INTERNATIONAL MONETARY FUND

LEBANON

Background Notes for the 2015 Article IV Consultation

DRAFT FOR COMMENTS

Prepared by the Lebanon team

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These notes cover a wide range of analytical and policy issues relevant for Lebanon. In addition to providing background information, they seek to offer a more rigorous basis for discussions with the authorities during the Article IV consultation. However, they are not meant to be a substitute for constructive exchanges of views during the mission. The notes will be finalized after the mission based on feedback and comments received, and will possibly accompany the forthcoming Staff Report.

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I. RECONCILING FISCAL ADJUSTMENT AND GROWTH: SOME POLICY OPTIONS

Restoring fiscal sustainability in Lebanon requires significant adjustment—inevitably implying a procyclical fiscal stance in the context of already weak demand. However, fiscal measures can be calibrated to mitigate the impact on growth, by shifting spending in favor of productive capital projects in a budget neutral way. As Lebanon’s tax effort remains low by peer standards, there is scope to fund increased spending with additional revenue while pursuing adjustment. This note seeks to covers these issues in an illustrative way to help frame the forthcoming policy discussions in the context of the Article IV mission.

A. Measuring the fiscal stance

Relying solely on headline fiscal balances to assess fiscal policy can be misleading. The headline balance may give an impression of expansionary or contractionary policy actions, even though the latter may be driven by cyclical and transitory factors. To account for these factors, cyclical and other adjustments are applied so that the “underlying” fiscal stance can be assessed (Box 1).

Box 1. Cyclically Adjusted Balances and Structural Balances

It is important for the analysis and design of fiscal policy to rely on indicators that account for cyclical and transitory factors. While a headline balance should always be an important starting point for the analysis of fiscal policy, it may be driven by cyclical and transitory factors that distort the picture. The “underlying” fiscal stance that accounts for these factors can be assessed by the cyclically-adjusted balance (CAB) and the structural balance (SB).

The CAB is obtained by removing the cyclical component of the budget from the headline fiscal balance. The cyclical component depends on two factors: (i) the size of the output gap; and (ii) the output elasticity of the budget, which is determined by the extent to which individual budgetary items react to fluctuations in output, as well as by the size of the budget. Drawing on literature, the elasticity for revenue is calibrated to one, while for expenditure to zero. The key challenge for countries like Lebanon is associated with uncertainty surrounding output gap estimates.

The SB augments the CAB by adjusting for a broader range of factors. Assessing only the effect of the output gap on fiscal variables may not capture other transitory factors and could therefore lead to an inaccurate assessment of the fiscal stance, and/or fiscal sustainability. In such cases, the structural balance provides a more accurate characterization of fiscal policy than the cyclically adjusted balance. For Lebanon, one important factor for which the CAB should be adjusted is non-tax revenue associated with telecom transfers that have a significant impact and may be considered temporary (and in any case do not represent a “genuine” measure of fiscal effort since they accrue to the budget in a somewhat uncertain manner).

1 Prepared by Mariusz Jarmuzek (FAD).
Lebanon’s fiscal stance in recent years has shifted, driven mainly by discretionary items. The measure of the fiscal stance is based on the changes in the structural primary balance, which accounts for movements in Lebanon’s business cycle and excludes one-off factors related to non-tax revenue (most notably, transfers from the telecom company).\(^2\) Based on these estimates, there have been two distinct periods over the last decade:

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\(^2\) These transfers are sizeable. They have averaged around 4 percent of GDP over 2005-2013 giving rise of a substantial difference between the structural primary balance and the headline primary balance.
During 2004–11, fiscal policy was largely countercyclical. The fiscal policy stance was first expansionary through 2006–07, when demand was weak and the output gap was widening. This may have been the appropriate response in an environment of low growth, but it resulted in a large accumulation of public debt, which peaked at 185 percent of GDP in 2006. As demand normalized and the output gap started to narrow, the fiscal stance turned contractionary during 2007–11. Overall, the fiscal impulse—measured as the change in the structural balance—was negatively correlated with the output gap, with a correlation coefficient of around 0.6.

In 2012–14, fiscal policy turned pro-cyclical, with a mildly contractionary stance in 2014. Changes in the fiscal stance have been predominantly driven by discretionary measures, as automatic stabilizers play a very limited role in Lebanon, given limited unemployment and other income-related benefits.

B. Growth-friendly fiscal adjustment—An example

Given Lebanon’s fiscal sustainability concerns, there is a strong case for further fiscal tightening. With public debt at 134 percent of GDP at end-2014 and rising, and with an underlying structural primary balance that remains in deficit, ensuring fiscal sustainability will require an improvement in the structural balance. Such a policy will have adverse consequences for growth, and given the current output gap, will almost certainly be procyclical. But investor confidence is critical for Lebanon’s economic model, so sustainability considerations dominate, especially in the context of ongoing uncertainty regarding the Syrian conflict.

The extent of tightening, however, can be calibrated to mitigate the impact on growth. An appropriate fiscal consolidation strategy should take into account different fiscal multipliers associated with various policy options, to help assess their impact on economic growth—which in turn will determine the timing and pace of any turnaround in Lebanon’s public debt dynamics (Box 2). Our preliminary Debt Sustainability Analysis (to be refined and shared during the Article IV mission) points to the need for a primary adjustment that delivers a primary position exceeding 2.6 percent of GDP (the debt stabilizing primary balance). The analysis below is illustrative and reflects a partial-
equilibrium approach, as we do not factor in potential feedback into improved confidence (and growth) from the various adjustment options considered.

**Box 2. Fiscal multipliers**

Fiscal multipliers are key inputs for the assessment and design of fiscal policy. They are typically defined as the ratio of a change in output to an exogenous change in the fiscal balance with respect to their respective baselines. They make macroeconomic projections more transparent, reduce forecasting errors, and ensure that projections rely on specific and consistent assumptions. Underestimating multipliers may lead countries to set unachievable fiscal targets, and miscalculate the amount of adjustment necessary to curb their debt ratio (Eyraud and Weber, 2012, 2013), which could have adverse impact on the credibility of fiscal consolidation programs (Eyraud and others, 2014).

Estimating multipliers for countries like Lebanon remains however a challenge. Econometric and model-based methods are demanding in terms of data requirements, requiring typically high-frequency data and sufficiently long time series, which are rarely available for most emerging market economies. For countries where no reliable estimates are available, the general idea is to bunch countries into groups that are likely to have similar multiplier values based on their characteristics. Estimates of multipliers for Lebanon are calibrated drawing on the work by Cerisola and others (2015) for MENA oil importer countries.

We consider two illustrative scenarios. In this exercise, we are targeting a primary balance close to 5 percent of GDP by 2020, which, based on current projections, would bring the debt down to 126 percent of GDP by 2020 (see text table).

- Scenario (a) is based on the adjustment measures that encompass revenue and expenditure. Revenue measures include: (i) an increase in the VAT rate (from 10 to 11 percent) accompanied by broadening the base and enhancing compliance (ii) an increase in the corporate income tax rate (from 15 to 17 percent); (iii) introduction of a capital gains tax on real estate; (iv) an increase in the rate on interest income tax (from 5 to 7 percent); (v) an increase in tobacco and gasoline excises; (vi) and new stamp duties and fees. Expenditure measures are centred around reducing transfers to EDL.
Scenario (b) differs from scenario (a) in that capital expenditure (capex) is increased by around 1 percent of GDP, and is funded in a budget neutral way by additional increases in the VAT revenue (see next section). Given that capex multipliers tend to be significantly higher than current-expenditure and tax multipliers, the drag on GDP can be minimized with an adjustment mix that includes an increase in tax revenue and a modest increase in capital expenditure. The basic intuition is that a fiscal package including higher capex is more growth friendly than a package without it—especially if funded through additional revenue measures in a budget neutral way.

The rest of this note looks at the scope to increase revenue collection in Lebanon.

**C. Is there scope to increase revenue?**

**Tax revenue performance is slightly lower in Lebanon compared to most MCD countries.** Tax collection in Lebanon is around 15 percent of GDP—2 percentage points lower than the regional average. However, Lebanon’s debt burden is significantly higher—around 90 percent points above the average for Middle East and Central Asia (MCD) countries.

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3 We estimate that each additional one percentage point VAT rate increase would yield ½ percent of GDP. However, increases in VAT revenue could be generated by broadening of the tax base and strengthening of compliance (see next section).
**Tax capacity and effort**

**There is significant scope to increase tax revenues, given Lebanon’s relatively low tax effort and significant consolidation needs.** The simple comparison of revenue collection as percent of GDP above, however, says little about Lebanon’s potential revenue collection: countries differ with respect to their economic, social, institutional, and demographic characteristics, all of which shape their capacity to raise taxes. Drawing on estimates of tax effort by Fenochietto and Pessino (2013), Lebanon’s performance is poor by regional and international standards—Lebanon’s tax effort is only 50 percent; i.e., at maximum effort, the country might be able to double tax revenues to around 30 percent of GDP. In context, the average tax effort for similar MCD countries is around 60 percent, and the world average is about 70 percent. It should be noted that having a low tax effort does not automatically mean that Lebanon is inefficient in collecting taxes. It simply suggests that Lebanon can potentially increase its tax ratio.

**Increasing tax rates, broadening tax bases and strengthening compliance are the main way to increase Lebanon’s tax effort.** A cursory analysis of main tax rates—for VAT, personal and corporate income taxes—would suggest some scope to increase rates. The authorities have long resisted Fund advice to increase the VAT rate, due mainly to political constraints. Broadening the base and strengthening compliance might therefore be more promising—though a complete analysis of tax capacity is beyond the scope of this note.\(^5\)

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\(^4\) Tax effort here is defined as the ratio of a country’s actual tax revenue to its maximum tax capacity.

\(^5\) FAD is currently providing TA on tax gap analysis, focusing on the VAT. We will reflect the main findings and recommendations in our future policy advice.
LEBANON

Broadening the VAT tax base

Lebanon’s VAT departs from the typical exemption model in three important ways. It provides for refunds of VAT paid on inputs by persons who make exempt supplies (Article 59); it allows for refunds for non-registered persons; and it provides for exemptions of inputs used in a number of specified economic sectors. In effect, the Lebanese VAT removes some consumption entirely from the tax net, through a complex mix of input exemptions, end-user exemptions and refunds that all combine to act as zero rating. Zero-rating is generally not recommended in countries with weak tax administrations as it puts revenue at risk, encourages disputes over classification of transactions, and increases incentives for fraud.

The potential revenue foregone from this system should be a priority in reforming the VAT. In addition to re-instituting the VAT on gasoline products (Background Note on Fuel Prices), base broadening options could include: 6

Short-term measures

- Article 59 could be abrogated. Based on 2009 figures, this would eliminate some 0.1 percent of GDP in refunds. This would also cut the number of refund claims that need to be processed, with a significant impact on revenue administration.7

- All refund claims could in principle be restricted to registered persons. In the vast majority of VAT systems around the world, all supplies by non-registered persons are exempt (so they charge no VAT) but their inputs are subject to VAT without any recovery (see discussion of threshold below). This measure would eliminate, for example, the VAT tourist refund and refunds to diplomats and international organizations—with possible little impact as tourism expenditures tend to be income elastic, although it would be important to ensure that any action is consistent with existing tax exemptions that may be conferred on such persons (e.g. diplomats) under other legal instruments.

- Commissions and fee-based financial services could be taxed. Financial intermediation services (remunerated by margins) present formidable challenges for the application of VAT, as the value of the intermediation service is buried in the margin. In contrast, there are no good policy reasons not to subject all commissions and service fees to VAT, given that the services provided and associated payments are clearly identifiable. In fact, the exemption of such services penalizes small businesses—as opposed to banks—that offer private investment advisory and wealth management services, and artificially encourages integration of such services within banks.

- Inputs could be taxable, especially in cases where they are currently exempt and end-user exemptions are provided for those goods or services produced with such exempt inputs.

6 Drawing on FAD Technical Assistance provided in 2010.

7 There were 5,257 refund claims filed in 2009, 1,681 of which were from exempt sectors.
Good candidates would include: agricultural inputs; health sector inputs; and printing sector inputs (as opposed to consumer goods). This policy would raise revenue from sectors that are lightly taxed currently, while improving neutrality across sectors. This is also an effective way to tax the informal sector. The potential disadvantages to domestic production of any increased cost of inputs would however need to be considered, with an alternative way of addressing this issue through removing the exemption in relation to the final supply.

- Selected final goods and services could be taxed, especially when the distributional consequences appear minimal (or positive). Good candidates include: books and magazines; and domestic transportation of individuals and goods.

**Medium-term measures**

- The scope of real property transactions included in the VAT could be broadened. Much of the activity in the real property sector is subject to end-user exemptions. All sales of built properties are exempt, and so is residential letting of built properties. There are also restrictions on VAT credits on construction supplies used by builders.

- (Non-life) insurance transactions could be included, for example all purchases of property and casualty insurance and reinsurance, as long as transactions involving policies on life or savings components remain exempt (consistent with the exemption of financial intermediation services that are margin-based). Applying VAT to non-life insurance transactions is however slightly more complicated than applying VAT to fee-based financial service; in the event a claim occurs, an adjustment must be made to the net VAT due by policyholders. The mechanics of those adjustments are themselves complex. While policy holders (if they registered persons) may need to make an increasing adjustment upon receiving payouts (i.e. pay output tax), the insurer itself may be required to make a decreasing adjustment (i.e. be entitled to input tax credits). Simply applying VAT to premiums would result in over-taxation.

**D. Conclusions**

This note provides an initial—though necessarily incomplete—analysis of policy options for future fiscal adjustment. Lebanon’s debt level is alarming, and there is a need to implement fiscal adjustment that will bring it back onto a more sustainable path. This requires a significant correction in the primary position, which will have adverse implications on growth at a time when the economy is already suffering from significant weaknesses.

Thus, future adjustment will likely be procyclical—further exacerbating weak growth. In this note we explore the possibility that, by shifting Lebanon’s spending mix to increase public investment in a budget neutral manner, the authorities might be able to minimize the impact on growth. Such a spending shift will require new revenues. By international standards, Lebanon has ample scope to increase tax revenue, and reforms to the complex VAT regime offer one of the most promising avenues going forward.
References


II. A CLOSER LOOK AT DOMESTIC FUEL PRICES

[Incomplete draft]

Domestic fuel prices, especially for gasoline, have followed closely international oil prices in recent years. However, the government in the past has often reduced its revenue take in the face of large price increases, even resorting at times to direct price subsidies. The recent decline in international oil prices provides an opportunity to restore foregone revenue, not only in light of pressing fiscal consolidation needs, but also reflecting tax efficiency considerations. At a minimum, gasoline excises should be increased, and the VAT on diesel products—exempted since 2012—should be re-instated.

A. Motivation

Lebanon is heavily dependent on oil.
Total imports of oil and related products amounted to some $4.7 billion in 2014 (about one quarter of total imports and close to 10 percent of GDP).8

Domestic fuel prices generally follow international prices. Among comparators in the MENA region, the pass-through from the recent drop in oil prices has been most striking in Lebanon, with a decline of about 30 percent in the last quarter of 2014 compared to that of 2013. Such decline has further widened the gap between fuel prices in Lebanon and prices in oil-importing regional peers, putting Lebanon at the lowest end of the price range (less than half of gasoline prices in Tunisia and some 35 percent below those in Jordan).

Regional Retail Fuel Prices (USD per liter)

Sources: IMF Staff Calculations

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1 Prepared by Najla Nakhle (MCD), with contributions from Saad Alshahrani.

