



BOOM, BUST AND BETTER POLICY: CRISIS LESSONS FOR RESOURCE RICH COUNTRIES

Fool's Gold: Assessing the Performance of Alternative Fiscal Instruments During the Commodities Boom and the Global Crisis

Antoine Heuty and Juan Aristi

Abstract

An assessment of special fiscal instruments (SFIs)—such as resource funds and fiscal rules—during the recent commodity cycle shows that they have generally failed to provide an enabling framework for long-term economic diversification and sustainable development in developing resource rich countries. While resource rich countries' fiscal policy has been more conservative during the recent boom, the link between this moderation and the existence of SFIs in the country appears tenuous. Resource funds and rules have only helped guide fiscal policy in countries with an established history of sound fiscal policy and high-quality institutions. The paper argues that the focus of existing fiscal instruments on saving resource windfall abroad undermines financing for local development and hinders economic diversification. The lessons from a handful of country successes emphasize the need for development-oriented fiscal instruments. The design of fiscal instruments in resource-dependent countries needs to recognize commodity price volatility as the most pressing fiscal challenge for these countries while the accumulation of wealth for future generations should be subordinated to the creation of a diversified economy.

Introduction

Timor Leste has received a massive inflow of revenue since 2000, thanks to large deposits of oil and natural gas under the Timor Sea. The Government of Timor Leste, following international advice, set up a fund to accumulate its resource windfall and shelter its economy from swings in commodity prices and excessive domestic spending.¹

But somehow, despite massive growth in fund assets—a \$4.5 billion increase between 2005 and early 2009—the number of Timorese living in poverty jumped nearly 14 percent between 2001 and 2007, expanding to encompass nearly half the population.²

Like many resource rich developing countries, Timor Leste was unable to design a sustainable investment path or to use resource revenues to promote human development and economic growth as the global financial crisis grew nearer. The International Monetary Fund has said that the Timorese resource fund "addresses the basic challenge of transforming petroleum wealth into higher living standards for current and future generations," but the country's economic and social realities challenge the effectiveness of existing fiscal instruments to guide policy-making in resource rich countries.

Many governments and international institutions took lessons from previous economic crises and adopted special fiscal instruments, such as sovereign wealth funds, and new fiscal rules to safeguard against the volatility of the commodities sector. Resource rich nations smoothed out government expenditures to ensure that they were driven by medium-term objectives rather than revenue availability. In practice, many governments, including Timor Leste, looked at Norway's Fund as a model; but these countries may have replicated the Norwegian approach without questioning its applicability in the developing country context.

In more advanced economies such as Russia and Kazakhstan, a different dynamic of dependency has exacted its own cost. These governments combined a relatively conservative fiscal policy with financial liberalization and a rapid expansion of their monetary base. During the millennium commodities boom, large reserves were saved abroad, while private banks and corporations accumulated large foreign liabilities. Domestic credit expanded rapidly, resulting in significant asset bubbles. To rescue their financial systems during the financial crisis, these countries were forced to bail out their banking sectors, severely depleting their natural resource fund assets. Though these reserves enabled governments to avoid a more profound crisis, the negative consequences of the fiscal policy choices and the liberalization process weakens the rationale for saving funds abroad rather than investing them domestically.

Furthermore, some resource rich countries failed to develop any mechanisms to shield them from commodity price swings or support sustainable fiscal development policies. In

¹ Authors: Antoine Heuty is Deputy Director at the Revenue Watch Institute (aheutu@revenuewatch.org). Juan Aristi is Graduate Associate with the Revenue Watch Institute (jaristi09@gsb.columbia.edu). The views expressed in this paper do not reflect the position of the institution. The authors are responsible for all errors and omissions.

² World Bank, 2008.

Venezuela, Iran and Nigeria the lack of fiscal rules, or the perverse application, has undermined resource revenue management and often led to spending that is both inefficient and opaque. While the quick recovery in oil prices has staved off a more dramatic crisis for such countries, a large share of accumulated windfall has nevertheless been consumed without any reduction in dependency, diversification of growth sources, or investment in human development.

The financial crisis has served as a "stress test" on the sturdiness of fiscal instruments in the face of economic shocks, and their relevance to economic diversification in resource-dependent economies. This policy paper provides a critical look at the performance of revenue management instruments in securing macroeconomic stability and creating an enabling fiscal framework for resource rich developing countries. Countries such as Chile, Trinidad and Tobago, and Botswana have relied on alternative rules aimed at maximizing long-term growth and development. Such experiences demonstrate the need to broaden policy and create new options to address the fiscal challenges of natural resource revenues in developing countries.

The paper also makes specific policy recommendations for effective alternative fiscal instruments that can protect resource rich countries from future boom/bust cycles and secure a path toward sustainable growth and human development.

The first section stresses the growing importance of natural resource funds and fiscal rules. The next section analyzes the role of natural resource funds and fiscal rules in addressing the fiscal challenges in resource rich countries. The third section assesses the performance of fiscal instruments in the face of the crisis. The final section synthesizes the paper's main conclusions and policy recommendations for revenue management in resource rich countries.

1. The Emergence of Special Fiscal Instruments (SFIs)

Resource rich countries face three unique fiscal policy challenges: Revenue is exhaustible, volatile, and largely originates abroad. The exhaustibility of mineral resources raises complex issues of sustainability and intergenerational resource allocation. The unpredictability of revenue, stemming in particular from price volatility, which is not under policymakers' control, complicates budgeting and fiscal management. Finally, the absorption of resource revenues coming mainly from abroad into the domestic economy can put upward pressure on the real exchange rate. Currency appreciation makes tradable goods less competitive shifting away resources from export sectors to production of non-tradable goods and leading to an increase in imports, a process usually known as "Dutch disease."

After the oil boom of 1970-82 and the painful recession that followed, academics and policy-makers worked to design and implement fiscal instruments that could respond to these challenges and improve the management of resource revenue. These instruments, also called special fiscal instruments,³ included resource funds, fiscal rules and fiscal responsibility legislation. The more recent commodities boom has highlighted

³ Ossowski et al. (2008) refer to them as special fiscal institutions. In this paper we have preferred the term "Special Fiscal Instruments."

the crucial role played by commodity price forecasts in policy formulation and budget implementation.

Resource funds are, by far, the most prevalent of these special fiscal instruments. In the investment community, they are generally considered a subset of sovereign wealth funds (SWFs),⁴ which also include funds set up by countries like Singapore or China, that have significant foreign exchange reserves from non-commodity exports. Economically, however, they are very different. Non-commodity funds are financed through transfers from foreign exchange reserves, which have grown rapidly due to persistent current account surpluses that in turn result from high saving rates among households and/or businesses. On the other hand, resource funds are financed with export receipts earned from a non-renewable resource. Household and business saving rates in these countries are not necessarily high and the genuine savings rate (including resource depletion) is usually negative.

As of September 2009, more than 30 countries have SWFs. Commodity funds, most of them from hydrocarbons, add up to nearly \$2 trillion⁵ while non-commodity funds manage \$600-800 billion. The financial clout of these funds, the lack of transparency in many of them, and the fear that some governments may invest them with political or geostrategic rather than purely financial objectives, have brought a lot of attention to their practices from market participants and politicians alike. Over the last three or four years, SWF transparency and governance have been a topic *du jour* in international finance, discussed at G-20 summits and IMF meetings. However, the discussions have focused on the concerns of developed economies, who are the main recipients of these funds' investments. Edwin Truman (2007a, 2007b, 2008) for example has presented to a number of committees in the U.S. Senate and House of Representatives.

Pressure from the U.S. and other developed economies has resulted in the creation of an International Working Group on Sovereign Wealth Funds, which includes 26 resource rich and non-commodity exporters as members. Permanent observers of this group include the OECD and the World Bank. In September 2008 the group approved 24 voluntary principles (the Santiago Principles) that include increasing transparency and accountability to the public and following the rules and regulations of the host country. Table 1 below shows the 10 funds holding the most government-controlled assets including the scores developed by Truman for the Foreign Affairs Committee of the House of Representatives (2008).

While Truman's fund scores are based in part on account transparency and governance, they take the perspective of global financial markets and not the perspective of residents in resource rich countries and their rights to transparent and accountable management of resource wealth. Our paper comes from this latter perspective, one that has made fewer headlines but which is much more relevant for the ultimate future development of these countries and their citizens.

⁴ The term "sovereign wealth fund" is a relatively new term that has gained notoriety in the last three years, when these funds have become a hot topic in international finance due to the secrecy with which some of them operate and the political nature of some of their *strategic* investments. In this paper the terms "resource funds" and "sovereign wealth funds" will be used to refer to sovereign wealth funds of resource rich countries.

⁵ Including Saudi Arabia foreign exchange reserves.

Table 1: Top 10 SWFs as of August 2009

Country	Fund name	Creation	Assets (billion)	Assets/GDP	Origin	Truman Score ⁶
UAE (Abu Dhabi)	ADIA (Abu Dhabi Investment Authority)	1976	\$350-627	150-250%	Oil	9
Saudi Arabia⁷	Saudi Arabian Monetary Authority	1952	\$400	86%	Oil	Not rated
Norway	Government Pension Fund - Global	1990	\$319	70%	Oil	92
Singapore	Government of Singapore Investment Corporation	1981	\$215	116%	Non-com	41
Kuwait	Kuwait Investment Authority	1953	\$213	147%	Oil	48
China	China Investment Corporation	2007	\$190	5%	Non-com	29
Hong Kong	Exchange Fund Investment Portfolio	1993	\$193	87%	Non-com	67
Russia	National Welfare Fund	2008	\$90	2%	Oil	51
Russia	Reserve Fund	2008	\$88	2%	Oil	51
Singapore	Temasek	1974	\$85	46%	Non-com	45

Other special instruments include fiscal rules and guidelines, which are applied in coordination with resource funds in some cases and on their own in others. These institutional mechanisms are intended to permanently shape fiscal policy design and implementation. In some cases they lay out procedural, transparency or accountability requirements. In other instances, they might set numerical benchmarks that limit the amount a government is allowed to spend at any given time, typically the commodity price, the non-oil deficit, the ratio of government spending or a similar fiscal parameter. Fiscal rules are sometimes enshrined in constitutional or legal provisions. In other cases, such as Chile, the rule is a self-imposed compromise on government's part and does not have legal status. Although this paper considers the accumulation and withdrawal rules for resource funds, these are not exactly the same as fiscal rules. Only under very particular circumstances will the accumulation and withdrawal rules of the fund be sufficient to constrain expenditure or the non-oil deficit⁸ in the way a budget fiscal rule does.

