# Designing a Fiscal Framework for a Prospective Commodity Producer: Options for Lebanon

Mariusz Jarmuzek, Diego Mesa Puyo, and Najla Nakhle

#### **IMF Working Paper**

#### Middle East and Central Asia Department

## Designing a Fiscal Framework for a Prospective Commodity Producer: Options for Lebanon<sup>1</sup>

#### Prepared by Mariusz Jarmuzek, Diego Mesa Puyo, and Najla Nakhle

Authorized for distribution by Annalisa Fedelino

October 2014

#### This Working Paper should not be reported as representing the views of the IMF.

The views expressed in this Working Paper are those of the author(s) and do not necessarily represent those of the IMF or IMF policy. Working Papers describe research in progress by the author(s) and are published to elicit comments and to further debate.

#### **Abstract**

Lebanon is expected to have gas resources in its Mediterranean basin, and these could turn the country into a natural gas producer over the next decade. Lebanon's economy and institutions will thus need to adapt to the challenges and opportunities that such change will bring. In this paper, we address how Lebanon's fiscal framework will need to be reformulated to take into account potential resource revenue. Designing a fiscal regime appropriately is an absolute prerequisite to make sure the government can receive a fair share of the resources while investors face appropriate incentives to invest and develop the sector. This step should be followed by setting macro-fiscal anchors and supporting institutions. The prospective framework should initially be focused on ensuring fiscal sustainability and intergenerational equity, given the estimated relatively short horizon of Lebanon's gas resources. Strong institutional arrangements also need to underpin the prospective framework, to ensure that the pace of resource wealth's use is set in line with Lebanon's capacity constraints.

JEL Classification Numbers: E02, E62, H11, H50, H60

Keywords: fiscal policy, oil-producing countries, resource revenue management, accountability

Author's E-Mail Address: mjarmuzek@imf.org, dmesapuyo@imf.org, nnakhle@imf.org

\_

<sup>&</sup>lt;sup>1</sup> The authors would like to express gratitude to Annalisa Fedelino for encouragement and detailed comments and suggestions. The authors would also like to thank David Amaglobeli, Kristina Kostial, Alina Luca, Adnan Mazarei, Todd Mattina, Peter Mullins, Francisco Parodi, Marcos Poplawski-Ribeiro, Hajime Takizawa, and the country team members for useful comments and discussions. The authors would also like to acknowledge the helpful comments provided by the Ministry of Finance and the Banque du Liban. All the remaining errors are our own.

### Table of Contents Page Abstract 2 **Tables** 1. Assumed Fiscal Parameters for Fiscal Regime Options \_\_\_\_\_\_\_\_14 **Figures** 1. Proven Natural Gas Reserves. 5 10. LNG Revenues 20 11. PIH Framework Results 20 12. Modified PIH Framework Results ......21 15. LNG Revenues 22

17. Price-Based Structural Balance Results	23
18. Price-Based Structural Balance with Spending Rule Results	24
7 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -	
Bibliography	31

#### I. INTRODUCTION

Lebanon is expected to become a commodity producer over the next decade, albeit presumably smaller than others. Recent seismic surveys suggest that Lebanon's gas resources could be in excess of 25 trillion cubic feet (tcf), not particularly large by international standards. Still, revenue could potentially increase significantly for many years to come, although starting from 2020 at the earliest.

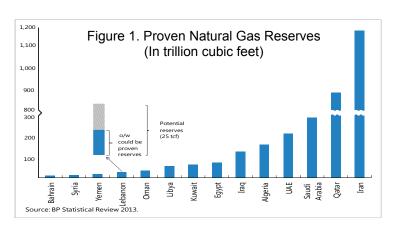
Setting an appropriate fiscal regime for Lebanon is an important prerequisite for the design of a prospective fiscal framework. While Lebanon has substantially advanced work on establishing its petroleum fiscal regime encompassing a set of tax and non-tax instruments, the regime has not yet been finalized and approved. Evidence from commodity-producing countries indicates that petroleum fiscal regimes vary greatly across countries, with the sector state of

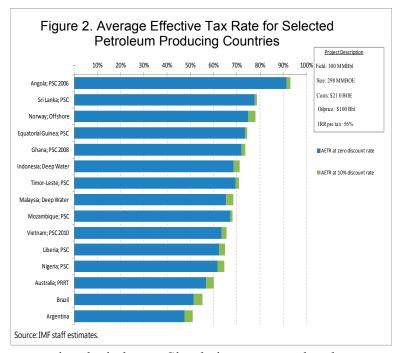
development, the time preference

concerns often shaping the fiscal

for government revenues, and

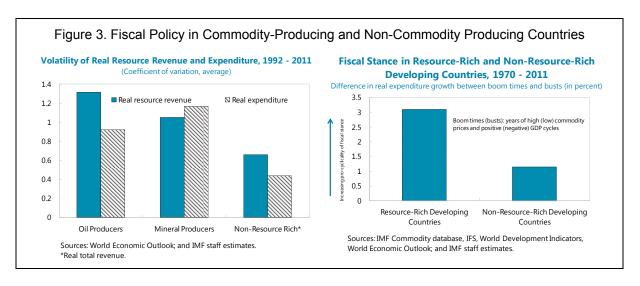
other social and economic





terms and the structure of the regime governing the industry. Simulations suggest that the government take in petroleum-producing countries ranges from about 60 to 85 percent (IMF, 2012d), making the sector a very attractive source of government revenue.

The prospective framework will need to address potential challenges to macro-fiscal management. Natural resource revenues are exhaustible, raising issues of sustainability and intergenerational equity. This calls for smoothing government consumption over time, to avoid the need for massive fiscal adjustment once the resource wealth has been depleted. Furthermore, high dependence on natural resources can result in high volatility of revenues and spending. Indeed, volatility has been much higher among commodity producers than in non-commodity producers (Figure 3). Accordingly, procyclicality of fiscal policy can be a very serious concern in commodity producers, where spending during boom and bust commodity price cycles is found to be more procyclical than in non-commodity producers.



Against this background, the Lebanese authorities will inevitably face a number of important fiscal policy challenges. There will be a need to decide on (i) an appropriate fiscal regime to ensure a reasonable government share from the sector revenues, while providing incentives for private investors to explore, develop and produce; (ii) what revenue shares to save and invest, considering large developing needs as well as significant capacity constraints; (iii) how to assess the macro-fiscal stance to inform policy decisions; and (iv) how to set up or strengthen institutions to ensure an efficient and transparent use of resource wealth.

The paper is structured as follows. Section II discusses key principles for fiscal framework design in commodity-producing countries, focusing on fiscal regime, macro-fiscal anchors, and supporting institutions. Section III presents simulations for upstream petroleum fiscal regime options for Lebanon and puts these options into an international context. Section IV discusses simulations underpinning options for macro-fiscal anchors for Lebanon, taking into account long-term fiscal sustainability and exhaustibility as well as price volatility issues. Section V identifies some institutional considerations to ensure that resource wealth is used efficiently and transparently including placements in a natural resource fund. The final section provides conclusions and policy implications.

## II. PRINCIPLES OF FISCAL FRAMEWORK DESIGN IN COMMODITY-PRODUCING COUNTRIES

Key principles for fiscal framework design in commodity-producing countries encompass fiscal regime, macro-fiscal anchors, and institutional aspects. A prerequisite for fiscal framework design is to establish a fiscal regime that strikes a balance between maximizing revenue potential and attracting investors. A well designed regime ensures that resources are developed efficiently, secures a fair share for the government, and promotes tax neutrality. Having established a sound fiscal regime, equally important aspects of fiscal framework design involve setting macro-fiscal anchors and supporting institutions. A macro-fiscal anchor should ensure fiscal sustainability and intergenerational equity, although consideration could also be given to managing volatility. Strong institutional arrangements need to underpin the new framework, with the pace of resource wealth use to be set in line with capacity constraints.