8 Oil imports recorded at customs are largely for transportation (gasoline for cars and diesel for buses—called green mazout), and diesel for heating and some electricity generation (red mazout). Only part of Electricité du Liban (EdL) imports are registered at customs and included under red mazout imports.
In the past, however, the government has frequently intervened to influence domestic oil prices. Price caps and tax exemptions have often been applied to prevent increases that were perceived to be socially unacceptable. The government’s revenue take has been the shock absorber, resulting in significant revenue losses over time.

This note focuses on fuel prices at the pump, particularly for gasoline and diesel. It seeks to trace the pass-through of international oil prices into domestic prices and highlights key elements of the government’s pricing policy. It also looks at the level of fuel taxation from an efficiency standpoint, to reflect the cost of externalities associated with fuel use (such as environmental damage, congestion, and traffic accidents). Some policy recommendations conclude.

B. Pricing mechanism

Domestic fuel prices generally follow international Brent prices. Over the past decade, the key divergences were in 2004–09, when domestic prices were capped; and shortly in early 2011, when domestic prices declined significantly (see below). However, the government has refrained from providing direct subsidies. For example, during November 2007–October 2008 as international prices started to soar, the government refrained from subsidizing gasoline prices and eventually lifted the cap (excises had already been reduced but were not allowed to turn negative).

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Weekly Schedule of the Retail Fuel Prices
(Week of January 27, 2015, in LL per kiloliter)

<table>
<thead>
<tr>
<th></th>
<th>Low Octane</th>
<th>High Octane</th>
<th>Diesel</th>
</tr>
</thead>
<tbody>
<tr>
<td>Import price of fuel</td>
<td>620,000</td>
<td>587,000</td>
<td>630,000</td>
</tr>
<tr>
<td>Excises</td>
<td>247,500</td>
<td>253,000</td>
<td>0</td>
</tr>
<tr>
<td>Share to distributors</td>
<td>15,000</td>
<td>15,000</td>
<td>7,000</td>
</tr>
<tr>
<td>Transportation costs</td>
<td>18,000</td>
<td>18,000</td>
<td>18,000</td>
</tr>
<tr>
<td>Gas stations’ commission</td>
<td>95,000</td>
<td>95,000</td>
<td>35,000</td>
</tr>
<tr>
<td>Total cost (excluding VAT)</td>
<td>995,500</td>
<td>968,000</td>
<td>690,000</td>
</tr>
<tr>
<td>VAT</td>
<td>99,550</td>
<td>96,800</td>
<td>0</td>
</tr>
<tr>
<td>Total price</td>
<td>1,095,050</td>
<td>1,064,800</td>
<td>690,000</td>
</tr>
<tr>
<td>Sale price per 20 liters</td>
<td>21,901</td>
<td>21,296</td>
<td>13,800</td>
</tr>
</tbody>
</table>

Memorandum items:

- Pump price per liter, in $: 0.73, 0.71, 0.46
- Import price per liter, in $: 0.41, 0.39, 0.42

Sources: Ministry of Energy and Water; and IMF staff calculations.
The retail price at the pump is determined weekly by the Minister of Energy. The price schedule takes into account the (variable) import cost of the fuel, some fixed components (the share for the distribution companies, the cost of transportation, and the commission of the gas station owners) and some taxes (excises and VAT—the latter imposed on the total value). All these elements determine the selling price (typically measured in terms of a 20 liter tank).

The government’s take—excises and VAT—is typically the shock absorber to offset large swings in international prices. The only variable that changes weekly is the import price. All other components are decided at the Minister of Finance’s discretion, based on internal studies and negotiations with the different stakeholders (Box 1), or by the council of ministers—particularly with respect to excises and VAT.

**Box 1. Political Economy of Domestic Fuel Prices: Key Episodes**

Many influential stakeholders play a role in the determination of fuel prices at the pump in Lebanon, and over time have exercised pressures for intervention.

- With the drop in prices in December 2014, the General Assembly of the Association of Petroleum Importing Companies met with the Minister of Energy to discuss measures that could help the importers avoid potential losses. Similarly, the transportation sector union met with the Minister of Public Works and Transportation to prevent possible proposals for decreasing public transportation fees.

- Back in March 2013, gas station owners were able to enforce an additional LL 700 per 20 liters of fuel and 300 LL per 20 liters of diesel attributing the increase to the rise in oil prices—though their commissions are based on quantities and not on prices.

- In late 2011, the Ministry of Finance—under pressure to remove what remained from the excise tax on gasoline—eventually decided to subsidize gasoline for taxi drivers. The subsidy was set at the value of 12.5 liters of gasoline or LL1,248,000 per taxi number plate for three months. More than 30,000 numbers benefited from the subsidy, for a total of LL41 billion in 2011 and LL8 billion in 2012. While the total cost was limited (less than 0.1 percent of GDP over the period), this episode is indicative of vested interests.
C. Taxation developments (and revenue losses)

Excises on gasoline products have been changed frequently over the last decade.

- Following the decision to cap gasoline prices in mid-2004, excises were frequently changed, until they reached close to zero in 2006. With the restoration of full pass-through of international prices in January 2009, the excises were fixed at an average of LL 9,520/20 liters (chart).

- In response to an increase in international prices over 2008–11, excises were again reduced in May 2011, by LL 5,000/20 liters, almost half their previous level. The government was under pressure to completely repeal the excise; but to avoid the large costs of such measure, it decided instead to introduce subsidies for taxi drivers (Box 1).

- In January 2015, the government increased the excise by an average of LL500/20 liters, in response to the large drop in oil prices over the prior 6 months. Despite a very modest increase, the measure was widely criticized by the public. The minister of finance announced that such step did not imply a reinstatement of the excises of 2011; and could be easily reverted whenever oil prices increase.9

Diesel is not subject to excises and has often been subsidized.

- The “winter subsidy” for diesel was first granted in November 2004 to cap prices and provide cheaper heating oil to the public.10 The price ceiling was maintained during the winter of 2005; the subsidy was initially fixed at LL2,720/20 liters, to be discontinued when prices reached a certain threshold; prices have fluctuated significantly since then.

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9 The 2011 reduction in excise was based on a council of ministers’ decision, thus its reversal would also require consent from cabinet. Decisions by a minister are not subject to such requirement.

10 The subsidy was granted for both red and green diesel in the winters of 2004, 2005, and 2006 and only for the former in 2007, 2008, 2010, and 2012, given its use for heating. In 2009 and 2011 the green diesel subsidy was suspended, as reportedly petroleum stations had stocked large quantities of subsidized diesel during the winter months to be sold at higher prices once the winter was over.
- VAT was exempted for both red and green diesel in March 2012; allowing the authorities to eliminate the winter subsidy and establish a more regular process. This measure was justified as a more efficient mechanism than the previous subsidy system.

**Overall, the revenue losses associated with fuel pricing policies have been substantial.**

- For gasoline, the loss from the price cap was estimated at LL 165 billion in 2004 (about ½ percent of GDP) and LL450 billion in 2005 (about 1.4 percent of GDP). The 2011 decision to decrease the excises led to a revenue loss of LL 498 billion that year (some 0.8 percent of GDP, MoF, 2011). These will only be minimally offset by the recent increase in the excises, expected to generate at most of LL50 billion (some 0.06 percent of GDP).

- For diesel, the revenue losses from the VAT exemption are estimated at LL 295 billion in 2012, or some 0.4 percent of GDP (MoF, 2012). The cumulative cost of the winter subsidy implemented in 2004-05 is estimated at ½ percent of GDP.

**D. Are taxes the best tool to calibrate prices? [to be completed]**

An automatic pricing formula could help smooth out sharp variations in retail prices. A number of countries have adopted moving average mechanisms to smooth the sharp increase in retail prices in the short term (to make current prices accepted socially) and delay the full pass-through of large price volatility to domestic fuel prices. This approach bases retail price adjustments on changes in the average of past import costs. For example, at the start of the month the retail price under the formula is calculated using an average of past import cost (could be the average of import costs for the last three months). Retail prices are then allowed to fully adjust to the smoothed formula import price. Using longer averaging periods will tend to reduce the magnitude of price changes.

**E. Distributional impact**

The government’s fuel price policies have adverse distributional impact. While government’s interventions have been justified by the absence of an adequately targeted transfer framework in Lebanon and the lack of adequate social safety nets, the outcome has nonetheless been unfair.  

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11 UNDP MoF (2006). The loss is calculated based on the potential revenue in case the government had maintained the pre-cap excise level, assuming constant import quantities.

12 For an overview of Lebanon’s social safety nets, see El Ganainy and Nakhle (2012).
The bottom quintile of the population receives only 6 percent of the transport subsidy while the richest quintile receives 55 percent (UNDP, 2015). Earlier studies suggest that uncapping fuel prices would mostly affect medium-income categories, rather than the poorer portions of the population (UNDP, 2006).

Overall, the government’s fuel pricing policies have been inequitable. This is not unique to Lebanon. Studies find that on average, the richest one-fifth of the population receive over six times more in fuel subsidies than the poorest one-fifth. [add source]

F. Toward efficient taxation of fuel products [to be completed]

Fuel prices should not only reflect (and cover) costs of supply but also of externalities. Fuel consumption creates environmental damage, in the form of greenhouse gas emissions (globally), and local pollution, traffic congestion and accidents (domestically). Setting fuel prices below their efficient level thus encourages over-consumption (and discourages investment in the sector), further compounding the negative impact of fuel use externalities (Parry et al., 2014).

Expanding taxes on fuel products could lead to improved public health, lower environmental costs, and more efficient fuel use. In setting the optimal level of fuel tax/subsidy, consideration should be given to the complete set of social externalities associated with fuel use; including local air pollution, traffic congestion, traffic accidents, and roadway wear and tear. In this context, although the chief goal from an efficiency perspective is to align private and social costs, rather than raise revenue, corrective taxes would also serve as a much needed source of funding.

From an efficiency standpoint, there is ample scope to increase fuel taxation in Lebanon. We look at the externalities from consuming Lebanon’s key transport fuels (gasoline and diesel), leaving aside other fuel products. Current retail prices do not reflect environmental and health costs from fuel usage.14

Preliminary calculations show that fuel taxes should be increased. Applying an optimal-pricing tool prepared by the Fiscal Affairs Department to compute the post-tax subsidy for Lebanon,15 the main results are as follows:

- Gasoline retail prices are not subsidized (pre-tax subsidy) when compared to world prices; however, diesel prices are subsidized (we focus here on diesel for transportation).

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13 The transport subsidy is calculated as the forgone revenues from lowering excises on gasoline and exempting VAT on diesel.
14 In this discussion, the adverse effect of green house emissions on global warming is not factored in, largely due to lack of data for Lebanon.
The cost of externalities associated with transport-related fuel products is estimated at $1.23 per liter for gasoline and $0.94 for diesel.

VAT is not levied on diesel. If it were to be applied to the price inclusive of externality costs, it would yield an additional $0.16 per liter.

Overall, the efficient price of gasoline and diesel is around three times the current retail level.

While setting fuel prices at their efficient level would be politically difficult (if not unacceptable), the exercise suggests that restoring past taxes would be a step in the right direction.

G. Conclusions

Lebanon’s pricing mechanism for retail fuel products is relatively flexible. Among peers in the region, Lebanon is the country with the largest pass-through of lower global oil prices—and as a result, the country with the lowest level of fuel prices among regional oil importers.

Taxes are not the appropriate tool to smoothen price changes. The government has in the past often adjusted the taxation of fuel products to soften the impact of global price volatility on local prices, which has resulted in a significant loss of revenue. Most importantly, reduction of taxes or exemptions at the time of rising oil prices prove difficult to unwind when global prices decline, as is currently the case. For these reasons, it would be advisable to avoid tinkering with the taxation regime and seek to mitigate the impact of changes in oil prices by adopting a price formula.

A moving-average pricing formula would help alleviate pressures on taxes in the presence of large oil prices variations. Adopting this formula will help ensure full pass-through of changes in international fuel prices to domestic retail prices while protecting fuel tax revenues.

In addition to the need to raise revenue, efficiency considerations suggest ample scope to raise fuel taxation. At a minimum, the level of excises on gasoline should be increased and the VAT on diesel should be re-instated. Introducing some of these individual taxes may be difficult politically, but they could be framed as part of a broader set of measures required to support a more growth-friendly and equitable adjustment package (see Background Note on Fiscal Adjustment and Growth).
References


Jarmuzek, Mariusz and Najla Nakhle, 2015 “Challenges to Lebanon’s pension system” (Washington: International Monetary Fund), forthcoming.


III. **LEBANON’S PENSION SYSTEM: SOME UNPLEASANT (AND UNFAIR) ARITHMETIC**¹

Reform of Lebanon’s pension system, both public and private, is macro-critical. The country already faces fiscal sustainability risks, which will be compounded in the future by significantly higher pension-related spending and liabilities, mainly reflecting adverse demographics. In addition to sustainability issues, the pension system also suffers from equity shortcomings. Costs mount with every year of delay, so action is required soon to address these challenges.

A. **Introduction**

Lebanon’s pension system should be redesigned to help address fiscal sustainability and equity challenges. With public debt exceeding [135] percent of GDP, risks to fiscal sustainability are already elevated, and the added effect of an aging population will further compromise sustainability (IMF, 2011). Moreover, a planned salary-scale adjustment for public sector employees would only exacerbate these challenges, through its impact on the wage bill as well as pension obligations. Finally, Lebanon’s social safety net for the elderly is inadequate by regional and international standards (Rached, 2012).

Numerous proposals to reform the pension system have been generally unsuccessful so far. And the pension scheme has remained largely unchanged since its introduction in the 1960s.

This note looks at projected pension obligations and the potential impact of (previous) reform proposals. The aim is to assess the sustainability and equity challenges associated with the current system; and building on previous reform proposals, to discuss policy options.

B. **The current system**

Lebanon’s pension system is based on separate schemes for public- and private-sector employees. The public sector schemes cover civil service and military personnel, while the private sector scheme only covers private sector and contractual government employees.

Public sector schemes

Public-sector employees and military personnel have traditional defined-benefit schemes. Established in the early 1960s, they both grant an assured pension income, based on a pay-as-you-go system (Appendix Table 1).²

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¹ Prepared by Mariusz Jarmuzek (FAD) and Najla Nakhle (MCD). The authors would like to thank Mauricio Soto of FAD’s Expenditure Policy Division for providing the framework for the analysis and advice on the project.
Both schemes are generous. The effective replacement rate is extremely high and often close to 100 percent. The system does not enforce a minimum retirement age, so that the accrual rate is high with respect to the retirement age and the contribution rate. In addition, the schemes are distorted by ad hoc and costly additional benefits—such as an extra lump-sum payment for retirees who complete 40 years of service, and the crediting of additional years of service for the military. Moreover, variations in pension payments are high as they are based only on the last salary level earned, which are sensitive to career paths and wage histories. Finally, the pension payments are indexed to changes in public sector salaries, making the system vulnerable to large salary adjustments.

Benefits are particularly generous to surviving heirs of retirees. Surviving wives and heirs of retirees retain the full pension of the deceased employee. Unmarried, divorced and widowed daughters of retirees keep the pension benefits for life. Taking these extended beneficiaries into account, calculations that account for life expectancy for men and women, standard age difference between husbands and wives, and daughters’ claims on pensions show that pensions are drawn for an average of 30 years after a particular public servant’s retirement—compared to an average lifetime career of 40 years (Daher, 2012).