Finally, for the majority of resource rich countries⁹ the price used in the budgeting process is a very important parameter in determining the yearly revenue resource

⁶ This scoreboard created by Edwin Truman and Doug Dowson for their testimony before the Committee on Foreign Affairs, US House of Representatives (Truman 2008) rates 46 funds on their current practices and includes 33 elements grouped in four categories: structure, governance, accountability and transparency, and behavior. Scores are based on systematic, regularly available public information.

⁷ Saudi Arabia has not set up a separate SWF. SAMA, the central bank, manages typical foreign exchange reserves and an undetermined amount of non-reserve riskier holdings. This figure includes all foreign exchange assets managed by the central bank.

⁸ There would have to be limits both in the amount of commodity receipts that do not go to the fund each year and in the amount that can be withdrawn from the fund each year.

⁹ Norway, whose non-oil deficit is the real return on the current assets of its fund, is one of the few countries for which the budgetary price forecast has no impact on the revenue envelope.

envelope. A variety of approaches have been used to determine these prices (expert or market forecasts, backward-looking averages, etc.). As we will see, the political economy factors have played a significant role in this decision, whether the price determination is part of an established fiscal rule or the yearly budgeting process.

1.1 Special Fiscal Instruments: A Simple Plan?

The main policy objectives of resource funds and fiscal rules are macroeconomic stabilization and/or long-term saving. The former refers to insulating fiscal and monetary policy, and the economy, from swings in commodity revenues. In countries where commodity revenues make up an important part of government resources, these mechanisms help smooth expenditure by decoupling it from short- and medium-term fluctuations. Institutions that are based on maintaining a stable commodity price for budgeting and/or targeting a constant non-resource deficit are typical stabilization mechanisms.¹⁰

Uncertainty regarding commodity price cycles and fluctuations is a major challenge to determining how long the next boom will be and how much savings will be required to help the government withstand the ensuing crisis. Historical price averages are sometimes extrapolated as future trends but their predictive capacity has been very low, especially for oil and gas. Beyond the problem of defining a trend commodity price, the size of these stabilization funds is difficult to determine. A narrow approach to stabilization would imply the use of accumulated funds to cover the commodity revenue shortfall. However, the multifaceted impact of a crisis may justify the allocation of funds for other objectives such as counter-cyclical fiscal packages and direct support to the banking sector.

During 2008 and 2009, while many commodity importers financed anti-crisis measures through borrowing, resource rich countries tapped into their commodity savings to stimulate the economy and increase bank capitalization. A number of countries with stabilization mechanisms set up specific funds to manage the assets saved during the boom, but others simply created a separate portfolio within the central bank accounts or even increase foreign reserves (e.g., Saudi Arabia). Stabilization funds are typically invested in assets of great liquidity, low risk and low return, because they need to be available for use at any moment the crisis strikes. Chile's Economic and Social Stabilization Fund, which accumulates funds when copper prices are high and disburses them when prices are low, is an example of this.

The second objective is sometimes referred as intergenerational saving, and comes from the realization that oil and mineral revenues are the result of depleting an asset, the underground reserves, and transforming it into cash. In order to attain intergenerational equity, the government needs to build up a different asset (e.g., financial investments) that will provide income for this and future generations, even after the underground reserves have been depleted. These investments are typically long-term because they

¹⁰ A small number of countries (notably Mexico) use short-term hedges to lock in sale oil prices at the beginning of the year. While this technique allows countries to smooth out intra-year changes and make budgeting easier and more reliable, its capacity for stabilization is very small because commodity cycles are typically much longer than one year. Unfortunately, markets for sovereign commodity price insurance or hedging beyond one year are practically non-existent. We therefore do not cover price hedging in this paper.

do not need to be accessed suddenly. Therefore intergenerational saving funds are typically invested in riskier and more illiquid assets, which provide higher rates of return.¹¹

Different theoretical models have been developed to calculate how much of the resource revenue needs to be saved or, in other words, what is the rate at which the financial asset must be built. The IFIs' doctrine¹² on natural resource funds, and its application in Timor Leste and Sao Tome is based on the permanent income hypothesis (PIH).¹³ When applied to the resource depletion problem, this theory of consumption developed by Milton Friedman (1957) limits each year's spending to the real return on the amount that equals the financial assets already accumulated plus the net present value of the reserves that are still in the ground. Over time this mechanism aims to build a financial asset of equal value to the reserves that have been depleted and, from a theoretical perspective achieves, intergenerational equity.¹⁴

The problem with PIH however is that it does not take into account that there might be domestic uses of the resource revenue that enhance current and future welfare beyond the rate of return on financial assets sterilized abroad. Here, the distinction between developing and developed countries is essential. Using PIH in a developed country makes indeed a lot of sense. Technological progress and innovation, rather than capital accumulation, are the main sources of economic growth in developed economies (Romer, 1986). As a result, depleting resources and using the revenue now improves current welfare but is probably going to have limited impact on future welfare. The risk of intergenerational inequity is real and certain.

The situation in developing countries is different because their capital stock (both physical and human) is low and the social rate of return to investment (i.e., education, health, infrastructure, etc.) may be higher than that of financial assets sterilized abroad, and therefore a better way to transfer wealth across generations. Takizawa et al. (2004) develop a neoclassical growth model in which they demonstrate that for countries with lower capital stock, the positive external effects of public spending on productivity and consumption make spending the oil wealth upfront a better option. More recently Van der Ploeg and Venables (2009) also find that "the permanent income hypothesis prescription [...] is not optimal for capital-scarce developing economies. Such countries should accumulate public and private capital to accelerate their development and, only if the windfall is large relative to initial foreign debt, is it optimal to build a SWF." Finally, Collier and Gunning (2005) argue that in many countries it may be impossible to allocate all the windfall domestically in investments with returns above the world interest rate.

¹¹ This investment strategy, first developed by US university endowments, has provided great returns to long-term investors over the last 20 years. Nevertheless, during 2008 this strategy has undergone losses of 20-30 percent, losing much of previous years' gains and raising severe criticisms.

¹² See for example Davis et al., 2001; Barnett and Ossowski, 2003; Segura, 2006; Leigh and Olters, 2006; Olters, 2007; Basdevant, 2008. Similarly sustainability analyses in IMF Article IV reports on resource rich countries are usually calculated with permanent income models.

¹³ Most long-term saving models, PIH among them, also provide stabilization because changes in current prices have little impact on calculations about the long-term value of the reserves and therefore on the revenue stream available for current spending.

¹⁴ The formula cannot provide perfect equity because the NPV of reserves depends on future prices, discoveries and available technology. In practice, calculations need to be updated frequently in order to reflect all available information. Additionally, the formula can be easily modified to account for population growth in order to maintain wealth per capita, rather than total wealth, constant over time.

Box 1: Lost in Translation? Norway's Fiscal Policy in Historical Perspective

Norway's current fund and fiscal guidelines are sometimes considered a model for reform in resource rich countries (see for example IMF, 2009), both in terms of governance, accountability and transparency but also in terms of their remarkable fiscal prudence. We argue here that some of the most important fiscal policy lessons for developing countries are found in Norway's experience in the 70s and 80s rather than in its current management of oil revenues.

Since 2001, the government's structural non-oil deficit has been limited to 4 percent of the Government Pension Fund (global total financial assets). The specific percentage is chosen because 4 percent is assumed to be the expected long-run real rate of return of the fund's accumulated financial assets. This policy (known as *Bird in Hand*) only spends the trend financial income of the fund. Compared to PIH, it restricts current use of resource revenues more and favors future generations at the expense of current expenditure with the objective, in the case of Norway, of funding future pension commitments in an environment of ageing population. However, even more than PIH, *Bird in Hand* is an unrealistic proposition for developing countries.

During the first two decades of oil production and export, Norway's fiscal policy was significantly more expansionary than today. Norway discovered oil in 1969 and the first production came on stream two years later. However, the oil fund was not created until 1990 and received its first inflows in 1996. When oil was discovered, policymakers' main objective was to avoid becoming too dependent on the oil income and to create a balanced economy where other industrial sectors could also thrive and succeed. The government presented a White Paper to Parliament in 1974 where it outlined its economic strategy to avoid becoming a "Kuwait economy." There were three key aspects of this strategy.

The first one was to limit annual production to 1.8 million barrels (bbl) in order to avoid seriously disturbing the rest of the economy. The depletion policy was a key part of the strategy and it was only relaxed more than ten years later due to high prospects on the Norwegian continental shelf and the need to maintain activity levels in the construction yards. Secondly, for the oil sector, the ambition was to develop Norwegian companies—privately owned as well as state owned—and strong and competitive supply and service companies, without excluding international majors. Finally, the newfound riches made it possible for the government to adopt an expansionary fiscal policy. Norway used its oil revenues in a complex mix of policies that differ from the policy prescriptions most new resource rich countries receive. As noted in Larsen (2003) it used price subsidies, transfers, and tariffs to shield and support certain domestic industries thought to be crucial to a long-term comparative advantage; it invested heavily in education and know-how; and followed counter-cyclical policies to increase the share of employed laborers in the labor force, doing so probably much more enthusiastically than would have been feasible without oil resources.