7

#### A. Fiscal regime

In designing a fiscal regime for oil and gas, there are a number of objectives and design principles to consider. The fundamental objectives of any tax reform are improving the efficiency and fairness with which resources are allocated and enhancing fiscal sustainability and progressivity. Building on recent IMF guidance to achieve those fundamental objectives for the taxation of natural resources, the design principles that should be considered include: <sup>2</sup>

- An appropriate share of the economic rent. When natural resources are owned by the nation, as is the case in Lebanon, the state should receive an appropriate share of the economic rents in exploiting those assets, which in the case of non-renewable resources such as oil and gas can only be exploited once. The non-renewable nature of oil and gas raises the issue of the opportunity cost of extracting the resource now rather than at some time in the future. Fiscal instruments exist to address this opportunity cost, such as modest-rate royalties or cost recovery limits.
- Adjustable government take. The government take should be flexible so that it gets a
  larger share in the profits of the most profitable projects but reduces the tax burden on
  the investor in times of low profitability (progressivity)—that is, it can easily adjust to
  variations in circumstances such as price and cost fluctuations. This flexibility may
  reduce the need for project specific negotiations in response to unforeseen
  developments.
- *Neutral and non-distortionary taxation.* As much as possible, fiscal instruments should avoid distortion of investment incentives and decisions. The test for satisfaction of this objective is the extent to which the fiscal instrument leaves projects which are profitable pre-tax, also profitable post-tax.
- Early and dependable revenues. This should apply especially at the start-up of sector activity, as in Lebanon, where governments favor fiscal instruments that provide early and dependable revenue. Although achieving this may conflict with the previous principle of neutral taxation (e.g., a royalty).
- Avoidance of tax leakage. Fiscal provisions should prevent or discourage pricing or cost recovery provisions which permit, or even encourage, erosion of the tax base.
- International competitiveness. Tax regimes should be competitive with those of other
  producers also trying to attract investment, taking account of the country geological,
  political and economic conditions as well as the relative stage of development of the
  sector.
- *Administrative simplicity and enforcement.* To the maximum extent possible, given other objectives, fiscal instruments or regimes should be simple for taxpayers to

-

<sup>&</sup>lt;sup>2</sup> For a detailed discussion of the design and implementation issues for fiscal regimes in commodity-producing countries see Daniel et al (2010) and IMF (2012d).

comply with and the revenue authority to administer. Once established, the laws must be adequately administered otherwise expected tax revenues will not be received.

- Consistency and transparency in fiscal arrangements. The tax rules applying to the extractive industries should be set out clearly in the law, preferably the tax laws. The authorities should also avoid negotiating project-specific fiscal arrangements (although in the case of gas it may be necessary to negotiate price arrangements), with the negotiation of project agreements focusing mainly on non-fiscal terms (such as work programs). This will help ensure transparency and equity through consistent treatment of taxpayers.
- Stability of fiscal arrangements. Frequent changes in the tax treatment of investment, may cause delays in the expectation of future incentives, or discouraged by fear that future competitors will be able to receive more favorable treatment.
- Clear institutional framework for setting fiscal policy. The lead agency in setting fiscal policy in relation to extractive industries should be the Ministry of Finance in consultation with the ministries and agencies responsible for those sectors.

These multiple objectives and principles typically require multiple fiscal instruments. The principal instruments applied in resource taxation are given below, together with comments on their merits or drawbacks addressing the objectives listed above.

- Royalty—the most common type of royalties, ad valorem, charge a fixed percentage rate on production or gross revenue. Variations include sliding scale royalties in which the rate varies with production volumes or prices, but their overall effect is the same: they are a simple addition to cost that beyond modest levels can seriously distort investment and production levels. Due to its insensitivity to underlying profitability, royalties can take a higher share of low margin projects than of high margin ones, rendering some projects unviable. Royalties, however, have the advantages of producing early, dependable income, and of relative ease of administration. In addition, royalties can provide compensation for the opportunity cost of extracting the non-renewable resource now rather than in the future.
- Income or profit-based taxes—corporate income tax (CIT) levied as a percentage of revenue less allowable deductions. It ensures that the returns to equity capital of an extractive industry business are treated in the same manner as other businesses. Investors resident in worldwide income tax jurisdictions may also value the CIT because it can give rise to foreign tax credits. Perceived drawbacks include debt bias (because usually interest is deductible not dividends), complexity of administration, and deferral of revenues during initial investor cost recovery periods, depending on the depreciation rules.
- Resource rent taxes—fiscal charges that target profits in excess of those generally required to attract investment. These work most effectively when they respond directly to measures of actual profitability. These can be achieved through a number

of instruments, including through the profit share contained in an Exploration and Production Agreement (EPA).

#### B. Macro-fiscal anchor

Exhaustibility and price volatility are key issues for fiscal frameworks in commodity producers. The IMF has recently refined its analytical framework for formulating fiscal policy in these countries.<sup>3</sup> Exhaustibility raises issues of sustainability and intergenerational equity, and calls for smoothing government consumption over time. Price volatility often leads to revenue (and spending) volatility and might require the adoption of policies to limit procyclicality. The relative importance of these objectives varies by country circumstances, such as the degree of resource dependence and the reserve horizon (the shorter the horizon, the more important exhaustibility considerations would be). Thus, fiscal policy should focus on ensuring long-term sustainability and/or providing instruments to help manage volatility and be supported by appropriate fiscal stance indicators.

#### **Ensuring sustainability**

In countries with short reserve horizons, ensuring long-term sustainability should be the main focus of the fiscal framework. Pressures in countries running a large non-resource primary deficit could arise well ahead of the time when resources are exhausted. To prevent this outcome, fiscal policy should be anchored in the non-resource primary balance (NRPB) target derived from applying three possible methodologies: the Permanent Income Hypothesis (PIH), the Modified Permanent Income Hypothesis (MPIH), and the Fiscal Sustainability (FS) approach.

- The traditional PIH framework sets the fiscal target (NRPB) at a level that is consistent with future financial wealth. Under this approach, the NRPB remains constant over time, and is financed by the rate of return on the net present value of projected resource revenues, so that the resource wealth remains constant over time and is never depleted.
- The MPIH can help accommodate a more front-loaded spending path than allowed under the PIH. Instead of preserving financial wealth at a constant level over time, the MPIH allows financial assets to be drawn down for a few years during an initial scaling-up period. The drawdown would, however, need to be offset by fiscal adjustment in the future, to rebuild financial assets to the same level as under the traditional PIH.
- The FS framework accounts for the potential impact of the scaled-up spending on growth and non-resource revenues. This is a significant departure from the MPIH. An NRPB allowing a drawdown of government wealth to build human and physical

<sup>3</sup> For a detailed discussion of the design and implementation issues of macro-fiscal anchors in commodity-producing countries see Baunsgaard et al. (2012), IMF (2012a), IMF (2012b), and IMF (2012c).

\_

capital and eventually stabilizing it at a lower level than under the PIH or the MPIH can still be consistent with fiscal sustainability objectives. Lower financial wealth will however generate a lower stream of resource-related income to the budget, resulting in a lower NRPB. Fiscal spending can still be stabilized at a higher level because higher growth will generate larger non-resource revenues.

#### Managing volatility

In countries with long reserve horizons, managing volatility should be the main focus of the fiscal framework. Price volatility can lead to procyclicality and undermine sustainability. For example, resource revenue surges may induce spending increases, generating a fiscal impulse—as measured by changes in the NRPB—that is large in relation to existing supply, thus reinforcing economic cycles and volatility. Sustainability issues arise when commodity producers spend more than their expected long-term resource revenues. This can occur when they extrapolate temporary increases in prices and misprice their resource wealth, and/or fail to maintain appropriate fiscal buffers to sustain current spending levels. All these actions can lead to the boom-bust cycles so often seen in commodity-producing countries.

In these cases, a structural primary balance derived from a price-based smoothing rule can be useful to anchor fiscal policy. A simple way to mitigate the impact of price volatility is to target an overall primary balance based on a "notional" price that includes either backward-looking prices, futures prices, or some combination of the two. The primary balance computed in this way is called "structural" since it is based on some underlying commodity price (rather than just the current one). This simple rule can be intuitive for policy makers since it includes resource revenues in the fiscal target (differently from the "pure" NRPB); it can also help support solvency through prudent forecasting of structural revenues by deliberately under-projecting the sustainable resource price. The choice of the price formula reflects a tradeoff between a preference for smoothing expenditures (when a longer smoothing period is chosen) and a need to adjust to changes in price trends (when a shorter moving average is selected), with implications for financial savings.

A complementary expenditure growth limit can help reduce procyclicality. This extended rule can limit the growth of government spending in nominal or real terms, or as a percent of non-resource GDP. Such a rule is desirable to guide the scaling up of public investment where there are absorptive capacity constraints (Berg et al., 2012) and where the volatility of resource windfalls requires precautionary savings (van der Ploeg, 2011). It also helps smooth out volatility because it sets floors and ceilings for spending growth.

