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QATAR

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QATAR

SELECTED ISSUES

March 3, 2017

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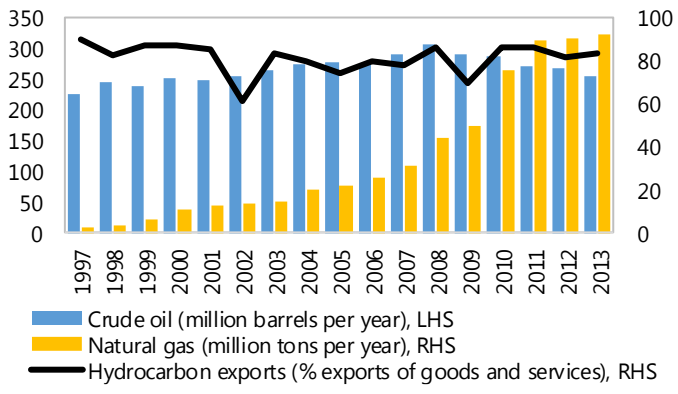
QATAR: ENHANCING NON-HYDROCARBON REVENUE TO SUPPORT FISCAL CONSOLIDATION AND THE NATIONAL DEVELOPMENT STRATEGY[1]

Qatar depends considerably on the hydrocarbon sector for exports and revenue receipts. The recent sustained lower oil and gas prices have adversely affected fiscal performance. In response, the authorities have embarked on fiscal consolidation, underpinned by cuts to current expenditures and enhanced efforts to raise additional revenues. Safeguarding Qatar's wealth to ensure intergenerational equity and ensuring adequate resources for the implementation of the second National Development Strategy would entail increased mobilization of non-hydrocarbon revenues in the near to medium term, beyond what is already being planned. The possibility that oil prices could be lower than the levels assumed in the baseline support the importance of implementing the envisaged tax revenue measures. Exploring other sources of tax revenues in order to diversify the government revenue structure and build a stable tax revenue base is critical.

A. Background and Context

1. The hydrocarbon sector has gained importance in Qatar's economic activity over the past two decades. Natural gas production has increased from 2.2 million tons per year in 1997 to 92 million tons in 2013.[2] Qatar is now the world largest liquefied natural gas (LNG) exporter and accounts for one third of the global LNG trade. Hydrocarbon exports represent on average 80 percent of the country's exports of goods and services over the past twenty years.



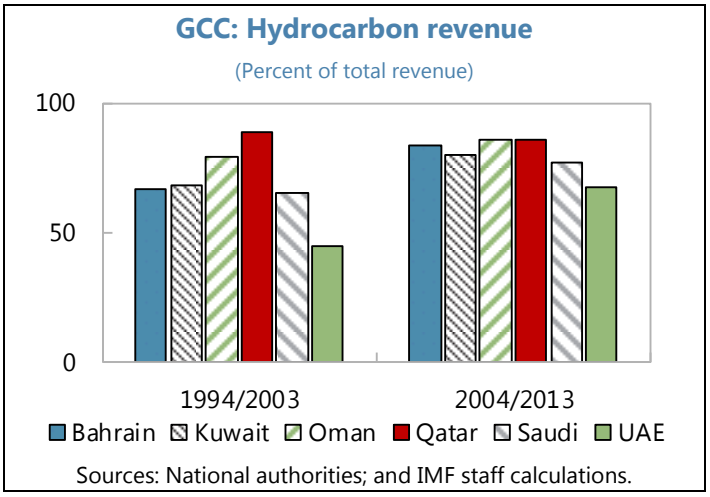
Sources: National authorities; and IMF staff calculations.

2. Fiscal policy is highly dependent on hydrocarbon revenue in Qatar, even more than in other GCC countries. Over the period 1994-2003, hydrocarbon revenue represented on average at least 65 percent of total fiscal revenues in five of the six countries, the exception being the UAE with an average of 45 percent. This dependence has become even stronger in the more recent period, when looking at 2003-2013 averages. Based on this indicator, Qatar appears to be the most hydro-

[1] Prepared by Olumuyiwa S. Adedeji and Armand Fouejieu.

[2] 2014-2016 are not included in the charts to exclude the recent oil-price shock.

carbon-dependent economy among the GCC countries. The average share of hydrocarbon revenue in total government revenue was 89.2 percent and 86 percent in 1994-2003 and 2004-2013, respectively. Despite some improvement in the most recent years, the share of non-oil revenue in total government revenue is estimated to have remained at about 30 percent in 2016. This increase in the share of non-hydrocarbon revenue in the past few years is mainly driven by the lower hydrocarbon revenue, as a result of the sharp decline in oil price (Figure 1). In comparison, in UAE, the non-hydrocarbon revenue accounted for more than 50 percent of government revenue in the 1990s. Although this share has declined since then, it is estimated to have recovered in 2016 (estimated at about 54 percent).



B. Fiscal Environment and National Development Strategies

3. While Qatar has sizeable fiscal buffers, the fiscal position has been significantly affected by the oil-price shock. Total fiscal revenues declined by 25 percent in 2015, compared to 2014, and are estimated to have further declined by 58 percent in 2016, compared to the previous year. The fiscal position has deteriorated accordingly, despite efforts to contain spending. The central government fiscal balance has declined from a surplus of 12.3 percent of GDP in 2014 to a surplus of 1.2 percent in 2015, and has turned into a deficit (for the first time in fifteen years) estimated at 9 percent of GDP in 2016. The fiscal deficit has been financed mainly through domestic and foreign borrowing.

