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Executive Summary

This paper highlights some key features associated with Lebanon that may directly affect the choices its government makes regarding the best management of revenues from its potential oil and gas wealth. Specifically, it identifies the following features of Lebanon's economic and institutional environment: A high level of sovereign debt and large interest payments that crowd out priority spending and capital expenditure, a banking system whose stability hinges on the government's ability to service its debt, a persistent current account deficit whose financing relies on continued flows of deposits and remittances, an over-valued exchange rate, poor infrastructure, and a weak governance structure and public investment system that are in need of serious reform. Given these macroeconomic and institutional features, this paper argues that rather than aiming to establish a large saving and/or liquidity fund, it is more appropriate for Lebanon, at least initially, to use potential revenues to pay off its large public debt, beginning with the most risky liabilities, namely foreign currency external debt. In the very optimistic scenario that debt is significantly reduced and there are ample natural resource revenues left over, it is worth considering direct cash transfers given the lack of an efficient public investment system, the common perception among citizens of public corruption, and the dynamism of the private sector. However, taking into account the current poor state of infrastructure, there is also a strong case for public investment in infrastructure, given the high rate of return that can be achieved from such investments if an adequate public investment system is put in place.

Introduction

Lebanon is the Levant's most recent candidate to have the potential to join the ranks of East Mediterranean gas producers. The country's waters are believed to hold large hydrocarbon reserves, making offshore Lebanon an attractive location for oil and gas companies. While developing and monetizing these reserves will entail many geological and technical challenges, a key policy challenge that Lebanon will have to face is how to manage its gas and oil revenues in order to maximize the economic benefits for Lebanese citizens. This challenge is pronounced given the country's weak institutional framework and poor governance structure, perceptions of widespread public sector corruption,¹ political polarization, and rising sectarian tensions.

The prospect of natural resource discoveries has already generated a lot of 'hype' in Lebanon. Across the country, billboards sponsored by the Ministry of Energy and Water have been erected along highways announcing a number of promises—better transportation networks, a better healthcare system, more jobs, and a better equipped army—all to be funded by revenues from potential hydrocarbon wealth. Lebanon also has plans to establish a savings fund for future generations; the Offshore Petroleum Law requires that part of the revenues from hydrocarbon wealth should be placed in a savings fund. Specifically, Article 3 of the law stipulates that 'the statute regulating the fund, the rules for its specific management, the principles of investment, and use of proceeds shall be regulated by a specific law, based on clear and transparent principles for investment and use of proceeds that shall keep the capital and part of the proceeds in an investment fund for future generations, leaving the other part to be spent according to standards that will guarantee the rights of the state and avoid serious, short, or long-term negative economic consequences.'²

While it may be many years before Lebanon can find, develop, and monetize its hydrocarbon reserves, it is important for the government to initiate a debate on how best to manage revenues from its potential oil and gas wealth. Lebanon should be wary of importing other countries' strategies, as optimal choices depend on economic and institutional contexts. For instance, a savings fund that could suit a country like Norway (with a high level of per capita income and strong institutional frameworks) might not be appropriate for Lebanon. Similarly, it could make sense for big oil exporters (such as Saudi Arabia, the UAE, and Kuwait) to have a sizeable liquidity fund to cope with oil price volatility, but that may be much less important for Lebanon, whose hydrocarbon reserves could turn out to be relatively modest in size. In short, there is no one-size-fits-all rule, and any future strategy should take into account Lebanon's key economic, political, and institutional features.

¹ See for instance Leenders (2015).

² All laws and decrees are available at the LPA website.

This paper highlights some of the key features that may have direct implications for the Lebanese government's choices on how best to manage oil and gas revenues. Specifically, we identify the following features:

- A high level of sovereign debt and large interest payments that crowd out priority spending and capital expenditure
- A banking system whose stability hinges on the government's ability to service its debt
- A persistent current account deficit whose financing relies on continued flows of bank deposits and remittances from its extensive diaspora
- An over-valued exchange rate
- Poor infrastructure
- A weak governance structure and public investment system that are both in need of serious reform

Given these macroeconomic and institutional features, we argue that rather than aiming to establish a large savings and/or liquidity fund, it is more appropriate for Lebanon, at least initially, to use any potential revenues to pay off the country's large public debt, beginning with the most risky liabilities, namely foreign currency external debt. Debt repayment should be carried out with maximum transparency and accountability, with an emphasis on demonstrating the consequences of debt repayment. In the very optimistic scenario that debt is significantly reduced and there are ample natural resource revenues left over, it is then worth considering direct cash transfers given the lack of an efficient public investment system, the widespread perception of public corruption among citizens, and the dynamism of the private sector. However, given the poor state of current infrastructure and some of the shortcomings associated with cash transfers, there is also a strong case for public investment in infrastructure if an efficient public investment system is put in place.

This paper analyzes and evaluates possible policy responses to Lebanon's potential gas discovery in the Levant basin. Section one discusses the perils which can befall countries enjoying an abundance of natural resources: The so-called 'resource curse' and 'Dutch disease'. Our strategy is first to survey the general lessons from the literature, and then to outline the current economic vulnerabilities and resiliencies of Lebanon. Section two examines issues relating to the management of resource revenues. Section three then focuses on the macroeconomic and institutional issues facing Lebanon, before combining the insights of the previous sections and making policy recommendations in section four.

It remains unclear how large or small Lebanon's gas discovery will be and how much rent will be earned; it is thus not possible at this stage to calculate the size of the windfall or its significance relative to the country's GDP. Therefore, this paper will approach the issue of how best to manage oil and gas revenues from a purely qualitative perspective.

I The Resource Curse and Dutch Disease

Revenues derived from the sale of exhaustible resources such as oil and natural gas have three special features. First, exhaustible resources are depletable by definition and hence streams of revenue derived from these resources are only temporary in nature. Second, given the high volatility in oil and natural gas prices, revenues streams are highly volatile. Third, rents from oil and gas are often large, typically larger than those for other commodities, and are often received by a local monopolist producer (Ross 2012). These special features present governments with challenges and difficult policy choices (Collier et al. 2010).