#### Fiscal stance indicators

Commodity producers need to go beyond traditional measures of fiscal stance in their fiscal policy formulation. When a country relies significantly on resource revenue, the overall fiscal balance and the primary balance can be misleading indicators of the fiscal stance. Assessing the macro-fiscal stance in commodity producers should be guided by the following considerations:

For countries with short reserve horizons, the key fiscal indicator to assess the fiscal stance is the *non-resource primary balance*. The NRPB is computed by excluding

resource revenue from the primary balance; it identifies the impact of government operations on domestic demand, since resource revenues typically originate abroad. A lower NRPB would indicate an expansionary fiscal stance. Setting fiscal policy on the basis of this indicator can help delink fiscal policy from the volatility of resource revenues, and facilitates an explicit link to the sustainability framework. For example, a sizeable fiscal expansion after a spike in natural resource prices and revenues—whereby both revenue and spending increase—would not be detected if the fiscal stance were measured on the basis of the overall or primary balances, while the NRPB would rightly point to a loosening of fiscal policy.

• Targeting a *structural primary balance* is an important complement to the NRPB in countries with long reserve horizons. In these countries, resource revenues can be decomposed into a structural component and a cyclical component using various approaches, including a price-based smoothing rule. The structural primary balance is equal to the NRPB plus the structural component of resource revenues. In this manner, the structural primary balance target could be set to ensure a sustainable fiscal policy framework, and the smoothing rule would delink expenditures from externally-driven volatility in commodity prices. The structural balance approach allows for the assessment of the sustainability of fiscal policy in a similar manner as for non-commodity-producing countries.

#### C. Supporting fiscal institutions

Supportive fiscal institutions can effectively supplement a rule-based fiscal policy framework and enable sound macroeconomic performance and long-term economic growth. A stringent public financial management system combined possibly with a fiscal responsibility law along with a well-designed transparently-managed natural resource fund and an independent fiscal agency could enhance the enforcement of the fiscal rule, while strengthening the transparency and accountability of fiscal policy decisions.

A credible commitment to macro-fiscal stability and effective use of resource wealth should be underpinned by a strong *public financial management* (PFM) system. The PFM system should ensure as part of the budget process (i) a transparent and comprehensive presentation of resource revenue and the underlying non-resource fiscal position; (ii) a sustainable long-term fiscal strategy based on prudent revenue projections, realistic medium-term fiscal frameworks, and a good budget classification; and (iii) transparent mechanisms for investment project appraisal, selection, and prioritization of investment to ensure resource revenue is used to support long-term economic development. In this context, the Extractive Industries Transparency Initiative (EITI), a global standard established in 2003 to promote and support improved governance in commodity-producing countries, has become relevant as it has widened the transparency requirements in the reporting of natural resource wealth management from revenue to spending.

A *fiscal responsibility law* (FRL) could establish a legal basis and an effective enforcement mechanism for a new rule-based framework. FRLs are permanent institutional arrangements to promote fiscal discipline, increasingly gaining support in advanced economies, Latin America, Europe, and Asia. They may include procedural and numerical rules, or both.

Procedural rules aim to enhance transparency, accountability, and fiscal management by generally requiring the government to commit up front to a monitorable fiscal policy strategy, usually for a multiyear period, and to report and publish fiscal outcomes and strategy changes on a routine basis. Examples of countries include Chile and Peru. Numerical fiscal rules in FRLs are also common and are intended to establish a permanent constraint on fiscal policy, generally in terms of an indicator of fiscal performance. Mechanisms to encourage enforcement encompass sanctions for noncompliance both reputational and personal on public officials, with examples including some European countries for the former and Brazil for the latter.

Establishing a *sovereign wealth fund* (SWF) could help enhance the institutional framework. SWFs are special investment arrangements focused on holding and managing investments abroad. Their main purpose is achieving macro-fiscal stabilization as well as accumulating financial savings for intergenerational equity and fiscal sustainability; however, some SWFs also aim at financing development needs. The flows into and out of a SWF should be fully integrated within the overall budgetary framework to ensure its integrity and protect its role as the mechanism for setting expenditure priorities and allocating public resources. Depending on institutional capacity, SWFs can be structured either as separate funds—these require well-developed institutional capacity as a prerequisite—or as one fund with different portfolios. Deposit and withdrawal rules as well as investment policies should be defined based on the type of fund arrangement; and all the SWF operations should be properly recorded.<sup>4</sup> Since SWFs are part of the asset side of the sovereign balance sheet, it is very important to follow an integrated approach to sovereign asset and liability management. SWFs should be designed taking into account the nature of the state's liabilities to minimize risks and maximize returns. Operational design varies across countries; in some countries, SWFs are simply government accounts at the central bank (for example, Algeria's Revenue Regulation Fund), while in others they are managed as cash or international reserves (the Development Fund for Iraq and Angola's Oil for Infrastructure Fund); there are also examples of SWFs kept as a pool of assets set up at the ministry of finance and managed by the central bank.

Yet another (complementary) option to strengthen the framework could be to create *a fiscal council* (FC). Such an entity should be an independent public institution informing the public debate on fiscal policy that seeks to foster transparency and accountability of fiscal decisions while ensuring compliance with fiscal rules in place. Main functions include providing independent assessments of budget assumptions, plans and outcomes, identifying sources of fiscal risks, and sometimes advising policymakers on policy options. Country practices vary, with the approach in Chile to provide independent assessments of budget assumptions, plans and outcomes, the approach in Romania and Serbia to identify sources of fiscal risks, and the approach in Colombia to advise policymakers on policy options. The institutional arrangements depend however highly on the political environment and the legal tradition. More generally, cross-country analysis suggests that only well-designed fiscal councils are

\_

<sup>&</sup>lt;sup>4</sup> See International Working Group of Sovereign Wealth Funds, 2008, Sovereign Wealth Funds Generally Accepted Principles and Practices—Santiago Principles.

associated with stronger fiscal performance as well as more accurate and less biased forecasts (Debrun and Kinda, 2014).

#### III. OPTIONS FOR LEBANON'S FISCAL REGIME

The fiscal regime for the petroleum sector in Lebanon has not been finalized yet. However, the government has already decided on the structure of the regime and the main fiscal terms, which have been made public and discussed with different stakeholders. The proposed regime contains several parameters that will be subject to competitive bidding. As a result, the definitive fiscal regimes applying to the different Lebanese blocks will only be known after bids are evaluated and blocks awarded.<sup>5</sup>

The proposed regime comprises fixed and sliding scale royalties for gas and oil respectively, cost recovery limit (biddable), a production sharing scheme based on the R-factor<sup>6</sup> (biddable), and CIT. In designing a fiscal regime the usual practice is to ensure government revenue from the time production commences while also providing the government an increased share in more profitable projects. The proposed royalty, CIT, and profit based production share combine to form a fiscal package that should achieve these objectives, assuming the biddable parameters are set at reasonable levels. The remainder of this section presents a fiscal evaluation of four regime options for Lebanon, and then compares the results against a selected group of petroleum producing countries from the region and elsewhere.

#### A. Evaluating fiscal regime options for Lebanon

Given the number of biddable parameters in the EPA, four possible fiscal regime options are evaluated for Lebanon. The first three options are based on the publicly available terms for the EPA<sup>7</sup>, and Lebanon's standard income tax law, with the three biddable parameters under the EPA set to achieve a: "low", "medium" and "high" government take. The fourth option is also based on the draft EPA, but it includes a higher CIT rate of 25 percent as an alternative (all other parameters remain unchanged). The four options evaluated can be used as a guide for possible outcomes for government profit shares and/or cost recovery ceiling under competitive bidding.

<sup>&</sup>lt;sup>5</sup> Lebanon's first petroleum licensing round, which was originally announced in 2011, has been postponed on several occasions for legislative and political reasons. At present, the bidding round is expected to take place in 2015.

<sup>&</sup>lt;sup>6</sup> The R-factor or "payback ratio" is a mechanism commonly used in petroleum fiscal regimes. It is calculated as the ratio between cumulative cash inflows and cumulative capital expenditures. Once a ratio of one is reached, all exploration and development costs to the date of sharing have been recovered from cumulative net revenues.