Norway managed to harness natural resource revenue to sustainable development. At the time of oil discovery, Norway trailed its neighbors, Sweden and Denmark, by close to 35 percent in terms of GDP per capita, a gap that the country closed by 1986. Today's GDP per capita is close to 40 percent higher in Norway than in Sweden and Denmark¹⁵ and Norway Human Development Index (HDI)¹⁶ has consistently been among the highest in the world since the early 80s. The Norwegian case shows that success requires a combination of policies that include sound macroeconomics, transparency and public investment. It also points out that carrying such policies in many developing countries might indeed be very challenging. As Cappelen and Mejsotedt (2009) note, the idea of national control over resources was firmly rooted in Norwegian society and conflicts of distribution were avoided. Additionally, legal and illegal confiscations of rents were difficult in a transparent and accountable political class and bureaucracy. This, in turn, generated trust in the government's ability to manage oil rents in an honest and efficient way.

¹⁵ OECD National Accounts.

¹⁶ The Human Development Index (HDI) is an index used to rank countries by level of "human development." HDI combines normalized measures of life expectancy, educational attainment, and GDP per capita for countries worldwide.

They also point out that while expanding public investment is necessary, the government cannot undertake investments in private capital stock (such as private factories and production equipment) and may find it difficult to induce private agents to invest in equipment by transferring part of the windfall to them. In that case, domestic debt repayment provides a way out of the conundrum. Collier, Venables and others have summarized the rationale for stronger domestic investment—public and private—in Precepts 7 and 8 of the Natural Resource Charter.¹⁷

In summary, the theory of special fiscal instruments provides us with only partial answers to the problems of stabilization and welfare creation in developing countries. The IFIs recommendations, while theoretically elegant, do not capture the realities of capital-scarce developing countries and the success of Norway in the 70s (Box 1) underscores the need for more policy options and the relevance of some unorthodox economic policies such as active industrial policies and active management of oil depletion rates.

1.2 SFIs in Practice: Imperfect Institutional Solutions to Development Problems

Special fiscal instruments do not offer a technical "fix" to revenue management in resource rich countries (Davis, 2001). The policy objectives of these institutions could be achieved, for example, through implementation of sound fiscal policy within the context of a medium-term budget framework. Any decision to allocate resource revenue over time in the context of a fund or a rule could be made without them. A government does not need to create a fund or approve fiscal responsibility legislation in order to follow a certain price rule or the permanent income hypothesis. Similarly, a separate fund is not required to save resource revenue abroad. Saudi Arabia, for example, has \$400 billion in foreign assets and has not set up any special vehicle; they are managed as a separate portfolio within the central bank.

What is the motivation for setting up these instruments? The rationale for their creation must thus be based on political economy grounds rather than on purely economic arguments. These institutions' objectives, as Humphreys and Sandbu (2007) rightly argue, are not to identify and prescribe socially optimum expenditure and saving patterns, but to realign political actors to those optimum patterns. They are a vehicle for institutional solutions that alter governments' political economic incentives. They might do so by constraining political actors, increasing transparency or decreasing the urge of short-term spending, among other options.

As a result, these institutions are far from being automatic mechanisms that firmly guide fiscal policy and deliver intended results once they are put in place. To succeed as intended, these institutions need to be tailored to the political and institutional realities of each country, which partly explains the degree of heterogeneity of such special institutions around the world. A theory-based rule will provide little results if it cannot withstand political change—as happened in Venezuela—or is subjected to manipulation—as has happened in Algeria, Iran and Nigeria. These institutions need to

¹⁷ The Natural Resource Charter (www.naturalresourcecharter.org) is a set of principles for governments and societies on how to use the opportunities created by natural resources effectively, drafted by a group of top academics and practitioners.

strike a difficult balance between flexibility and robustness. A rule that is too rigid may be brittle under changing circumstances, while one that is too supple could ultimately have no significant effects on agent behavior and policy. This balance is not only country specific but also may change over time, in particular in countries with weaker institutions, such as many resource rich countries.

This is not to say that theory is unimportant or that best practices cannot be shared among countries. The case of Azerbaijan that we discuss later shows the negative effects of rules that are badly designed on paper, and the examples we review point to common traits both among successes and among failures. Research shows that the domestic governance structure of the funds and their accountability and transparency to the citizens of their country are key success factors. Resource revenue management has to be linked to the budget, overseen by regulatory bodies and made transparent to the public. However, we believe that a one-size-fits-all approach to these institutions is doomed to fail and that trying to bluntly transplant the Norway model (or any other model for that matter) is unrealistic in most countries.

The problem is finding the right balance between institutional effectiveness and feasibility. The different SFI designs that have been implemented to date stem partly from governance and institutional failures in each of the countries. And sometimes these institutions reinforce rather than correct the institutional failures. For example, in Azerbaijan and Kazakhstan the president enjoys very significant power. The funds have helped increase transparency but they are governed by presidential decrees. Rather than being the result of broad agreements between competing institutions, these funds are more the case of the "king" (under pressure from the IMF) binding his own hands by his own rules. The increased transparency and accountability might be no more than an apparatus for public demonstrations of openness, while the underlying power relationships remaining intact. Transparency is worth little in such cases, when civil society cannot act on information released in order to influence government action.

2. Performance of Existing SFIs During the Boom

Between 2003 and 2008, the commodity boom led to a massive increase in revenues. While a number of governments have used SFIs to save a share of the windfall and avoid macroeconomic instability, the performance of fiscal rules and resource funds has been mixed at best. The existence of SFIs has no direct and demonstrable correlation with improved fiscal performance in resource rich countries. Moreover, the fiscal instruments developed in resource rich countries have not enabled domestic investment to diversify the economy and strengthen the long-term development and stability of resource rich developing countries.

2.1 Fiscal Instruments and Macroeconomic Stability: The Weakest Link?

Despite significant heterogeneity across countries, resource-dependent economies increased spending more modestly between 2002 and 2008, and relied largely on more conservative fiscal policies than they had in past commodity booms. Average surpluses increased from a deficit of 1 percent to a surplus of 6 percent during that time, as more resource revenues were saved. This led to a significant build-up of foreign reserves, a

practice also seen among non-commodity exporters, which started roughly after the Asian financial crisis of 1997. According to data gathered by the Economist Intelligence Unit, economic growth was strong over the boom period, averaging 6 percent while public debt was reduced from an average of 57 to 25 percent of GDP between 2002 and 2008.¹⁸

However, this overall macroeconomic prudence did not address the structural dependency on natural resource revenue in a majority of countries. Although commodity exporters were mostly running growing fiscal surpluses, the non-resource fiscal balance¹⁹ deteriorated by 10 percentage points (pp) on average between 2004 and 2008. The most pronounced increases in resource revenue dependency occurred in Libya (-48 pp), Azerbaijan (-34pp), Chad (-26pp), Algeria (-17pp) and Trinidad and Tobago (-17pp), all of which had special fiscal instruments in place. Except in Algeria, the sharp deterioration in the non-oil fiscal balance of these countries is partly explained by increases in oil and/or gas production in tandem with the price hike. On the other extreme of the spectrum, only a handful of countries have maintained or improved their non-mineral deficits during the boom: Botswana, Syria and Oman, due to declining commodity production, and Qatar, which experienced double-digit non-oil GDP growth over the period. The relative fiscal conservatism is reflected in other macro variables, in particular inflation. This boom, contrary to previous ones, has not seen any high inflation processes take place in resource rich countries. Between 2004 and 2008 inflation ranged from 4 to 12 percent—historically low for commodity exporters during booms. Although the rapid increase in oil prices during the first half of 2008 and the financial crisis created bouts of rapid price increases in several resource rich countries, until then only Equatorial Guinea, Venezuela, Iran and Azerbaijan had seen inflation approach 20 percent (see Table 2).

The link between SFIs and fiscal moderation in resource rich countries appears tenuous. The diversity in macroeconomic performance among resource rich countries with natural resource funds and/or fiscal rules emphasizes the difficulty of attributing fiscal outcomes to the existence of such instruments. More systematic analyses of the effect of funds and rules have not found any significant impact (Ossowski et al., 2008). Davis et al. (2001) and Crain and Devlin (2002) furthermore explain that the causality may be reversed: countries with more prudent expenditure policies tend to establish resource funds, rather than resource funds leading to increased expenditure restraint. Although cross-country analyses help one understand the complexity of fiscal policy outcomes, they provide limited guidance to address commodity price volatility in resource-dependent countries. The importance of governance determinants and the heterogeneity of fiscal instruments also require a more detailed assessment of the drivers of successful fiscal instruments to manage natural resource revenues. As discussed in Section 2, Special Fiscal Institutions are institutional solutions whose success and sustainability depend on the capacity to nudge the political decision-making process and adapt to changing conditions. The diversity of fiscal instruments and their outcomes requires a better understanding of the determinants of good fiscal performance. In other words it is

¹⁸ Beyond this point, all country economic data is from the EIU Country Database, unless stated otherwise. EIU combines data from IMF Statistics, World Development Indicators, and own EIU estimations.

¹⁹ The non-resource deficit is the deficit the country would have if commodity revenues did not exist. Commodity reserves are, by definition, finite and therefore one should not include commodity revenues as income when assessing long-term sustainability.

critical to understand which instruments have worked to manage revenues during the boom, and what factors explain their success or failure.

