of transparency about true production costs and tax contributions; the IMF was urged to give special attention to these aspects.
- Questioning the view that national governments were always the best authority for managing natural resources, one contributor proposed leveraging information technology to first distribute natural resource revenues to households and then tax the distributions to finance public expenditure. This indirect way of financing public expenditure could yield high benefits by providing more transparency about public expenditures.
- Regional trade arrangements were cited as having a potentially positive role as a means of sharing regional water resources.

124. **The CSO event.** The seminar with CSOs on the margins of the 2012 Spring Meetings took up issues similar to those discussed in Kinshasa, and the following themes emerged:

[65] See weblink: http://www.imf.org/external/np/exr/consult/2012/NR/.

- Given the negative experience of many developing countries, countries should approach extractive activities very cautiously. There is often not enough absorptive capacity, and economy-wide benefits are elusive when governance is poor and there is a lack of transparency.
- Transparency in the management and taxation of natural resource wealth is critical. There needs to be better communication between different parts of government on these matters. Secrecy about contracts and fiscal regimes is a barrier to transparency.
- Citizens must be informed about management of natural resources and how resources are being used for the benefit of citizens.
- IMF staff should support the breaking down of silos between government entities that hinder information-sharing, promote publication of audit results, and help governments to secure a fair share of natural resource rents.
- More analytical work is needed on how to promote higher domestic value-added from extractive activities.
- Regional and environmental dimensions need more attention.