<sup>&</sup>lt;sup>7</sup> See http://www.lpa.gov.lb/epa.php

Table 1. Assumed Fiscal Parameters for Fiscal Regime Options

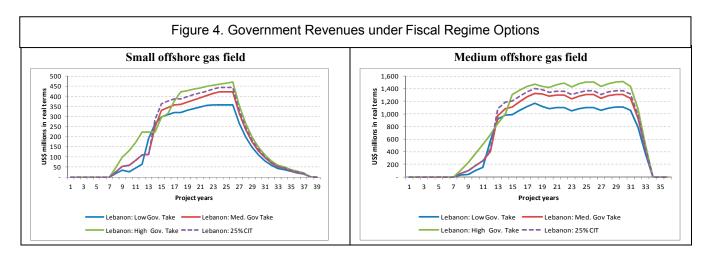
Fiscal parameters	Low	Medium	High	25% CIT
Royalty	4% for gas; 5% - 12% incremental sliding scale for oil based on daily production rate			
Cost recovery limit	100%	75%	50%	75%
R-factor petroleum profit sharing:				
R < 1	25%	30%	50%	30%
1 < R < 3	25 – 45%	30-60%	50 – 75%	30-60%
R > 3	45%	60%	75%	60%
CIT		15%		25%
Dividend withholding tax	10%			
Interest Withholding tax	10%			

#### **Profile of government revenue**

The path of government revenue under the four regime options is subsequently evaluated. Figure 2 displays the revenues collected by the government from royalty, profit petroleum sharing, CIT, and withholding taxes. The profile of government revenue mainly reflects the production profile of the two stylized gas projects evaluated. The first project is a relatively small field with total production of approximately 2 Tcf. The second project is larger in size, with total production of 6.1 Tcf. With a price assumption of US\$12.9/Mcf in constant dollars of 2013, the small field yields a pre-tax IRR of 19.5 percent, while the medium field has a pre-tax IRR of 26.8 percent.

As expected, the results show that the "high" government take option generates significantly larger revenue for the government than the other three options. The option with a higher CIT rate sits in between the "medium" and "high" government take options. While under all four options the government starts receiving revenue from day one of production (mainly due to the royalty), the magnitude of these early revenues is significantly larger under the "high" government take option as a result of the combination of a low cost recovery limit (50 percent) with a high minimum state share of profit petroleum (also 50 percent).

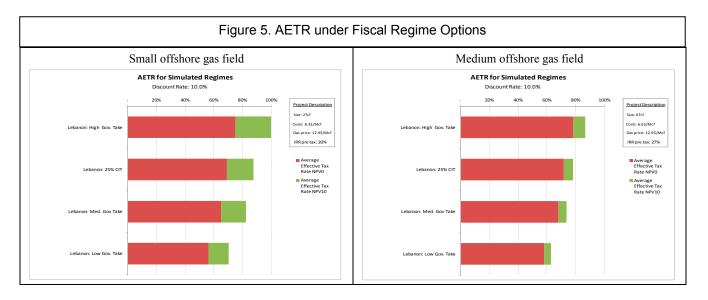
<sup>&</sup>lt;sup>8</sup> The project economics of the two fields assume that the medium gas project is 6.1 Tcf with horizon of 26 years, while the small gas project is 2 Tcf with horizon of 30 years. It is further assumed that the gas projects are segmented, with the upstream gas company paying tariffs to the pipeline and LNG Plant Company. That is, the simulations assume that the EPA fiscal terms and CIT only apply to the upstream activities, while the midstream tariffs (pipeline and LNG plant tariff) are treated as transportation and processing costs, and netted back from the LNG price.



#### Revenue generating capacity, progressivity, and tax burden on marginal projects

The revenue generating capacity of the four fiscal regime options is estimated based on the Average Effective Tax Rate (AETR) or "government take". The AETR is calculated as the ratio of government revenue from a profitable project to the project's pre-tax net cash flows. Figure 5 shows the AETR of the four fiscal regimes evaluated both under the small and medium gas fields.

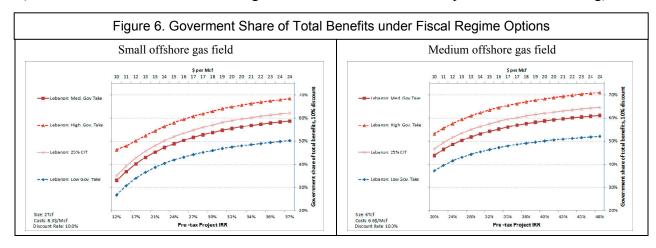
The government take under the options presented here varies between 57 percent and 78 percent in undiscounted terms. As shown on Figure 5, the "low" government take option yields the lowest AETR of 57 percent under the small field, while the "high" government take option yields the highest AETR of 78 percent under the medium field. When using a discount rate of 10 percent, the AETRs are higher, especially in the small field where the frontloaded effect of the (implicit or explicit) royalty is more prominent.



The degree of progressivity of the tax regime is equally important for governments and investors. A more progressive regime allows the government to increase its share of revenue

when the investment is highly profitable, while giving some relief to investors for projects with low rates of return. In addition, a progressive regime could attract investment for marginal projects (increasing government revenue in the long run), just as a heavy fiscal burden on a project could deter investment altogether.

Figure 6 illustrates the progressivity of the four fiscal regime options based on the government share of total benefits9 over a range of projects' pre-tax IRRs10. A progressive fiscal regime would yield higher share of total benefits for the government as the profitability of the project increases; progressivity is only relevant above the minimum acceptable rate of return required by the investor. Especially under the smaller field, the four options evaluated are quite progressive, with the "medium" government take and the 25 percent CIT rate options probably displaying the highest level of progressivity. However, it is important to note that while progressivity allows countries to capture a higher share on the upside, it may also mean that countries share some risk by reducing their global take on the downside (unless there is sufficient minimum government revenue whenever production is occurring).

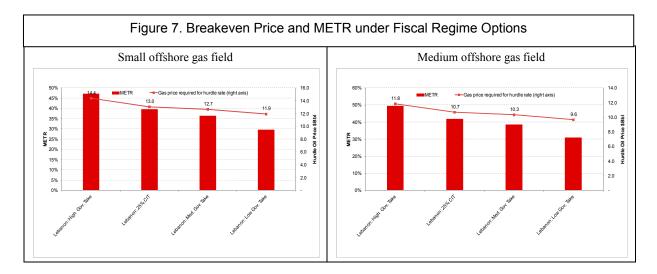


The relative burden that the different options would put on a marginal project is also compared. A key indicator is the "breakeven price" or the minimum price required to meet the minimum rate of return required by the investor (assumed in the model to be 12.5 percent in real terms). As shown on Figure 7, only the "high" government take option under the small field example requires a higher breakeven price than the one assumed for the rest of the analysis presented in this report. Another interesting point to note is that, regardless of the project chosen, the difference between the lowest and the highest breakeven price among the four options for Lebanon is relatively modest at roughly \$2/Mcf.

<sup>&</sup>lt;sup>9</sup> Total benefits are defined as revenues minus operating costs and capital replacement computed from the date of commencement of production. In other words, total benefits represent the available net proceeds from which taxes are paid, debt is serviced and equity providers are rewarded, measured here at a 10 percent discount rate.

<sup>&</sup>lt;sup>10</sup> The range of project pre-tax IRR is obtained by varying prices. The price corresponding to each pre-tax IRR is depicted in the top horizontal axis. This analysis does not imply a ranking of projects by IRR, as only one project is evaluated at a time.

An alternative indicator to measure the burden on a marginal investment is the Marginal Effective Tax Rate (METR). The METR illustrates the relative fiscal wedge taken from the project by the fiscal regime at the margin of project viability. In other words, the METR is the difference between the pre-tax IRR and the post-tax IRR as a percentage of the pre-tax IRR for a project that yields the minimum post-tax IRR required by the investor. For the two projects evaluated, the METR varies from 29 to 47 percent among the four options modeled (Figure 7).