4. Fiscal revenue reforms have been initiated as part of the fiscal consolidation effort. In view of the emergence of fiscal deficit, and given the expectation that oil prices will remain low in the medium term, the authorities have taken measures with the aim of diversifying the sources of fiscal revenues. Those measures include:

- *The increase in some utilities prices*. Prices of water and electricity have increased since October 2015 (for non-Qatari households and businesses), and price ranges are now indexed on consumption volumes. In addition, a new system of penalty has been established to reduce

waste.[3] Based on the authorities' estimates, this reform of utilities prices has generated QR 1.5 billion (or 0.3 percent of GDP) of additional revenues in 2016.

- *The increase in domestic fuel prices*. Steps have been taken to reduce and eliminate fuel subsidies. Gasoline price has increased by about 30 percent in 2016, compared to 2015. Fuel prices are being assessed and adjusted on a monthly basis.[4] This measure generated additional savings of about QR 1 billion (or 0.2 percent of GDP) in 2016, according to authorities' estimates.

5. Additional revenue measures are expected to be implemented in 2017 and 2018:

- Excises on tobacco and sugary drinks are planned to be implemented in 2017, in line with other GCC countries.

- The authorities also plan to increase some public fees and to charge for some public services which were free until recently, including vehicle plates.

- Qatar is committed to implementing the GCC agreement on introducing VAT at a rate of 5 percent, starting in 2018. Progress is being made in preparing for the VAT implementation. The work on drafting the VAT law is underway, and the tax department of the ministry of finance is taking steps to ensure its smooth implementation, including technical preparation and logistical capacity. [5]

6. The fiscal environment for the implementation of the second National Development Strategies (NDS) is markedly different from the one of the first NDS. The first National Development Strategy (NDS) for 2011-16 was premised on an average oil price assumption of US$86 while the oil price averaged about US$88 during this period, allowing for a scale up in public expenditures. The fiscal environment for the second NDS has markedly changed compared to the first one, given the reality of lower oil and gas prices. Oil prices are projected to average about US$ 57 during 2017-22, the period for the implementation of the second NDS. Efforts are needed to further enhance the collection of non-hydrocarbon revenues, given the authorities' announced policy intention not to draw down accumulated savings in their sovereign wealth fund, and the recognition of the importance of government's expenditures (both current and capital) for the implementation of the second NDS.

[3] For example, it is prohibited to wash a car in a residential property. A fine of QR 2000 is applied in case this prohibition is violated. This is applicable to both Qataris and expats.

[4] A special committee comprising representatives from various government bodies is in charge of reviewing domestic fuel prices (gasoline and diesel), with respect to global and regional developments. The committee then makes recommendation on whether and by how much prices should be adjusted, based on a formula which takes into consideration prices changes in oil products in the global market, operational costs related to fuel production and distribution in the local market, as well as fuel prices in the region.

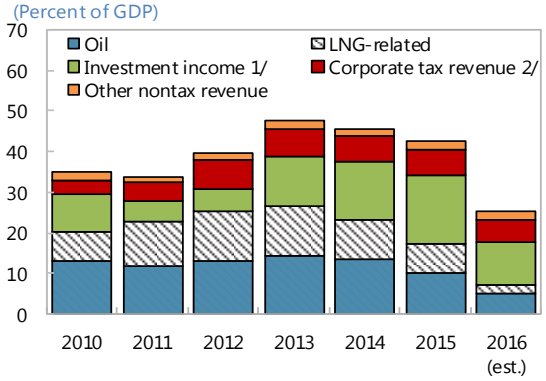
[5] The tax department is hiring consultants with strong experience on tax reforms and especially on VAT. The tax department will take the form of an independent agency, but still under the authority of the ministry of finance.

7. The second National Development Strategy is expected to focus on enhancing competitiveness, productivity and private sector growth. At the heart of this strategy are issues relating to improving the quality of education, putting in place policy, programs and projects to increase productivity, and further promote the private sector role in economic activity. A strategy to diversify progressively the government revenue structure and to build a stable tax revenue base is consistent with the government vision to shield the economy from undesirable fiscal revenue fluctuations.

Fiscal Developments

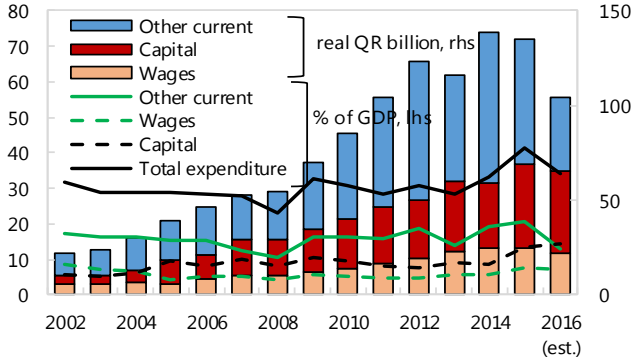
High hydrocarbon prices boosted revenues in recent years

Central Government Revenues
(Percent of GDP)