Since revenues are temporary in nature, decisions on how much to save and in what assets to invest to secure a sustainable consumption path are of paramount importance, with far reaching consequences for the domestic economy. Saving is key to transforming exhaustible subterranean reserves into a portfolio of assets that yield a regular flow of income to a country's citizens (Collier and Venables 2011), although saving all the revenues from a resource boom is economically undesirable. However, using all the revenues from a resource boom to boost private and public consumption is unsustainable in the long-term. Once the resource boom is over consumption must fall, and given consumption habits and most governments' commitment to higher consumption levels, this strategy is highly undesirable both economically and politically (Collier et al. 2010). Governments can use these revenues to kick-start their economies through investment in public infrastructure and human capital, to tackle poverty and inequality, and/or to reduce the vulnerability of their economies—for instance by reducing the size of external debt. Second, since revenues are volatile by nature, a government must design appropriate tools to smooth the impact on the economy and protect the country from some of the resource curse and Dutch disease effects. Third, as revenues accrue (in the form of a large rent to the government) it is necessary to complement these tools with the construction of effective institutions that promote good governance, fiscal accountability, and transparency in order to assure citizens that the rents are being converted into national productive assets.

There is a large body of literature that links dependence on natural resources to poor economic performance (the so-called 'resource curse').³

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See for instance Gelb (1988), Sachs and Warner (2001), Bulte and Wick (2009), Frankel (2010), van der Ploeg (2011), and Ross (2012).

An established conclusion from the literature on the resource curse is that higher price volatility exerts a negative impact on economic growth, acting through a lower accumulation of physical and human capital. Collier and Goderis's (2008) dynamic panel estimates provide strong evidence that high rent non-agricultural commodity booms have only short-lived favorable effects on output and that the lower average growth rate of commodity-exporting economies is almost entirely due to a higher incidence of sharp slowdowns. However, 'the resource curse is not cast in stone' (Collier et al. 2010, Collier and Venables 2011). While some countries have been able to harness resource revenues for sustained growth, others have not, with governance and the quality of institutions playing a key role (Mehlum et al. 2006, Acemoglu et al. 2001). If the size of the hydrocarbon find in Lebanon proves to be large and no measures are put in place to strengthen institutions and governance structures, a prudent view is that 'resource curse' and corruption considerations are likely to apply in full force in the case of Lebanon.⁴

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In the context of Lebanon, see Leenders (2015).

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For early contributions see Corden (1984), Corden and Neary (1982), and Van Wijnbergen (1984). For more recent contributions, see Rajan and Subramanian (2005) and Ismail (2010).

Another related concern is Dutch disease.⁵ Strong capital inflows can cause real exchange rate appreciation and can trigger a boom in the non-tradable sector—mainly in construction and banking—by lowering import prices or stimulating external credit (Collier et al 2010; Hausmann and Rigobon 2003). While other export-orientated sectors can lose out, total GDP is buoyed by the oil and gas sector and by the non-tradable sector. However, a boom in the non-tradable sector undermines financial resilience and exposes an economy to high risks when world oil and gas prices and revenues fall. Furthermore, exchange rate appreciation affects the entry of firms into the tradable sector, limiting diversity in production and hindering firms from developing their export capability. Using data on forty-one resource exporters for the 1970 - 2006 period, Harding and Venables (2013) find that the impact of the export of natural resources falls most heavily on non-resource exports; with every dollar increase in resource exports being associated with a \$.74 contraction in non-resource exports and a \$.23 rise in imports. The recent experience of Lebanon shows that while its banking sector has shown resilience in the face of many political and financial crises, its economy is still prone to volatility and instability caused by real estate expansions and contractions, a relatively weak tradable sector, and persistent current account and budget deficits. Therefore, in the absence of countervailing measures, Lebanon could be affected by Dutch disease, particularly as its currency is already showing signs of over-valuation (IMF 2012a).⁶ A specific concern is that a sharp real appreciation of the currency could undermine the competitiveness of the tourism sector, resulting in employment losses.

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It is important to stress that while there is strong evidence that resource booms are associated with some of the Dutch disease effects (such as: appreciation of the real exchange rate, factor reallocation, and the reduction of manufacturing output and net exports), any evidence that Dutch disease reduces economic growth is not conclusive. See for instance (Magud and Sosa 2010).

II Managing Resource Revenues: Three Key Questions

Policy makers expecting an influx of revenues due to a resource boom face three interrelated policy decisions. The first is how much to save from resource rents. The second is how to protect the economy from volatility in revenues. The final one is how to select the type of financial assets the country should invest in (in other words, the form of saving) (Collier et al. 2010). There are no clear-cut answers to any of these questions and the optimal choice depends on the country's specific conditions such as: The level of economic development, quality of institutions and governance structures, efficiency of the public investment system, and sources of macroeconomic vulnerabilities.

a How Much to Save from Resource Rents?

One of the key choices facing policy makers is how much to save from a resource boom. Sustainable development depends on the ability of a government to transform rents from hydrocarbon resources into a sustainable source of income, through saving and investing part of the revenues in a portfolio of assets (Collier and Venables 2011). According to the permanent income hypothesis (PIH), consumption out of temporary income should be kept to a minimum and should have the following profile: At the time of the natural resource discovery, when permanent income is above actual income, the government should borrow and accumulate debt. When actual income is above permanent income, the government should save and accumulate assets and/or pay off its debt. At the point when the resource is exhausted, the size of the fund and the level of consumption should be such that the interest received from the fund equals increased consumption (Collier et al. 2010). In other words, given the temporary nature of the windfall, the recommendation is to build up sufficient foreign assets that generate income such that a permanent increase in consumption is sustained after an exhaustion of a natural resource. The Bird in Hand theory is even more conservative, suggesting that governments should consume only the interest earned on financial assets accumulated from the natural resource windfall. Based on the experience of Norway, many have recommended that revenues from exhaustible resources should be saved in the form of foreign financial assets under the auspices of a sovereign wealth fund.⁷

One implication of both PIH and Bird in Hand theories is that consumption should grow slowly and reach its maximum level only after the resource has been exhausted. They also tend to place much more weight on the welfare of future generations vis-à-vis the current one and hence provide a sense of inter-generational equity.

