

A Stable and Efficient Fiscal Framework for Saudi Arabia:

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

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Background

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

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

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

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About the Author



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

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

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

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

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

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

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

Experts consulted

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

Graham Allison

Director, Belfer Center for Science and International Affairs and
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Introduction

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

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

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

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

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

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

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

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

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

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

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

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

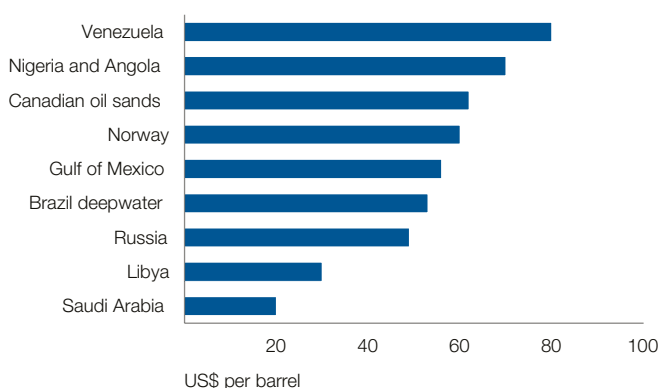
Section 2 provides a brief overview of the proposed fiscal rule, as well as the data sources and assumptions used in modeling the rule to simulate the impact of various policy settings empirically. The discussion of these simulations in Section 3 brings a number of findings into sharper focus. First,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

Section 1:

Saudi Arabia's fiscal challenge: beyond the short term

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

Figure 1: Estimates of total development costs for upstream projects



Sources: Cambridge Energy Research Associates

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

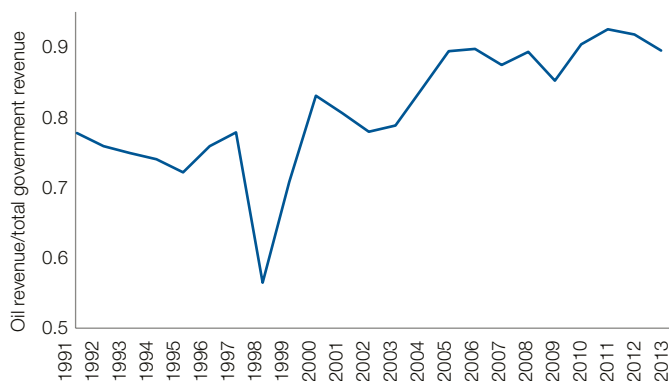
Alternatively, the belief that the growth of oil revenues can match that of spending needs requires the assumption that Saudi oil production can grow steadily over the course of a number of decades (without triggering an offsetting fall in global oil prices). This would imply a steady increase in Saudi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

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

Oil dependence: high and rising

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

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



Source: Official data, SAMA

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

Economic Complexity – a tool for diversification

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

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

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

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

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

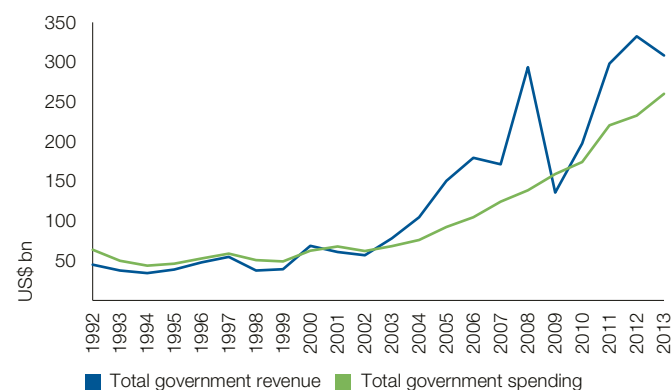
Oil-related volatility in revenue, debt and capital spending

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

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

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

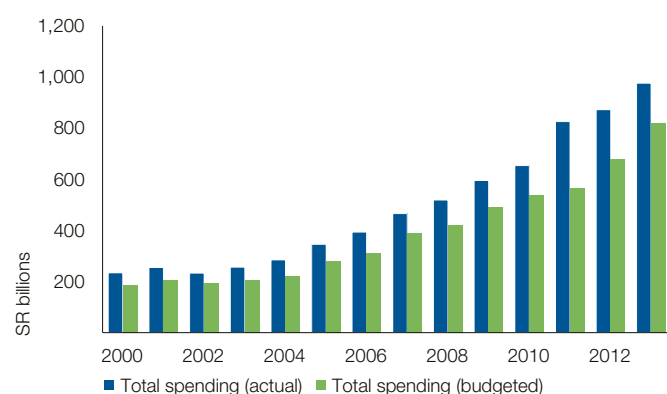
Figure 3: The volatility of revenue versus spending