Table 2: Macroeconomic data for selected resource rich countries
(NA=Not Available; *=2007 data)

Country	Non-resource deficit		Public Debt		Inflation	
	2004	2008	2004	2008	2003	2008
Algeria	-30.1	-47.2	18.7	11.9	3.6	4.4
Azerbaijan	-13.2	-47.1	21.5	6.7	6.7	20.8
Botswana	-27.2	-17.6*	12.2	6.0	7.0	12.6
Chile	NA	NA	13.0	4.1	1.1	8.7
Equatorial Guinea	-81.7	-75.3*	6.9	1.3	4.2	7.5
Iran	-20.3	-25.7	31.7	21.0	14.7	25.6
Kazakhstan	-6.5	-11.7	19.6	7.7	6.9	17.0
Kuwait*	-60.3	-61.0	18.8	9.7	1.3	10.6
Libya	-111.9	-160.2	13.5	4.9	0.7	10.4
Nigeria	-28.7	-31.8	74.5	14.5	15.0	11.6
Qatar	-33.0	-28.8	41.6	8.5	0.0	15.2
Russia	-4.9	-8.3	30.2	5.4	10.9	14.1
Saudi Arabia	-45.8	-57.2	87.4	24.8	0.4	9.9
Timor Leste	-11.8	-16.6*	76.6	28.9	4.4	15.8
Trinidad and Tobago	-12.8	-29.5	49.2	28.3	3.7	12.0
UAE	-22.9	-28.9	19.9	44.0	5.9	13.0
Venezuela	-21.2	NA	47.4	19.3	21.7	30.4

The case of Gulf countries underscores the weak linkages between SFIs and fiscal prudence. Countries from the Gulf have been using resource funds for longer than almost any other place in the world,²⁰ have maintained relatively conservative fiscal policies and achieved macroeconomic stability during this boom. However, this fiscal prudence had little to do with the existence of sovereign wealth funds. The size of the oil rents to the population and to the rest of the economy allows these countries to run sizeable non-oil deficits ranging between 25-30 percent (UAE, Qatar and Bahrain) and 50-60 percent (Kuwait and Saudi Arabia) for extended periods. Qatar and Kuwait—the biggest per capita producers in the world—produce more than 1 million bbl/day per million people while Kazakhstan production per capita is around 100 thousand and Nigeria does not reach 20 thousand bbl/day per million people. The size of the per capita resource rent influences resource revenue management objectives and has direct implications for saving and spending decisions. During the boom, deficits increased in the Gulf—in particular in UAE and Saudi Arabia—as the oil price assumptions for the budgets across the region grew from around \$18 in 2002 to around \$40 in 2008 while most of the windfall was sterilized abroad.

²⁰ The Kuwait Investment Authority, created in 1953, is the oldest resource fund in the world. The last Gulf country to join the resource fund club was Bahrain in 2006. Saudi Arabia does not have a sovereign wealth fund.

The discretion and weak accountability in the governance of Gulf resource funds undermines fiscal policy and predictability of fiscal aggregates. The concentration of decision-making power for budget, monetary and exchange rate policies in the elites—evident in the list of funds' boards—implies that fiscal prudence is the result of the discretionary decision of the ruling class rather than the result of a particular institutional setting. The funds have strong vertical accountability but lack transparency, horizontal accountability or other institutional checks and balances.²¹ During the boom, Saudi Arabia followed a similar budget strategy to its neighbors but its growing foreign reserves were managed by the central bank instead of a separate fund.²² This case further demonstrates that conservative oil price assumptions rather than the existence of resource funds explain the performance of Gulf Countries.

An important number of countries have approached the stabilization problem by setting a cut-off price for the commodity. Revenues under that price go straight to the budget while revenues above that price are put aside. Typically, the main objective of such systems is to decouple the budget and the economy from current commodity prices²³ and the cut-off price is the key fiscal management tool. In the case of price systems, the ability of these fiscal instruments based on a fixed resource price to guide revenue management depends on the robustness of the methodology for fixing the price benchmark, its capacity to adapt to changes in economic conditions, and its insulation from political influence. The simplicity and direct stabilization impact of price systems explain their widespread use in resource rich countries. The best example of such an arrangement is probably Chile, where two separate committees of experts decide every year what are the long-term copper price trend and the production capacity of Chilean mines. Similarly to independent central bank meetings, the minutes are published shortly after (see Box 2).

Nigeria, Russia and Venezuela (during the last government before Chavez) also used price systems during the boom but established backward-looking averages of 5-10 years to determine the cut-off price. This approach provides an interesting attempt to smooth out the volatility of the oil market but is rigid and prone to failure if political support falters. A better example is probably Trinidad and Tobago, which has been using an 11-year average (the last 5 years, and the forecast for the current year and the next 5 years) which smoothes out peaks and valleys without relying only on experts or creating the rigidities and response lags that backward-looking averages have. The Trinidadian price rule helped smooth out high oil prices (the budget price was \$45 in 2007 and \$50 in 2008), filling the coffers of the fund with almost \$3 billion (or 11 percent of the country's GDP). Nevertheless the non-oil deficit soared from 7.4 to 29.5 percent between 2002 and 2008, due in part to an increase in production.

Venezuela, on the other hand, is one of the examples of a country that changed or broke fund guidelines or fiscal rules. After assuming office in 1999, Chavez's government first

²¹ The case of Kuwait is slightly different from UAE, Bahrain and Qatar. The Kuwaiti parliament has stronger oversight and control powers over the fund, and the budget and the system is more transparent and rule-based, with 10 percent of oil proceeds automatically saved each year.

²² SAMA, the Saudi central bank, manages the usual short-term foreign exchange reserves and higher risk-return investments like long-term bonds and equities.

²³ Some countries with price rules, like Trinidad and Tobago and Chile, include *saving for future generations* as a secondary objective. This, as we will see, typically requires additional rules or guidelines.

modified and, from 2003, completely disregarded the price rule associated to a macroeconomic stabilization fund (FIEM) set up in 1998. FIEM still exists and holds a residual amount although it has registered no activity for 6 years. In Iran, on the other hand, the authorities have consistently broken the price guidance of their 5-year development plan and withdrawn intensively from the Oil Stabilization Fund for domestic investment and social expenditure. From a macroeconomic stability perspective both countries have suffered from their fiscal excesses. Inflation rates stayed above 12 percent during the whole boom (among the highest for resource rich countries) and peaked above 25 percent in 2008.

On the other hand, in Kazakhstan and Russia the rules withstood pressures and helped to stabilize economies. By sticking to the price rule, both Russia and Kazakhstan kept non-oil deficits under control (in the range of 5-6 percent of non-oil GDP for Russia and under 7.5 percent for Kazakhstan) and assets were accumulated in the respective funds at a brisk rate. Inflation was an important concern, particularly in Russia, but price increases remained around 10 percent per year in both countries. Russia achieved early repayments to IMF, Paris Club and other creditors, contributed to the government pension and amassed \$157 billion in the Oil Stabilization Fund,²⁴ almost 10 percent of GDP. Kazakhstan, on the other hand, had amassed almost \$28 billion at the end of the boom, above 20 percent of GDP. The reasons why these two countries were able to maintain the rule during the boom are probably manifold, but the support of important political figures (Alexei Kudrin, the Finance Minister²⁵ in Russia, and President Nazarbayev in Kazakhstan) is chief among them. Relying on this type of support obviously raises an important issue of sustainability over time, as governments and key political figures may change.

In any case, the boom has shown that price systems are a crude mechanism for achieving revenue stabilization and macroeconomic stability. Price systems can help avoid major fiscal slippages due to booming commodity prices but target only one of the sources of output instability. Although price is usually the most important source of volatility, other causes may include commodity production or shocks outside the commodities sector. Furthermore, even if price rules have the advantage of being simple, this might make them more vulnerable to political influence. This risk is higher in more volatile commodities (oil in particular) because there is little agreement on what the commodity trend price is.

The experience of Nigeria illustrates the importance of political economy factors in natural resource revenue management. The accumulation price rule was put in place in 2004²⁶ and successfully decoupled spending growth from oil prices during the first three years of its life. The country paid down Paris Club debt (\$12.4 billion) and launched power generation and transmission projects (\$5.3 billion) with some of the funds set aside in the Excess Crude Account (ECA). The non-oil deficit stayed around 34 percent of non-oil GDP during the boom and inflation bottomed at 5.4 percent in 2007. However, under growing pressure from state and local authorities, the size of the ECA was limited

²⁴ The OSF was dismantled in 2008 and its assets divided into two newly created bodies: the Reserve Fund (stabilization) and the National Welfare Fund (saving).

²⁵ See Buckley, Neil, "Alexei Kudrin: A guarantor of fiscal discipline," *Financial Times*, April 17, 2008.

²⁶ Following IMF recommendations, the Nigerian government established a backward-looking moving average to calculate cut-off.

to 1 trillion naira (about \$8.5 billion at the time) in 2007. The modification completely undermined the price rule because the ECA was already above \$8.5 billion. The account was withdrawn repeatedly during 2008 and in 2009 to support actualizations of budgets in all tiers of government. The use of ECA funds at the sub-national level led to pro-cyclical spending and deprived Nigeria of a significant cushion to respond to the financial crisis.

As countries become more sophisticated in their management of resource revenues, they tend to move away from price systems and adopt non-resource fiscal targets to guide fiscal policy-making. Chile, for example, combines a long-term price and production forecasting mechanism with a structural surplus objective that takes into account temporary influences in other sectors of the economy. Kazakhstan and Russia, on the other hand, decided to abandon their price rules in 2006 and 2008 respectively, in part in order to include long-term intergenerational saving in a revised scheme. Under the new systems, both countries accumulate all oil and gas revenues in their funds and withdrawals are limited to target a certain non-hydrocarbon fiscal deficit. The target is explicit in the case of Russia (3.7 percent of non-oil GDP) while it is discretionary in the case of Kazakhstan. To manage stabilization and long-term saving, Russia has two separate funds and a rule that allocates new revenues to them, while Kazakhstan has only one fund with two separate portfolios. Given that for fiscal stabilization purposes the non-resource deficit is a key indicator, calculating, publicizing and targeting it makes more sense than targeting a variable (the commodity price) whose connection to the non-oil deficit may be more or less direct and may change over time.