The PIH has been criticized for not taking into account the possibility

⁷ See for instance Davis et al. (2001) and Barnett and Ossowski (2003).

that some economies may suffer from shortages of capital and/or face tight constraints on public spending and external borrowing (Takizawa et al. 2004, Collier et al. 2010, Araujo et al., 2012, Baunsgaard et al. 2012). Many have argued that if the economy is capital-scarce, then devoting part of the revenues to scaling-up investment and consumption can have positive effects on the domestic economy (Wakeman-Linn et al. 2004). In other words, it is not always the case that saving in the form of foreign assets is superior to investment in domestic assets. If the return on domestic public and private investment is higher in capital-scarce economies than the alternative return on foreign assets and/or if relaxing the constraint on public investment can induce a shift in economic growth to a higher path and/or help the country escape poverty traps (Baunsgaard et al. 2012), then the strategy of building a sovereign wealth fund can be associated with a high opportunity cost in terms of foregone growth and higher and better quality capital and human stock. It is important to note that in the case of capital scarcity, the implications in terms of consumption and saving are different from those of the PIH. First, the increase in consumption is largest for the current generation. This may not necessarily imply inequitable inter-generational distribution, as future generations are likely to be richer than the present one. Second, when capital is scarce, not all of the windfall should be invested in foreign assets, part of it should be allocated toward building domestic capital stock. The optimal balance will depend on many factors including the level of a country's development, the efficiency of public investment, and the quality of institutions (Collier et al. 2010).

While there is a strong case for investing part of the resource rents in a capital-scarce economy, other considerations should be taken into account. If capital accumulation occurs too fast, the efficiency of capital formation may fall and the price of purchased investment goods and raw materials can rise. Furthermore, rapid increases in public spending can lead to lower scrutiny and hence low quality spending (Collier and Venables 2011). Thus, in addition to the volume of investment, the quality of investment also matters. If public investment is directed toward poor quality projects or is plagued with corruption,⁸ then the chances of placing the economy on a higher growth trajectory are slim and future generations may be worse off. Furthermore, the economy may suffer from the 'absorptive capacity' problem due to bottlenecks, especially in the non-tradable sector (Buffie et al. 2012). This could result in exchange rate appreciation, exacerbating the Dutch disease problem (Collier and Venables 2011).

One of the implications of the absorption constraint problem is that there are limits on the extent to which governments can increase their investment in the domestic economy. Consequently, the level of

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For instance, Collier and Venables (2011) give examples of rampant corruption in construction projects and ghost construction firms.

spending should be set in such a way that it is consistent with prudent macroeconomic management, the ability of governments to implement efficient spending choices, and efforts to minimize some of the Dutch disease effects. The revenues not spent domestically should be invested in foreign financial assets. Thus, in addition to inter-generational equity and consumption smoothing considerations, investing in foreign assets can be used for 'parking' purposes, until the absorption constraints facing the domestic economy are diminished (van der Ploeg and Venables 2012).

b How to Cope with Revenue Volatility?

The decision on how much to save should not be separated from another related key decision: How to cope with volatility in oil and gas revenues. Mansano and Rigobon (2001) show that the natural resource curse is not caused by excessive dependence on natural resources, but by credit market imperfections, which amplified the debt cycle in many resource-rich countries. Specifically, an increase in the price of natural resources relaxed the credit constraint, allowing governments to increase their foreign debts. When prices then fell, countries were not able to access credit markets, forcing them to repay part of their debts. Devaluations and other contractionary measures that followed debt restructuring took their toll on growth. Van der Ploeg and Poelhekke (2009) allow both for both a direct effect of natural resource dependence on growth and an indirect effect of natural resources on growth performance via volatility. Using cross-sectional analysis, they find that the direct positive effect of resources on growth is overshadowed by the indirect negative effect through volatility. In a similar vein, Cavalcante et al. (2011) find that volatility rather than resource abundance per se drives the resource curse paradox.

In theory, in the presence of perfect insurance markets, there is no reason why governments should establish stabilization funds to cope with revenue volatility (Daniel 2001). Governments can hedge against revenue volatility through the use of financial instruments such as futures, options, commodity swaps, and other bespoke instruments. In practice, however, very few governments have resorted to these instruments; this indicates the difficulties involved in hedging commodity prices through the use of derivatives markets. These difficulties include the short-term maturity of some of these financial instruments, the lack of expertise in hedging, limited access to futures markets, the cost of hedging, and the fear of political backlash if the options are not exercised. Thus, rather than reliance on insurance markets, evidence suggests an ever-increasing reliance of oil and gas producers on liquidity funds to stabilize oil and gas revenues.

In the absence of opportunities to hedge, the first and most straight

forward option is to allow foreign assets and liabilities to fluctuate in response to volatile oil and gas revenues. In other words, the government can establish a sovereign liquidity fund (SLF) or stabilization funds to invest in foreign assets when prices are high and draw on these assets when prices are low. This will help shield the economy against fluctuations in domestic consumption and investment. To retain flexibility, stabilization funds largely invest in highly liquid assets (Al-Hassan et al. 2013), often yielding a low rate of return.

Although the general principles and rules for establishing a liquidity fund are straightforward, their implementation in practice is quite complex. One key issue is how big the stabilization fund should be. There are many factors that enter into this decision, including the prudence of policy makers, the extent of volatility of the revenue flow, and intergenerational inequality aversion (van der Ploeg 2010, van den Bremer and van der Ploeg 2012).⁹ Van den Bremer and van der Ploeg (2012) show that the optimal savings rule requires the balancing of investment needs against liquidity needs and as such, the size of optimal buffers varies tremendously across countries. Some studies have found that to smooth revenues effectively, a large fraction of the resource boom should be saved,¹⁰ especially under the realistic case of imperfect information. Daude and Roitman (2011) show that misperceptions about the underlying process driving commodity prices can lead to substantial over or under saving, with important associated costs. Furthermore, the effectiveness of stabilization funds is also an issue. Davis et al. (2001) show that in countries with stabilization funds, the establishment of the fund did not have an identifiable impact on government spending. This may, however, suggest that it is only those countries with more prudent expenditure policies that tend to establish a fund, rather than the assumption that the fund itself leads to increased restraint on expenditure.