#### **B.** International comparisons

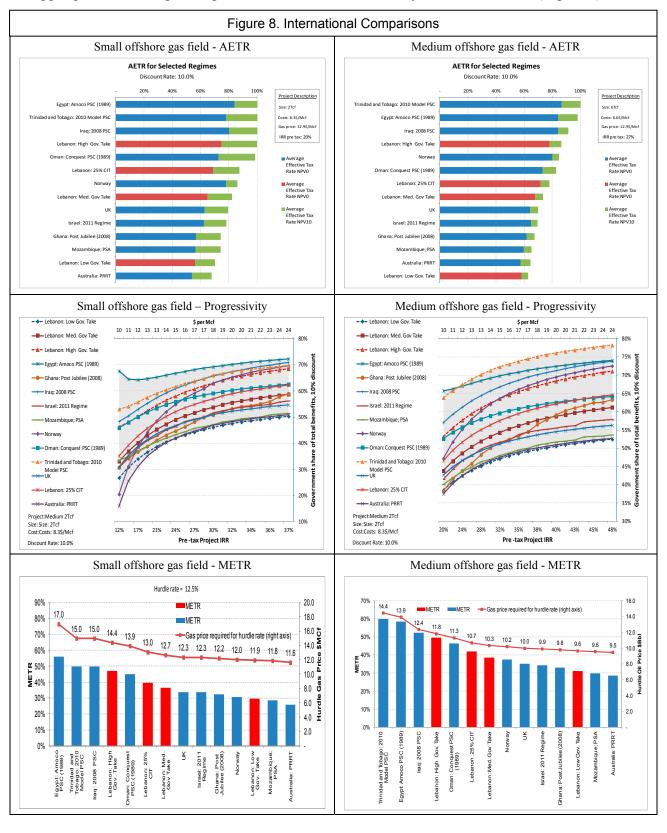
The four options for Lebanon are compared with fiscal regimes of other petroleum-producing countries from the region and elsewhere. The comparator countries in the sample include some established gas exporters (Egypt, Norway, and Trinidad and Tobago), petroleum producers (Australia, UK), and some developing countries with recent proven petroleum discoveries (Mozambique, Ghana).

The international comparison confirms the results of the AETR, progressivity and breakeven price analysis conducted for the four options. For example, the "low" government take option falls in the lower end of the sample under the AETR, in line with countries such as Australia and Mozambique. The "medium" government take and the 25 percent CIT option come in the middle of the AETR range, with a similar government take to the UK, Israel and Oman. Similarly, the "high" government take option sits at the bottom of the upper end of the sample, after countries such as Trinidad and Tobago, Egypt and Norway which have relatively high AETRs.

In terms of progressivity, the four options appear to be relatively more progressive than most other countries in the sample. However, countries like Norway, the UK and Ghana appear to exhibit more progressive regimes than the four options for Lebanon, perhaps due to the use of rent taxes (similar to Lebanon) and the absence of royalties (unlike Lebanon).

Finally, the four options also appear to be line with international comparators in terms of METR and breakeven prices. The "low" government take option requires breakeven prices

similar to Australia, Norway and Mozambique; while the other three options sit in the middle to upper part of the range along countries like the UK, Norway, Israel and Oman (Figure 8).



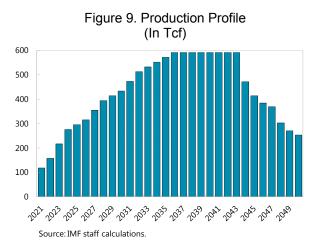
#### IV. OPTIONS FOR LEBANON'S MACRO-FISCAL ANCHORS

Having established the fiscal regime, the government should start developing macro-fiscal anchors. Two scenarios reflecting different assumptions on prospective resources analyzed below are underpinned by a common assumption on the government take of 60 percent, which is consistent with the evaluation of the fiscal regime presented in the previous section.<sup>11</sup>

- Baseline scenario—short reserve horizon. Simulations aim at ensuring sustainability by computing benchmarks and comparing key fiscal indicators for: (i) the traditional PIH rule; (ii) the modified PIH rule; and (iii) the fiscal sustainability rule.
- Alternative scenario—long reserve horizon. Simulations illustrate the trade-offs of
  various alternative price-based rules in terms of smoothing out volatility and
  generating different levels of financial assets. Two anchors are considered: (i) pricebased structural balance rules; and (ii) price-based structural balance rules augmented
  with expenditure limits.

#### A. Ensuring sustainability

The baseline scenario assumes a hypothetical production profile drawing on existing information and international experience. The main assumption is based on recoverable reserves of around 13 Tcf, obtained by discounting recoverable reserves of over 25 tcf by half, to account for uncertainty associated with new fields. Production is assumed to start only in 2021, reflecting the need to finalize negotiations with bidding firms in 2015, and to advance on exploration by 2018. Drawing on international experience, production is

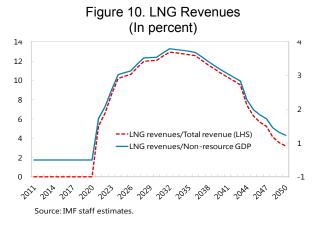


expected to last for 35 years, with full capacity reached by 2036.<sup>12</sup> It would decline at a fast rate after 2043 so that by 2055, production levels would be significantly lower. Given the assumed decline, the government should have saved over time a sufficient share of resource revenues to prepare for this scenario, and invested in productive assets that support growth in the rest of the economy.

<sup>&</sup>lt;sup>11</sup> The assumption on the government take at 60 percent is conservative given no history of natural resources in Lebanon and perceived fragmented political environment.

<sup>&</sup>lt;sup>12</sup> The assumed production profile draws mainly on the experience in Israel, which shares the same basin as Lebanon; it is also consistent with Mozambique's experience.

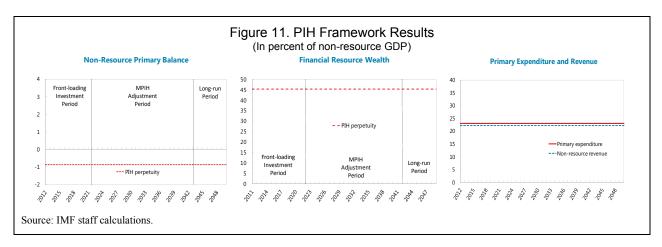
Under this baseline production profile, resource revenues are moderately sizeable. They are estimated to reach around 4 percent of GDP and represent almost 14 percent of total revenues by the end of the next decade.<sup>13</sup> This would be a substantial source of revenue to the budget and could provide much needed fiscal space to address pressing development needs. Serious deficiencies in the infrastructure sectors have deepened impediments to Lebanon's



competitiveness, fiscal stability, and economic growth. Thus, resource revenue could provide a good opportunity to invest in high-return infrastructure projects in electricity, telecommunications, water, and the transportation network—these have been singled out as binding constraints for raising Lebanon's growth potential (World Bank, 2012). In particular, the electricity sector requires a major overhaul, focusing on improving service delivery through increased generation capacity, reduced fiscal burden, and enhanced institutional and legislative set-up for private sector participation (GoL, 2010).

#### The PIH Framework

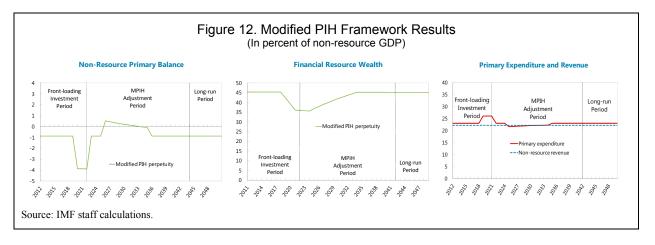
The PIH framework sets the fiscal target consistent with future financial wealth. Under current estimates, the NRPB consistent with a PIH rule is a deficit of about 0.9 percent of GDP. The constant NRPB—combined with an assumption of constant non-resource revenue at 22 percent—stabilizes primary expenditure permanently at 23 percent of non-resource GDP. This approach has the advantage of simplicity and stability, though it is relatively conservative.



<sup>&</sup>lt;sup>13</sup> The fiscal impact focuses only on revenue, while there could be some impact through transfers to the electricity company. The latter are quite sizeable and could free up significant amounts of resources.

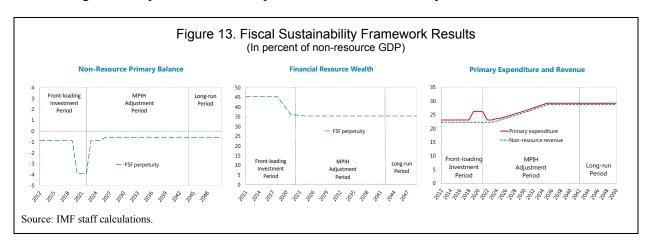
#### The Modified PIH Framework

The MPIH framework sets the fiscal target consistent with future financial wealth, but allows for scaling up investment. In the calibration for Lebanon, an MPIH scenario allows for an increase in annual capital spending equivalent to 5 percent of non-resource GDP on average, for 5 years (over the period 2019–24). The period of front-loaded investment then needs to be compensated by an annual improvement in the NRPB smoothed over more than 10 years.