Source: Official data, SAMA

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

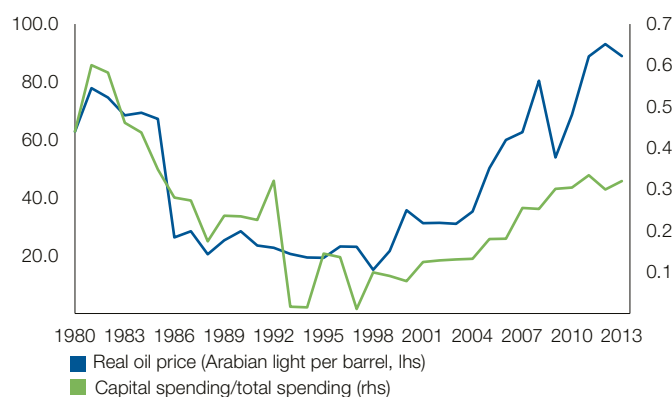
Figure 4: Actual versus budgeted spending



Source: Official data, SAMA

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

Figure 5: Oil-driven cyclical nature in capital spending



Source: Official data, SAMA

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

Reserves at risk as breakeven oil price rises

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

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

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

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

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

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

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

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

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

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

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

Rising long-term spending pressure

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

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

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

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

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

Long-term oil-revenue trends

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

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

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

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

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

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

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

Summary: structural features and long-term fiscal pressures

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

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

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

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

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

Section 2:

Modeling the fiscal rule

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

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

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

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

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

where:

α = a fixed parameter anchoring spending on the previous year's spending

β = a fixed parameter for transfers based on the size of the Stabilization Fund

TS = the transfer from the Stabilization Fund

FS = the size of the Stabilization Fund

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

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

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

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

where:

α = a fixed parameter anchoring spending on the previous year's spending

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

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

T = total transfers from both funds

TS = the transfer from the Stabilization Fund

FS = the size of the Stabilization Fund

FE = the size of the Savings Fund

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

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

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

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

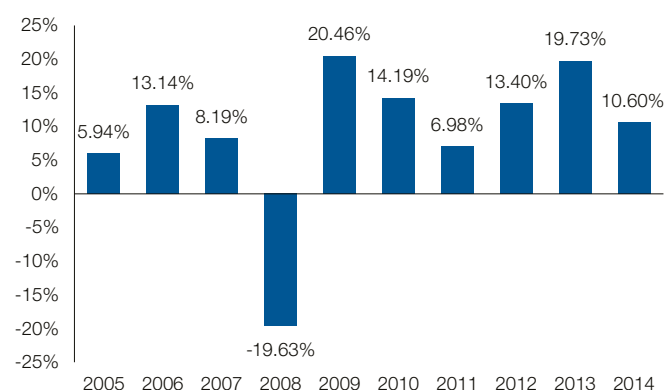
Data and the simulation of volatile variables

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

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

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

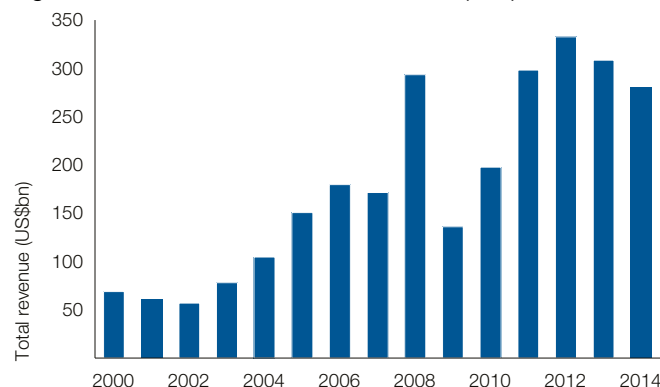
Figure 6: Annual returns on 60/40 balanced portfolio, 2000-2014



Source: Bloomberg

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

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



Source: SAMA

Section 3:

Scenario analysis

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

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

Scenario 1: the counterfactual

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

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

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

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

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

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

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

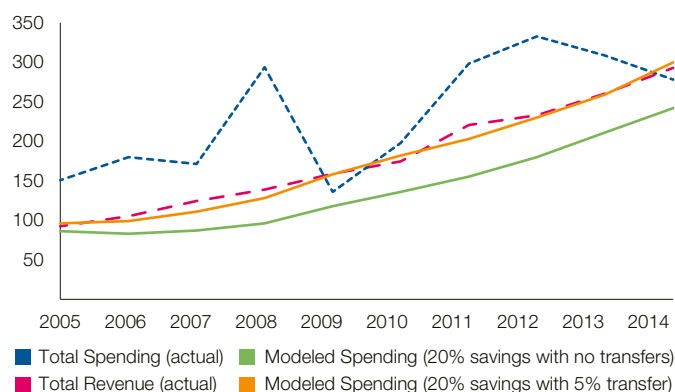
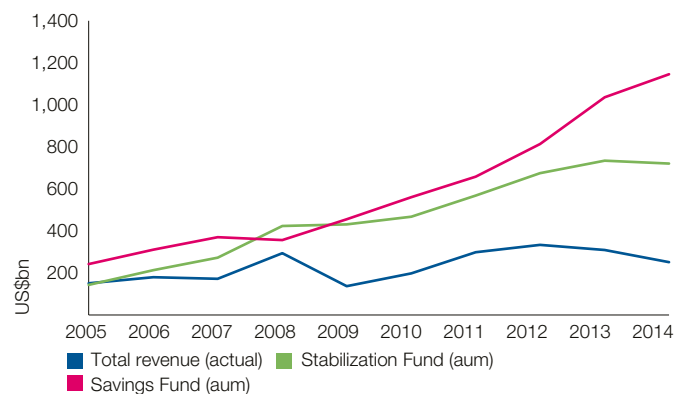