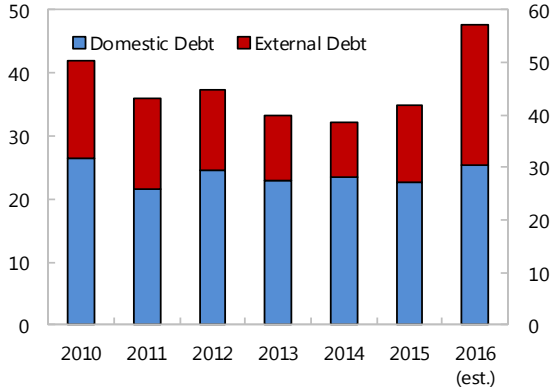
Government expenditures increased several-fold, but remained broadly unchanged as a share of GDP

Central Government Expenditure



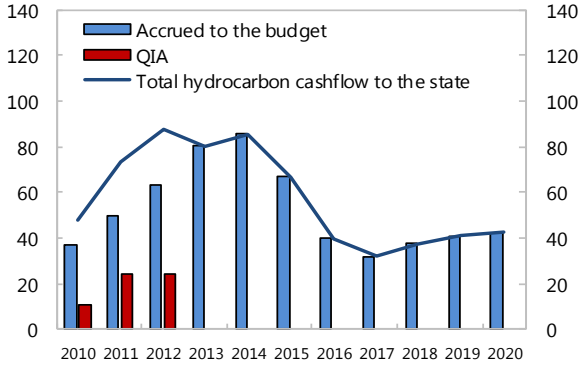
Despite large surpluses, the government has been issuing debt to help develop capital markets

Central Government Debt
(Percent of GDP)



Hydrocarbon cashflow to the state has increased substantially in recent years but is projected to decline

Total Hydrocarbon Cashflow to the State 5/ 6/
(U.S. dollar billions)



Sources: Country authorities; and Fund staff estimates.
1/ Dividends paid by Qatar Petroleum and other state-owned enterprises.
2/ About 85 percent of corporate income tax comes from Qatar Petroleum.
3/ Part of UAE capital spending is reflected in loans and equity in the official statistics, and thus is not included in this chart.
4/ Fiscal break-even oil price that keeps financial net worth of general government stable (based on staff estimates of hydrocarbon revenues and QIA investment income) equals $57 in 2021 (staff estimates).
5/ Cashflow to QIA is staff's estimate. Starting from 2013, these flows are accrued to the Budget.
6/ Hydrocarbon revenues include portions of investment income and corporate tax revenue from companies operating in the hydrocarbon sector; these revenues are classified as nonhydrocarbon receipts in the budget.

C. Fiscal consolidation and Inter-Generational Equity

8. Successful implementation of the second NDS requires financial resources and achieving inter-generational equity should remain at the center of policy discussion. These require designing an appropriate fiscal framework that would promote economic development, support macro-fiscal stability, and ensure enough savings for future generations.

9. Challenges for the design of appropriate fiscal policy framework are amplified by the volatility, uncertainty, and exhaustibility of revenues from natural resources. One of the main elements of such a framework would be to define a benchmark for assessing long term fiscal sustainability. The objectives underpinning the fiscal framework would depend on considerations such as resource revenue temporariness and the initial level of capital accumulation (Baunsgaard, Villafuerte, Poplawski-Ribeiro, and Richmond, 2012).[6] For Qatar, given the available capital stock, the framework should aim at managing volatility and achieving macro-fiscal stability. Preserving intergenerational equity, through the buildup of sufficient financial saving is also a key issue.

10. Qatar's long-term fiscal sustainability is assessed using the permanent income hypothesis (PIH) formulated by Friedman (1957). The PIH relies on simplifying assumptions which imply that, for a highly resource-dependent country, the intertemporal budget constraint is satisfied when the non-resource primary fiscal deficit is limited to the perpetuity value of resources wealth.[7] This theoretical framework, with desirable intergenerational equity considerations, suggests that the government should be forward-looking in smoothing consumption over time, in line with the permanent income. Given some assumptions on the main parameters, including population and oil price growth, interest rate, and return on assets, the permanent income hypothesis implies constant real per capita government spending out of hydrocarbon revenues over time that is equal to the annuity present value of expected hydrocarbon wealth. This would stabilize government expenditures, avoid boom-bust cycles, and enhance intergenerational equity. According to the permanent income hypothesis, sustainable per capita government spending out of hydrocarbon wealth in a given year can be determined as follows:

$$G_{t+1} = (r - n)\left[W_t + \sum_{k=0}^{K} \frac{R_{t+k}}{(1+r)^k}\right]$$

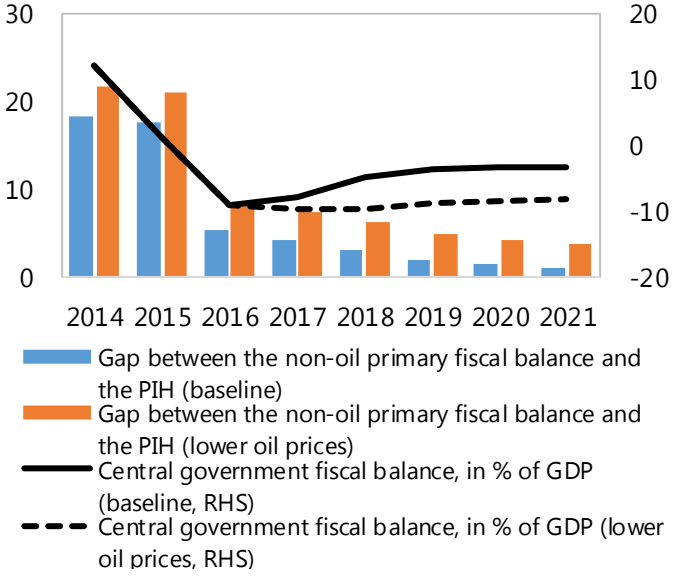
[6] In the case where resource revenues are temporary, the priority in countries with ample capital should be to accumulate sufficient financial saving for future generations, while those with scarce capital would have to balance between accumulation of saving and domestic investment to increase non-resource growth. With long-lasting resource revenue, countries with ample available capital should focus primarily on managing volatility and ensuring macro-fiscal stability, while those with limited capital accumulation will need to invest domestically, but at a measured pace as not to threaten macroeconomic stability.

[7] The PIH model can be questioned, especially in the case of low income countries rich in natural resources, because it does not fully incorporate the fact that those countries are both capital and credit constrained. A more flexible approach, that facilitates fiscal spending financed by resource revenue to support growth, may be needed in that specific case.

where W_t is the value of the accumulated revenue in the sovereign wealth fund at the end of the previous year, R_{t+k} is the amount of hydrocarbon revenues the government expects in period k, $(r-n)$ is the expected average real rate of return on hydrocarbon wealth minus the annual rate of population growth, and K is the number of years until the depletion of hydrocarbon resources.

11. The application of this approach suggests that, under baseline assumptions, savings would be broadly adequate by 2021 to maintain constant real per capita spending. The gap between the projected non-hydrocarbon primary fiscal balance and the non-hydrocarbon primary fiscal balance consistent with intergenerational equity (i.e., the level that would permit maintaining government spending constant in real per capita terms even after hydrocarbon wealth is exhausted) is estimated at 6 percentage points of non-oil GDP in 2016. To achieve the adjustment envisaged under the baseline, with the targeted optimal non-hydrocarbon primary fiscal balance estimated at about 26 percent of non-hydrocarbon GDP in 2021, additional non-hydrocarbon revenues will need to be mobilized (the level of non-hydrocarbon revenue will have to double by 2021, compared to 2016).[8] Moreover, if oil prices turn out to be lower than presently envisaged, even more non-hydrocarbon revenue will need to be mobilized to reach the intergenerationally equitable level. Should oil prices remain around the 2016 average level (i.e. at about $43 per barrel) over the near and medium term, the fiscal balance would deteriorate significantly compared to staff baseline projections. Under such a downward scenario, the gap between the non-hydrocarbon primary fiscal balance and its optimal position (consistent with the PIH framework) is estimated at 4 percentage points of non-oil GDP (compared to 1 percentage point under the baseline) by 2021. The subsequent analysis discusses in detail how collection of non-hydrocarbon revenues could be improved.

Fiscal positions under alternative oil price scenarios



Sources: National authorities; and IMF staff calculations.

D. Room for Enhancing non-Hydrocarbon Revenues

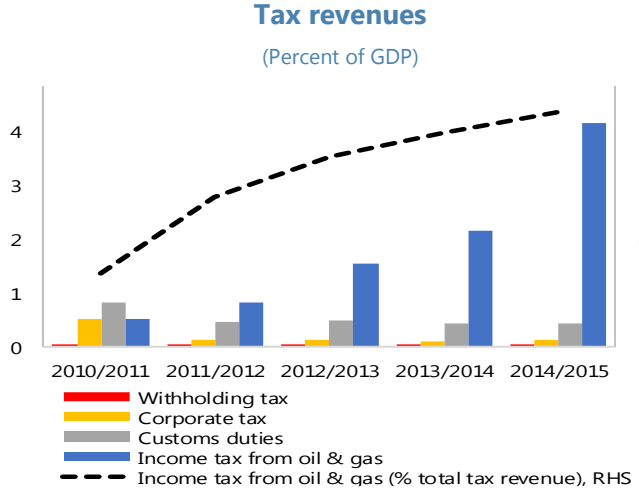
12. Qatar tax system is still in development. The country does not have the full range of taxes found in most economies, including some emerging market oil exporters. There is no personal income taxation and no tax on profits of business entities wholly-owned by Qatari individuals. A

[8] The estimated optimal fiscal position is subject to some degree of uncertainty due to oil price projections and assumptions on the model parameters.

broad-based consumption tax is non-existent at present, while only few excise duties are charged mainly on tobacco and alcoholic products, which are also subject to higher import duties.

13. The corporate income tax and customs duties constitute the pillar of Qatar's tax system. Under the income tax law, the corporate income tax is charged only on non-Qatari and non-GCC companies. This tax generally applies to profits and income arising from taxable entity's activities in the country for each taxable year (January 1st – December 31).[9] Under this law, taxable income from non-oil companies is taxed at a flat rate of 10 percent, while the rate is higher for oil-related activities at 35 percent (this is a minimum, as the precise rate is specified in individual contracts). The income tax law also includes a withholding tax that applies to certain payments to non-residents that are not connected with a permanent residence in Qatar. The GCC Common External Tariff (CET, signed in 2003) has a single rate of 5 percent, with a large range of exemptions including food, live animals, and precious metals. In addition, a number of bilateral and multilateral trade agreements provide exemptions from custom duties for goods originating from member states signatories of these agreements.