Private sector scheme

Private sector employees rely on a defined-contribution scheme. The scheme is administered by the National Social Security Fund (NSSF), an independent institution established in 1963 under the Ministry of Labor. An end-of-service-indemnity (EOSI) offers a lump-sum cash benefit upon retirement—equivalent to the accumulated contributions associated with past employers, and one month of earnings for each year of service with final employer (up to 20 years, with half a month for each year in excess of 20 years, for those aged more than 60, Appendix Table 2)).

Benefits are very limited. As all benefits are terminated with a single lump-sum payment upon retirement, employees lose all benefits post-retirement—when they need them the most. There are no further pension or health coverage benefits after retirement. Furthermore, NSSF coverage is provided only to private-sector and contractual government employees, leaving out the elderly.

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2 The pension scheme for public servants follows the 1959 Public Servants System Legislative Decrees; that of the military follows a 1961 legislative decree.

2 The replacement rate is 85 percent, pensions are tax exempt, and public sector retirees do not contribute to the pension scheme.

3 The accrual rate, normally a function of retirement age, life expectancy at retirement, and the contribution rate, is the percentage of the income that the worker receives for each year of contribution.

4 The NSSF was supposed to include an optional contributory and subsidized scheme for the elderly—not activated to date—requiring a contribution of 6 percent of the minimum monthly wage by each subscriber.
Basic features

While Lebanon’s pension spending has been stable in GDP terms, this masks significant increases in nominal spending and in the number of beneficiaries. Between 2004 and 2013, pensions remained at around 3 percent of GDP—2.5 and 0.5 percent of GDP for public and private schemes, respectively. But nominal expenditure increased by more than 120 percent over the same period. This can be partially attributed to a 50-percent increase in the number of beneficiaries, stemming from a significant increase in military personnel retirement that was only partially offset by a decline in civil-service retirement.

C. Sustainability and equity

Lebanon’s key challenge is to ensure the pension system’s sustainability while providing adequate retirement income.

Underlying Demographic Trends

Significant demographic challenges are looming on the horizon for Lebanon.

- **Life expectancy.** Lebanon has the highest life expectancy in the MENA region, around [80] years as of [2012], which is projected to increase by more than [6] years by 2050.
• **Fertility.** At the same time, Lebanon has the lowest fertility rate in the MENA region. While the fertility rate is around [1.5] children per female as of [2012], the average for the MENA region is [2.7]. Going forward, Lebanese fertility is expected to develop broadly in line with the MENA region.

• **Dependency ratio.** The dependency ratio is defined as the population 65 and older, relative to the working age population. With greater life expectancy and lower fertility, the ratio is projected to reach around [30] percent for Lebanon by 2050. This would be the highest in the MENA region, for which the average is around [20] percent.

**Sustainability**

**Public sector schemes**

The projected path of public pension expenditure is explosive. With the above demographic trends, expenditure would increase from around [3] percent of GDP in 2014 to [5.5] percent in 2030, and accelerate significantly after that, reaching around [10] percent of GDP in 2050. This is high by international standards, where the average projected increase for emerging market countries is estimated at [8] percent of GDP. The cumulative cost of this projected increase is substantial, as illustrated by the present discounted value (PDV) of increased spending over 2014–2050, estimated at more than [90] percent of 2015 GDP. This is again high by emerging market standards, for which the projected increase in PDV is estimated at around [25] percent of 2015 GDP (Table 1).
Assuming no reform, projected pension spending will undermine fiscal sustainability. The projected increase of [7] percentage points of GDP in nominal terms and of [93] percentage points in PDV terms by 2050 pose significant challenges to fiscal policy. In particular, the projected increase in PDV terms essentially implies taking on (and financing) [93] percent of additional debt, on top of an already very high debt burden. The accrued pension liability—estimated at close to [120] percent of GDP in 2050—also suggests significant economic risks.

Private sector scheme

While the projected pension expenditure for the private scheme increases in line with that for the public sector, the magnitude is much smaller. Under the same demographic dynamics, spending increases from [0.5] percent of GDP in 2014 to around [1] percent in 2030, accelerating significantly to [1.7] percent of GDP in 2050. Estimates of the projected increase in PDV terms confirm the relatively small impact on expenditure over the long term.

In contrast to the public schemes, the private-sector increase does not threaten fiscal sustainability. The projected increase of more than [1] percentage points of GDP in nominal terms and of around [15] percentage points of GDP in PDV terms by 2050 could be offset by fiscal adjustment and/or running down NSSF reserves. But, if revenues were held steady as a share of GDP, and spending increased in line with demographic trends, the overall NSSF balance would be reduced to almost zero by 2050. In addition, the lack of a transparent link between subscriber benefits and contributions could give rise to additional liabilities, equivalent to [30–50] percent of employees’ entitlement. Though these are not covered by the NSSF and would be the obligation of the final employer, they are nonetheless a contingent liability as the latter might not be able to pay.
Equity

**Coverage is limited.** While broadly in line with the MENA average—when measured as the share of members relative to the labor force or working age population—coverage for both public and private schemes is somewhat low by international standards. At the same time, these indicators do not completely capture the nature of Lebanon’s private-sector pension system, which provides only a lump-sum and not a pension per se. As a result, focusing on beneficiary coverage indicators results in low coverage by MENA standards. Specifically, both old-age beneficiaries and total beneficiaries are well below the MENA average, as a fraction of total population. This is on top of a social safety net that in Lebanon is limited by regional standards.

**Table 3. Simulation of Sustainability of Private Sector Scheme**

<table>
<thead>
<tr>
<th>End of service indemnity</th>
<th>2015</th>
<th>2020</th>
<th>2025</th>
<th>2030</th>
<th>2050</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revenue</td>
<td>1.9</td>
<td>1.9</td>
<td>1.9</td>
<td>1.9</td>
<td>1.9</td>
</tr>
<tr>
<td>Expenditure</td>
<td>0.5</td>
<td>0.6</td>
<td>0.8</td>
<td>0.9</td>
<td>1.7</td>
</tr>
<tr>
<td>Overall balance</td>
<td>1.4</td>
<td>1.3</td>
<td>1.1</td>
<td>1.0</td>
<td>0.2</td>
</tr>
</tbody>
</table>

**Active Coverage**
(Number of members/labor force)

**Beneficiaries Coverage Ratio**
(Old-age beneficiaries/total population over 65)

Source: World Bank
Coverage modalities differ across the public and private schemes, making them inequitable.

- The public sector schemes offer to the average full-career worker a pension equivalent to around 85 percent of pre-retirement income, combined with no income tax and continued healthcare insurance cover.

- The private sector scheme offers a much lower equivalent of pre-retirement income (paid as a lump sum); and retirees lose access to health coverage.

- Finally, financial and longevity risks differ. Under the private scheme, employers face financial risk because the final employer is supposed to pay the difference between the dues to the employee and the actual amount of money in her account. In addition, employers face longevity risk as the increased life expectancy can result in payouts higher than originally envisaged. This is in sharp contrast to the public pension schemes where both financial and longevity risk are assumed by the government.

D. Reform options

Policy options include partial reforms or a transition to a unified pension system.

Partial reforms

Given sustainability concerns, both public and private sector schemes should be reformed. Building on World Bank (2005), selected parametric options include: (i) increasing retirement age; (ii) containing benefits; and (iii) increasing social contributions.
Public sector schemes

- **Retirement age.** A higher retirement age would be warranted by Lebanon’s relatively high life expectancy, along with the fact that the effective retirement age is significantly lower than the statutory retirement age. An increase by [4] years by 2030 could lower pension expenditure by [1.2] percent in 2030 and by [2] percent in 2050.

- **Benefits.** Another option would be to delink pensions from wages in the public sector and reduce some of the current benefits.

- **Indexation of benefits.** The indexation formula currently exposes the pension schemes to potentially high and unexpected wage adjustments. Delinking pensions from wages and indexing them instead to inflation can potentially save [0.7] percent by 2030 and [1.8] percent by 2050.

- **Benefit reduction.** The replacement ratio—effectively close to 100 percent—could also be reduced. Eliminating allowances and lump-sums for individuals who receive pensions could reduce benefits by around [5] percent, which could in turn potentially reduce pension expenditures by [0.5] percent of GDP by 2050.

- **Social contributions.** The current contribution rate is only 6 percent. Increasing social contributions by [4] percent could bring down pension expenditures by [1] percent of GDP by 2050.

### Table 4. Reform Options for Public Sector Schemes

<table>
<thead>
<tr>
<th></th>
<th>2014-2030 Expenditure Increase</th>
<th>2014-2050 Expenditure Increase</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Percentage Points</td>
<td>Discounted Value (% of GDP)</td>
</tr>
<tr>
<td>Baseline Projection</td>
<td>2.5</td>
<td>17.0</td>
</tr>
<tr>
<td>Retirement Age Increase</td>
<td>-1.2</td>
<td>-8.9</td>
</tr>
<tr>
<td>Indexation of Benefits</td>
<td>-0.7</td>
<td>-4.5</td>
</tr>
<tr>
<td>Benefit Reduction</td>
<td>-0.1</td>
<td>-0.9</td>
</tr>
<tr>
<td>Increase Social</td>
<td>-1.0</td>
<td>-15.7</td>
</tr>
<tr>
<td>Contributions (offset)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Baseline + Reforms</td>
<td>-0.6</td>
<td>-12.9</td>
</tr>
</tbody>
</table>

Private sector scheme

**Different reform options may be required for the private sector scheme.** Its lump-sum nature, which leaves retirees unprotected in many respects, could be to a certain extent addressed by annuitization. As benefits are limited, the following parametric reform options could be considered:

- **Retirement age.** As for the public sector schemes, the retirement age could be increased. An increase by [5] years by 2030 could result in a decrease in pension expenditure by [0.2] percent of GDP in 2030 and by [0.4] percent of GDP in 2050.
- **Social contributions.** Building on the assumption of annuitization, private sector employees could contribute to a life-time pension system in line with the employees of the public sector. Private sector employees are currently subject to a zero contribution rate because they are not entitled to any post-retirement benefits, but to be consistent with the public sector schemes, a contribution of 10 percent could be considered. As a result, pension expenditures could be reduced by [2.5] percent of GDP 2050, which would generate surpluses.

### Table 5. Reform Options for Private Sector scheme

<table>
<thead>
<tr>
<th></th>
<th>2014-2030</th>
<th>2014-2050</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Expenditure Increase</td>
<td>Present Discounted Value (% of GDP)</td>
</tr>
<tr>
<td>Baseline Projection</td>
<td>0.4</td>
<td>2.8</td>
</tr>
<tr>
<td>Retirement Age Increase</td>
<td>-0.2</td>
<td>-1.8</td>
</tr>
<tr>
<td>Increase Social Contributions (offset)</td>
<td>-2.5</td>
<td>-39.3</td>
</tr>
<tr>
<td>Baseline + Reforms</td>
<td>-2.3</td>
<td>-38.3</td>
</tr>
</tbody>
</table>

**Unified System**

**Addressing sustainability as well as equity aspects would require a transition to a unified pension system.** Key reform initiatives have included:

- **The 2004 proposal.** The authorities, with technical assistance from the World Bank, embarked on a pension reform program in 2004 that aimed at integrating the public and private pension schemes into one modern fully-funded defined contribution (FF-DC) scheme. The integrated system was supposed to include: a minimum pension guarantee (MPG) to those who had contributed sufficiently; a flat indemnity to individuals who had not made enough contributions; and preservation of acquired rights under the existing system. Private sector workers, new civil servants and military personnel would join the new FF-DC system, while contributors to the current civil and military schemes could choose to move to the new system on a voluntary basis. Coverage under the new system would be extended to the informal sector, the self-employed and casual workers, with limited saving capacity by allowing optional enrollment and providing better enrollment incentives. To date, the proposal has not been implemented.

- **The 2011 proposal.** A more recent proposal entailed the adoption of a “Notional Defined Contribution” plan following advice from the World Bank and International Labor Organization (see World Bank and ILO, 2011).\(^5\) In this proposal, working individuals would

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\(^5\) Such plan differs from the funded system in two important ways: (i) the interest rate is set by the government and not set by the market; and (ii) the accumulation is only notional so the system is not fully funded and may be equivalent to a pay-as-you-go scheme.
pay contributions from their salaries to fund benefits received by the retired population. The system would grant a 2 percent annual rate of return and an annual inflation-proofing measure. The pension would guarantee at least 40 percent of the last salary for someone with 30 years of contributions, with a reduced pension available after 15 years of contributions. While similar to the 2004 proposal with respect to annuitizing the lump sum payment and offering a minimum pension guarantee, the 2011 scheme would also include: extension of medical insurance after retirement, the provision of a contributory minimum wage, and a non-contributory pension scheme to all citizens to be funded by taxes.

E. Conclusions

**Sustainability and equity considerations suggest the need for early and gradual reform before pension dynamics drastically deteriorate.** As demonstrated by the projections, the longer adjustment is delayed, the costlier it becomes—all indicators worsen markedly beyond 2020, with exponential increases beyond 2030. Partial reforms in selected parameters of the schemes would help—especially in view of a planned salary scale adjustment for public sector employees, which could be implemented pari passu with some of these changes.

**In addition to sustainability issues, equity shortcomings are also a concern.** The low number of beneficiaries, in the context of Lebanon’s already weak social safety net and ageing population, call for action—drawing from the extensive work done by the authorities in collaboration with international organizations. Tackling both sustainability and equity would require a unified pension system, with related transition costs. It would also require a deliberate and concerted effort to develop a political consensus, currently lacking.
<table>
<thead>
<tr>
<th></th>
<th>Civil Servants</th>
<th>Military</th>
</tr>
</thead>
<tbody>
<tr>
<td>Retirement Age</td>
<td>No requirement. Maximum retirement age 64. Female teachers can generally retire after 20 years of service; male teachers after 25 years.</td>
<td>No requirement. Maximum retirement age 58–64 depending on rank.</td>
</tr>
<tr>
<td>Benefit Rate</td>
<td>Less than 20 years of service: end-of-service compensation.</td>
<td>Credited years of service up to three years per effective year depending on the security alert level. Same as civil servants.</td>
</tr>
<tr>
<td></td>
<td>At least 20 years of service: choice between life-time pension or end-of-service lump sum. More than 40 years of service: a combination of a life-time pension and end-of-service compensation.</td>
<td>Same as civil servants. Same as civil servants</td>
</tr>
<tr>
<td></td>
<td><strong>End-of-service compensation</strong>: 85 percent of last monthly basic salary(^1) times one month for each year of service for the first 10 years; two months for each year of service in excess of 10 years but less than 20 years; and three months for each year of service in excess of 20 years. <strong>Life-time pension</strong>: accrual factor of 2 1/8th percent of the last monthly basic salary for each year of service and fractions thereof up to a maximum of 85 percent. <strong>Combined life-time pension and end-of-service compensation</strong> (for more than 40 years of service): 85 percent of the last monthly basic salary as a life-pension and an end-of-service compensation at 85 percent of last monthly basic salary times three months for each year of service that exceeds 40 years.</td>
<td>Same as civil servants. Same as civil servants</td>
</tr>
<tr>
<td>Contribution Rate</td>
<td>6 percent of basic salary;(^2) retirees do not contribute.</td>
<td>Same as civil servants.</td>
</tr>
<tr>
<td>Pension Indexation</td>
<td>Ad hoc basis. The last pension increase was granted in 2012 based on the 2008 salary categories.</td>
<td>Same as civil servants.</td>
</tr>
<tr>
<td>Other Benefits</td>
<td>Survivor benefits for employees who die during service; disability pension for employees who qualify.</td>
<td>Same as civil servants.</td>
</tr>
</tbody>
</table>


\(^1\)The last monthly basic salary is the pay scale, except for teachers, where special allowances are included in calculating the pension amount.