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Van der Ploeg (2010) shows that factors such as rising scarcity rents, temporary oil price spikes, declining paths of oil revenues caused by temporary booms in oil demand, and more aggressive oil depletion policies undertaken by prudent policy makers will increase precautionary savings.

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For instance, Cherif and Hasanov (2012) show that precautionary savings should be sizable, about 30% of initial income. This, however, is affected significantly by the productivity of investment in the tradable sector. If productivity is sufficiently high, the investment rate increases substantially (from about 15-20% to about 50% of initial income), reducing the need for large buffer stock savings.

c How to Allocate Revenues?

Governments face different options when it comes to the allocation of hydrocarbon revenues (Collier et al. 2010). These can be broadly divided into five different channels:

- Distribute revenues directly to citizens through cash transfer schemes, by introducing subsidies and other social protection schemes, and/or by lowering taxes
- Increase public spending that could either be directed toward public consumption (for instance wages) or investment in public assets (such as schools, roads, water, and electricity)
- Increase public lending to the private sector, for example by establishing development banks

- Reduce the size of the domestic and foreign sovereign debt by using revenues to pay off existing debt
- Accumulate foreign financial assets through Sovereign Wealth Funds (SWFs) and/or by building foreign reserves at the central bank

Each of these options to allocate revenue differs fundamentally in various aspects, most importantly in whether the decision to save and invest is left to the government or to the private sector.

1 Cash transfers, subsidies, and tax adjustments

Recent literature on natural resources has shown great interest in cash transfers.¹¹ The idea is for the state to simply transfer resource revenues, as they are earned, to resident citizens at a fixed amount per head. These transfers can be universal or targeted toward certain segments of society. It is often argued that there are important benefits to cash transfer schemes (Birdsall and Subramanian 2004, Gillies 2010). In essence, it avoids the risk of triggering a voracity effect or appropriation by the rent-seeking elite. In a similar vein, some have argued that cash transfers have the advantage of keeping funds out of a government's hands, especially if that government is perceived to be corrupt. Another advantage is that cash transfers place the decision to invest in the hands of individuals in the private sector who are in a better position than those in the public sector to identify productive projects. Furthermore, cash transfers, if large enough, can help relieve some of the credit constraints facing individuals, enabling better access to credit markets (Collier et al. 2010).

However, cash transfers have their own problems. Given that financial markets are imperfect, the cash may be spent or saved by individuals in ways that are not socially optimal. For instance, individuals may attach little weight to the welfare of future generations and decide to invest little of the cash transfer—using the transfer instead to increase consumption. Furthermore, the financial system may not provide individuals with the appropriate financial assets to enable them to make optimal decisions, in which case, a large-scale cash transfer policy would have to be backed by both increasing the efficiency of, and developing, the financial system (Collier et al. 2010). In addition, implementation of cash transfer schemes, especially schemes targeted toward the poor,¹² involve many institutional, infrastructural, and technical challenges which should not be underestimated.

Rather than distributing revenues through pure cash transfer schemes, the government can provide natural gas, petroleum products, or electricity, at subsidized prices. Subsidies are highly popular among citizens and, if universally applied, are one of the ways of distributing revenues without necessarily building institutional capacity. However,

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See for instance Sala-i-Martin and Subramanian (2003), Birdsall and Subramanian (2004), Gelb and Majerowicz (2011), Moss (2011).

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Targeted transfers can suffer from systematic shortcomings such as administrative and private costs and problems in assessing income levels and in identifying beneficiaries; this can lead to incomplete coverage, as well as social stigma. Unsuccessful targeted programmes can bring about loss of political support for the scheme, hence reducing the allocation of resources devoted to it. See (Van de Walle 1998).

energy subsidies often come at a huge cost (Fattouh and El-Katiri 2013, IMF 2013). Energy subsidies distort pricing signals and result in a misallocation of resources, preventing the country from optimizing the use of its resources and potentially leading to underinvestment in the energy sector (Fattouh and Mahadeva 2014), causing fuel shortages. Although energy subsidies constitute an important social safety net for the poor, they are regressive in nature because in many instances richer households tend to capture the bulk of subsidies. Energy subsidies also have negative environmental impacts as they encourage wasteful consumption of fossil fuels. Finally, energy subsidies once introduced are very difficult to reverse, reducing flexibility in designing macroeconomic policy.

Rather than cash transfers and subsidies, the government has the option of reducing taxes on individuals and/or the private sector. If these taxes are distortionary, the overall impact on the economy can be positive. However, in countries where tax rates and tax collection efforts are low, governments should be wary about reducing taxes. Recent studies suggest that taxation is key for 'state-building' and any reversal in the government's effort to build its tax base could have serious drawbacks.¹³

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See for instance Bird et al. (2006), Brautigam et al. (2008), and Everest-Phillips (2008).

2 Increasing public spending

Rather than leaving investment decisions to the private sector, the government can use resource revenues to increase its spending. While current government expenditures (such as wages for public sector employees) are normally classified as consumption, public investment in infrastructure projects and/or spending on health and education can be considered a form of saving, but only to the extent that a capital stock that provides a permanent flow of productive services is created. Furthermore, rather than crowding out private investment, recent evidence suggests that public spending complements investment by the private sector. Erden and Holcombe (2005) apply several pooled specifications of a standard investment model to a panel of developing economies for the period 1980 to 1997; they find that public investment complements private investment, and that, on average, a 10% increase in public investment is associated with a 2% increase in private investment. Therefore, if part of the revenue is not used to release the public finance constraint, there could be a high opportunity cost in terms of forgone higher capital stock.