14. Tax revenues only represent a small share of total government revenues in Qatar. The narrow tax base and the relatively low tax rates limit the amount and share of revenues from taxes. For the fiscal year 2014/2015, tax revenues only represent about 10 percent of the total (general) government revenue. The corporate income tax accounts for the large share of total tax revenue. Overall, tax revenues are estimated to represent around 5 percent of GDP in 2015. Taxes from oil and gas activities represent almost 90 percent of total tax revenue in the same year, highlighting the strong reliance of the tax system on the hydrocarbon sector.



Sources: National authorities; and IMF staff calculations.

15. There is room for increasing and broadening non-hydrocarbon revenues:

- **There is potential for further adjustment of fuel prices.** Fuel prices remain low in Qatar, compared to international prices and to some GCC peers. Steps should be taken to align

[9] This can be understood in the Qatar historical context. The purpose of the corporate tax was to capture a share of the economic rents from hydrocarbon extraction and to apply an "income tax" for foreign companies benefiting from allowable foreign tax credit in their respective home country. Customs duties are a useful tax handle for a small open economy that relies essentially on imports for domestic consumption.

domestic prices with changes in global oil prices as well as explore the scope to ensure convergence between international and domestic price. In this respect, the authorities should move toward an automatic adjustment mechanism which allows domestic fuel prices to systematically evolve in accordance with global oil market developments.[10] Appropriate and more targeted measures should be implemented to support the most vulnerable households who are likely to be strongly affected by potential fuel price hikes.

- **The corporate income tax base could be widened and the rates adjusted**.[11] Exemption of domestic and GCC companies from the income tax reduces tax revenue available to the government. Moreover, corporate income tax rates are relatively low in Qatar, compared to some GCC countries (the tax rate on non-oil companies is lower compared to Kuwait, Oman and Saudi Arabia; and the tax rate on oil companies is lower compared to all other GCC countries, except Kuwait) (table 1). This suggests that Qatar could potentially collect additional revenues from corporate income tax just by aligning its tax rates with those prevailing in the other GCC countries. Broadening the tax base to include GCC companies and adjusting upward the existing tax rates can generate additional revenue to the government, without necessarily affecting the economic activity. Adopting such a broader business tax system, which includes corporate and individual businesses, could generate up to 2 percent of GDP of additional fiscal revenues (see the 2016 GCC tax paper).

- **Other existing taxes also have the potential to generate additional revenue**. For example, there is a gap (although relatively small) between Qatar and other GCC members on social security tax rates. While the 5 percent rate on employee's contribution is the same as in the UAE, this rate is slightly higher for the other countries in the region. The rate on the employer's contribution is also slightly higher in Kuwait, Oman, and the UAE to a larger extent. Stamp duty on transfer of land or property is currently payable at rate of 0.25 percent of the value of the property in Qatar. This rate is 1.5 to 3 percent in Bahrain, and 3 percent in Oman (2016 GCC tax paper). Recent consideration from the government to increase the stamp duty rate as a source of additional revenue is a development in the right direction.

- **Additional sources of revenue can be considered**. None of the GCC countries, including Qatar, levies taxes on personal income. The introduction of a personal income tax could constitute a potential source of additional revenue.

E. Reform Agenda

16. There is potential for reforms to enhance diversification of resources for public finance in Qatar. Fundamental reforms should be considered to re-evaluate the long standing practice in

[10] According to staff estimates, if domestic fuel prices were to be set at the same level as in the UAE (which has the highest average prices among the GCC countries) or as in the U.S., additional fiscal revenue could range from 0.3 to 0.8 percent of GDP.

[11] See the 2016 GCC tax paper ("Diversifying Government Revenue in the GCC: Next Steps") for a cross comparison of the main characteristics of tax systems in the GCC countries.

the tax system which so far does not include the large set of taxes found in similar countries. Those reforms will require strong political commitment, an efficient tax administration, coherent tax laws, transparency in the process of implementing new tax instruments, and a longer-term perspective. The current lower oil prices environment should be an opportunity to undertake fundamental reforms in this respect.

17. Reforming the existing tax policy should aim at building an effective and simple tax system that will help to strengthen tax collection and administrative capacity. It is important to lay the foundations for a broader tax system and more diversified sources of fiscal revenues. Improving the existing tax system and introducing in the short term new taxes with low rates would signal the authorities' commitment to designing and administering a more developed tax system in the future (Besley and Persson, 2011).[12]

18. Transparency and communication are key elements of successful and smooth tax policy reform. Tax reforms should be implemented at a pace that allows businesses and individuals time to adjust. The reforms should also be underpinned by the necessary infrastructures and should be clearly explained and communicated to ensure success and long-term sustainability. This will require careful prioritization and sequencing of the introduction of new taxes.

19. Particular attention should be paid to the potential impact of any tax reform on the economic activity. Increasing the tax burden could possibly affect growth by adversely impacting consumption and investment. For example, increasing the corporate tax rate and/or broadening the corporate income tax base can discourage private investment. Introducing a personal income tax could have distributional effects that need to be properly evaluated, but also a negative impact on private consumption, by reducing the net disposable income of households.