\(^2\)The 2003 budget included a request to increase the contribution rate to 8 percent starting in Fiscal Year 2003 but it was not approved by parliament.
Table 2. Key Parameters of the End of Service Indemnity (EOSI)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Retirement age</td>
<td>Maximum age 64. Beyond that no accruals to the EOSI despite continued coverage under other benefits.</td>
</tr>
<tr>
<td>Benefit Rate</td>
<td>Share of entitlements if the employee completed at least 20 years of service, reached age 60 or older, in case of marriage (during the first year and for females only), death (prior to retirement with at least six months of service), and disability (subject to a minimum of 20 times the monthly earnings). The monthly earnings used to determine the EOSI is equal to one-twelfth of the taxable earnings in the year preceding the date of entitlement. If the individual resumes work subsequent to the pre-age 60 liquidation, he or she can only liquidate subsequent accrual upon reaching age 60, death, or disability.</td>
</tr>
<tr>
<td>Contribution Rate</td>
<td>None from the employee. Employers contribute on behalf of each employee at the rate of 8.5 percent of the individual’s taxable income (of which 0.5 percentage points to the NSSF administration). However, effective employer contribution rates are higher since the last employer pays the shortfall between the employee’s entitlement with the last employer and the accumulated contributions with interest corresponding to the same employment period.</td>
</tr>
<tr>
<td>Coverage</td>
<td>Private sector employees, contractual government employees, taxi drivers, newspaper and magazine vendors, local councilors and voluntary self-employed subscribers.</td>
</tr>
<tr>
<td>Investment</td>
<td>Contributions are collected in individual accounts and accrue an interest rate determined by NSSF investments—usually the rate on government bonds as most of NSSF investments are in treasury paper.</td>
</tr>
<tr>
<td>Other Benefits</td>
<td>Upon claim of indemnity, employers add one month of salary for every year the employee has spent with them (up to 20 years), and 1.5 months for every year after that. Accumulated contributions are managed by the NSSF.</td>
</tr>
</tbody>
</table>


1 Employees with less than 20 years of contributions are subject to a reduction schedule of entitlements as follows: less than 5 years contribution, 50 percent reduction; between 5 and 10 years contribution, 35 percent reduction; between 10 and 15 years contribution, 25 percent reduction; between 15 and 20 years contribution, 15 percent reduction.

2 The total social security contribution is set at 23.5 percent (21.5 percent paid by the employer and 2 percent paid by the employee). The employer pays 6 percentage points to the health insurance, 6 percentage points to the family allowances, and 8.5 percentage points to the EOSI. The employees’ share only covers health insurance.
**References**


**IV. EMPOWERING GROWTH: REFORM PRIORITIES IN LEBANON**

Lebanon faces a pressing need for infrastructure reform. Electricity reform, in particular, is a compelling and long-standing priority. There has been no shortage of studies and reform proposals, though unfortunately, well-known and much needed measures remain unimplemented.

**A. Introduction**

Globally, the recent crisis has highlighted the key importance of structural policy. The legacies of the crisis—large debts, high unemployment, lackluster growth—and the limited policy space with which to tackle them, have raised basic questions about the appropriate policy response and the role of structural reform. In this context, the 2014 Triennial Surveillance Review has called for surveillance to identify areas where structural issues have macroeconomic implications, and to highlight those reforms that typically have the largest growth payoff.

For Lebanon, reform is needed not only to boost activity, but to also ensure that future growth delivers benefits for all. A key policy goal, of course, is to raise productivity and incomes. But priority should also be given to reforms that secure equal access to essential services and promote Lebanon’s transition to a more job-rich, inclusive, and sustainable growth model.

**B. Cross-country experience**

Recent Fund research has shed light on the relationship between structural reform and productivity.

- The results are generally in line with expectations, but there are substantial differences in how reforms impact productivity for different groups of countries—affirming the importance of calibrating reforms for different stages of economic development (IMF, 2015). For all country groups, infrastructure bottlenecks and infrastructure quality are priority reform areas. But for EMs, like Lebanon, infrastructure investment is particularly important. Many EMs have insufficient energy generating capacity, as well as inadequate transportation and communications networks. Better infrastructure connects EMs to their foreign markets more tightly; increasing competitiveness, efficiency and ultimately, productivity growth.

- Other priorities for EMs include promoting business-friendly, well-functioning markets; reducing labor market rigidities and encouraging firms to exit the informal sector; and product-market reforms in services—including in energy, transport, and communication.

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1 Prepared by Andrew Tiffin (MCD).
C. Indicators and diagnostics for Lebanon

Lebanon’s recent productivity performance has been disappointing. The economy expanded by 4½ percent on average over 2007–14—broadly in line with regional oil importers, but well below the average growth rate for other emerging markets. More worryingly, productivity growth has been far short of international standards—the key drivers of recent growth have been an expanding labor force and a growing capital stock, but for a small open economy like Lebanon, closing the gap with other emerging markets will ultimately require sustained improvements in Total Factor Productivity (TFP). Admittedly, estimating productivity growth in Lebanon is somewhat uncertain, given existing data constraints. But other indicators also point to an underlying productivity issue, including Lebanon’s steadily deteriorating competitiveness indicators. Boosting long-term productivity will require deliberate and sustained structural reforms, and the challenge going forward will be to identify those measures that offer the most promising returns.

2 Methodologies and data sources are outlined in Mitra and others (2015).
Staff research has identified the most binding constraints to growth in Lebanon. Applying the growth-diagnostic methodology of Hausmann and others (2005), this approach looks at the proximate causes of growth, establishes which of these represent the greatest constraint to growth, and then identifies the specific distortions behind the constraints (Figure 1).

**Figure 1. Potential Constraints to Growth in Lebanon**

Sources: Hausmann and others (2005); and IMF staff calculations.
Main constraints to Lebanese growth

In general, economic activity is constrained by either a low return to investment or a high cost of funding. The first step, then, is to diagnose which constraint is binding for Lebanon.³

- **High finance costs are not a pressing constraint in Lebanon.** Interest rates are not excessive, given local political risks. And poor intermediation is not a concern, as Lebanon’s sizable and successful banking sector has traditionally had little problem mobilizing and channeling deposits to the private sector. Moreover, Lebanon’s bank-dominated financial system is relatively inclusive. Regionally, Lebanon has one of the lowest loan-concentration ratios and one of the largest shares of small-and-medium enterprise (SME) loans as a ratio of total loans. Indeed, World Bank survey results find that SMEs do not identify their access to finance as a constraint to doing business.

- **Instead, Lebanon’s key problem stems from low returns to economic activity.** In particular, Lebanon faces low social returns to investment and a low appropriability of those returns.

- Low social returns mainly reflect Lebanon’s **chronic infrastructure deficit.** According to the World Economic Forum’s Global Competitiveness Index (GCI), Lebanon ranks 140 on the overall quality of infrastructure, out of 144 countries. Key constraints include: (i) an inadequate road network; (ii) poor water supply; and (iii) an expensive and underdeveloped communications infrastructure. Arguably the most important constraint, however, is Lebanon’s costly and unreliable electricity supply.

- **Political risks are also elevated.** Lebanon has gone through fifteen governments since 1990 (with an average life for each of less than two years), and suffers from a chronically volatile external environment.

- **But low human capital is not a key concern.** While there may be some skill mismatch, the Lebanese workforce is well educated, with high adult literacy rates, an enviable supply of scientists and engineers, and high enrolment rates.

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³ This note summarizes the key growth-diagnostics findings for Lebanon. For more detail, see IMF (2012).
Turning from low returns to low appropriability, the key issue is institutional failure, rather than market failure. Growth in Lebanon has typically been driven by the services sector, not by the traditional agricultural and industrial sectors. In this context, the main constraints to appropriability come from institutional failures both at the micro and macro levels. On the micro side, Lebanon has a relatively poor business and governance climate—cumbersome and uncertain regulation, poor-quality public services, corruption, to name a few—which tend to handicap entrepreneurship and decrease private investment returns. It should be noted in this regard, however, that taxes are not a major constraint, as Lebanon has one of the lowest corporate tax rates in the region and the current 10-percent VAT rate is modest by international standards (see Background Note on Fiscal Adjustment and Growth). On the macro side, Lebanon has generally enjoyed financial and monetary stability, but has a growing public debt burden, substantial rollover needs, and a banking sector that is highly exposed to the sovereign (see Background Note on Balance Sheet Analysis).

The constraints identified by staff’s growth-diagnostics are consistent with those identified by the World Economic Forum (WEF). Individual indicators point to clear gaps in Lebanon’s infrastructure, business climate, and macroeconomic environment. And of these, infrastructure is identified as the most binding constraint to doing business in Lebanon. Moreover, among the infrastructure sub-indicators, Lebanon ranks as the second worst country in the world (143/144) when it comes to the quality of electricity supply. The World Bank Enterprise Survey also highlights electricity as the second biggest obstacle to private sector firms in Lebanon, after political instability—with 55 percent of Lebanese firms identifying electricity as a major constraint to business operations and competitiveness.
Structure of Lebanese GDP, 2012
(Size of Box= Share in 2012 Value Added)

Structure of Post-Crisis GDP Growth, 2011-12
(Size of Box= Share in 2012 Value Added)
D. Tackling Lebanon’s infrastructure deficit: Electricity

Lebanon’s weak infrastructure has hampered economic growth and development. Key shortfalls exist in electricity, telecommunications, transportation and water. These services are not only essential for productivity and income growth, but also have important implications for the inclusivity of that growth. Poor infrastructure restricts the ability of low income groups to access more productive opportunities, reducing the returns on their assets. It also takes a toll on health and education, eroding the human capital of Lebanon’s most vulnerable residents. In this context, Lebanon’s infrastructure base has been impacted significantly by both the physical destruction associated with the 2006 war with Israel (which according to the World Bank resulted in over $2.8 billion of damage) and the added pressure associated with the large presence of Syrian refugees. The latter has severely strained the capacity of key infrastructure sectors, notably water, sanitation, electricity, and solid waste management, and municipal services (World Bank, 2013).

Electricity-sector shortfalls, in particular, weigh heavily on Lebanon’s outlook.

- Fiscal transfers to the vertically integrated public utility Electricité du Liban have resulted in a sizable share of the country’s elevated public debt stock (Box 1).

- Investment in energy infrastructure is clearly correlated to GDP growth. When supply experiences frequent interruption or is prohibitively expensive, growth tends to suffer. Available estimates suggest that, if the quality of Lebanon’s electricity supply

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4 In 2012, two power barges were rented to supplement power generation (they produce 270 MW at a cost of US$10 million per month plus fuel costs; the contract will expire in October 2016). Reportedly, increased production was absorbed to meet increased demand from the refugee presence, but has not led to improved electricity performance as originally expected.
were raised to the global average, real per capita GDP growth would increase by around 1 percent per annum (Bhattacharya and Wolde, 2010). Moreover, given that an unreliable electricity supply is effectively equivalent to an uncertain, time-varying tax on electricity inputs, it will tend to distort the allocation of resources away from sectors that use electricity more intensively (Allcott and others, 2014). In the case of Lebanon, the costs of poor electricity supply weigh most heavily on the manufacturing sector, potentially discouraging diversification away from the economy’s current reliance on services, and adding to the economy’s overall vulnerability.

• Lebanon currently has around 2,020 MW of installed public generating capacity, compared to a peak demand of around 3,200 MW. So a majority of consumers turn to high-cost private generators to compensate for the deficiencies of public service delivery (World Bank, 2008). The resulting burden on Lebanese residents is highly inequitable—as rationing is far from uniform, and the consumers who suffer most from electricity blackouts are forced to turn to high-cost alternatives or to manage without power altogether (poor regions go without public electricity for 12-13 hours every day, while richer ones such as Beirut are subject to only 3 hours of daily blackouts).

Box 1. Electricité du Liban (EDL)

EdL is the only public provider of electricity in Lebanon. The company is a vertically integrated utility, and is in itself a significant source of macroeconomic vulnerability, given its persistent drain on public finances.

Past transfers to EDL are responsible for about 40 percent of Lebanon’s current stock of public debt, and now represent over half of the fiscal deficit. Transfers to EdL have averaged over 2 percent of GDP per year from 1992 to 2013. These costs, however, have increased steadily over time, with transfers to EdL averaging almost 4½ percent of GDP over 2006-13. Given that the funds for these transfers have been borrowed, World Bank (2015) estimates that the cumulative cost (including interest) of EdL transfers since 1992 has added over 50 percent of GDP to Lebanon’s total stock of public debt.

The sources of EdL’s financial losses have long been known (e.g., World Bank, 1983), but have yet to be addressed by policymakers. Aside from significant but longstanding operational inefficiencies, a large portion of EdL’s losses can be attributed to a nominal tariff that remains far below cost-recovery levels, and which has remained unchanged since 1996 when the average oil price was USD23/barrel.

Despite EdL’s large and subsidized budget, Lebanon’s power supply remains patchy for 92 percent of households, who need to be linked to private generators. The revenues of the latter are estimated at USD1.7 billion or 4 percent of GDP (World Bank, 2015), while the average cost is three times the level of EdL tariffs.

5 Although most of the literature agrees that electricity infrastructure plays a critical role in economic development and productivity growth, quantitative estimates are somewhat mixed, owing to endogeneity issues. See Scott and others (2014) for a survey.
Despite substantial public support, EDL’s losses have resulted in chronic underinvestment. EdL’s power stations are ageing rapidly, and the company’s financial situation has limited its ability to invest in additional capacity. In June 2010, the Government endorsed a Policy Paper for the Electricity Sector. The paper outlines a detailed map of policies and investments aimed at increasing the level and quality of electricity supply, managing demand growth, decreasing the average cost of production, increasing revenues, improving governance and ultimately reducing the electricity sector’s claim on public resources while improving service delivery. The goal was to first focus on improved service delivery—bringing total capacity to 5,000 MW by 2015 and upgrading Lebanon’s transmission and distribution networks—and then to raise tariffs to cost recovery levels once 24/7 access to electricity supplies had been secured.

But most reform measures remain unimplemented. The rehabilitation of existing power plants—switching to much cheaper LNG—has started, but has suffered from delays and mismanagement. At this stage, many of the assumptions and timetables underlying the 2010 plan are clearly unrealistic.

E. Conclusions

The electricity sector is a compelling and urgent reform priority. Cross-country experience, growth-diagnostic results, and a range of detailed competitiveness indicators, all point to the need to improve Lebanon’s chronic infrastructure gap, particularly its expensive and unreliable electricity supply. Swift adoption of the measures outlined in the 2010 government plan would not only repair public finances, improve the business climate, and boost productivity, they would also reduce Lebanon’s need for expensive fuel imports and so reduce the external deficit.

Also, electricity reform would contribute to poverty reduction and inclusive growth. A cheaper, more equitable, and secure source of energy would benefit all citizens, including through positive spillovers to other sectors; reliable electricity would help support the transport sector which would in turn improve overall connectivity and stimulate growth (World Bank, 2015). Such reforms would also attract added FDI and encourage the diversification of private-sector investment away from real estate and government debt, further enhancing overall productivity and competitiveness.

6 In November 2014, Lebanon was discussed at the Paris Club—an unprecedented step for a country that has always executed external payments on a timely basis—due to delays in servicing an electricity-related contract with a Danish company, which was guaranteed by the government. While the matter was quickly resolved, this episode underscores the complex political-economy constraints facing the sector.
References


V. SURVEILLANCE WITHOUT DATA: NOWCASTING GDP IN LEBANON

A. Introduction

Macroeconomic statistics in Lebanon have historically been weak. In part, this reflects a lack of public resources. But more broadly, it reflects the erosion of public institutions in Lebanon, and a lack of political consensus on the importance of timely information for decision making. A striking example in this regard is the compilation and publication of Lebanon’s national-accounts: these are compiled on a yearly basis, and are published with a lag that can sometimes exceed two years. In addition, the absence of key macroeconomic data prior to 1990s—owing to the impact of the civil war—means that most economic series are relatively short and display numerous structural breaks.