Figure 8 shows the output from the modeling of this counterfactual from which a number of important findings emerge. First, the modeled spending is similar to the actual spending in term of its profile, although the modeled path is, of course, consistently lower. Total spending under the fiscal rule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

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

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

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



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

Scenario 2: Implementing reforms in 2015

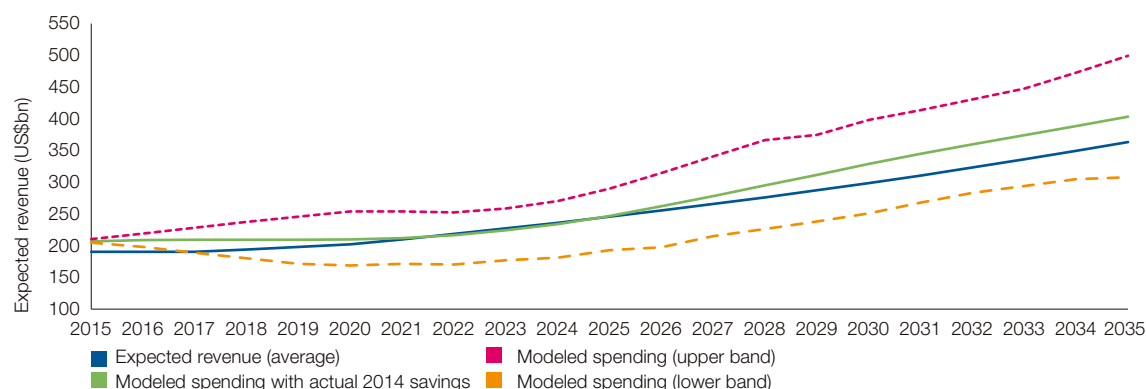
In the second scenario, we assume that the government takes immediate steps to establish a rule-based framework for the allocation, spending and savings of revenue along the lines described in the previous section. This would require in the first instance using Saudi Arabia's existing accumulated reserves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

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

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

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

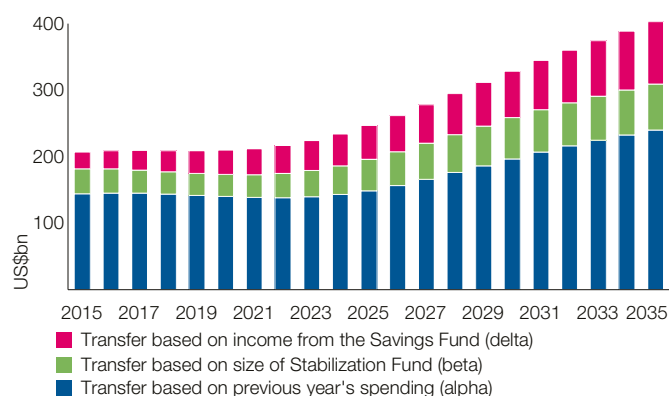
Figure 10: Baseline calibration for 2015 implementation



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

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

Figure 11: Contributions to total spending under the fiscal rule



The impact of higher initial savings

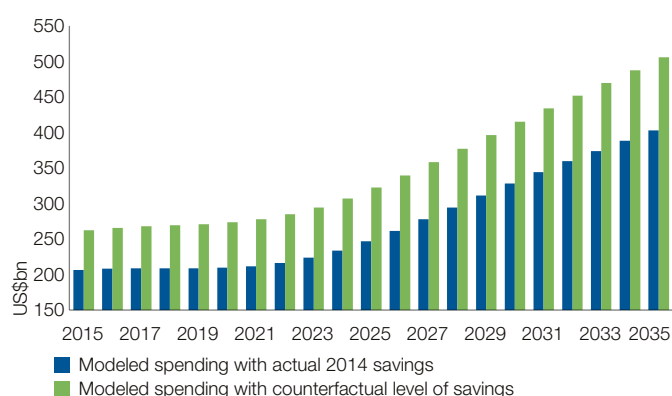
Recall from the analysis of the counterfactual under Scenario 1 that the implementation of the policy rule starting in 2005 would have resulted in total accumulated assets at the end of 2014 of \$1.865 trillion. It is instructive to consider what this additional savings would have implied for the level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

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

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

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

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



Policy implications from the scenarios

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

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

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

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

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

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

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

Section 4:

Implementation

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

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

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

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

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

Establishing and governing the fiscal rule

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

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

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

Operational independence and institutional positioning of the funds

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

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

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

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

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

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

Governance of the independent investment authority

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

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

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

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

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

Table 3: Proposed governance structure

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

A Saudi sovereign development fund – models and mandates

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

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

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

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

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

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

Section 5:

Conclusions and policy recommendations

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

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

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

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

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

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

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

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

The feasibility and urgency of reforms: five key messages

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

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

Specific policy recommendations

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

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

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

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

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

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

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

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

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