#### The Fiscal Sustainability Framework

The FS framework explicitly takes into account the growth impact of the additional public investment. After the period of front-loaded investment, a new PIH exercise is performed for the remaining gas wealth and financial assets accumulated until then, but taking into account the growth impact of the additional public investment. Assuming a permanent additional effect of 1 percent on real growth and a reduction in the positive value of the interest rate-growth differential, the wealth level eventually decreases to around 35 percent of non-resource GDP; the NRPB is stabilized at a lower deficit. The fiscal multiplier of public investment is assumed to become larger than 1 just after the front-loaded period, and to return to its steady state level of 1 in the long run. Even if the NRPB is lower under the FS framework than under the PIH, the level of primary expenditure is higher due to the additional growth impact and the multiplier effects of the economy.



#### B. Managing volatility

The alternative scenario is based on a hypothetical production profile assuming long reserve horizon and increased production. This scenario reflects significantly more optimistic assumptions on the recoverability of the reserves, estimated to be around 25 Tcf (and not discounted as under the baseline scenario). Production is assumed to start in 2021, but is expected to last for more than 35 years, with full capacity reached by 2036 and kept until 2050. Given that the resource horizon is long, managing volatility would be the main focus of fiscal policy.

The hypothetical production profile generates substantial resource revenues. They are estimated to reach around 7 percent of GDP and represent almost 25 percent of total revenues by 2030, followed by some gradual decline afterwards.

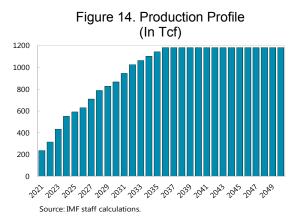
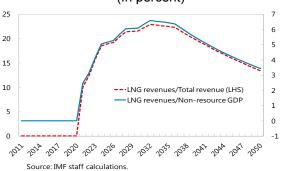


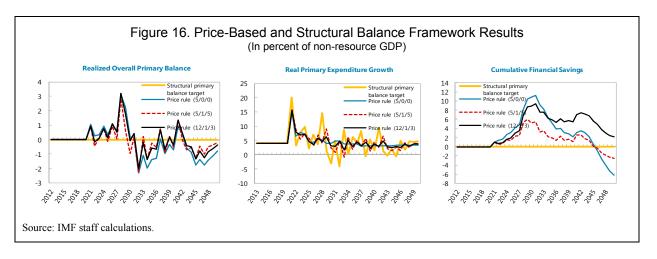
Figure 15. LNG Revenues (In percent)



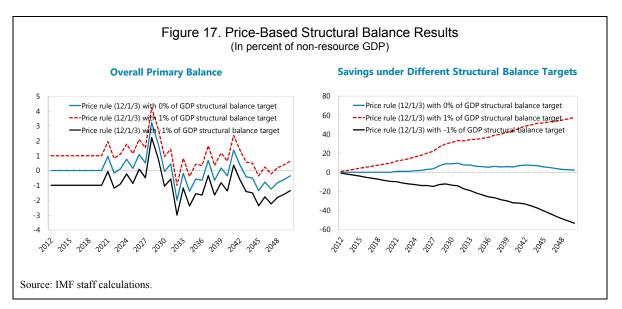
#### Price-based structural balance framework

The proposed structural primary balance is based on international experience with price-based rules. Three price-based rules are analyzed: (i) Ghana rule, with a five-year rolling average of historical oil prices (5/0/0); (ii) Trinidad and Tobago rule, with rolling average of oil prices for the last 5 years, the current year, and the futures prices for the next 5 years (5/1/5); and (iii) Mongolia rule, with 16-year moving average comprised of 12 years of historical prices, a current year forecast, and 3 years of futures prices (12/1/3).

There are tradeoffs in implementing the selected price-based rules. Assuming a structural balance target of 0 percent of non-resource GDP, all the rules deviate from it given the volatility public finances are exposed to. The Mongolia price rule (12/1/3) generates the highest level of financial savings and expenditure smoothing compared to the other rules. The Ghana price rule (5/0/0) generates the least volatility in terms of expenditure, but results in the largest accumulation of financial liabilities compared to the other rules. Finally, the Trinidad and Tobago price rule (5/1/5) generates the highest volatility in terms of expenditure and financial savings are marginally negative. Given the above results, the Mongolia price rule is chosen as a benchmark for Lebanon simulations.

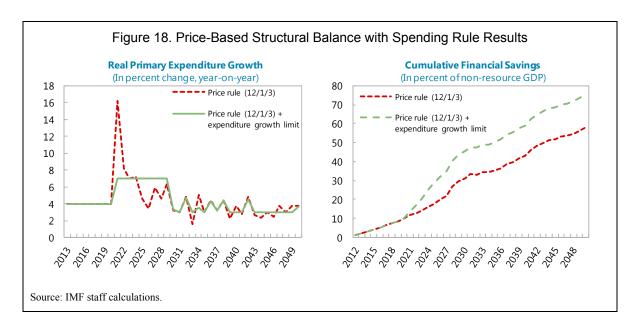


Structural balance targets need to be carefully set. The Mongolia price rule produces a high sensitivity of the fiscal performance to different structural balance targets. While different targets do not result in substantially different overall primary balances, they can however have a large impact on financial savings. Targeting a structural balance of -1 percent of non-resource GDP could lead to an accumulation of financial liabilities. Targeting 0 percent of non-resource GDP structural balance would not lead to periods of debt accumulation or result in the disruption of budget implementation, but at the same time it would not generate savings consistent with intergenerational equity either. More conservative structural balance targets of at least 1 percent of non-resource GDP would ensure accumulation of sufficient savings to protect against downturns and prevent abrupt cuts in spending.



#### Price-based structural balance with expenditure limits framework

A price-based rule augmented with an expenditure growth rule would limit procyclicality. The Mongolia price rule (12/1/3) with expenditure growth limited to 3–7 percent per year in real terms would permit Lebanon to accumulate some savings close to 70 percent of non-resource GDP by 2050.



#### C. Selecting among options

The optimal fiscal response to Lebanon's prospective gas resources depends on several factors not yet fully known. There are only preliminary indications on the size of gas reserves, with both upside risks in case of new discoveries and downside risks if currently estimated deposits underperform. Further, the rate of gas production and prices are difficult to predict given uncertainties about the actual investment plans over the next decades; and that Lebanon's position in the international gas market has not yet been defined. Finally, contract negotiations are still ongoing and the fiscal regime has not yet been entirely formulated. Based on these considerations, this paper can only provide some preliminary analytical considerations regarding possible options.

The prospective fiscal framework should initially focus on ensuring fiscal sustainability and intergenerational equity. Given existing uncertainties, both the MPIH and FS frameworks seem relevant because they are based on sustainability objectives and account for the scaling up of public investment—of great importance to Lebanon given its significant gaps in physical and human infrastructure. If substantially more resources were to be confirmed, Lebanon could select the option based on long reserve horizon and focus its fiscal framework on managing volatility, with fiscal anchors determined by price-based structural balances. A price-based structural balance and its modification to limit spending growth could be applied, given Lebanon's susceptibility to procyclicality and weak institutional capacity.

#### V. STRENGTHENING LEBANON'S INSTITUTIONS

Management of resource revenues creates significant fiscal policy challenges and necessitates the emphasis on developing fiscal institutions before these revenues come on stream. Lebanon's resource revenues are expected to come on stream within a decade, which could facilitate the scaling up of public investment in physical and human capital. Ensuring that this scaling up does not compromise fiscal stability will be critical to maintain a sustainable and more inclusive growth path. Attaining these goals requires appropriate

management of resource revenues, which are likely to face increasing volatility as they become an important share of total revenues.

Substantial PFM reforms are essential in preparation for the more complex environment that would arise with the natural resource windfall. Specifically, the following aspects of Lebanon's PFM system need to be addressed to put a prospective fiscal framework on a sound footing:

- Transparent and comprehensive presentation of gas revenue. The Ministry of Finance (MoF) should continue to build capacity to provide reasonable forecasts for natural resource prices, production, and fiscal revenues, as well as to analyze risks related to the central scenario. It would be equally important to ensure transparent and consistent presentation of non-resource fiscal balances.
- Medium-term-focused budgets, with a strong revenue forecasting framework. The MoF should continue to strengthen the macro-fiscal unit charged with forecasting resource revenue through building capacity to identify risks to macroeconomic stability, growth and debt sustainability, as well as monitoring budget execution during the year. These outputs would form the basis for effective medium-term economic and fiscal frameworks to shift the focus of policy away from purely shortterm objectives.
- Strengthened coordination and selection of public investment projects. As the size and complexity of investment projects tend to increase substantially, it is important to have in place a robust public investment unit capable of selecting projects and preparing cost benefit analysis. As a first step, the unit should develop an operational manual to help guide its operations and procedures. Furthermore, the internal control systems need to be further developed to allow timely follow-up of project implementation. This may require hiring new staff, including engineers and other technical experts who can ensure proper monitoring of project implementation.
- Adoption of the EITI. Lebanon is currently not participating, but could benefit from it through an improved investment climate by providing a clear signal to investors and international financial institutions that the government is committed to greater transparency.