Faced with an absence of reliable and timely economic statistics, discussions of economic activity tend to center around a select group of key proxy measures. For example, private consumption can be captured using the ARA’s monthly consumer-confidence index. The Beirut Trader Association–Fransabank Retail Index summarizes developments in the retail sector, and the Beirut Traders Association-BankMed Investment Index captures investor sentiment. In November 2013, BLOM Bank and Markit launched a new Purchasing Managers’ Index that reflects overall activity trends. And to provide an even more comprehensive assessment, the Banque du Liban (BdL) and the International Institute of Finance (IIF) have separately developed coincident indicators, which aim at taking the information contained a range of indicators, and combining them into a composite measure of underlying activity. The former was developed immediately following the end of the civil war and is composed of eight variables. The IIF indicator follows the same approach, but includes an additional five variables. Most recently, the World Bank designed a new coincident indicator, which draws on the NBER Conference Board approach (Matta, 2014). All of these efforts are useful, but given that individual variables may sometimes give different (or contradictory) signals, assessments of the overall direction of the economy will often vary, depending on the methodology chosen.

The Fund has typically taken a similar coincident-indicator approach when assessing the recent performance of the economy. Following the BdL methodology, we have generally estimated real GDP using the components of the BdL’s coincident indicator—sometimes augmented by other measures of economic activity, such as construction permits, tourist arrivals, car registrations, and the number of property transactions.

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1 Prepared by Andrew Tiffin (MCD).
2 These are: electricity production (volumes), imports of petroleum derivatives (volumes), M3 (real), cleared checks (real) total airport passengers (volumes), cement deliveries (volumes) and imports and export flows (real).
3 These are real private-sector credit, tourist arrivals (instead of passenger arrivals), real government revenues, real government consumption, and real machinery imports. See Iradian & Zouk (2010).
This note outlines our recent efforts in this area. Framing the issue as a standard ‘nowcasting’ problem, and mindful of the pitfalls of extracting information from a large number of tightly correlated proxy variables, the note will draw on recent advances in machine-learning to estimate real-time movements in GDP growth. The methodology employed (elastic net regression) is intuitively simple, easily implemented, and provides plausible out-of-sample results.

B. The Nowcasting Problem

The term ‘nowcasting’ is a contraction of ‘now’ and ‘forecasting,’ and has become a standard activity for central banks and market participants. In this regard, the most focused efforts have been directed at providing timely assessments of GDP, where statistics are available only after a long delay. The basic idea is that, drawing on a large set of high-frequency sources (e.g., jobless figures, industrial orders, trade balance, etc.), signals about GDP can be extracted before the GDP figures are actually published. A successful nowcast will thus draw on real-time data to accurately forecast what future GDP data will say about the current state of the economy.

The lags associated with Lebanese GDP data are sizable by international standards, but the essential problem is the same. For example, in the United States and United Kingdom, GDP data are compiled on a quarterly basis and are published approximately one month after the end of the reference quarter (so that, say, the first release of 2Q15 data will only be available end-July/early August 2015). In the euro area, the publication lag is around 2-3 weeks longer. In Lebanon, however, GDP data is compiled only on an annual basis, and the publication lag is 1-2 years. Still, at a basic level the challenge across these countries is the same—given the delayed release of actual data, decision makers can exploit information published in the interim to get an ‘early estimate’ before official figures become available.

C. Overfitting and Model Performance

The central aim of nowcasting is to extract a reliable signal from a large set of noisy higher-frequency indicators. And perhaps the most widely-used procedure across central banks entails the use of factor-based models. These seek to extract a (small) set of (unobserved) common factors from the full set of indicators—with the assumption that these factors embody the main processes that drive the economy and so represent a concise and sufficient summary of underlying GDP. If

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there is a high degree of co-movement amongst the high-frequency variables, then the bulk of their
dynamics can be captured by relatively few common factors, effectively reducing the (often
daunting) dimensions of the full dataset to a more manageable set of key drivers.

A potential issue with the factor-based approach is that extraction typically ignores the ability
of individual series to predict GDP. Indeed, any variable included in the full data set will usually be given at least
some weight in the procedure, even if that variable is totally unrelated to GDP. The resulting factors may
therefore be optimal at summarizing the information in the data, but may not actually be the best predictors.
Indeed, the literature has generally found that factors extracted from fewer—but more informative—indicators
can yield better forecasts that those obtained from larger datasets. So, dimension reduction is not enough. Good
nowcasting also requires an element of variable selection.

Recent advances in machine learning have shed new light on how to select the most
informative predictors from a broad set of candidates. Prompted by advances in computing
power, and driven in part by the needs of fields like biostatistics and genetics, machine learning has
become a rapidly expanding subfield of statistics. And the results of this research are now filtering
into applied econometrics (Elmer, 2011). On selecting the best subset from a broad range of
candidates, key approaches often include step-by-step algorithms, such as best-subset regression,
and forward- and backward-stepwise regression (see Hastie and others, 2013). But these can often
be computationally expensive, particularly for large datasets. Our preferred approach, then, is to use
a type of penalized regression, which is (i) intuitively familiar, (ii) entails the same (minimal)
computational cost as standard OLS regression, (iii) combines dimension reduction and variable
selection in a single step, and (iv) provides results that are robust to the tight correlation between
series in our full dataset.

D. Penalized Regression: The Elastic Net

Penalized regression aims to exploit the potential trade-off between bias and variance, and is
most valuable where there are a large number of correlated predictors. In these cases,
estimated coefficients are often unstable, shifting significantly with the addition of new observations
or predictors. Consequently, for prediction purposes, out-of-sample performance will often be
relatively poor, even when in-sample performance seems solid and the model is theoretically
unbiased. As a solution, it is sometime possible to find a deliberately biased model with lower
prediction error than an unbiased model—giving rise to the so-called the ‘bias-variance tradeoff.’
One option is to add a small penalty to the usual OLS regression, which biases/nudges all

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5 See Girardi and others (2014) for a summary.
coefficients towards zero, but also has the benefit of stopping them from swinging wildly in the face of new information. Different types of penalty will have different properties, and we outline some of these below.

**Ridge and LASSO Regressions**

*Ridge regression is very similar to least squares, except that the coefficients are estimated by minimizing a slightly adjusted quantity.* As with least squares, ridge regression seeks coefficients that fit the data well, by making the residual sum of squares (RSS) as small as possible. However, the regression also seeks to minimize a second term—called a shrinkage penalty—which is small when the regression coefficients are close to zero. This term will thus tend to shrink the estimates towards zero. The details of the penalty are provided below (where \(n\) is the number of observations, and \(p\) is the number of candidate predictors). Importantly, the tuning parameter \(\lambda\) serves to control the relative impact of the penalty term. When \(\lambda = 0\), the penalty has no effect, and ridge regression will produce the least-squares estimates. But, as \(\lambda\) gets larger, the impact of the shrinkage penalty grows, and the coefficient estimates will approach zero. Unlike least squares, which generates only one set of estimates, ridge regression will produce a different set of coefficients for each value of \(\lambda\). So selecting a good value for \(\lambda\) is critical; and will be addressed in the section on cross validation below.

\[
\hat{\beta} = \arg\min_{\beta} \left\{ \sum_{i=1}^{n} (y_i - x_i \beta)^2 + \text{Penalty}(\beta) \right\}
\]

**RIDGE**

\[
\text{Penalty}(\hat{\beta}) = \lambda \sum_{j=1}^{p} (\hat{\beta}_j)^2
\]

**LASSO**

\[
\text{Penalty}(\hat{\beta}) = \lambda \sum_{j=1}^{p} |\hat{\beta}_j|
\]

*LASSO regression (Least Absolute Shrinkage and Selection Operator) is similar to the ridge regression, but has a different penalty.* As with ridge regression, the lasso shrinks the coefficient estimates towards zero. However, in the case of the lasso, the penalty has the effect of forcing some of the coefficients to be exactly equal to zero when the tuning parameter \(\lambda\) is large enough—in contrast, the ridge regression may shrink coefficients so that they are close to zero, but will never eliminate them altogether. Hence, like some of the stepwise approaches outlined above, the lasso includes an element of variable selection, and will tend to produce a parsimonious model with fewer predictors.
The Elastic Net Regression

The elastic net regression contains a hybrid of the ridge and lasso penalties. The ridge penalty will tend to shrink all coefficients proportionately; and for closely correlated variables, it will tend to move the coefficients moving toward one another, without choosing among them. The lasso penalty, on the other hand, will produce a leaner model by focusing on a small subset of those variables, and discarding the rest. Each approach has benefits, depending on the data, and there is no a priori reason to prefer one over the other.

The elastic net regression combines the strengths of both—selecting the best predictors to provide a parsimonious model, while still identifying groups of closely correlated predictors. The relative weight of the two penalties is determined by an additional tuning variable ($\alpha$). And as with the ridge and lasso regressions, different values of the tuning parameters ($\alpha$ and $\lambda$) will produce different sets of coefficients. So, selecting the right parameter values is key.

Cross Validation

The tuning parameters are chosen to optimize the predictive ability of the regression. The technique is called cross validation, and is a way of gauging likely out-of-sample performance using only in-sample data. The basic idea is simple. Select a starting value for both $\alpha$ and $\lambda$. Divide the data into $K$ folds (say, $K=5$), take one of those folds and set it aside as a test set. Using the remaining (4) folds as a training set, estimate the model, and then try to predict the values in the test set, keeping track of the prediction error. Repeat this procedure using all combinations of the test and training sets, producing a set of (5) validation errors associated with our chosen values of $\alpha$ and $\lambda$. We can then see what happens if we change $\lambda$. Each value of $\lambda$ should produce a different set of validation errors, which then defines a cross-validation error curve. The value of $\lambda$ is chosen to minimize the error on this curve (or more accurately, to produce the most parsimonious model possible within 1 standard deviation from the minimum). We can then repeat all of the above for different values of $\alpha$; finding the best value of $\lambda$ for each $\alpha$, and then trying different
values of $\alpha$ to arrive at the combination of $\alpha$ and $\lambda$ with the lowest overall prediction error. The final result will be a model designed to produce the best possible out-of-sample fit, while also managing a potentially large number of correlated predictors in a procedure that is intuitive and relatively simple to implement.\(^6\)

### E. Elastic Net Regression Results for Lebanon

#### Data

While it is possible to produce an elastic net model using only annual GDP data, our preferred specification draws from quarterly data, available from 1996 to 2010.\(^7\) The sample period includes a variety of swings and shocks—including the mid 2000’s boom, as well as the aftermath of the Hariri assassination and the 2006 war—and so should provide a valuable guide as to how GDP movements align with those of other higher-frequency indicators. The sample does not, however, include the sharp GDP contraction that followed from the Syrian crisis, which we may then use as a true out-of-sample test of the model’s predictions.

For predictors, we follow past practice and focus primarily on the components of the BdL coincident indicator. These are available from 1993, and are calculated on a monthly basis (rebased so that 1993=100). For the moment, these include:

- Electricity production volumes,
- Imports of petroleum derivatives (volumes),
- M3 (real),
- Total cleared checks (real),
- Total airport passenger flows (volumes),
- Cement deliveries (volumes), and
- Trade flows (imports plus exports, in real terms).

Looking at the correlation matrix for the data, these series seem to be tightly correlated (as expected), suggesting that trading off between bias and variance, as outlined above, may indeed improve the performance of the model. The regression is specified in growth rates, as this is the immediate measure of interest for Fund staff.

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6 Estimation and cross-validation are available as automatic procedures within the glmnet package from R. See Hastie and others (2010).

7 The quarterly series on GDP was compiled by Alain Tranap, a UNDP consultant working with Lebanon’s Council of Ministers.
Results

Coefficient values and the cross-validation error curve are provided below, but the key measure of effectiveness is the model’s in- and out-of-sample fit with actual GDP.

As can be seen from the diagram below, the in-sample performance of the model is relatively solid. (Recall, the model is not designed to maximize in-sample fit, but is instead designed to maximize the likely out-of-sample fit, based on in-sample data). Looking to the ability of the model to predict GDP movements out of sample, it also manages to track GDP relatively well over 2011-13, when output contracted sharply—with one caution, it does produce a notably higher growth rate in 2011 when compared to the (revised) official figure, but the contraction in 2011 was unusually sharp by historical standards. Estimated growth for 2014 (where no official figure is available) seems plausible, and is line with Staff’s previous estimate.
F. Conclusions

Faced with long delays in the publication of official GDP data, Fund staff have often been required to assess recent trends on the basis of various proxy variables. This note highlights the similarities between this problem, and the relatively common ‘nowcasting’ challenge addressed routinely by central banks and market participants. Drawing on the nowcasting literature, and some of the methodologies developed within the field of machine learning, the note has presented a procedure for GDP estimation that is both intuitively familiar, and well suited to the challenging features of Lebanon’s data. Out-of-sample performance is solid so far, but the key test of this methodology will be its ability to provide reasonable estimates going forward (as Lebanon eventually moves toward recovery); as well as its ability to anticipate the authorities’ official GDP figures, when they are eventually released. However, it should be stressed that this project is still in its early stages. A key strength of elastic net approach is its ability to handle a potentially huge set of candidate predictors, so one clear avenue for future study will be to augment the current dataset with additional high-frequency variables, with the aim of further improving the prediction performance of the model.
References


VI. VULNERABILITIES IN CONTEXT: (SOME) BALANCE SHEET ANALYSIS FOR LEBANON

Despite serious limitations, available data point to significant vulnerabilities in sectoral balance sheets. These largely result from a deepening nexus between the sovereign and the banks—largely nested in the growing financing needs of the government and rising public debt. Adverse feedback loops could be set in motion in the event of a significant and sustained loss of confidence. In this environment, credible fiscal adjustment would help anchor confidence and should start now.

A. Motivation

Lebanon’s underlying vulnerabilities are sizable. Government debt was 134 percent of GDP at end-2014, and the associated public financing needs (about 26 percent of GDP in 2014) have been largely (and increasingly) met by domestic banks and the central bank, the Banque du Liban (BdL). This ongoing requirement, combined with a large current account deficit (around 25 percent of GDP in 2014), makes Lebanon dependent on continued inflows of nonresident deposits, which are predominantly short term (see Background Note on Deposit Growth).

The economy also remains critically exposed to a range of domestic and regional risks. A further escalation of regional conflict, and a further deterioration in security, could seriously undermine confidence and lead to a negative investor response. Similarly, allegations against Lebanese banks related to possible sanctions against money laundering and/or financing of terrorist activities could further weaken confidence.

Lebanon’s vulnerabilities can be better understood through the Balance Sheet Approach (BSA). While the exercise is constrained by significant data shortcomings, it nonetheless allows a stock-taking of the main financial claims across sectors. The analysis shows that Lebanon is increasingly exposed to sovereign solvency risk, deposit rollover risk, and currency risk: all as a consequence of the economy’s large public debt, persistent reliance on short-term deposit inflows including from nonresidents, and high dollarization.

B. Lebanon’s macrofinancial system

There is a unique nexus between the banks and the sovereign (Figure 1 and Table 1).