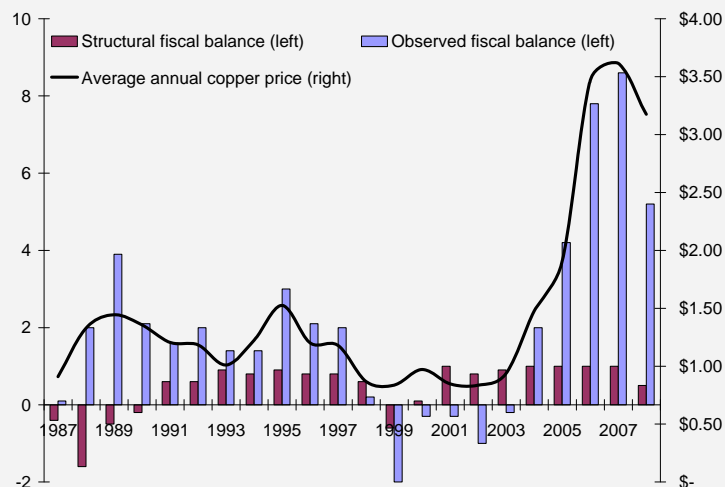
Box 2: Chile's Complex Price/Balance Framework and the Tribulations of Mr. Velasco

The world's top copper producer (5.33 million tons in 2008) has improved resource revenue management since it introduced **structural balance objectives** in 2000. Under the new framework, the government is required to attain a 0.5 percent structural surplus objective²⁷ (1 percent before 2008) that includes *structural* copper revenues: the result of multiplying *trend output* and *reference copper price* for the next 10 years. Two separate panels of experts determine these inputs. The rule is a self-imposed measure by the government to guide fiscal policy, not a law. The government, however, is required by legislation to publish the structural balance position.

An interesting aspect of Chile's scheme is that, contrary to most price rules whose only objective is stabilization, it ensures long-term savings by including a requirement for a structural fiscal surplus over the cycle. The objective is to finance future public commitments, in particular the guaranteed minimum pension. To manage the two separate objectives, the government created two sovereign funds: the Pension Reserve Fund (PRF) in 2006, and the Economic and Social Stabilization Fund (ESSF), which replaced the Copper Income Stabilization Fund (CISF) in 2007.

²⁷ The structural fiscal balance represents the balance that would have occurred if all temporary influences on the budget had been absent (including copper price and production and others).

Figure 1: Structural and Observed Fiscal Balances in Chile. Copper Prices



Source: Chile Minister of Finance

Since its adoption, the government has conducted fiscal policy in accordance with the rule, which is a useful signal to financial markets. The data suggest the rule has been countercyclical. During the period 2001-2003, the rule allowed for actual deficits while the structural surplus remained positive. Over the period 2004-2008, when copper prices started to increase, the rule kept spending under control (see Figure 1). Sticking to the rule was, obviously, not easy. Andrés Velasco, an American trained macroeconomist, joined Bachelet's cabinet in March 2006 as finance minister and quickly became the target of workers' and students' protests that aimed to increase spending as copper was reaching record high prices (an effigy of Velasco was burnt in one of the marches in downtown Santiago). Velasco resisted intense political pressure and reiterated his commitment to "prudent fiscal policies" as politicians from the governing coalition demanded he resign. In July 2008, copper reached a record of \$4.08 a pound. By year-end, the central bank had built \$23.2 billion of reserves while the government had \$22.7 billion in the PRF and ESSF funds and about \$2.8 billion in its own holdings. While the fiscal rule and the funds seem to have been successful in Chile, this implementation success "is seen in large measure as due to low debt and high policy credibility [...] the evidence suggests that they were not critical elements – the key has been political commitment and good institutions." (IMF, 2007). During the crisis, as we describe in Section 3, the Chilean government has been able to finance stimulus spending by tapping into the ESSF and Velasco's standing at home has vastly improved.

While as a whole resource rich countries have been more prudent during this boom than in the past, it is difficult to attribute any significant part of this improvement to SFIs. In situations where more sophisticated approaches based on non-resource fiscal balance frameworks are premature or politically untenable, price systems—provided they include trend production adjustments—offer simple options to improve resource revenue management and make it more predictable. At the margin, SFIs have worked for countries with strong institutions (Chile, Norway). They have also worked in some upper-middle-income economies (Russia, Kazakhstan) where institutional quality was not as high but strong leadership in favor of prudent policies and limited public debate prevailed. For a typical lower-middle- or low-income country with weak institutions, SFIs are no panacea that can turn around resource revenue management. They tend to be too narrowly focused and inflexible, which makes them weaker, not stronger, in the face of political pressure.

Yet the failure of most SFIs in low or middle-income resource rich countries to provide a durable framework for fiscal prudence and macroeconomic stability during the boom puts into question the practicality and the ultimate value of the SFI design championed by International Financial Institutions during the boom, which is much more regressive fiscally than most of the SFIs that failed to withstand spending pressures. Although Timor Leste may be an extreme case, most failed SFIs show that in developing country contexts where funds are primarily used for stabilization—not for future generations—the accumulation of large savings in front of massive poverty is politically unrealistic and unsustainable. The narrow focus of SFIs on macroeconomic stability rather than long-term economic growth and development—albeit compatible—may be a more profound reason for their limited sustainability and influence on economic policy-making.

2.2 Fiscal Instruments for Economic Diversification

The design of fiscal instruments in resource rich developing countries, with its focus on counter-cyclical and/or long-term saving, has with very few exceptions failed to create an enabling framework for long-term growth and development. While protection against short-term price volatility is an important and legitimate fiscal policy target, countries need a fundamental restructuring of their revenue base in order to diversify the economy and address the challenges of resource dependency.

Macroeconomic stability is a necessary but insufficient method to achieve sustainable economic growth and human development. Excessive macroeconomic zeal could inadvertently impose such restrictions on investment that the economy was unable to benefit from the commodity windfall. Policy-makers seeking to fostering new sources of growth face a particular challenge because they must contend with the potential adverse impact of the extractive sector on the rest of the economy—including rising exchange rates, loss of competitiveness, crowding out of investment, weak tax efforts, etc.

In this context, fiscal policy instruments need to stimulate public investment and jumpstart growth in the non-resource sector. Leveling the playing field and breaking the cycle of atrophy stimulates private sector investment and allows other economic activities to grow and create employment in order to substitute non-renewable resource revenues over the medium term. Secondly, resource revenues should finance investment rather than recurrent spending because, contrary to other sources of government receipts, resource revenues are not new national wealth, but a change in the nature of an asset: Mineral reserves underground are gradually depleted and transformed into financial or other capital. Finally, from a stabilization perspective, public investment generally creates less inflation than increases in recurrent spending, and therefore facilitates macroeconomic stability during booms and avoids rising labor costs that discourage private sector investment and end up damaging the non-commodity sectors.

However a majority of the SFIs used during the boom indicate the amount of resource revenue available for the current year budget—by setting a cut-off price or targeting the non-resource deficit—but do not provide additional guidance on how that money should be spent. It is worth noting that for fiscal instruments geared towards intergenerational equity and based on the permanent income hypothesis (or more intensive saving

mechanisms like *Bird in Hand*),²⁸ the neutrality of the rule makes sense because there is no risk of unsustainable financing: A financial asset is being built as fast or even faster than another asset—the underground reserves—are being depleted. On the other hand, if savings are below permanent income, as is the case in most resource rich countries, it makes sense for the rule to favor or guarantee investment, since spending resource revenue on recurrent items (often as a result of short term political pressures) is not a sustainable approach.

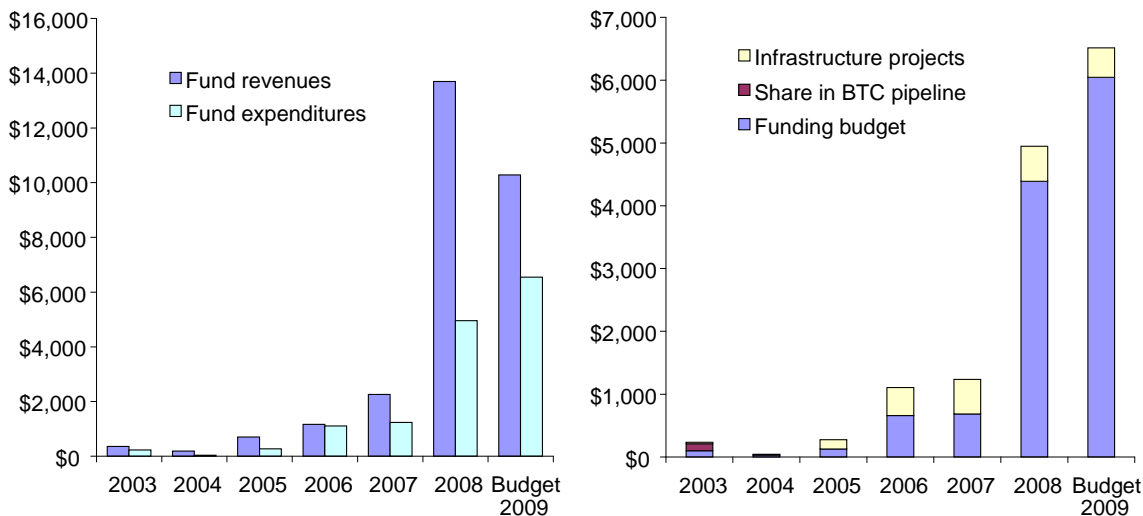
This is not an argument against macroeconomic prudence but a call for long-term oriented and transparent fiscal policy in resource rich countries. The injection of massive public resources into the economy of Gulf countries is an important lesson for resource-dependent developing countries. However, when governments rely on resource funds as an independent and non-budgetary investment instrument, they undermine fiscal consistency, coordination, transparency and accountability. For example, the Iranian stabilization fund was initially designed to fill exchange rate shortfalls and fund entrepreneurs for productive investments. In practice, however, it has been siphoned for purposes including end-of-year bonuses to government retirees, payments for gasoline imports, expansion of the Basij (the volunteer militia) and the purchase of new police equipment.