20. Revenues from VAT and excises will also depend on the tax base. Exemption/zero ratings should be minimized. If required, some targeted measures could be taken to support the most vulnerable who might be affected by the introduction of VAT. For excises on tobacco and sugary drinks, the rates should be set at levels that take into consideration the potential consequences on public health while pursuing revenue goals (Petit and Nagy, FAD guidance note, 2016). Substitutions across similar products will take place if the excise bases are not carefully defined and/or if the rates are too high.

21. Increasing non-hydrocarbon revenue is inherently related to the diversification of the economy as a whole. As the economy diversifies, with the increasing share of the private sector in the nonhydrocarbon activity, tax revenues will also be expected to increase following the implementation of the tax measures discussed earlier. Efforts to diversify the economy away from the oil sector, imply widening the tax base, and, together with the implementation of additional tax measures, will help to increase non-oil tax revenues.

[12] Building capacity and institutions may prove difficult if the tax base is significantly broadened, because this will entail dealing with a larger population of taxpayers (compared to current context) (Mansour, 2015).

F. Conclusion

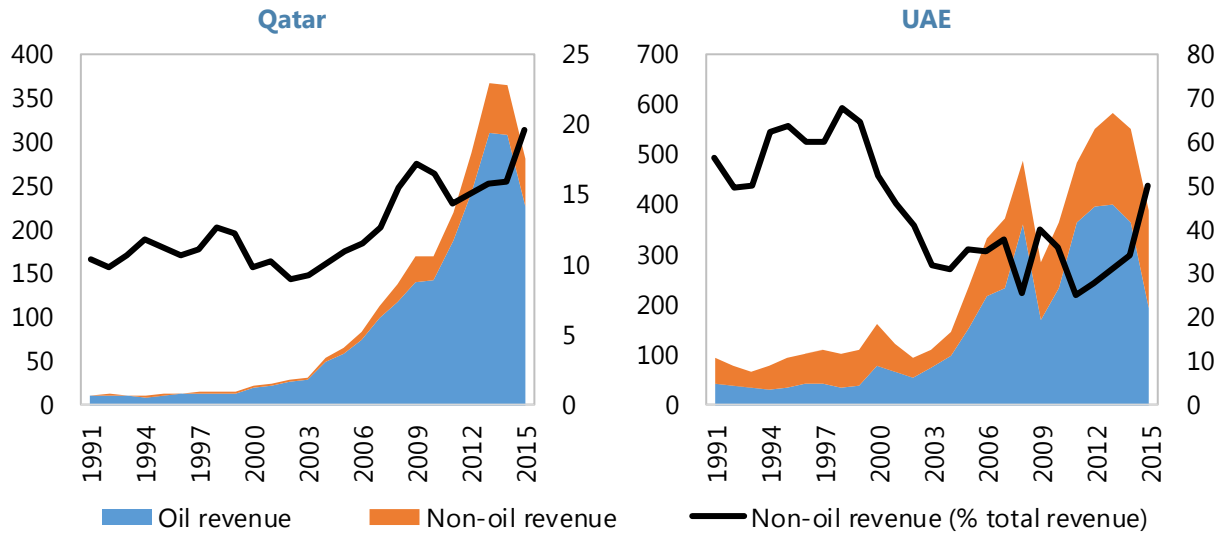
22. Qatar's 2030 National Vision for economic development is being implemented in the form of five-year consecutive National Development Strategies. The development goals of this ambitious plan are divided into four central pillars (economic, social, human, and environmental development), with the aim to "transform Qatar into an advanced society capable of achieving sustainable development" by 2030.It is worth noting that each of the NDS focusses on specific areas of the economy, and attempt to address key issues that would enable Qatar achieving its vision. The second NDS is launched this year in a context marked by significant fiscal policy challenges.

23. Qatar depends significantly on the hydrocarbon sector, and has been adversely affected by lower oil prices. The main source of government revenues is from the hydro-carbon sector in the form of oil and gas receipts, royalties and taxes on oil-related activities. Consequently, the recent sharp decline in oil prices has led to a deterioration in the fiscal position. Despite ample fiscal savings in the sovereign wealth fund, this deterioration poses important challenges for long-term fiscal sustainability, but also in terms of supporting the implementation of the second national development strategy.

24. The authorities have been responding to the oil price shock by adjusting the fiscal stance, both on expenditure and revenue sides. Authorities' policy response to the new reality of lower oil and gas prices have been largely underpinned by cuts in current expenditures and efforts to increase non-hydrocarbon revenues. The main risk for Qatar remains the possibility of persistently lower oil prices, and the related macroeconomic implications.

25. Diversifying the sources of government revenues should remain a fundamental objective for the authorities. Qatar needs to improve its resiliency to the oil price shocks by further developing the non-oil sector as well as its tax system. Despite important revenue measures implemented recently, there is still room for enhancing non-oil revenue and deepening the tax system. The existing taxes can be adjusted, while new tax measures should be considered as potential sources of additional revenue. These efforts will require a modern tax policy framework, efficient tax administration, and transparency in communicating this reform agenda. Enhancing fiscal revenue diversification will be a key step toward promoting long-term fiscal sustainability and supporting the second national development strategy and Qatar 2030 vision.