One key issue concerning public investment is its quality and efficiency. Evidence shows that in many countries the efficiency of public investment is generally quite low due to the lack of a well-trained civil service, poor project selection, investment in white elephant projects that are politically attractive but have a low rate of

return, delays in design and completion of projects, inadequate checks and balances in the political and budgetary process, corrupt procurement processes, cost over-runs, incomplete projects, and failure to operate and maintain assets effectively, resulting in benefits being lower than projected (Chu et al. 1995). Thus, while in principle the use of resource revenues to scale up public spending yields higher returns when compared to parking funds abroad, the government must ensure that it puts in place a well-functioning public investment system, which is a very challenging task (Collier and Venables 2011).

3 Public lending to the private sector

Another route is for the government to use revenues to increase public lending to the private sector, for instance through the establishment of development banks (Collier et al. 2010). This has the effect of transferring the decision to invest to the private sector, while enabling the government to retain control of macro-aggregates through controlling the volume of public lending. Experience with development banks, however, has been poor. Development banks can develop discretionary powers to ‘pick winners’ and can create an environment conducive to cronyism as they can be open to political interference, poor governance, and outright corruption (Gutierrez et al. 2011).

4 Debt repayment

An alternative is for the government to repay—partially or fully—its domestic and foreign debt. Van der Ploeg and Venables (2012) find that if a country faces debt-elastic foreign interest, then it is optimal for the government to use part of the revenues to pay off its debt, especially foreign debt. They find that there is a positive relationship between the stock of foreign debt and credit spreads and that the reduction in spreads due to lower debt stock has a positive impact on investment and growth. Another effect of reducing the size of government debt is to induce banks to hold assets other than government assets (such as bonds) and make credit more available to the private sector. However, this is not automatic and depends on the availability of investment opportunities, the ability of banks to assess risk, and their willingness to increase lending to the private sector, especially in an environment where data about borrowers is of poor quality and contract enforcement is weak. In fact, empirical evidence suggests that a reduction in domestic debt is associated with a small increase in bank lending to the private sector (Collier et al. 2010).

5 Accumulation of foreign assets

The government can use resource revenues to accumulate foreign assets through the central bank or sovereign wealth funds (SWFs). The

motives behind establishing SWFs are various and include: Fiscal and macroeconomic stabilization, setting aside funds for future generations, and establishing development funds and pension reserve funds (Das et al. 2010, International Working Group on Sovereign Wealth Funds 2008). Given the multiple objectives, there is no straightforward manner by which to assess the effectiveness of SWFs. For instance, evidence suggests that SWFs have not always been effective in smoothing out government spending over the price cycle (Davis et al. 2001). Furthermore, if SWFs are not properly designed (for instance by not integrating them into the budget system, or by not instituting flexible operational rules, and/or by failing to promote transparency and accountability), they can have undesirable effects on the economy. Also, as argued above, establishing an SWF can entail a large opportunity cost if funds could otherwise be used in the domestic economy to build capital stock, improve infrastructure, and/or reduce the size of public debt.

6 Analysis of the options

In short, while the literature is quite extensive and diverse, it is possible to draw the following broad conclusions:

- There is no one-size-fits-all rule for the form of saving, nor is there for the amount saved. Therefore, before drawing any policy recommendations, it is important to understand the macroeconomic context in which policy decisions are being made, analyze some of the salient economic and institutional features of the country in question, and try to identify key sources of economic vulnerability
- Establishing savings or sovereign wealth funds by accumulating foreign assets is only one of the many options available and while it helps to achieve intergenerational equity and helps protect the economy from Dutch disease effects, this policy is perhaps not the most suitable in countries with scarce capital, poor infrastructure, and high levels of debt
- In countries that suffer from absorption constraints and institutional deficiencies, scaling up public investment should take place gradually. Hence, there is a precedent for parking funds until the right institutional framework is put in place or constraints are alleviated
- To cope with volatility in oil and gas revenues, governments need to establish liquidity funds, though the size of such a fund depends on a wide range of factors, with some countries requiring much larger liquidity funds than others

III Macroeconomic and Institutional Context

On the basis of its GDP value added per capita, Lebanon is categorized as an upper-middle income country. The country's private formal value added income has been generated mainly from its service sectors: Retail trade, commercial and financial services, tourism, and construction (Nahkle 2011). Agriculture and manufacturing are less important for formal GDP, but along with tourism, these dominate export receipts. Nevertheless, imports have outstripped exports, and Lebanon has persistently had a trade and current account deficit (table 1).

The trade deficit is only partially offset by another crucial feature of Lebanon's economy: The size of remittances from its extensive diaspora. Remittances are so large that they can be considered another productive sector. Lebanon received remittances that peaked at 23.9% of GDP in 2008, and were 16.1% in the latest data for 2012 (World Bank 2014). As far as can be gathered from survey data, and extrapolating from other countries' experiences, these remittances are spent on consumption (including imports) and residential construction. This, in part, explains the strong growth in household-orientated sectors in Lebanon. However, there is also evidence that remittances finance education, which is important given that Lebanon's education system is predominantly private (Chaaban and Mansour 2012).

Gross capital formation as a ratio of GDP is relatively high for the non-government sector and stood at about 27% in 2010. This contrasts the low level of gross capital formation by the government of less than 1.5% of GDP in the same year (table 1). Lebanon also receives strong inflows of FDI; according to UNCTAD in 2012, its net FDI stock was 128% of GDP. Prima facie, this indicates that the Lebanese private sector is adding to its productive stock and supporting future growth in domestically generated GDP per capita. However, a more accurate picture would be obtained by adjusting these gross investment rates for locally measured rates of depreciation and also for riskiness, to calculate the true addition to productive capital. Indeed, most FDI inflows tend to go into real estate and retail commercial property (Credit Libanais 2012).