Furthermore, fiscal instruments can only further sustainable growth if they are embedded in a long-term development framework and linked to a credible implementation and financing strategy. In Azerbaijan, the design of fiscal rules is not aligned with a sustainable investment strategy. SOFAZ amasses most of the hydrocarbon revenues but its rules stating that outflows cannot exceed inflows in a given year are markedly procyclical during a boom,²⁹ and effectively ignore the volatility of oil prices. The government boosted spending beginning in 2006, without setting a limit on the annual spending of oil revenues. The non-oil deficit increased from 13 to nearly 47 percent of non-oil GDP between 2004 and 2008. The fiscal expansion also triggered inflation hikes in 2007 (17 percent) and 2008 (21 percent). Although public investment increased from 6 to almost 30 percent of non-oil GDP between 2004 and 2008, the investment path is closely correlated to oil price volatility.

²⁸ See Section 2 for a definition.

²⁹ The objective of the policymaker at the time SOFAZ was created in 1999 was to guarantee savings for future generations, because proven reserves were small and Azerbaijan's production would decrease rapidly after 2025. Recent forecasts now expect gas income to pick up rapidly and last for much longer.

Figure 2: SOFAZ inflows and outflows (left). Detail of outflows (right) in USD millions



Source: SOFAZ Financial Statements

To avoid these problems, fund withdrawals should plug budget gaps and favor investment over recurrent expenditures. They should be linked to medium- and long-term development and poverty-reduction strategies. For instance, in Trinidad and Tobago, the *Vision 2020* strategy has targeted developed-country status by 2020. The strategy relies on gradually declining energy revenues to support downstream activities, and a diversified non-energy sector developed through subsidies and public investment in infrastructure, education, and social programs. Between 2004 and 2008, spending more than doubled in nominal terms, growing from 24 to 30 percent of GDP over the same period. The fiscal expansion included capital investments (from 2 to 6.6 percent of GDP) but also transfers and subsidies, which increased from 8.7 percent of GDP in 2003 to 13.6 percent in 2008. So far, the country has established itself as the Caribbean's industrial and financial center. The government stays focused on investing in infrastructure and human capital to help remove supply bottlenecks and enhance productivity. The authorities maintain a close watch on inflation but have not listened to IMF recommendations to reduce non-oil deficits by curtailing spending. The government believes instead that increased tax revenues from a growing non-energy sector will help to reduce the non-energy deficit over the medium term.

Botswana has demonstrated how fiscal instruments can help foster human development. The country has long used rules that favor investment and health and education expenditure. It has a tradition of multi-year planning dating back to its initial independence from Great Britain in 1966. Its current national development plans (NDP) set broad fiscal objectives and associated policy actions. The framework has three broad fiscal goals: attaining a budget surplus, keeping spending below 40 percent and achieving non-investment structural balance, defined as the difference between non-mineral revenues and current spending (excluding expenditures on health and education, which the authorities regard as investment in human capital). Macroeconomic stability and prudent use of diamond export earnings have turned Botswana, a low-income country 50 years ago, into one of the richest and most competitive Sub-Saharan countries. After averaging real GDP growth of more than 9 percent annually for four

decades, its GDP per capita (PPP) now stands at more than \$14,000 a year, four times the African average and comparable to that of Chile or Russia.

3. When Rainy Days Come: Special Fiscal Instruments in Times of Crisis

The recent commodities price shock represents a major test of existing fiscal instruments power to secure economic stability in resource rich countries through counter-cyclical fiscal policies. The global financial turmoil also challenges the risk management strategy of sovereign wealth funds and their ability to protect the accumulated wealth in times of crisis. While countries that saved a portion of their resource windfall during the boom have been able to use this fiscal buffer to mitigate the impact of the crisis, poor design and lack of flexibility in fiscal instrument management has often hindered an effective response to this economic shock. The power of external shocks to threaten the risk management capacity of existing savings and stabilization instruments also highlights the need for increased domestic investment (public and private) of resource windfalls, and better coordination between fiscal mechanisms and monetary policies.

The current crisis has not been an ordinary cyclical bust³⁰ for resource rich countries. The drop in commodity prices has been sharp, but relatively brief. Oil prices decreased from \$137/bbl in July 2008 to \$35/bbl by the end of the year; copper prices fell from over \$4/lb to \$1.3/lb over the same period. However, oil prices recovered quickly, reaching \$65-70/bbl by December 2008, while copper had reached \$2.8/lb by mid-2009. The commodity price shock has thus been relatively mild. Prices have stabilized around 2007 levels, which in the case of oil is actually higher in inflation-adjusted terms than at any point in history, excluding two brief booms periods, from 1979-1982 and in early 2008. The brevity of the commodities crisis is important to consider because it has only represented a soft test for the stabilization mechanisms put in place by resource rich countries.

Thus, even the resource rich countries that only nominally followed their fiscal rules or fund guidelines, and possessed small stabilization cushions at the end of the boom, saw the benefit of the rapid commodity price recovery, without suffering any deeper impact on their public finances. A more prolonged and deeper price shock would have dire implications for this group of countries. For example, the amount saved by Mexico in its Oil Stabilization Fund—\$5.6 billion, representing about 0.5 percent of GDP³¹—will not be sufficient to cover the projected deficit for 2010.³² A number of experts have been suggesting reforms in order to raise funds' size limits and allow for more countercyclical savings. The Russian stabilization fund (Reserve Fund), for instance, sets resource accumulation at up to 10 percent of GDP—20 times more than in Mexico's fund—even though Russia's ratio of production to GDP is only around 2 times bigger than Mexico's. The Russian fund is designed to cover the target non-oil deficit (3.7 percent) for up to

³⁰ For a detailed analysis of the sources and consequences of this crisis for resource rich countries please refer to the first paper Revenue Watch's *Boom, Bust and Better Policy* series: "Broken Boom: The Impact of the Economic Downturn on Resource-dependent Countries," (Esanov and Heller).

³¹ To put this amount in perspective, Mexico has saved into the fund about a fifth of Kazakhstan, despite producing more than double the number of oil barrels.

³² *El Universal*, August 18, 2009.

three years. However, the fund will likely be depleted in only two years, as the government uses its funds to finance stimulus spending and banking recapitalizations.

The situation is worse in Iran and Venezuela, where the governments only avoided sharp fiscal adjustments in 2009 due to the recovery of oil prices. Before the oil crash, the IMF had warned that Iran would face unsustainable current account deficits if oil prices fell below \$75/bbl (see IMF, 2008). When the crisis hit, observers³³ pointed out that Iran's fiscal breakeven³⁴ was about \$100/bbl while Venezuela's could be as high as \$120/bbl. Although Venezuela's 2009 budget was reportedly calculated on \$60/bbl, a consolidated fiscal assessment would have to take into account massive off-budget spending from the oil fund.

The financial crisis has also triggered a global decline in asset values that challenges the wealth objectives and the investment strategies³⁵ of sovereign wealth funds. This effect has been especially pronounced in funds that were invested in stocks and alternative investments, a strategy typical for long-term investors. Most of the worst performing portfolios are those of advanced economies. The Norwegian fund lost 22 percent of its value from March 2008 to March 2009 while the funds of Alaska and Alberta lost 24 and 18 percent during the same period respectively.³⁶ The international portfolios of Gulf nations' funds are reported to have suffered losses of similar magnitude because their allocation was similarly geared to risky investments. On the other hand, natural resource funds focused on stabilization rather than wealth creation had more conservative portfolio allocations (with most or all funds invested in short-term government bonds) and have generally suffered less in the crisis. This is the case for funds in Chile, Algeria, Trinidad and Tobago and Nigeria. Long-term intergenerational investors who had not yet implemented an aggressive investment strategy, such as Azerbaijan and Timor Leste, also were spared major losses.

The accumulation of reserves in and the resilience of stabilization funds in the midst of the financial crash ought to have put resource rich countries in a more solid position to withstand the crisis. However, in many countries the crisis hampered the capacity of natural resource funds to stabilize the economy, because significant assets were diverted to fight banking crises. The accumulation of reserves invested abroad to avoid macroeconomic imbalances, combined with deregulation in resource rich economies, led to an unsustainable expansion in credit that was sourced abroad. Although stabilization funds are not responsible for the crisis, the unfortunate mix of conservative fiscal policy and loose monetary policy in countries like Kazakhstan and Russia led to a financial bubble that exacerbated the impact of the crisis and required a massive injection of funds to rescue the financial sector.

³³ Edward Morse, managing director and chief economist at Louis Capital Markets LP in New York, *Bloomberg*, October 22, 2008.

³⁴ The budget breakeven price is the price at which total government revenues equal total government expenditure (deficit is 0).

³⁵ We review briefly the financial performance of resource funds during the crisis but do not discuss at length the different investment strategies. See Bernstein et al. (2009) and Chhaochharia and Laeven (2009) for detailed analysis.

³⁶ Source: Funds' financial statements.