Over time, adopting a fiscal responsibility law (FRL) could also strengthen fiscal discipline by anchoring fiscal decisions on a rule-based framework. International experience suggests that a well-designed FRL holds the potential of contributing to the improvement of fiscal management, if supported by critical preconditions including mainly a strong political commitment to fiscal discipline, sufficiently developed PFM systems, and good transparency and accountability practices. The Lebanese authorities could therefore consider designing and implementing a FRL aimed at (i) improving fiscal discipline by requiring the government to declare and commit to a prudent fiscal policy and strategy; (ii) making fiscal policies more predictable and credible by establishing rules and procedures that the government must follow in the design and implementation of fiscal policy; and (iii) establishing transparent mechanisms by which others can assess how well the government is

complying with its established processes, goals and priorities. Key elements of a prospective FRL would include:

- Clear goals and instruments with a strong enforcement mechanism. The FRL requires clear operational guidance in formulating the budget and medium-term framework. The FRL should target fiscal instruments that are directly linked to the underlying objective of reducing public debt to sustainable levels. Furthermore, fiscal underperformance should be clearly mapped into corrective measures that would bring fiscal balances back on-track towards the medium-term targets. Finally, the FRL should also include an effective sanctions mechanism for breaches of fiscal targets and expenditure controls.
- Monitoring and communication. The mechanism in the FRL for an ex-ante assessment of the macroeconomic and revenue forecasts in the budget should be strong. An independent body reviewing a fiscal strategy paper covering a medium-term macroeconomic framework, a fiscal management strategy, and a fiscal responsibility statement should raise public awareness by contributing to the public debate on the quality of fiscal measures and flagging deviations in the rules on an ex ante basis.
- Broad coverage of fiscal activities. Contingent liabilities and off-budget fiscal activities weaken the credibility of the fiscal framework to ensure fiscal sustainability. A credible framework needs to clearly cover the operations of public entities, to mitigate an incentive to shift fiscal activities from the central government budget and engage in explicit or implicit guarantees, including through public-private partnerships.
- Flexibility. The FRL should allow for a broad set of conditions to trigger the escape clause and with limited parliamentary oversight. An escape clause is important to avoid amplifying large shocks, but the procedure for its activation should require broad agreement in the Parliament to avoid abuse.
- Legally binding framework. Key aspects of the FRL should be sufficiently binding on the parliament. The FRL should be anchored in legislation, which is binding on ministers, accounting officers, public bodies, and government companies. However, the fiscal targets and the escape clause can typically be amended by a simple majority of parliament, which is the same majority that adopts appropriation acts and populates the Cabinet. To enhance the credibility of the fiscal framework, legal avenues need to be explored to make changes to these targets and the escape clause subject to more elaborate legislative procedures; this would also need to apply to the legal and fiscal consequences of incidental and prolonged deviations from these targets.

27

Building on strengthened PFM systems and well-designed FRL, a SWF could enhance the fiscal policy framework.<sup>14</sup> Given Lebanon's fiscal, institutional, and governance challenges, key considerations for the SWF design would include:

- Adequate framework. Although Lebanon's 2010 Offshore Petroleum Resources Law stipulates the establishment of a SWF to manage gas revenues, Article 3 states that the administrative framework, management rules, principles of investment and use of resources of the SWF will all be regulated in a separate (but yet to be issued) law. The SWF also requires internal and external audit mechanisms, a clear definition of roles and responsibilities of the different agencies involved, and a technical committee that overlooks the fund's performance and provides projections on the estimated government revenue over the extraction period. The fund should be subject to transparency and accountability rules, including reporting requirements to parliament and public disclosure of results. In Lebanon, the Court of Accounts is the only agency responsible for financial controls, though it is more involved in ex-ante rather than ex-post controls (IMF, 2005). In addition, the court's role in external audit is relatively limited and the institution faces resource constraints.
- Clear and comprehensive objectives. The 2010 Offshore Petroleum Resources Law defines the accumulation of savings for intergenerational equity as the main SWF objective, though it also refers to the need of smoothing the economic cycle (stabilization objective). The SWF could thus play a critical role in facilitating a counter-cyclical response to volatile resource revenues; however, this would require a legislative initiative to establish a stabilization portfolio in addition to a savings-oriented portfolio. The absence of a stabilization portfolio is likely to result in a costly drawdown of the savings portfolio following large price fluctuations. The SWF could also have a developmental objective to address Lebanon's serious infrastructure deficiencies. In this context, it might be optimal to front-load investment from resource wealth since under normal development conditions future generations are expected to have higher non-resource income than current generations. Yet another important use of the SWF could be to repay part of public debt.
- Consistency with macro-fiscal framework. A rule-based framework anchored on the NRPB could help achieve both savings and stabilization objectives. In this regard, the SWF should be regarded as a complementary tool to implement the framework. Specifically, the design of the SWF—including inflow and outflow rules—will depend on the specific fiscal anchor. The current design does not seem to be fully consistent with achieving these objectives. For instance, as mentioned above, a stabilization portfolio will be required to offset the impact of volatile resource revenues. The desired level of financial savings would also need to be considered in conjunction with the planned increase in public investment. This would affect the target level of the NRPB.

\_

<sup>&</sup>lt;sup>14</sup> For a detailed discussion of the design and implementation issues of SWFs see Das, Mazarei, and van der Horn (2010).

- Flexible inflow/outflow rules. The accumulation and withdrawal rules are not clearly defined, reflecting a lack of the SWF law and clarity about the fiscal anchor. Consistent with a rule-based fiscal framework, the SWF would receive budget surpluses in boom years, and allow for counter-cyclical stabilization when fiscal balances shift to a deficit. The framework could also include a "withdrawal brake" (expressed as a share of accumulated assets) to limit large outflows, which could stem from political pressure or upside shocks (for example, higher than projected petroleum prices). Similarly, the fiscal policy framework could be augmented with an expenditure growth rule to limit the possibility that trending resource prices lead to an unsustainable increase in public spending.
- Robust governance structure. Transparency and frequent reporting are critical to reduce risk of 'raiding' and rent-seeking. Governance should entail clear reporting lines and accountabilities, clear investment guidelines (asset allocation, scope for active management, and universe of permitted asset classes) to ensure that implementation is consistent with the government's risk tolerance and broader fiscal policy objectives. Linking staff compensation to external benchmarks may also help to avoid rent-seeking and strengthen transparency while allowing for recruitment of skilled investment professionals. Cash flows should also pass through the treasury single account to enhance transparency and facilitate cash management.

Establishing a fiscal council could further strengthen the fiscal policy framework by enhancing the quality of budget discussions and fostering greater transparency. Fiscal councils can exercise important supporting functions for fiscal policy. In commodity-producer countries, FCs could help chart a financially sustainable and inter-generationally equitable expenditure path. By limiting political manipulations of commodity price-cycles and estimated reserves of non-renewable resources, an FC can alleviate immediate spending pressures fueled by cyclical peaks in prices or overoptimistic assessments of medium-term revenue paths (IMF, 2013). More generally, an independent FC could have an important role in assessing the reliability of the macroeconomic and revenue assumptions underpinning the budget, and estimating the fiscal impact of proposed measures. In addition, forecasts produced by FCs can serve as a neutral baseline to assess the fiscal cost and macroeconomic impact of policy proposals. The remit of FCs in a few countries even allows for direct influence over the budget by specifying technical inputs, such as the macroeconomic and budgetary forecasts.

#### VI. CONCLUSIONS AND POLICY IMPLICATIONS

Lebanon will need to reformulate its fiscal framework to take into account potential revenue from natural resources. If natural resources prove to be commercially viable and sizeable, Lebanon will become a commodity-producing country. Under these circumstances, it is an absolute prerequisite for the design of a prospective framework to set a fiscal regime appropriately—as this is the first step to attract investors and ensure a sustainable and sound development of the resource sector. This step should be followed by setting macro-fiscal anchors and supporting institutions. From a macro-fiscal perspective, exhaustibility and price volatility of natural resources will gain special importance for fiscal policy formulation. Exhaustibility raises issues of sustainability and intergenerational equity and calls for

smoothing government consumption over time, ensuring balanced growth and avoiding the need for massive fiscal adjustment once resource wealth has been depleted. Price volatility complicates fiscal planning because it leads to revenue volatility and might require the adoption of certain fiscal rules to limit procyclicality. The relative importance of these objectives is likely to vary by country circumstances, such as the degree of resource dependence and the reserve horizon.