- Banks are the backbone of the Lebanese economy, with total assets almost four times GDP (among the largest in the world and the largest in the MENA). They are the economy’s chief funding source for both the public and private sectors, attracting substantial deposits in

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1 Prepared by Frederic Lambert (MCM), Andrew Tiffin and Annalisa Fedelino (both MCD), based on an earlier note by Alina Luca and David Amaglobeli.
Lebanese pounds (LL) and foreign exchange (FX) from both residents and nonresidents, owing largely to Lebanon’s banking secrecy law, open capital account, and the extensive network of Lebanese banks across more than thirty countries (mainly in the MENA).

- The BdL attracts banks’ liquidity in both foreign currency and LL by offering attractively remunerated term deposits and Certificates of Deposit (CDs). It uses the resulting funds in foreign currency to accumulate gross FX reserves—the most market-watched financial indicator given the exchange rate peg; and to cover the government’s funding needs in dollars (see below). The BdL also uses the funds from local-currency deposits to purchase government T-bills on the primary market, whenever banks’ T-bill demand is insufficient to cover the government’s local-currency financing needs.2

- The government’s financing needs have increased over time—reflecting sizeable deficits and a substantial debt burden—and have been largely funded by domestic banks and the BdL. For foreign exchange, parliament limits the government’s borrowing in foreign currency, so the government has in the past drawn on a dollar overdraft facility provided by the BdL.

- The private non-financial sector and the external sector are the main providers of deposits. Information on the balance sheet of the non-financial private sector is not available and data on the external sector is limited.

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2 The T-bill auctions are effectively conducted as a fixed-price subscription, with the BdL often as a residual buyer. The BdL organizes the auctions on behalf of the ministry of finance, to which it forwards all bids; the ministry then exercises its discretion to set the cut-off amount and rate. Thus, although in principle banks can state their price, in practice they are limited to deciding only bid quantities. The BdL can also participate, but has the right to amend its bid depending upon the outcome of banks’ subscriptions, making up for any under-subscription.
Table 1. Sectoral Balance Sheet Matrix as of End-2013

<table>
<thead>
<tr>
<th>Holder of Liability (Creditor)</th>
<th>Government</th>
<th>Banque du Liban</th>
<th>Private Financial Sector</th>
<th>Private Non-financial Sector</th>
<th>Rest of the World</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Issuer of Liability (Debtor)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total Liabilities 1/</strong></td>
<td></td>
<td>19,342</td>
<td>38,071</td>
<td>1,284</td>
<td>9,109</td>
<td>67,806</td>
</tr>
<tr>
<td>Short-term 2/</td>
<td></td>
<td>8,959</td>
<td>3,647</td>
<td>552</td>
<td>0</td>
<td>13,158</td>
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<td>In local currency</td>
<td></td>
<td>3,356</td>
<td>2,248</td>
<td>552</td>
<td>0</td>
<td>6,156</td>
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<tr>
<td>In foreign currency 3/</td>
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<td>1,398</td>
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<td>7,002</td>
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<tr>
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<td></td>
<td>10,383</td>
<td>34,425</td>
<td>732</td>
<td>9,109</td>
<td>54,648</td>
</tr>
<tr>
<td>In local currency</td>
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<td>7,883</td>
<td>18,017</td>
<td>732</td>
<td>0</td>
<td>26,632</td>
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<td>2,499</td>
<td>16,408</td>
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</tr>
<tr>
<td><strong>Total Liabilities</strong></td>
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<td>55,055</td>
<td>33</td>
<td>1,767</td>
<td>69,778</td>
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<td>18,463</td>
<td>33</td>
<td>0</td>
<td>31,418</td>
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<td>9,283</td>
<td>20</td>
<td>0</td>
<td>22,225</td>
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<td>38,360</td>
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<td>88,883</td>
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<tr>
<td>Medium and long-term</td>
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<td>3,645</td>
<td>7,975</td>
<td></td>
</tr>
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<td>In local currency</td>
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<td>1,069</td>
<td>84</td>
<td>1,153</td>
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</tr>
<tr>
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<td>...</td>
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</tr>
<tr>
<td>In local currency</td>
<td></td>
<td>0</td>
<td>15,620</td>
<td>2,513</td>
<td>18,133</td>
<td></td>
</tr>
<tr>
<td>In foreign currency</td>
<td></td>
<td>0</td>
<td>21,285</td>
<td>838</td>
<td>22,123</td>
<td></td>
</tr>
<tr>
<td>Medium and long-term</td>
<td></td>
<td>0</td>
<td>5,558</td>
<td>0</td>
<td>5,558</td>
<td></td>
</tr>
<tr>
<td>In local currency</td>
<td></td>
<td>0</td>
<td>15,728</td>
<td>838</td>
<td>16,565</td>
<td></td>
</tr>
<tr>
<td><strong>Equity</strong></td>
<td></td>
<td>...</td>
<td>...</td>
<td>...</td>
<td>...</td>
<td></td>
</tr>
<tr>
<td><strong>Rest of the World</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total Liabilities 7/</strong></td>
<td></td>
<td>0</td>
<td>33,892</td>
<td>26,625</td>
<td>10,452</td>
<td>70,969</td>
</tr>
<tr>
<td>Official reserves 8/</td>
<td></td>
<td>0</td>
<td>33,892</td>
<td>0</td>
<td>0</td>
<td>33,892</td>
</tr>
<tr>
<td>Debt securities</td>
<td></td>
<td>0</td>
<td>2,175</td>
<td>...</td>
<td>2,175</td>
<td></td>
</tr>
<tr>
<td>Equity securities</td>
<td></td>
<td>0</td>
<td>3,905</td>
<td>3,523</td>
<td>7,428</td>
<td></td>
</tr>
<tr>
<td>Other investments (including loans)</td>
<td></td>
<td>0</td>
<td>20,546</td>
<td>6,929</td>
<td>27,475</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td>15,882</td>
<td>55,799</td>
<td>162,216</td>
<td>87,992</td>
<td>79,834</td>
</tr>
</tbody>
</table>

Sources: Lebanese authorities; Lane and Milesi-Ferretti (2013) "The External Wealth of Nations"; and Fund staff estimates.

1/ Assumes the private non-financial sector holds no Lebanese Eurobonds and nonresidents hold no Lebanese T-bills.
2/ Based on remaining maturity that only includes amortization.
3/ Includes the overdraft on government’s FX account with the Banque du Liban.
4/ Assumes all public sector deposits with commercial banks are short-term and pound-denominated.
5/ Assumes a 44 percent share of nonresident deposits in total deposits, consistent with the assumptions in the team’s macroframework.
6/ Liabilities to the rest of the world include only borrowing from BIS banks.
7/ Liabilities to the private non-financial sector include only deposits with the BIS banks and portfolio equity liabilities.
8/ Excluding gold.
C. Sectoral balance sheets

The economy’s overall position

Lebanon has a net debt position (Table 1). Liabilities of the rest of the world (towards Lebanon) are lower than claims of the rest of the world on Lebanon. This is a reversal from a decade ago, when Lebanon’s external position was positive (Sole’ et al., 2006). While data are incomplete, this result is not surprising, given Lebanon’s sustained accumulation of significant current account deficits, which have lingered in the double-digits for most of the past two decades.

External debt stood at 164 percent of GDP at end-2013. The bulk of this debt (about 77 percent) is accounted for by short-term nonresident bank deposits, reportedly from Lebanon’s large diaspora and high net-worth individuals from Gulf Cooperation Council (GCC) countries. This implies large gross external financing needs, estimated at 154 percent of GDP in 2014.

<table>
<thead>
<tr>
<th>Table 2. Financial Positions by Sector</th>
</tr>
</thead>
<tbody>
<tr>
<td>------------</td>
</tr>
<tr>
<td>Position in December 2013</td>
</tr>
<tr>
<td>Assets</td>
</tr>
<tr>
<td>Liabilities</td>
</tr>
<tr>
<td>Net position</td>
</tr>
<tr>
<td>Position in December 2003</td>
</tr>
<tr>
<td>Assets</td>
</tr>
<tr>
<td>Liabilities</td>
</tr>
<tr>
<td>Net position</td>
</tr>
</tbody>
</table>

Sources: Lebanese authorities; Fund staff estimates; and Sole’ et al. (2006).

The public sector

The public sector’s (government and BdL) overall position is negative, largely reflecting Lebanon’s large public debt (Table 2). With an average fiscal deficit of 16 percent of GDP during 1993–2006, the ratio of public debt to GDP reached over 180 percent in 2006, from 50 percent in

---

3 The exact origin of deposits is not known owing to the banking secrecy law. Also, the breakdown between resident and nonresident deposits is uncertain, as Lebanese passport holders with an address in Lebanon are usually considered residents even if they live abroad. Deposits are concentrated, with amounts above $1 million making up about 57 percent of total foreign currency deposits.

4 If nonresident deposits are renewed when falling due, as it has been largely the case so far, the external gross financing needs would drop to 31 percent of GDP.
1993. It subsequently fell to 131 percent in 2012, mostly reflecting high growth, but it has since starting climbing back up again. In terms of composition, this debt is almost equally split between domestic currency and foreign currency.\(^5\)

**Public debt is mainly held by Lebanese banks.** At end-2013, banks held about 60 percent of total public debt—about half of the foreign currency debt (and an estimated 70 percent of Eurobonds) and over 60 percent of local currency debt (Table 1).

<table>
<thead>
<tr>
<th>Creditor</th>
<th>Local Curr.</th>
<th>FX</th>
</tr>
</thead>
<tbody>
<tr>
<td>BdL</td>
<td>M/LT</td>
<td></td>
</tr>
<tr>
<td>Banks</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Private</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RoW</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Government Liabilities, end 2013**

![Government Liabilities diagram](image)

Total Liabilities = $67.8 billion

A large share of government funding is also provided by the BdL. The latter holds close to 30 percent of total government debt. On the pound side, the BdL frequently covers demand shortfalls in government T-bill auctions. On the foreign currency side, the BdL offers an overdraft facility to the government to cover the widening gap between its FX payments (including transfers to the publicly-owned electricity company), and receipts (mainly profit transfers from the publicly-owned telecommunication company).\(^6\)

The public debt is mostly long-term. More than 80 percent of government’s debt has a maturity longer than one year. The government has opportunistically taken advantage of favorable market conditions to extend the maturity of its Eurobonds. And recently, rather than raising the interest rate

---

\(^5\) According to Table 1, the public sector’s net financial position (total financial assets minus total financial liabilities) is negative. While this could point to solvency problems, it is not a conclusive indicator as physical assets are excluded.

\(^6\) Following a recent increase in the FX borrowing cap of the government, $2.2 billion Eurobond were issued in February 2015. This, along with lower FX funding needs for the electricity company due to lower oil prices, will provide some (temporary) relief on the overdraft, which had grown to more than $9 billion as of end-January 2015.
paid on shorter-term T-bills during regular auctions, the government has opted instead to extend
the maturity of its local-currency debt by issuing longer-term securities— reducing both rollover-
and interest-rate risk.

**T-bill rates are managed to a large extent by the BdL.** Yields on T-bills are effectively
pre-determined, given the BdL’s role as a residual buyer. This practice has helped contain the
government’s interest bill, which nonetheless remains sizable at about 9 percent of GDP. As a (small)
first step towards improving the T-bill market and its transparency, the Ministry of Finance recently
started publishing an advance calendar for its
auctions, including for longer maturities, which in the past used to be conducted on an
ad hoc basis.

**The BdL maintains significant buffers, as a result of ample FX bank liquidity.** Gross
reserves, excluding gold, stood at a
comfortable $38 billion at end-February 2015,
the equivalent of 12 months of imports or 26
percent of total deposits. However, the net
foreign exchange position (NFEP) has been
deteriorating steadily—in part reflecting the
government’s FX overdraft.\(^7\), \(^8\)

**The BdL’s has significant liabilities to commercial banks—the counterpart to its funding of the government and reserve accumulation.** About 80 percent of all BdL liabilities are
represented by claims from commercial banks—largely in the form of term deposits and CDs with long maturities. Returns on the BdL’s FX facilities are higher than what banks could earn on their foreign assets,\(^9\) and so not only serve to help mobilize foreign currency and boost official reserves, but also indirectly support bank profitability.

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\(^7\) The NFEP adjusts gross reserves for foreign currency liabilities. Both the gross and NFEP metrics exclude gold, which was reportedly valued at $11.9 billion at end-July 2014.

\(^8\) The NFEP declined from $9.5 billion at end-2010 to $3.9 billion in July 2011, when the BdL intervened to defend the pound. Gross reserves were not affected as the BdL issued high-yielding foreign currency CDs and banks placed excess reserves with the BdL.

\(^9\) Recent changes in the risk-weighting scheme for the computation of banks’ capital adequacy ratios may encourage banks to prefer foreign currency placements with the BdL (whose risk weight was lowered from 100 to 50 percent) over direct holdings of government Eurobonds (whose risk weight is still 100 percent). This treatment diverges from the Basel framework. Exposures in pound to both the BdL and the government carry a zero risk weight.
The BdL’s reserve accumulation and support for the government have affected its income position. Most reserves are invested in low-yielding bank deposits and sovereign securities, resulting in a negative interest rate carry that undermines BdL profitability—particularly since 2008, as global interest rates have fallen. These losses were compounded, from 2011 onward, by the sterilization costs associated with budget deficit financing.

Overall, the public sectors’ maturity mismatch has fallen. The net short-term position has turned positive, largely reflecting concerted efforts to extend the maturity profile of government debt, from an average of 3.8 years in 2007 (earliest data available) to 4.3 years at end-2013. While this has mitigated vulnerability to rollover risk, it has also resulted in higher debt-servicing costs.
Currency risk remains elevated, though the short-term FX position is positive. The net FX position of the public sector has deteriorated (to $23 billion or 52 percent of GDP) reflecting the non-financial private sector’s preference for FX assets (deposits). Despite an overall foreign exchange deficit, the public sector’s net liquid FX position has significantly improved, with substantial short-term buffers—consisting though mainly of banks’ reserves, as explained above. Banks’ foreign exchange deposits with the BdL (including CDs) accounted for about 90 percent of gross international reserves (excluding gold) at end-2013.

The private financial sector (PFS)

The overall PFS position is positive (Table 2). However, external liabilities account for over 44 percent of the total liabilities of the sector, reflecting the large share of non-resident deposits.

The net short-term position is negative—as expected given the maturity-transformation role typically played by the banking sector. Deposits are mostly short term. About 85 percent of deposits have a maturity below three months, though they have proved relatively stable during past stress episodes. The short average maturity of banks’ liabilities contrasts with the seemingly longer maturity of banks’ assets. However, banks’ cash and placements with the BdL (including term deposits and CDs) represent about a third of total assets (38 percent of deposits) and could presumably be mobilized if the need arose. Similarly, holdings of T-bills could be used for repo transactions with the central bank. The large maturity mismatch—which has more than doubled since 2003—nonetheless exposes banks to rollover and interest rate risk.
Banks’ overall net foreign currency position has improved, reflecting strict prudential regulations—and so exposure to exchange rate risk has fallen. While deposit dollarization is high (despite Lebanon’s long-standing and stable de facto peg to the dollar), credit dollarization is also high. Three-quarters of bank loans to the non-financial private sector are denominated in dollars. However, despite their overall long position in FX, banks are still indirectly exposed to currency risk, to the extent they lend to unhedged borrowers and so face increased credit risk.

Banks have a large short-term open foreign exchange position. This has more than doubled in the past decade, increasing their exposure in case sudden changes in the exchange rate were to materialize.