Figure 1. Oil and Non-Oil Revenue in Qatar and the UAE



Sources: National authorities; and IMF staff calculations.

Table 1. GCC: Companies and Businesses Profit, and Income Taxes [1/]	
Bahrain	● No corporate income tax. ● No capital gains tax. ● No personal income tax. ● 46% tax rate on hydrocarbon companies.
Kuwait	● 15% flat tax rate on non-GCC companies and branches. ● 15% tax rate on capital gains. ● No personal income tax. ● 1% tax rate on Kuwaiti shareholding companies to support the Kuwait Foundation for the Advancement of Science. ● 1% tax rate as Zakat or contribution to the state's budget. ● 15% tax rate on companies providing oil and gas services and undertaking exploration and production activities.
Oman	● 12% flat tax rate for taxable income above OMR30,000 and on capital gains. ● 12% tax on income in excess of OMR30,000 of Individual persons carrying on professional business in their individual capacities. ● No tax for any business, Omani company or permanent establishment (i.e. foreign branch) on taxable income less than OMR 30,000. ● 55% tax rate on companies engaged in petroleum exploration.
Qatar	● 10% tax rate on non-GCC companies. ● 10% tax rate on net business income of non-GCC individuals carrying on business as professionals or sole traders. ● 35% tax rate on companies engaged in petroleum exploration (this is a minimum, as the precise rate is specified in individual contracts).
Saudi Arabia	● 20% tax rate on income of non-Saudi and non-GCC national individuals carrying on business or professional activity. ● 20% tax rate on capital gains. ● 85% tax rate on entities engaged in oil and other hydrocarbon production. ● 30 to 85% tax rate on companies engaged in natural gas investment activities based on internal rate of return.
UAE	● No federal income or capital gains taxes ● Individual Emirates impose income tax for oil companies up to 55% on taxable income of bodies corporate (not enforced thus far). ● 20% tax rate on foreign banks' taxable income in Abu Dhabi, Dubai, Sharjah and Fujairah. ● 55% to 85% tax rates on oil companies.
1/ This table uses information on the main characteristics of tax systems in the GCC countries from the 2016 GCC tax paper. Sources: Countries official resources, PKF Worldwide Tax Guide, and EY Worldwide Corporate Tax Guide	

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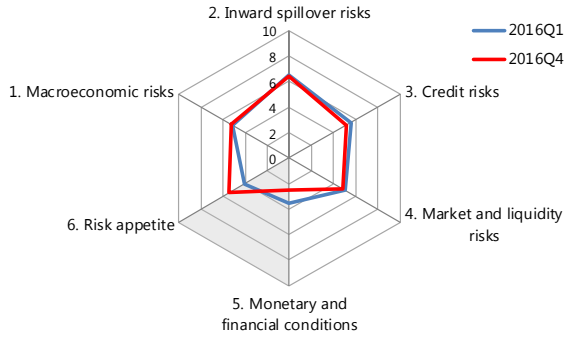
FINANCIAL STABILITY AND LIQUIDITY MANAGEMENT IN THE CONTEXT OF LOW OIL PRICE[1]

A. Introduction

1. Qatar is facing lower oil prices from a position of strength, but financial risks remain. Fiscal prudence, combined with improvements in economic diversification and a strengthened policy framework, have helped build large buffers and reinforced the overall resilience of the economy. However, the sharp fall in oil prices and revenues, followed by fiscal consolidation has dampened non-oil growth and increased risks. The deficit financing in 2016 has contributed to liquidity pressures and tightening monetary and financial conditions. The December hike of the Fed's policy rate could be an additional drag on economic activity. The increase in foreign liabilities have considerably risen inward spillover risks while nurturing robust risk appetite (see Figure1).

Figure 1. Country Financial Stability Map: Qatar



Sources: WEO; IFS; Haver analytics; Bloomerg; and IMF staff estimates.
Note: Away from center signifies higher risks, easier monetary and financial conditions, or higher risk appetite.

2. Liquidity pressures are relevant from both a macroeconomic and a financial stability perspective. The recent oil price shock has eroded fiscal and external surpluses, which had a significant adverse impact on banking liquidity. As demand for liquidity has grown faster than supply, Qatar Central Bank (QCB) has used its available monetary instruments to manage liquidity pressures and prevent a large rise in interest rates while banks turned to alternative funding sources. Banks have reacted to lower government deposits by attracting nonresident deposits and increasing wholesale funding as a means to sustain robust private sector credit growth. However, the wholesale funding is costlier, affecting profitability. In the context of sustained low oil prices, going forward, liquidity could come under additional pressure if the government further uses its banking deposits to finance the deficit. In a possible scenario with further reductions in government deposits and increases in US policy rates, banks will need to manage a combination of liquidity pressures, higher funding rates, and lower profitability.

3. The paper aims at analyzing the banking liquidity implications of lower oil prices from a financial stability perspective. Section B examines the banking sector and liquidity developments. Section C describes the main instruments used for liquidity management in Qatar.

[1] Prepared by Pilar Garcia Martinez and Brian Hiland.

Section D illustrates the need to develop a liquidity forecasting framework. Section E examines empirically the relationship between bank lending rates and various liquidity indicators. Section F provides some conclusions and policy recommendations.