Table 1: Selected macroeconomic indicators for Lebanon

	2009	2010	2011	2012	2013	2014
Gross capital formation (government, % of GDP)	1.4	1.4	1.8	3.3	2.9	2.9
Gross capital formation (non-government, % of GDP)	32.2	26.7	19.6	20.7	23	23
Gross national saving (government, % of GDP)	-6.8	-6.0	-6.6	-5.0	-5.2	-5.2
Gross national saving (non-government, % of GDP)	30.7	23.6	13.8	15.2	18.1	19.1
Overall balance (% of GDP)	-8.2	-7.5	-8.3	-8.3	-8.1	-8.0
Total government debt (% of GDP)	146	137	134	132	130	130
Current account (% of GDP)	-9.7	-10.6	-14.1	-13.9	-13.0	-12.0
Gross reserves (Billions of U.S. dollars)	27.4	30.2	30.6	34.4	37.6	41.6
Gross reserves (% of short-term external debt)	52.6	56.4	55.4	56.9	55.4	54.8

Notes: **Actual figures for 2009; Preliminary figures for 2010; Projected figures for 2011-14.**
Source: **IMF (2012a).**

Lebanon's educational output is of a very good standard. The World Economic Forum (2013) ranks the country's education sector highly in terms of access, quality of provision, and attainment; in 2013 it placed Lebanon at 32 out of 122 countries (sandwiched in between Spain and Hungary), scoring much better than the average upper-middle income or Middle Eastern country. The health and wellness of the nation's workforce is similar to the average of the region. The population is young with favorable demographics, without the looming pension or age-related health sector liabilities of other countries. However, this favorable picture disguises the difficulties faced in translating higher educational attainment into improved productivity in the resident workforce. Lebanon's workforce and employment prospects are relatively weak according to the World Economic Forum (2013), which ranked the country at a low 96 out of 122 countries in terms of its workplace human capital. Labor participation rates are low and the country is estimated to have a poor capacity to attract high-level talent and train staff. Furthermore, the high average levels of education mask deep differences: Lebanon has a relatively large poor population and according to Laithy, Abu-Ismaïl, and Hamdan (2008) about 20% of its population lived on less than \$4 a day in 2008. Unemployment is high (youth unemployment is particularly high at 34%) and there is a large informal sector (World Bank 2012). The average labor share of income for Lebanon is relatively low for an upper middle-income country,

with a higher share going as profits (Guerriero and Sen 2012). The dual nature of Lebanon's labor market can be explained by the high levels of immigration of less qualified workers from neighboring countries, notably Palestine and more recently Syria, such that the number of people residing in Lebanon, but born elsewhere, represented 17.5% of the population in 2010 (World Bank 2014).

The Lebanese banking sector became a special case internationally when it expanded strongly in the aftermath of the 2008 global financial crisis. Its resilience comes from the fact that it holds many foreign deposits and a large part of the remittances are intermediated through the banking system, while the external crisis encouraged additional inflows. Foreign residents' deposits were 19.35% of all deposits in 2013 and are mostly in foreign currency (Kanj and El Khoury 2013). In general, Lebanese banks are heavily deposit-funded rather than debt-funded and these deposits have proved resilient even in the face of Lebanon's political and conflict risks. On the asset side, banks hold relatively large amounts of government debt. However, in recent years, banks have expanded their private sector lending share, though much of this remains concentrated in real estate and in trade-related and consumption-orientated sectors.

The Lebanese central bank holds large foreign and gold exchange reserves, of about the same size as the country's GDP, and has maintained a fixed exchange rate with capital mobility, by a policy of sterilized interventions and keeping domestic interest rates high. The IMF (2012a) estimates that the country's currency is overvalued in the range of 3% to 17%, depending on the method used. Gross official reserves (excluding gold) stood at \$30.2 billion in 2010, accounting for almost 56% of short-term debt. These reserve levels place Lebanon typically in the top five across countries when measured as a ratio of GDP. Yet, given the risks concerning Lebanon's capital flows, its large sovereign debt, and import dependence, they are arguably at the appropriate level.

Lebanon's other outstanding economic characteristic is its very high level of sovereign debt. Total gross sovereign debt was close to 146% of GDP in 2009 and declined to 127% of GDP in 2010 (table 2). Despite a fiscal adjustment program by the government, it is projected to remain above 130% of GDP for the rest of the decade. To some extent, the high levels of debt are a legacy of reconstruction following the civil war. However, current government spending continues to be high; in 2010 the overall deficit was over 8% and this is expected to persist until the end of the decade. A major factor is the high level of transfers from the state in the support of lower-than-market prices for electricity (IMF 2012b). State support for *Electricité du Liban*, the state-owned electricity company, reached 4.61% of GDP in 2011—the sixth-highest

among seventy-five countries worldwide that provide electricity subsidies and the highest among seventeen countries in the MENA region (Byblos Bank 2013). By contrast, the cost of the state social safety net through official channels is small, estimated at about 1% of GDP in 2010, which is low by international standards (IMF 2012b).

About half of Lebanon's debt is held domestically, mainly by its commercial banks (table 2). Interest rates payments on debt are high at 7% of domestic currency debt, 4% on foreign currency debt, and hence 11% in total as a percentage of GDP in 2009 (falling slightly to 10.2% in 2010, see table 3). Payments would be even higher if Lebanon did not maintain a reputation for meeting payment and without the perceived high levels of official support from other countries. Payments would also be higher if remittance flows shrank further, given the extraordinary dependence of the economy on this sector.