Kazakhstan and Russia's experiences prove that foreign asset accumulation cannot be the sole insurance against crises. Both countries respected their funds' guidelines during the boom: Russia amassed more than \$230 billion (15 percent of GDP) in its two funds³⁷ while the National Fund of Kazakhstan peaked at \$28 billion (20 percent of GDP) in 2008. On the other hand, both national banking systems were fairly open to global financial markets, and weakly regulated. In Kazakhstan, commercial bank foreign borrowing accounted for as much as 70 percent of total funding in some instances, while the loans/deposits ratio at some banks stood at 400 percent. Even as the government was accumulating foreign assets in the funds, the private sector was increasing the external exposure of the economy. In 2007, commercial banks' net foreign assets accounted for 35 percent of GDP in Kazakhstan. Russia's banking sector was less exposed, with 10 percent of GDP held in net foreign assets, but quasi-state corporations borrowed heavily, sometimes through banks and sometimes directly abroad. The crisis exposed the limitations of protecting resource revenues abroad. The absence of strict regulation and monitoring of credit risk allowed for excessive risk-taking by the banking sector.

The accumulation of reserves abroad also increased the attractiveness of Russia and Kazakhstan to foreign lenders, by reducing the perceived country risk and offering commercial banks even greater access to foreign credit. The banking sectors of these two countries thus found themselves particularly vulnerable to a bubble of foreign liability. The liquidity crisis in the U.S. and Europe and the "flight to quality" by international investors had a massive impact on local stock markets and both countries faced not only severe banking crises but also currency crises due to the devaluations of the ruble and the tenge.

The assets amassed during the boom were quickly mobilized to preserve the banking sector and stimulate the economy. In Kazakhstan the government has used \$10 billion from the fund to recapitalize the banking sector and support economic activity. As of September 2009, several banks still faced insolvency issues and sweeping regulatory changes were under consideration, including a cap on foreign borrowing.

In Russia, the government set aside 500 billion rubles (\$16 billion) for bank recapitalization and, in April 2009, it passed a supplementary budget including sizable discretionary increases in defense and security spending, support to strategic sectors, social assistance and tax reductions. As a result, the non-oil deficit of the general government is expected to reach 13.8 percent of GDP, 11 percent above the level prescribed by the authorities' medium-term framework. Russian finance minister Alexei Kudrin expects that the reserve fund will be empty by the end of 2010.³⁸ This represents a very rapid depletion of a hefty fiscal reserve, from a peak of \$137 billion in 2008.

The approval of stimulus money has also sparked a heated debate on spending transparency. In January 2009, the Russian parliament adopted the Law on Access to Government Information, in a breakthrough vote on a measure that had been pending

³⁷ In 2008 the \$157 billion in foreign assets accumulated in the Stabilization Fund were divided into a Reserve Fund (for stabilization) and a National Welfare Fund (for intergenerational equity). At the peak of the boom the Reserve Fund had \$142 billion in foreign assets while the National Welfare Fund had \$90 billion.

³⁸ *The Economist*, July 24, 2009.

for more than 10 years. Under the new law, government agencies are now required to proactively publish spending information. Despite this change, many obstacles to actual transparency remain. Kuwait and Qatar also tapped into their funds and reserves to recapitalize important domestic banks. The Central Bank of Nigeria put \$2.8 billion into five commercial banks after an audit found they had excessive non-performing loans.

The banking crises in Kazakhstan, Kuwait, Qatar, Nigeria and Russia raise questions about the effectiveness of stabilization mechanisms in resource rich countries, and call for a fresh look at domestic investment to finance economic diversification and development strategy of resource rich countries. Existing fiscal instruments rely on the premise that saving resource windfall abroad offers a superior mechanism for stabilizing the domestic economy against shocks. The combination of domestic credit expansion based on foreign assets with savings of the resources abroad makes little economic sense. The current crisis emphasizes the shortcomings of this approach, which results in higher transaction costs, more vulnerability and greater exposure to financial risks. Stronger policy coordination and better banking regulation can mitigate exposure to external shocks. Yet it does not represent an efficient system for financing the economy and sustaining long-term growth.

Limited exposure to international financial markets does not in itself represent an adequate policy response to the crisis, however. Without an explicit and effective stabilization strategy, natural resource funds remain vulnerable to price shocks. In Azerbaijan, though the impact of the crisis was less than for some resource rich countries, the fiscal system prevented the government from marshalling past oil revenues to help offset the crisis. For instance, the government used \$5 billion from SOFAZ in 2008 (more than half of that in the last quarter alone), but the fund also took in almost \$14 billion during the year. In the first half of 2009, by contrast, SOFAZ accumulated only \$2.6 billion, nearly all of which was accounted for by spending that reached \$2.2 billion. Thus the design of the current system does not adequately separate the wealth objective from the need to stabilize the economy, resulting in procyclical fiscal policy.³⁹

By contrast, the success among countries that used boom reserves to stimulate their crisis economies demonstrates the effectiveness of countercyclical fiscal policies and flexible approaches to revenue management in resource rich countries. Chile, for example, had more than \$20 billion in its Economic and Social Stabilization Fund when the global crisis hit, and an additional \$23 billion in central bank reserves, almost 30 percent of GDP in total. With ample resources to back up its economy, the government of Michelle Bachelet moved swiftly in November 2008, approving a \$1.15 billion package to spur lending to middle-income families and small and medium-sized businesses. Two months later, in January 2009, the government unveiled an aggressive \$4 billion stimulus package that included new investment by Codelco, the national copper company, public works projects and handouts for the most vulnerable Chileans. The economy is expected to contract by 1.2 percent in 2009 but is projected to grow again at 3.5 percent in 2010.

³⁹ Government oil revenue data in Azerbaijan shows a precipitous drop between 2008 and early 2009. This fact suggests that the taxation instruments of Azeri oil and gas contracts amplify price swings into even wider government revenue swings. This makes changing the Fund's rule and allowing from some inter-year stabilization even more necessary.

The government decided to relax the structural surplus rule of 0.5 percent and aim at balancing the structural budget in 2009. The government's stimulus will more likely result in a structural deficit of around 0.5 percent (EIU 2009); the growth recovery in 2010 will limit reliance on further transfers from the fund or contractionary fiscal policy to achieve the fiscal target. Chile's financial regulations also helped to avoid a banking crisis, due in part to a 1986 overhaul of its regulatory system, following two financial crises. After disastrous episodes of both over-regulation and under-regulation, the 1986 overhaul established an emphasis on prudent regulation and oversight that did not sacrifice profitability or efficiency (Hornbeck, 2009). These reforms also included capital controls on short-term inflows, which helped to limit exposure to the 1997-98 financial crisis while avoiding significant impact on investment and growth (Gallego et al., 1999).

Despite sizeable investment in the non-resource economy and rigorous fiscal management, the severity of the downturn in Botswana will push up the budget deficit to 11.2 percent of GDP in fiscal year 2009/10 (April-March) due to reduced revenue from diamond sales and a sustained level of spending, which included the start-up costs of major infrastructure projects, to counter the economic downturn. The government has dipped significantly into its reserves and taken out a \$1.5 billion loan from the African Development Bank to plug the budget. It has also arranged loans for specific projects from, among others, the World Bank. Real GDP is forecast to contract by 12 percent in 2009 (after an almost complete shut-down of major mines in the first quarter) stressing the magnitude of the structural challenges faced by resource rich economies. Mining still accounts for about 40 percent of GDP and around 80 percent of exports. Despite sound macroeconomic policy and public investment and social expenditure the economy is still very dependent on diamonds, which provides limited linkages to other economic sectors. The size of the manufacturing sector, which is rich in forward and backward linkages, remains tiny, at around 5 percent of the economy (lower than the sub-Saharan average).

The impact of the crisis in resource rich countries offers a contrasting outlook on special fiscal instruments in resource rich countries. Some countries, such as Chile, Russia and Kazakhstan, were able to mobilize fiscal space created during the boom to withstand the impact of the crisis, while others failed to prepare themselves, hampering their policy options to respond to the crisis. Most of these have avoided sharp fiscal adjustments only because this crisis, from a commodity price perspective, has been brief and relatively mild. Some of these ill-prepared countries suffered from inadequate design of fiscal rules and funds, rigidity and lack of clarity regarding the need for protections against price volatility. Institutional and governance shortcomings also undermined the credibility and robustness of special fiscal instruments. Poor framework design and weak institutions often reinforce each other to undermine the relevance of special fiscal instruments.

The crisis reinforces the need for integration of fiscal instruments into the general development strategy of a country and a policy mix aimed at strengthening the efficient use of resource revenues domestically to diversify the economy and sustain long-term development. The Chilean experience in particular underscores the need for transparent and flexible approaches to resource revenue management. The credibility and transparency associated with Chile's fiscal framework reinforces its predictability, which enhances the ease of adjustments to achieve economic growth through counter-cyclical fiscal policies.

Additionally, while the resource rich countries hit by major banking crises have avoided more dramatic economic reversals, the combination of financial liberalization and deregulation, and the protection of savings abroad proved to be dangerous. Public savings abroad, coupled with weak banking regulation at home, and loose monetary policy in international capital centers like the U.S. drove down the apparent cost of foreign borrowing, while enabling dangerous credit bubbles that put these economies at even greater risk. The experience of previous banking crises (in particular the very different recovery paths of Japan, Norway and Sweden during the 90s)⁴⁰ shows that Russia and Kazakhstan made the right decision in using their oil money to put their banking systems back on their feet. On the other hand, Russia in particular is depleting its stabilization fund at breakneck speed, even though oil prices are relatively high again.