The private non-financial sector (PNFS)

The overall PNFS net financial position appears to be positive (Table 2). Data for the non-financial sector is unavailable, so net exposures are effectively inferred (as a residual) from other balance sheets. Consequently, no breakdown between the household and corporate sectors is possible. Nonetheless, based on information from other sectors, the net short-term position of the non-financial private sector is positive—a counterpart to large deposit holdings which, as explained above, are largely short term. The sector enjoys overall positive foreign-currency and FX liquid positions, but these have changed significantly over time. Both FX assets and liabilities have expanded considerably, and the PNFS short-term liabilities in particular have increased sharply over the past decade, bringing the net liquid FX position downward.

10 Depositors prefer to hold most of their savings in U.S. dollars. Deposit dollarization responds rapidly to exogenous shocks, as demonstrated in 2005, when it spiked by about 10 percentage points following the assassination of Prime Minister Hariri in February 2005, reaching a peak of 79 percent in March 2005. Since then dollarization declined significantly to about 66 percent.
D. Conclusions

This note examines Lebanon’s vulnerabilities by looking at sectoral balance sheets and key exposures. By focusing on intersectoral financial claims, balance-sheet analysis can highlight key risks and channels through which possible shocks in one sector can be transmitted to the whole economy. It should be noted, however, that methodological limitations (real assets and off-balance sheet positions are typically not considered) and data shortcomings often mean that the resulting picture is incomplete. This is a particular concern for Lebanon, given its significant data limitations.

Data deficiencies should be addressed. Proper balance-sheet analysis requires a level of data granularity that can be a challenge for many economies, particularly for an emerging market with the institutional and resource constraints of Lebanon. Nonetheless, the authorities should make every effort to move toward international best practice in this area. Most immediately, the absence of a published International Investment Position (IIP) is a key constraint in the identification and analysis of cross-border exposures and spillovers. As a matter of urgency and building on ongoing efforts, the authorities should make this data available as soon as possible.

The strong nexus between banks and the sovereign is both a source of strength and potential vulnerability—more so the latter if public debt continues to grow. On the one hand, Lebanon’s traditional, bank-centered, deposit-funded, financial system has secured a steady and reliable source of funding for both the government and the broader economy. On the other hand, this nexus also represents the economy’s main source of risk. Continued deposit growth is required to fund the government, whose financing needs will persist without a concerted effort at fiscal adjustment. These flows are also needed to sustain the overall liquidity and stability of the financial system, and to ensure the FX buffers that underpin the country’s long-standing currency regime. A sustained and sizable slowdown in these inflows would bring to the fore many of the vulnerabilities identified above, and would confront the authorities with a number of difficult policy choices (see Background Note on Deposit Growth). A credible and sustained reduction in the public debt thus needs to be pursued without delay.
References


VII. DEPOSIT INFLOWS: HOW MUCH GROWTH IS NEEDED?1

Bank deposits are critical to meet Lebanon’s financing needs. In a scenario which assumes a constant reserve buffer and a gradual reduction in Banque du Liban’s T-bill holdings, an average deposit growth rate of about eight percent would ensure the sustainable financing of the public and private sectors. Any prolonged deviation from this level would require substantial policy adjustment.

A. Background

The banking sector remains the economy’s chief source of funding for both the public and private sectors. Indeed, banks hold over half of Lebanon’s T-bills and Eurobonds, and clearly outweigh the relatively underdeveloped stock market as a source of private-sector finance (Nakhle, 2014). In the latter sphere, although private-sector credit comprises only one quarter of banks’ overall assets, this is still sizable relative to the economy.2 In addition, Lebanon’s banks also fund a large portion of the economy’s substantial balance of payments needs, and help the Banque du Liban (BdL) maintain its gross foreign exchange reserves, by either selling or depositing their foreign currency holdings to/with the central bank (see Background Note on Balance Sheet Analysis).

Deposits have been a sizable and steady source of funding. More than four-fifths of banks’ liabilities are in deposits, including a large fraction from nonresidents.3 Bank reliance on wholesale or collateralized funding, therefore, is limited. Despite a challenging operating environment, and with only a few short-lived exceptions, deposit funding has remained relatively stable. Deposit

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1/ Includes deposits of non-resident banks
Sources: National authorities, IMF staff calculations

1 Prepared by Andrew Tiffin (MCD) and Frederic Lambert (MCM).
2 Starting in 2008, the BdL offered subsidy schemes aimed at boosting private sector credit (see Kyobe, Nakhle, and Sadikov, 2012) and Background Note on Credit Growth.
3 According to official data, nonresident deposits account for about 16 percent of total deposits. Depositors are considered nonresidents if they do not have a Lebanese address. Because a large part of the Lebanese diaspora owns real estate in the country, anecdotal evidence suggests that the share of nonresident deposits could be much larger (above 40 percent of deposits).
growth was particularly strong during 2007–10, averaging over 15 percent year-on-year. But more recently, deposit growth has slowed, reflecting the onset of conflict in Syria and a weaker global economy following the financial crisis.

**Attractive yields and a persistent home-bias have contributed to rapid deposit growth.** Except for brief periods, rates on foreign currency deposits have been notably higher than LIBOR. And local-currency deposits, in the context of a long-standing and credible USD peg, have also generally been attractive, offering a premium of 250-500 basis points over their foreign-currency equivalent. Moreover, pass-through from international benchmark rates to domestic-currency deposit rates is generally incomplete and comes with a significant lag, suggesting the presence of significant home-bias (Poddar and others, 2006). In this context, many depositors are high net-worth.

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**Lebanese USD Deposit Rates and Libor (percent)**

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**Lebanese USD & LBP Deposit Rates (percent)**

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**Lebanon. Deposit Dollarization (percent of total deposits)**

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Sources: National authorities, Haver, and IMF staff calculations.
individuals from the region, or have their origins in Lebanon’s worldwide diaspora. Historically, many of these depositors have been attracted by Lebanon’s banking secrecy laws (adopted in the 1950s), free currency convertibility, and the banking sector’s extensive international network (extending across more than 30 countries, mainly within the MENA region). More recently, strong regional growth and high oil prices during 2002-08 further boosted the ability of many of these individuals to increase their investments in Lebanon (see Finger and Hesse, 2009). Overall, while high deposit rates in Lebanon have clearly been a key factor, the banking system’s many other attractions have allowed it to secure sufficient funding at rates that are lower than for many countries with similar sovereign credit ratings.

Most deposits are in U.S. dollars and are of short maturity. Deposit dollarization currently stands at about 65 percent, but the degree of dollarization—along with the level of deposits—can respond strongly to sharp negative shocks. For example, it spiked by about 10 percentage points following the assassination of Prime Minister Hariri in February 2005, reaching a peak of 79 percent in March 2005. Since then, macroeconomic stability combined with the BdL’s policy stance, which has widened the spread between local and foreign currency deposits, have helped bring the dollarization rate back down to 65 percent. Over 85 percent of all deposits have maturities of three months or less, and more than three-quarters of all deposits are above US$200,000.

Deposits are largely invested in government debt or placed with the BdL. Banks hold about 50 percent of the authorities’ local-currency debt and 70 percent of Eurobonds. As a result, overall exposures to the sovereign (government and BdL) now stand at close to 60 percent of banks’ total assets (22 percent in government paper and the remaining 35 percent in deposits and paper with the BdL, see Background Note on BSA).

4 Accurate data on the Lebanese diaspora are not available. According to various sources it is estimated to be as high as 15–20 million (Lebanon’s population is 4.3 million).
Deposit growth has moderated, though inflows continue at a rate sufficient to finance Lebanon’s external- and public-sector needs. However, risks are exceptionally high from a further escalation of the Syrian conflict and an associated deterioration in security, and could lead to a negative investor response. In addition, allegations against Lebanese banks associated with financing of terrorism and money laundering could resurface and further undermine confidence. Finally, a less benign outlook for global trade and growth, along with the ongoing risk of greater market volatility in key global financial centers, may constrain foreign investors’ ability to keep funding Lebanon at the current pace.

The public sector’s overreliance on deposits creates rollover risks. Banks, which have a large exposure to the public sector, are effectively captive investors with a strong incentive to continue financing the government as long as they have sufficient liquidity. Current liquidity buffers appear large enough to sustain a temporary decline in deposit growth. But, a sizeable and sustained decline in deposit inflows could jeopardize bank financing of the government. It could also slow (or even reverse) the accumulation of the BdL FX reserves—the economic indicator that is perhaps watched most closely by domestic and foreign investors alike (see Schimmelpfennig and Gardner, 2008).

B. How much in deposit inflows is needed?

In the context of a partial equilibrium model of the monetary system, the BdL FX reserves essentially reflect variations in deposit inflows. Based on recent trends, the model allocates banks’ loanable funds between private sector credit, Net Foreign Assets (NFA), other assets, and government credit. According to the model, any variation in deposit inflows then translates into a change in BdL FX reserves. The model assumes that there are no major deviations from current policies and abstracts from the second-round impact of deposit flows on macroeconomic conditions (e.g., growth). The main assumptions of the baseline framework are (Table 1):

- **Private sector credit** will stay constant as a percent of GDP. After a significant increase in recent years, Lebanon’s credit-to-GDP ratio is already elevated, with limited room for further growth given current macroeconomic prospects (see Background Note on Credit Growth).

- **Banks’ NFA** will remain constant as a percent of deposits. Because banks have been placing an increasing share of their foreign-currency deposits with the BdL, their NFA have been on a declining trend (as a percent of deposits) since 2009, reaching their lowest level in more than a decade in 2014. The assumption allows banks to continue maintaining sufficient NFA to meet their ongoing liquidity needs for international transactions, and implies that commercial banks’ foreign-currency deposits will remain the main source for replenishing BdL’s FX reserves.

- **Banks’ net other assets** as a share of deposits will continue to remain constant, as observed during the past decade.

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5 Consisting mainly of fixed assets and other unclassified assets.
LEBANON

- **Banks’ net claims on the government** are determined exogenously by the staff’s baseline fiscal projections. We assume that the banking sector will continue to provide about three quarters of net public financing needs. But the BdL will gradually unwind its claims on the government, which will be picked up by commercial banks.

- **Banks’ net open currency position** will remain stable. Deposit and loan dollarization ratios are assumed to remain at their 2014 levels of 66 percent and 73 percent, respectively. Banks will continue matching their foreign-currency assets with foreign-currency liabilities in line with prudential regulations.

- **Banks’ foreign-currency required reserves at the BdL** will stay constant. Local-currency excess reserves (in percent of LL deposits) are currently at historically high levels, but are expected to ease gradually.\(^6\)

**An average deposit growth of about eight percent maintains the reserve buffer.** Gross international reserves would stay at about their current level as a percent of total deposits. Though this level appears to be slightly above the Fund’s composite metric for countries with exchange rate pegs,\(^7\) it might nonetheless be warranted in light of current risks.\(^8\)

**Substantially and persistently lower deposit growth would be a game changer.** Should deposit growth halve to 3½ percent—which corresponds to capitalizing interest earnings while maintaining existing deposits—the BdL’s foreign exchange position would deteriorate significantly. Gross FX reserves (including banks’ NFA) would drop to 11 percent of total deposits by end-2020 from 37 percent in 2014.

**A key caveat to this partial equilibrium approach is that it maintains the baseline macro framework.** Most importantly, a deterioration in the government’s fiscal position would require additional deposits to close the financing gap.

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\(^6\) The pound reserve ratio increases because the BdL gradually unwinds its subsidy schemes. Excess reserves include term deposits held at the BdL.

\(^7\) At US$37.3 billion at end-2014, gross international reserves excluding gold are equivalent to 107 percent of the composite reserve adequacy metric. The composite reserve adequacy metric is calculated as a weighted sum of exports, short-term debt at remaining maturity, and broad money. Other portfolio liabilities, which are usually included in the metric, were omitted because data are not available. However, these liabilities are relatively insignificant for Lebanon and their exclusion should not materially impact the assessment.

\(^8\) Given the dominant role of deposits—accounting for over four-fifths of short-term debt and almost all broad money—reserve adequacy metrics beyond the composite metrics, which are calculated based on these variables, provide little further value added.
C. Policy trade-offs

Policy adjustment would be needed in case of a protracted slowdown in deposit inflows.

Previous stress episodes have shown that Lebanon’s banking system has adequate buffers to resist a temporary slowdown (or drop) in deposit inflows. However, given the keen attention paid by foreign and domestic agents to the level of gross FX reserves, a more protracted slowdown could trigger a negative feedback loop of falling confidence and shrinking deposit flows.

Initially, the BdL might try raising interest rates rather than replacing lower deposit flows by offering added central-bank liquidity to the banking system (with the attendant cost to reserves). This would help stem the drop in deposits, but would also reduce private-sector credit demand, bringing it more in line with the banking system’s more constrained supply of funding. The net result would be a lower rate of private-sector credit growth, and ultimately, a lower rate of GDP growth. As an illustration, and still within the stylized confines of our partial-equilibrium approach, a drop in deposit flows of around 4 percent that was matched by a corresponding drop in private-sector credit growth (say from 6 percent under the baseline to 3 percent under this scenario) would reduce trend output growth by around 1 percentage point.9

9 This estimate is based on the historical experience of a broad range of emerging markets, and is subject to significant uncertainty. See Chen & Rabanal (2015, forthcoming).
But higher interest rates would only provide temporary relief, as an ever expanding interest bill would eventually put unsustainable pressure on government finances.

Also, there is a risk that a sharp increase in interest rates could have a negative signaling effect for market participants, eroding confidence in Lebanon’s overall outlook.

<table>
<thead>
<tr>
<th>Table 2. Simulation Results</th>
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</thead>
<tbody>
<tr>
<td>Gross international reserves (USD billions)</td>
</tr>
<tr>
<td>8-percent deposit growth</td>
</tr>
<tr>
<td>3.5-percent deposit growth</td>
</tr>
<tr>
<td>Gross international reserves (in percent of total deposits)</td>
</tr>
<tr>
<td>8-percent deposit growth</td>
</tr>
<tr>
<td>3.5-percent deposit growth</td>
</tr>
<tr>
<td>Gross international reserves (in percent of broad money)</td>
</tr>
<tr>
<td>8-percent deposit growth</td>
</tr>
<tr>
<td>3.5-percent deposit growth</td>
</tr>
<tr>
<td>Gross international reserves (in percent of total deposits+ banks' nfa)</td>
</tr>
<tr>
<td>8-percent deposit growth</td>
</tr>
<tr>
<td>3.5-percent deposit growth</td>
</tr>
</tbody>
</table>

Sources: Lebanese authorities; and IMF staff estimates.

Ultimately, the appropriate policy response is fiscal consolidation, which would share the burden of adjustment with the private sector, and bring the government’s financing needs back in line with the banking system’s funding capacity.

D. Conclusions

Lebanon’s bank-dominated financial system is subject to a range of risks. Unlike other financial centers, the operating environment for Lebanese banks is significantly more challenging, largely due to elevated political risks and weaknesses in the business climate. A sudden drop in confidence could conceivably prompt a slowdown in deposit inflows and increase the rate of dollarization, leading to reserve losses and pressure on the public-sector’s ability to secure adequate funding. Given the strong nexus between Lebanon’s financial sector and the sovereign, this would lead to a deterioration in key policy buffers:

- **Reserves.** In the context of Lebanon’s dollar peg, deposit outflows would have a direct impact on BdL’s gross FX reserves.
- **Fiscal space.** With banks serving as the chief buyers of government debt, government financing costs would likely increase—placing added pressure on primary spending and further weakening aggregate demand.
• Financial stability. The knock-on impact on bank balance sheets from a revaluation loss in government debt would be sizeable, and could strain the banking system’s capital adequacy.