Table 2: Lebanon government debt, 2009–14 (US\$ millions unless otherwise indicated)

	2009	2010	2011	2012	2013	2014
Gross debt	51,152	52,602	54,372	58,022	61,860	65,926
Banking system	37,558	38,318	40,541	42,767	45,370	48,146
Non-banks	13,594	14,284	13,831	15,254	16,490	17,780
Euro-bonds	5,402	5,349	5,236	6,022	6,955	7,986
Concessional loans	3,018	2,807	2,621	3,199	6,955	7,986
Foreign currency T-bonds	297	49	53	53	53	35
Gross debt (% of GDP)	146	127	129	127	126	126
Net foreign currency debt (% of gross debt)	42	39	38	42	45	48

Notes: **Actual figures for 2009 and 2010; Projected figures for 2011–14.**
Source: **IMF (2012a).**

Table 3: Central government overall deficit and financing, 2009–14 (% of GDP, unless otherwise specified)

	2009	2010	2011	2012	2013	2014
Revenues	24	21.9	22.2	24.2	24	23.9
Tax revenue	17	17.2	15.7	17.7	17.6	17.5
Non-tax revenue	5.8	3.5	5.4	5.4	5.4	5.4
Other treasury revenue	1.1	1.1	1.2	1.1	1.1	1.1
Expenditures	32.5	29.2	30.7	32.6	32.1	32
Current primary expenditure	20	17.6	19.6	20.7	20.6	20.5
Interest payments	11	10.2	9.3	8.6	8.7	8.6
Capital expenditure	1.4	1.4	1.8	3.3	2.9	2.9
Overall balance (% of GDP)	-8.2	-7.5	-8.3	-8.3	-8.1	-8.0

Notes: **Actual figures for 2009 and 2010; Projected figures for 2011–14.**
Source: **IMF (2012a).**

Lebanon also suffers from very poor infrastructure (IMF 2012b). In its latest Global Competitiveness Report, the World Economic Forum ranks Lebanon at 140 out of 144 countries in terms of the quality of overall infrastructure (table 4). One particular indicator in which Lebanon performs quite poorly is the quality of electricity supply, where the country ranks at the bottom of the competitiveness table. One of the reasons for the country's poor infrastructure is low investment by the government—whose capital spending accounted for only 1.4% of GDP and less than 5% of total expenditure in 2010 (table 3). In fact, in that year, interest payments accounted for more than one-third of total expenditure, crowding out any expenditure on infrastructure projects or social safety nets. Another factor explaining Lebanon's poor infrastructure is its market structure, under which key services such as electricity and water are dominated by state-owned monopolies, with no competition and very limited or no participation from the private sector. A direct implication of poor infrastructure (and of a poor enabling environment for human capital) is that the relatively high education level of the average Lebanese resident fails to translate into better income streams.

Table 4: Quality of Lebanon's infrastructure (rank out of 144 countries)

Indicator	Rank
Quality of overall infrastructure	140
Quality of roads	120
Quality of port infrastructure	73
Quality of air transport infrastructure	65
Quality of electricity supply	143

Source: **World Economic Forum (2014)**.

The World Bank (2012) estimates that a budget-neutral increase of 0.05 percentage points in the share of public spending allocated to investment in infrastructure would increase the country's growth rate by about 0.5 percentage points. Higher investment increases the public-private capital ratio, which in turn promotes the production of final goods, the accumulation of human capital, and research and adaptation activities (R&A). There are also further indirect effects, as the increase in human capital helps promote activity in both the final goods and R&A sectors.

In this context, it is important to highlight another key feature of Lebanon: The low rate of return on economic activity due to its low appropriability, as producers are unable to capture a significant part of the wealth they create due to various distortions. The IMF (2012b)

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For instance, out of 144 countries, Lebanon scored 144 in terms of public trust in politicians, 143 in wastefulness of government spending, 142 in irregular payment and bribes, and 137 in diversion of public funds (World Economic Forum 2014).

identifies institutional failures—in particular a poor business and governance environment and the high level of corruption—as major constraints to growth. These institutional features have direct implications on both government effectiveness and the efficiency of public investment, which are low in Lebanon.¹⁴ Public investment inefficiency in Lebanon is reflected in different stages including: Strategic guidance and project appraisal, project selection and budgeting, project implementation, and project evaluation and audit. The World Bank (2012) estimates that improvements in the efficiency of government spending would increase Lebanon’s long-run GDP growth outlook by between 0.3 and 0.5 percentage points. Thus, while there is a case for Lebanon to use part of its resources to invest in public infrastructure projects, it is key for the country to improve its approach to public finance management.

In summary, in the past few years, Lebanon has managed to navigate through various shocks and safeguard its economic stability. However, many sources of macroeconomic and institutional vulnerability remain. A key role in the decision of how best to manage oil and gas revenues will be played by factors relating to these vulnerabilities:

- An extraordinarily high level of sovereign (both foreign and domestic) debt which requires constant rollover
- A high level of debt that entails large interest payments which crowd out priority spending and capital expenditure
- A banking system whose stability hinges on the government’s ability to service its debt
- A persistent current account deficit whose financing relies on continued flows of deposits and remittances
- A persistent government deficit, the financing of which will keep the country’s debt-to-GDP ratio at high levels for the foreseeable future
- An overvalued exchange rate underpinned by a strong commitment to peg the Lebanese pound to the US dollar, which is considered to be the linchpin of financial stability
- Poor infrastructure and a weak business and regulatory environment that hinders human capital accumulation and sustainable and inclusive growth
- A weak governance structure and public investment system which are in need of serious reform

IV Conclusions and Recommendations

Having summarized Lebanon's main economic features and some potential sources of vulnerability, and described the relevant literature, it is now possible to combine insights from the previous sections to make a set of suggestions for Lebanon.

However large or small its resource earnings turn out to be, the clear policy prescription for Lebanon is to use these revenues initially to pay off its large public debt, beginning with the most risky liabilities, namely foreign currency external debt (which is sizeable in Lebanon). In particular, the short-term component of the country's external foreign currency debt should be reduced to a small share of GDP, given that a well-established conclusion of the literature is that large short-term foreign exchange external liabilities expose the domestic economy to external market shocks (Bordo et al. 2010).

The discovery and exploitation of a large gas reserve will further increase the country's exposure to world market volatility, so other sources of risk should be reduced in order to limit overall exposure. The World Bank (2014) emphasizes the benefits of a drop in the country's debt levels, such as lowering the sovereign risk premium and hence reducing the total cost of its public debt.¹⁵ Lebanon's improved sovereign rating could also lower the interest rates at which the private sector can borrow, improving the competitiveness of the economy and boosting growth. Furthermore, the repayment of public debt should encourage banks to lend to the private sector and thus help support the private sector and boost economic growth. One sector that might benefit is infrastructure, which could be built using a combination of private and public funds. While the benefits of debt reduction are obvious, many risks are associated with this strategy.