The inability of existing fiscal instruments to respond to the impact of the crisis does not make stabilization any less important. In fact the crash in commodity prices has brought volatility to the forefront of the policy debate for resource-dependent countries. The assignment of stabilization and/or wealth preservation as the primary objectives of existing fiscal instruments is insufficient to address the structural challenges of resource rich economies. The last part of the paper argues for development-oriented fiscal instruments to foster the long-term economic growth in resource rich economies.

4. Conclusions and Policy Recommendations

Existing fiscal instruments have been inadequate in the effort to address the structural challenges of resource rich economies. Relying on fiscal paradigms inherited from previous crises, policymakers in resource rich developing countries have focused on short-term macroeconomic approaches, ignoring the need for diversification and long-term development. Approaches based on high levels of foreign asset accumulation prescribed by the permanent income hypothesis and recommended by the International Financial Institutions are politically and institutionally unsustainable. The design of fiscal instruments in resource-dependent countries needs to recognize commodity price volatility as the most pressing fiscal challenge for resource-dependent developing countries while the accumulation of wealth for future generations should be subordinated to the creation of a diversified economy. Yet sovereign wealth funds developed in resource-dependent countries have often mixed stabilization and wealth objectives that have created unrealistic constraints on public expenditure and continue to hamper the development of the non-resource economy. The disconnection between resource rich countries' needs and available policy instruments has led many governments to disregard or abandon fiscal rules and to ignore or dissolve their resource funds. Countries with limited resource revenue need to make a critical assessment of the need for special fiscal instruments to manage resource revenue.

Given the failure of existing instruments to promote growth and stability in resource rich developing countries, many experts and officials have grown skeptical of fiscal policy-making.⁴¹ However, recent resource discoveries in Brazil, Ghana, Mexico, Mongolia,

⁴⁰ See for example Allen and Gale, 1999.

⁴¹ "The effectiveness of [natural resource] funds in restraining expenditure seems to be limited" (IMF, 2009b).

Sierra Leone, Uganda and Venezuela underscore the manifest need for new policy options to achieve sustainable development.

How can resource-dependent countries mobilize fiscal space from the resource windfall for human development? A development-oriented approach to fiscal policy-making in resource rich countries is needed to achieve long-term economic growth while maintaining short-term stability against commodity price and revenue swings. Although stability is necessary for long-term growth, decision-makers should not aim for stability at the expense of sustainable development. The case of Azerbaijan demonstrates the dangers of a framework that ignores the fiscal dominance of a country's resource sector.

A rigorous framework linking long-term development objectives with medium fiscal framework and budgets needs to guide resource revenue management instruments.⁴² Resource rich countries need to articulate a clear set of development goals in order to diversify their economy and align annual budgets with such objectives through multi-year fiscal frameworks. This approach implies investing the resource windfall at home rather than saving it abroad. Limits to private investment in the non-resource sector also stress the importance of making sure adequate domestic credit is available to fund investment. Human and physical capital scarcity furthermore requires an expansion in public investment to diversify the economy. The design and implementation of a detailed fiscal framework aims to address the challenges associated with such a strategy.

Although a specific case for direct transfers (conditional and unconditional) can be made to increase the consumption of the poorest segments of the population in resource rich countries, the majority of the windfall should be geared towards economic and social investment (infrastructure, education, health). Such fiscal expansion can avoid economic destabilization while creating new sources of growth. Development spending will have marginal impact on inflation and will attract—not deter—private investment and stimulate the non-resource sector (Heuty and Roy, 2008; Gupta et al., 2006). Development spending will also enhance the competitiveness of the non-resource sector and address concerns related to Dutch Disease (see Section 1). Although governments' capacity to spend resources transparently may be limited over the short-term of an annual budget, a long-term investment strategy should focus on alleviating bottlenecks and increasing capacity for efficient resource allocation. In other words capacity constraints can justify saving of the resource windfall but should not be a pretext for curtailing public investment over the medium term. The need for detailed development strategies that integrate with multi-year budgets is an important challenge for many resource rich countries, but one that goes far beyond the scope of this paper.

To safeguard resource-dependent economies from commodity price volatility, practical rules must guide a fiscal framework for economic diversification and long-term development. Governments need instruments geared toward sustainable development rather than "permanent income." Botswana, Chile, Norway and Trinidad and Tobago offer useful examples for the design of development-oriented fiscal instruments. Their

⁴² "Success in dealing with price fluctuations seems to depend on whether the SFIs are combined with robust [Medium Term Fiscal Frameworks], fully integrated into the budget process, and underpinned by good PFM systems" (IMF, 2009b).

experiences can be summarized in the following set of guidelines for fiscal policy-making in resource rich developing countries:

- 1. To be secure over the long term, resource-dependent governments need to achieve non-resource fiscal balance**, i.e. independence from resource revenues. The size and shape of a country's revenue profile should determine the pace for reduction of non-resource fiscal deficits. This issue is less pressing in countries with massive underground reserves, like those in the Persian Gulf, than for those facing depletion in the near future. But in all cases, specific targets for the reduction of non-resource fiscal deficits should be included in the medium-term fiscal framework. The experience of Norway in the 70s shows that, for new producers, a slow ramp-up of production and limited reserve depletion combined with targeted economic support may be the best recipe to avoid negative impacts on other sectors of the economy.
- 2. Resource rich governments need explicit targets for the non-resource deficit to monitor and reduce resource dependency.** Over time, as the non-resource economy grows, the non-resource deficit should be reduced in order to achieve economic diversification (see 1 above). Yet the sustainability of non-resource fiscal deficit depends on its composition and the expected duration of the resource windfall. The non-resource fiscal balance depends directly on the resource price benchmark used to develop the annual budget and the medium term fiscal framework. Countries can establish this figure from independent committees of experts who determine the trend production of the country and the trend price for the commodity on a yearly basis, as happens in Chile. Weak institutional set-up and lack of transparency can result in the politicization of the committee and distort the price forecasts. Trinidad and Tobago avoided this dynamic by creating a hybrid model that combines forecasts with backward-looking averages. Tracking the non-resource balance allows for a solid sense of the available development financing, which should also help calibrate the medium- and long-term fiscal framework. This approach assumes that governments have the capacity to determine and adjust long-term commodity prices independent from political pressures.
- 3. The composition of the deficit matters; domestic investment for economic diversification offers more stability and economic resilience.** Existing fiscal instruments determine the amount of resource revenue available for budgeting but often disregard the composition of public spending financed from resource revenue. The design of a public expenditure strategy to reduce dependency of resource revenue and transform the structure of the economy requires rules enabling public investment and limiting financing of recurrent spending from a volatile resource revenue base. Countries should spend most of the resource revenue on investment rather than recurrent spending, and target non-resource recurrent balance over the medium term (i.e., finance all recurrent spending through non-resource taxes). Realistically, this objective requires a medium-term fiscal framework that gradually increases the share of resource revenues used for public investment until investment represents 100 percent of resource revenue spending. The example of Botswana shows that, in a developing country context, physical and human capital formation need to go hand in hand. Health and education usually require more intensive operational spending (e.g., labor and supplies) than capital spending. Therefore, it may make sense to include

recurrent spending on health and education in these calculations for public investment.

- 4. A strategy focused on public investment will only achieve long-term growth, stability, and ultimate sustainability if it alleviates absorptive constraints and increases non-resource fiscal revenues to finance the necessary and recurring capital expenditures (RCCE).** Absorptive capacity constraints can limit the pace of the fiscal expansion in the short run, but public investments can be targeted to address bottlenecks and improve the effectiveness of government public investment programs. While governments may face structural constraints as they attempt to increase productive investment, the private sector may have greater capacity to invest efficiently, and should not have to depend on foreign capital to do so. This complementarity between public and private investment can mutually reinforce the positive impact on growth and development. At a minimum countries need to mobilize sufficient resources on a sustainable basis (i.e., discounting revenues from the resource sector to account for volatility) to maintain their capital investments over the economic cycle.⁴³

A transparent and accountable governance structure for new fiscal instruments is paramount to their success. The establishment of a special fiscal instrument is unlikely to address the institutional and accountability challenges of managing resource revenue for development. New frameworks may simply duplicate structures with weak checks and balances, ultimately adding opportunities for corruption and inefficient spending. Building a broad-based consensus on the use of the resource windfall and the rules attached to its deployment is critical to ensure sustainability of the instruments beyond the political cycle. The setting of long-term commodity prices is another critical decision that requires the development of appropriate mechanisms. Chile has established an independent panel of experts to determine the structural price of copper, while other countries such as Trinidad and Tobago use moving averages to limit political influence in price-setting.

An effective strategy will also require that fiscal instruments are integrated into the budget process, to guarantee both alignment with long-term development strategy and appropriate oversight of resource windfalls. This strategy also requires close coordination with monetary policies to avoid the creation of asset bubbles like those experienced by Russia and Kazakhstan.

Civil society groups, parliamentarians and the media play a central role in helping to ensure better scrutiny of natural resource funds and the application of fiscal rules. The 'Santiago Principles' (see Section 1) developed by the Forum of Sovereign Wealth Funds offer initial guidelines for improving the governance and transparency of natural resource funds and their use. But policymakers should seek to improve on these principles, as they emphasize transparency towards international markets rather than

⁴³ Growth in the non-resource sector determines the non-resource tax base that needs to increase in line with—or faster than—maintenance spending and other RCCE (e.g., road maintenance, fuel and labor costs in energy projects, etc.). Therefore, if tax collection and/or economic growth have faltered, public investment may need to slow down to avoid saddling the budget with more unsustainable recurrent spending needs. In other words countries need to consider rules associated with non-resource recurrent fiscal balance over the medium term.

domestic accountability to citizens; the guidelines are also non-binding and leave significant room for interpretation. Systematic monitoring of natural resource funds against good practice and international benchmarks will make sure citizens benefit from their extractive sector.

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