Lebanon could withstand a temporary loss of confidence. A short-lived and moderate shock—similar to those experienced in 2005-06—would put pressure on reserves and sovereign yields, but would ultimately be manageable given the size of existing buffers.

A more prolonged and large deposit slowdown, however, would require significant fiscal adjustment. Tightening in a time of stress would be pro-cyclical and further exacerbate downward pressure on aggregate demand. But ultimately, measures to restore confidence would be essential to anchor expectations, by signaling the authorities’ commitment to addressing Lebanon’s underlying imbalances, and bringing the government’s funding needs more in line with the financing capacity of the economy.

A credible medium-term consolidation strategy should start now. This is the best way to help preempt possible risks—reducing the government’s financing needs and thus mitigating deposit-related risks.
References


VIII. CREDIT GROWTH TO THE PRIVATE SECTOR: A RISK TO FINANCIAL STABILITY?\(^1\)

The ratio of private sector credit-to-GDP in Lebanon has been rapidly increasing over the past twelve months to reach levels usually found in higher income and more financially developed countries. This note documents the most recent developments in credit in Lebanon and assesses the role of the Banque du Liban’s credit support schemes in the observed dynamics. Although the data show no evidence of a credit boom, credit growth is still very high given the slow GDP growth and the high level of uncertainty.

A. Motivation

Credit growth to the private sector in Lebanon is surprisingly robust. Despite the slowdown in economic activity, credit to the nonfinancial private sector has been growing at more than 9 percent per year in 2013–14, more than four times as fast as GDP. As a result, the private sector credit-to-GDP ratio reached 94 percent at the end of 2014—a record both for the Lebanese economy itself and compared to other countries in the region.

The Banque du Liban has been trying to stimulate credit to the private sector while limiting bank risk-taking. Last December, the Banque du Liban (BdL) provided the details of a new stimulus package to support credit—the third one since 2013. At the same time, the BdL issued a new circular tightening the provisioning rules on both commercial and retail loans. Last August, the BdL also imposed new restrictions on bank lending to households in the form of lower loan-to-value ratios and debt payment-to-income ratios.

B. Recent developments in credit

Credit growth to the private sector has declined since its 2010 peak to stabilize around 10 percent per year, despite deteriorating economic conditions (Figure 1). Bank credit to the private sector places Lebanon well above regional peers and countries of comparable income level.

Loans in Lebanese pounds are growing faster than loans in foreign currency. 72 percent of the loans to the private sector are denominated in foreign currency at end-2014. However this share has been slowly eroding since 2008 as the BdL’s stimulus packages have encouraged credit in LL.

Loans to housing-related sectors have contributed to half of the increase in credit over the last five years. 40 percent of bank loans are housing-related (construction, rental real estate and housing). The share of housing loans to individuals in total loans has more than doubled over the last five years, from 8 percent at end-2009 to more than 16 percent in June 2014.

\(^1\) Prepared by Frederic Lambert (MCM). This note benefitted from very useful discussions with Najla Nakhle (MCD).
Credit growth to the private sector has stabilized around 10 percent per year.

Yet credit-to-GDP is rising fast given the slowdown in GDP growth.

Credit to the private sector to GDP in Lebanon is well above regional and upper middle income-group averages.

The share of credit in foreign currency has decreased since 2008, but most of the loans remain dollar-denominated.

Loans to housing-related sectors account for more than 50 percent of the total loan growth over the last five years...

... and the share of housing loans to individuals in total loans has more than doubled between 2009 and 2014.

Sources: Banque du Liban; IMF, International Financial Statistics ; and IMF staff estimates.
The ratio of bank credit-to-GDP is close to its trend. Following Dell’Ariccia, Igan, Laeven and Tong (2012), the credit-to-GDP ratio is compared to a linear quadratic trend computed over the previous 30 quarters. This approach has the advantage of using only information that is available to policy makers at each point in time. A Hodrick-Prescott trend is used as a robustness check.\(^2\) The resulting credit gap is very small (Figure 2). It has turned positive in 2014 as economic activity has slowed down, but is not a source for concern at this stage. This slightly positive credit gap is consistent with a close-to-neutral financial conditions index (see Box 1).

![Figure 2. Trend Credit-to-GDP and Credit Gap](image)

Credit to GDP is very close to both a linear-quadratic trend and the HP trend. After being negative for a few years, the credit gap has turned positive in 2014.

Sources: IMF, International Financial Statistics; and IMF staff estimates.

C. Banque du Liban’s credit support schemes

The Banque du Liban has been instrumental in supporting credit in recent years. Public credit support schemes are of three types: (i) interest subsidies; (ii) deductions of new loans from bank liabilities subject to reserve requirements; and (iii) reductions of the reserve requirements by part of the amount of new loans. Subsidized-interest loans have existed since 1997 and consist mostly of a 5 to 7 percent subsidy on the interest charged on loans in foreign currency to productive sectors. The subsidy is paid by the Ministry of Finance to borrowers. The other two schemes were created by the BdL and expanded mostly after 2009.\(^3\) They can apply to both loans in foreign currency and in Lebanese pound. All interest-subsidized loans also benefit from reserve requirement exemptions.

Direct reductions of reserve requirements have a larger effect on banks’ effective reserve requirement, as 60 to 100 percent of qualifying loans can be deducted from banks’ required reserves on customer deposits, while the other type of exemption only reduces the basis over which the reserve requirement is computed. In addition to those three types of schemes, a non-

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\(^2\) Because the HP trend is estimated using the entire time series, the deviations from trend observed for previous periods may not have been apparent to policy makers in real time.

\(^3\) Reserve requirements exemptions were first introduced in 2001 to limit the negative effect on bank lending of the tightening of those requirements, decided that same year (see BdL Circular 84 on reserve requirements). Reductions in reserve requirements were extended in 2009 (see Intermediate Circular 185).
profit credit guarantee fund, Kafalat, was established in 2000, to guarantee loans to some sectors (industry, agriculture, information technologies and tourism). Loans guaranteed by Kafalat can benefit from interest-subsidies and from reserve requirement exemptions.

Box 1. A Financial Conditions Index for Lebanon

Financial conditions appear to have tightened over the past year. According to a Financial Condition Index (FCI) we computed, key drivers have been lower deposit growth and an appreciating real exchange rate; offset in part by low global interest rates.

The FCI combines several financial variables that influence GDP growth. It provides a summary measure of domestic financial conditions and can be used to assess macro-financial linkages. In particular, it points to the financial factors that are supporting or slowing real activity at any point in time.

The computation involves three steps.¹
- First, a vector-autoregressive model including financial variables and real GDP growth was estimated using quarterly data. The financial variables in the model include the 6-month LIBOR rate, deposit growth, the spread between lending and deposit rates (both in USD and local currency), and the real effective exchange rate (REER). The sample period covers 1995–2014.
- Second, impulse responses are computed to assess the cumulative impact of a one-unit shock to the financial variables on GDP growth after 6 quarters. Structural shocks are identified through a Cholesky decomposition.²
- Third, the estimated responses are used as weights for each variable in the FCI. All financial variables are expressed as deviations from their sample means.

LIBOR, deposit growth, and the REER are key drivers. Bank interest rate spreads have played a more limited role.

Financial conditions eased significantly after 2008, supporting growth. The loosening reflected higher deposit inflows, lower global interest rates, a real depreciation and falling bank spreads.

But since 2014, financial conditions have tightened, in step with a slowing of economic activity. Deposit growth in particular has decelerated, and is well below its 20-year average. Looking forward, rising global interest rates are expected to further tighten local conditions.

¹ See IMF’s Asia and Pacific Department Spring 2009 Regional Economic Outlook (Box 1.4), and Swiston (2008), “A U.S. Financial Conditions Index: Putting Credit Where Credit is Due,” IMF Working Paper 08/161.

² The ordering assumes that domestic financial variables do not have a contemporaneous effect on GDP growth and that GDP growth and domestic financial variables do not contemporaneously affect the LIBOR rate.

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Source: IMF staff estimates.
The loans benefiting from the credit support schemes have grown much faster than other loans since 2008 except in the last year. Subsidized-interest loans have represented on average 13.5 percent of new loans (computed as changes in outstanding loans) over the period 2008–2014. Bank loans benefiting from reserve requirements exemptions currently make up 16 percent of total outstanding loans but the proportion is 63 percent in the housing sector only (Figure 3).

The list of categories of loans benefiting from reserve requirement exemption is long and quite diverse. While housing is the main beneficiary sector of the exemption schemes, the schemes extend to extremely specific types of loans, such as “loans in Lebanese pounds to Lebanese students for the purchase of tablet computers containing broadband mobile telecommunications technology.”

Since 2013, the BdL has introduced three new “stimulus packages”, for a total of LL 5,110 billion (about $3.4 billion). This amount correspond to the sum banks can borrow from the central bank at a one-percent interest rate to on-lend to certain sectors of the economy. The BdL also introduced a new investment scheme in August 2013 designed to promote investment in Lebanese startup companies in the knowledge economy.

<table>
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<th>Year</th>
<th>Amount in LL</th>
<th>Amount in USD</th>
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<td>2015</td>
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<tr>
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</table>
Figure 3. Interest Subsidies and Exemptions from Reserve Requirements

Subsidized-interest loans have represented between 10 and 15 percent of new loans on average since 2008. In 2014, about 16 percent outstanding loans benefited from reserve requirements exemptions.

...as loans benefiting from the BdL credit support schemes have grown much faster that other loans.

The share of supported housing loans has decreased from 75 percent in 2008 to about 63 percent in 2014.

Sources: Banque du Liban; and IMF staff estimates.

D. Potential risks

The many BdL credit support schemes could pose risks to financial stability. Besides blurring the lines between monetary and fiscal policies, the schemes may create a risk of misallocation of resources with potential adverse consequences for banks. Given the credit growth in recent years, the estimated GDP growth rate for 2014 is low compared to what is typically observed in countries with similar income level, which might reflect an inefficient allocation of credit. Credit misallocation may translate into excessive credit growth in some sectors (for instance, housing), evergreening of non-performing loans and excessive indebtedness of borrowers. In addition, the various reserve requirement exemptions might undermine the liquidity of the banking sector and its ability to withstand sudden and large withdrawal of deposits.

4 The BdL is aware of these concerns. In their view, the 1963 Code of Money and Credit calls for its intervention on social stability grounds.
Excessive housing sector growth?

More than 60 percent of outstanding housing loans currently benefit from reserve requirement exemptions (Figure 3). Housing loans also represent 62 percent of all loans benefiting from reserve requirements exemptions, and this share has been increasing nearly continuously since 2005. Given contribution of housing loans to total lending growth (Figure 1, panel 5), one question is whether the credit support schemes of the BdL have artificially boosted housing sector growth.

Indicators of housing sector growth provide no evidence of a housing boom. In the absence of a housing price index, the growth in the number and average value of sold properties can be used to assess the housing cycle (Figure 4, panel 1). Both indicators grew by close to 3 percent year-on-year in November 2014. This is slightly more than the 2009–14 average growth rate for the number of property transactions but well below the average growth rate for the average value of sold properties (around 11 percent).

Evergreening?

Non-performing loans (NPLs) as a proportion of total loans have increased over the past three years while provisions as percentage of problem loans have dropped. The increase in NPLs reached 12 percent in 2014 and 16 percent in 2013. While the level of NPLs remains reasonable, the pace of the increase may be a source for concern, given the projected slow growth path for the coming years. The decrease in provisioning, in the context of weak loan classification and restructuring rules, could suggest a growing risk of evergreening or rolling over loans to borrowers who do not have the capacity to repay instead of writing them off.
Excessive leverage?

Banks’ average loan-to-deposit ratio has been increasing since 2009 but remains low, at around 40 percent. The increase in the loan-to-deposit ratio comes from the deposit growth slowdown and the concomitant sustained growth in bank lending. Banks’ lending capacity is still large. The overall leverage ratio of the banking system, computed as tier 1 capital over total assets, equals 8.4 percent, which is well above the minimum requirement of 3 percent set by Basel III.

The lack of data prevents an assessment of corporate and households’ leverage, but there are indications that household indebtedness is high given the low growth environment. Debt servicing is said to exceed 50 percent of household income, according to the BdL Governor Salameh. Delinquency rates on retail loans have almost doubled to 3 percent in 2014, and reach 5 percent for car loans. The BdL has thus recently tightened the debt service-to-income ratio for retail and housing loans (respectively to 45 and 35 percent of a household’s income) as well as the loan-to-value for housing and car loans (maximum of 75 percent of the value of the purchased property—see Intermediate Circular 369).

Even in the absence of excessive indebtedness, the typical terms of housing loans are a potential source of vulnerability if interest rates were to increase. Housing loans typically have a maturity up to 30 years and floating interest rates (40 percent of the one-year T-Bill rate + 330 basis points—or 5.44 percent on average in 2014). Until the tightening of macroprudential rules last October, housing loans could cover up to 100 percent of the purchased property.

Reduced liquidity buffers?

Finally, the reserve requirement exemptions associated with BdL credit support schemes have reduced the effective reserve requirements for deposits in Lebanese pound. The reserve requirement on pound deposit is theoretically equal to 25 percent for demand deposits and 15 percent for time deposits (Circular 84). The effective requirement after taking into account all authorized reductions drops to 5.4 percent on average at end-2014. The effective reserve requirement for deposits in foreign currency is close to 15 percent (theoretical requirement according to Basic Circular 86).

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5 The Daily Star, October 27, 2014.
The required liquidity buffers alone would be insufficient to withstand sudden deposit outflows. The distribution of pound deposits by amount is skewed toward high deposits (Figure 5). The skewness and kurtosis are even larger for deposits in foreign currency. Based on this distribution, the withdrawal of the top 200 deposits in Lebanese pound with maturity below one month is estimated to entirely deplete the required reserves.

However, high level of excess reserves in both pounds and foreign currency still provide comfortable additional liquidity buffers. Excess reserves in pounds represent about 17 percent of total pound deposits, while excess reserves in foreign currency are of the same magnitude as the required foreign currency reserves.

E. Policy conclusions

As the credit-to-GDP ratio continues to grow, systemic risk might be slowly building up. The economic downturn does not indeed seem to coincide with a downturn in the financial cycle as suggested by the (small) positive credit gap. The tightening of macroprudential rules (debt service to income and loan-to-value ratios) to limit the risk of over-indebtedness in the household sector is therefore welcome.

The introduction of new credit-support schemes with exemptions from reserve requirements may increase risks to banks. The public credit support schemes provide a double incentive to banks to lend to the private sector. First, the interest rate subsidies and new facilities providing cheap funding to banks encourage lending by decreasing the cost of debt to borrowers without affecting banks’ profitability. Second, the exemptions from reserve requirements further reduce the costs of lending for banks. Those schemes can encourage banks to take excessive risks and lend to borrowers that would otherwise not qualify for a loan. The reserves requirements exemptions also have the side-effect of reducing banks’ liquidity buffers to cover sight deposits.

Interest subsidies have a cost to the government. They represent about 1 percent of total government expenditures (0.3 percent of GDP)—a non-negligible amount given Lebanon’s fiscal consolidation needs. The BdL’s new lending facilities also have a cost for the central bank given the spread between BdL’s lending and deposit rates.

In the absence of clear evidence of supply side constraints in the provision of bank lending and slightly positive credit gap, there is then scope to reconsider some of the public credit support schemes. In particular, the BdL should end its quasi-fiscal credit support programs and focus on maintaining financial stability by strengthening loan classification and provisioning rules and by progressively reducing exemptions to reserve requirements. This would reduce the risk of evergreening and increase banks’ resilience to shocks in a context of low growth and high uncertainty.
References