If the natural resource revenues are absorbed into the political process, with a lack of transparency about how they are being spent, there is a large risk of triggering voracity effects and rent-seeking behavior (Tornell and Lane 1999). Furthermore, reducing public debt may not be politically feasible and may indeed provoke public resistance, especially when expectations are raised in a range of constituencies which then press for more public expenditure, as impressions will have been created of ample availability of financial resources. Also, there is the risk that reducing the size of public debt will improve Lebanon's credit rating, resulting in lower interest rates, which in turn will provide an incentive and irresistible opportunity to borrow more, inducing Lebanon into a cycle of re-borrowing.

Despite the government's desire to establish a savings fund for future generations, there is no imperative to create a sovereign wealth fund in Lebanon. Although this has been a viable and successful strategy for some countries such as Norway, which already has high

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The World Bank (2014) calculates that a reduction in Lebanon's debt-to-GDP ratio—to 100% for example—would reduce the interest cost of these entire 100% of GDP. If as a result of the repayment of some of Lebanon's public debt, the risk premium on Lebanon's debt were reduced by 100 basis points, this would save the annual budget 1% of GDP (or \$4.4 billion every year based on 2014 GDP).

levels of income per capita, such a fund may not be appropriate for Lebanon. For countries such as Lebanon (with high levels of debt, potential sources of vulnerabilities, and with poor infrastructure) the opportunity cost of establishing a large SWF is quite high in terms of the forgone opportunities to reduce macroeconomic vulnerability and to free government finances for investment in infrastructure projects. There also seems to be little need for Lebanon to create a liquidity fund given the large size of its foreign exchange reserves and the short-run stability of its bank liabilities and remittance inflows. In fact, the best way to protect Lebanon against fluctuations in public investment is to reduce the size of its debt, thus reducing interest payments and freeing up more resources to be used elsewhere.

In the very optimistic scenario that debt is reduced (for example to less than 100% of GDP) and there are ample natural resource revenues left over, it is worth considering direct cash transfers given the lack of an efficient public investment system, the high perception of public corruption among citizens, and the dynamism of the private sector. One drawback is that capital markets in Lebanon are underdeveloped and may not provide individuals with the appropriate financial assets to enable them to make optimal decisions (World Bank 2013).

Also, as noted by Leenders (2015), citizens may not spend the handouts wisely (for instance on education). He writes, 'if no serious measures are taken to address the monopolistic and oligopolistic features of its economy, the opportunities of both increased consumption and investment will be merely captured by a rent-seeking business class.'

There are also some political barriers preventing the implementation of such a scheme. If the cash handouts are sufficiently sizeable to undermine politicians' patronage, Leenders writes, 'there are no a priori reasons to believe that public decision makers would cooperate and this way bankroll themselves out of office.' Therefore, while a cash transfer scheme offers some advantages in the case of Lebanon, the design of such a scheme is fraught with challenges and may not achieve the desired objectives.

Lebanon should avoid wealth transfers through energy subsidies as these distort pricing signals and result in a misallocation of resources. Although energy subsidies constitute an important social safety net for the poor, they are regressive in nature because in many instances richer households tend to capture the bulk of subsidies. Energy subsidies also have negative environmental impacts by encouraging wasteful consumption of fossil fuels. Finally, energy subsidies once introduced are very difficult to reverse, reducing macroeconomic policy flexibility.

An alternative is for Lebanon to reduce taxes on its citizens. However,

the Lebanese government is currently trying to improve its tax gathering efficiency and given the link between taxation and scrutiny of public institutions, it is important not to interrupt this process.

There is scope for increasing public spending, especially on infrastructure projects such as electricity and transportation. Infrastructure constraints pose a serious barrier to the enhancement of Lebanon's competitiveness. But as argued above, the quality of spending is key. Some issues—such as limited administrative and technical capacity and restricted access to information, which prevent the scaling up of investment at a rapid pace, together with misaligned incentives, which could result in sub-optimal investment (with corruption, and unproductive rent seeking constituting some extreme forms of this misalignment)—can limit efforts to increase public spending in Lebanon. While it seems true that Lebanon is short of infrastructure in transport and electricity, it is worth being wary of increasing infrastructure spending while still leaving subsidies in place. The experience of other countries suggests that without price reform, large-scale infrastructure spending could be overtaken by demand (Fattouh and Mahadeva 2014). Hence, the priority should be to remove subsidies, perhaps replace them with cash transfers, and then expand infrastructure with private participation.

If natural resource revenues are large enough to dominate exports and act as a source of capital inflows, it is clear that a countercyclical macro-prudential policy will be needed in Lebanon. Unlike a standard macro-prudential policy that acts uniformly across all borrowers, it would be better to focus on controlling non-tradable sector liabilities. Argüello et al. (2013) demonstrate the need for such a sectorally skewed scheme in an energy exporting country. They show that blanket countercyclical macro-prudential policies in times of buoyant resource revenues will tend to hurt the non-gas tradable sector most, and have less impact on the booming non-tradable sector where most of the financial instability risks actually lie. A good example of such a targeted policy would be to raise sectoral risk weights on real estate borrowing in banks' regulatory capital ratios when gas revenues are buoyant.

In summary, although the literature on the macroeconomics of natural resources seems complex, the messages for Lebanon are straightforward. The first priority should be to pay off part of the country's debt, although there is a strong case for investment in infrastructure if the public investment system can be revamped. In either case, macro-prudential controls on the non-tradable sector should be tightened.

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A black and white photograph of an offshore oil rig in the ocean. The rig's structure is visible, including a tall tower with a flare at the top emitting a plume of white smoke. A walkway or platform extends from the rig towards the right side of the frame. The water is dark and textured with small waves. The sky is overcast with grey clouds. A semi-transparent red rectangular box is overlaid on the right side of the image, containing white text.

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