As current estimates put Lebanon's gas resources at relatively moderate levels, prudent policies should be implemented. An aggressive borrowing policy in anticipation of future resource revenues or excessive zeal to maintain government participation in all development projects could be counterproductive, given the uncertainty about the fiscal regime as well as the magnitude and temporal profile of the expected resource revenues. Even if these profiles of the revenues are in line with the assumptions behind the baseline or alternative scenario, the associated resource revenues are expected to be only moderate in size by international standards. This suggests that a very prudent approach to fiscal policy should be exercised when managing natural resources.

The broad design of the fiscal regime for the sector proposed in draft legislation (not yet approved by cabinet) seems to be appropriate. The regime is a combination of a modest royalty, profit-based production sharing, and CIT. Royalty will generate government revenue from the start of production; production sharing based on the R-factor is likely to achieve a higher government share from highly profitable projects, while providing a relief to investors in times of low prices or high costs; and the imposition of the standard CIT will ensure that the sector receives the same corporate tax treatment as other sectors of the economy. Moreover, the four regime options modeled here appear to generate a government take in line with that observed in other petroleum producing countries in the region and elsewhere. However, a more precise government take will only be known once bids are received and blocks awarded.

The prospective macro-fiscal anchor should initially be focused on ensuring fiscal sustainability and intergenerational equity. The preferred option would be to focus the framework on ensuring sustainability and intergenerational equity, with fiscal anchors preferably determined by the MPIH framework or the FS framework that both account for the scaling up of public investment. If substantially more resources are confirmed, the first option could be superseded by the second one that focuses the framework on managing volatility, with fiscal anchors determined by the price-based structural balance frameworks. Both the price-based structural balance and its modification to limit expenditure growth could be of relevance for Lebanon, given its susceptibility to procyclicality and weak institutional capacity.

Strong institutional arrangements need to underpin the prospective framework, with the pace of resource wealth use set in line with capacity constraints. Key components include:

• Substantial PFM reforms are absolutely essential in preparation for the more complex environment that would arise with the natural resource windfall. Specifically, reforms should include:(i) transparent and comprehensive presentation of petroleum revenue and non-resource fiscal position; (ii) budgets should focus on medium term, with

strong revenue forecasting framework in place; (iii) the coordination and selection of public investment projects needs to be strengthened; and (iv) adherence to the EITI initiative would be highly advisable.

- Adopting a fiscal responsibility law could strengthen fiscal discipline by anchoring fiscal decisions on a rule-based framework. Key elements of the design would include: (i) clear goals and instruments with a strong enforcement mechanism; (ii) monitoring and communication; (iii) broad coverage of fiscal activities; (iv) flexibility; and (v) legally binding framework.
- Establishing a SWF could enhance the framework. Key elements of the design would include: (i) adequate framework; (ii) clear objectives; (iii) consistency with macrofiscal framework; (iv) flexible inflow/outflow rules; and (v) robust governance structure. It is however important to emphasize that in the absence of a strategy for fiscal consolidation and debt reduction, discussions of SWFs would be misplaced; or in other words, it might be fruitless to accumulate assets in a SWF while the government continues to accumulate significant liabilities elsewhere.
- Establishing an independent fiscal council could further strengthen the framework by enhancing the quality of budget discussions and fostering greater transparency.

#### **BIBLIOGRAPHY**

- Barnett, Steven and Rolando Ossowski, 2003, "Operational Aspects of Fiscal Policy in Oil-Producing Countries," IMF Working Paper 02/177 (Washington: International Monetary Fund).
- Baunsgaard, Thomas, Mauricio Villafuerte, Marcos Poplawski-Ribeiro, and Christine Richmond, 2012, *Fiscal Frameworks for Natural Resource Intensive Developing Countries*, IMF Staff Discussion Note No. 12/04 (Washington: International Monetary Fund).
- Berg, Andrew, Rafael Portillo, Chu-Shun S. Yang, and Luis Felipe Zanna, 2012, "Public Investment in Resource Abundant Low-Income Countries" IMF Working Paper 12/274 (Washington: International Monetary Fund).
- Daniel, Philip, Brenton Goldsworthy, Wojciech Maliszewski, Diego Mesa Puyo, and Alistair Watson, 2010, "Evaluating Fiscal Regimes for Resource Projects: An Example from Oil Development," in *The Taxation of Petroleum and Minerals: Principles, Problems and Practice*, ed. by P. Daniel, M. Keen, and C. McPherson, (London: Routledge).
- David Jeffrey, Rolando Ossowski, and Annalisa Fedelino, 2003, *Fiscal Policy Formulation and Implementation in Oil-Producing Countries*, (Washington: International Monetary Fund).
- Das Udaibir, Adnan Mazarei, and Han van der Hoorn, 2010, *Economies of Sovereign Wealth, Issues for Policymakers*, (Washington: International Monetary Fund).
- Das Udaibir, Yinqui Lu, Christian Mulder and Amadou Sy, 2009, *Setting up a Sovereign Wealth: Some Policy and Operational Considerations*, (Washington: International Monetary Fund).
- Government of Lebanon, 2010, "Offshore Petroleum Resources Law."
- Government of Lebanon, 2010, "Policy Paper for the Electricity Sector."
- Gust Charleen and Daria Zakharova, 2012, Strenghtening Russia's Fiscal Frameowrk, IMF Working Paper 12/76 (Washington: International Monetary Fund).
- IMF, 2013a, "Anchoring Fiscal Policy in Oil-Exporting countries" (Washington: International Monetary Fund).
- ———, 2013b, "Revamping the Fiscal Framework in Azerbaijan" Country Report No. 13/165 (Washington: International Monetary Fund).
- ———, 2013c, "The Functions and Impact of Fiscal Councils." (Washington: International Monetary Fund).



- International Working Group of Sovereign Wealth, 2008, Sovereign Wealth's Generally Accepted Principles and Practices—Santiago Principles
- Le Borgne, Eric. and Paolo Medas, 2007, "Sovereign Wealth in the Pacific Island Countries: Macro-Fiscal Linkages", IMF Working Paper 07/297 (Washington: International Monetary Fund).
- Leigh, Daniel and Jan-Peter Olters, 2006, "Natural-Resource Depletion, Habit formation, and Sustainable Fiscal Policy: Lessons from Gabon" IMF Working Paper 06/193 (Washington: International Monetary Fund).
- Lienert, Ian, 2010, "Should Advanced Countries Adopt a Fiscal Responsibility Law?" IMF Working Paper 10/254 (Washington: International Monetary Fund).
- Medas, Paulo and Daria Zakharova, 2009, "A Primer on Fiscal Analysis in Oil-Producing Countries," IMF Working Paper 09/56 (Washington: International Monetary Fund).
- Segura-Ubiergo Alex, Marcos Poplawski-Ribeiro, and Christine Richmond, 2014, "Fiscal Challenges of the Natural Resource Boom," in *Mozambique Rising Building a New Tomorrow*, ed. by D. Ross (Washington: International Monetary Fund).

- Tabova, Alexandra and Carol Baker, 2012, "Non-oil Growth in the CFA Oil-Producing Countries: How Is It Different?" in *Oil Wealth in Central Africa Policy for Inclusive Growth*, ed. by B. Akitoby and S. Coorey (Washington: International Monetary Fund).
- Takizawa Hajime, Edward Gardner, and Kenichi Ueda, 2004, "Are Developing Countries Better Off Spending Their Oil Wealth Upfront?" IMF Working Paper 04/141 (Washington: International Monetary Fund).
- Van der Ploeg, Frederick, 2011, "Natural Resources: Curse or Blessing?" *Journal of Economic Literature*, Vol. 49, No. 2, pp. 366–420.
- World Bank, 2014, "Lebanon Economic Monitor: A Sluggish Economy in a Highly Volatile Environment", Spring 2014, (Washington: World Bank).
- World Bank, 2012, "Using Lebanon's Large Capital Inflows to Foster Sustainable Long-Term Growth" (Washington: World Bank).