B. Banking and Liquidity Developments

4. The banking sector remains healthy and well-capitalized. Tier 1 capital stood at 15 percent of risk weighted assets in September 2016 and NPLs fell to 1.2 percent and the coverage ratio of NPL provisioning has increased from 101.1 in 2015 to 109.2 in September 2016 (see Table 1). Banks are profitable, though returns on assets decreased to 1.3 in September 2016 due to increased funding costs. Liquidity buffers have decreased since 2013. Foreign funding of commercial banks, which increased substantially in recent years, has reached about 34 percent of total liabilities in November 2016 while its composition shifted more towards shorter-term liabilities. The aggregate loan-to-deposit ratio is relatively high at 114.9.

Table 1. Financial Soundness Indicators, 2010–16
(Percent unless otherwise noted)

	2013	2014	2015	Sep-16
Capital adequacy				
Regulatory Tier 1 capital to risk-weighted assets 1/	15.3	16.0	15.0	15.0
Non-Performing Loans/Capital	1.9	2.0	1.9	1.2
Asset quality				
Nonperforming loans to total loans	1.9	1.7	1.6	1.2
Bank provisions to nonperforming loans 2/	96.8	99.1	101.1	109.2
Earnings and profitability				
Return on assets	2.1	2.1	2.0	1.3
Return on equity	16.5	16.5	16.2	11.4
Liquidity				
Liquid assets to total assets	33.6	30.8	28.5	27.8
Loans as a percentage of customers deposits	103.1	105.9	112.4	114.9
Other				
Foreign currency assets to liabilities	76.4	79.7	81.0	81.6

1/ In 2014 onwards, Basel III capital adequacy is applied for national banks only. Basel II is applied in earlier years.
2/ In 2014 onwards, bank provisions to nonperforming loans include provisions for some performing loans under the special category.
Source: Qatar Central Bank

5. The banking sector liquidity is significantly dependent on flows from the hydrocarbon sector. The banking sector remains dependent on the hydrocarbon sector, as shown by the high correlation coefficient between deposits and credit and hydrocarbon prices, even though the level of dependency has decreased owing to increased economic diversification and a strengthened regulatory framework (see Table 2).[2] Lower oil and gas prices have a significant impact on fiscal and

[2] See 2015 Financial Stability Report, QCB.

external revenues as well as on banking liquidity. With a fairly large financial sector - bank assets in Qatar amount about 200 percent of GDP - the negative impact of oil price volatility on the financial sector could significantly impact the real economy. Greater economic diversification has lowered the importance of oil in the overall economy. This has also decreased the dependency of banks on the hydrocarbon sector as shown by the lower correlation between the hydrocarbon sector and private and public banking deposits and credit in the period 2009-16. Strengthening of the banking regulation, including macroprudential policies has also made the banking sector more resilient to oil shocks. Nonetheless, in a perception survey conducted by QCB, more than 50 percent of respondent banks believed that liquidity and credit risks will increase in 2017. Among the liquidity risks, deposit withdrawals from wholesale depositors is considered a major risk by more than 70 percent of respondent banks.

Table 2. Correlation Matrix: Banking Sector Variables with Hydrocarbon Price and Other Macro Variables

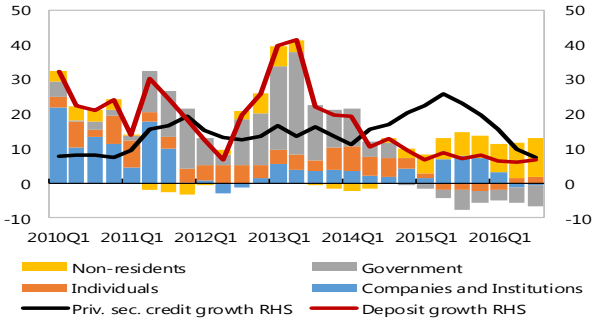
	Public Deposits	*Private Deposits*	*Public Credit*	*Private Credit*
2002-2008				
Real GDP (Non-hydrocarbor	0.99	0.99	0.87	0.98
Real GDP (Hydrocarbon)	1.00	0.99	0.90	0.99
Oil Price	0.98	0.97	0.86	0.97
Gas Price (avg)	0.95	0.93	0.84	0.94
Government Revenue	0.99	0.98	0.87	0.98
Hydrocarbon Revenue	0.98	0.97	0.81	0.95
2009-2016				
Real GDP (Non-hydrocarbor	0.80	0.99	0.86	0.99
Real GDP (Hydrocarbon)	0.80	0.67	0.88	0.58
Oil Price	0.15	-0.38	0.07	-0.50
Gas Price (avg)	0.36	-0.23	0.23	-0.34
Government Revenue	0.82	0.35	0.63	0.25
Hydrocarbon Revenue	0.49	-0.11	0.33	-0.23

Sources: National authorities; and IMF staff estimates.

6. Liquidity pressures emerged in 2014 and have persisted with varying intensity. While credit to the private sector remained robust at 10.4 percent y-o-y in November 2016, resident deposits decreased, and government deposits decreased substantially (see Figure 2). Banks reacted to lower government deposits by attracting nonresident deposits and increasing wholesale funding to sustain robust credit growth. In particular, the contribution of government deposits to total deposit growth has been negative since the first quarter of 2015.

Figure 2. Bank Deposits and Credit to the Private Sector, 2010Q1–2016Q3

(Contributions to y-o-y growth, percentage points)

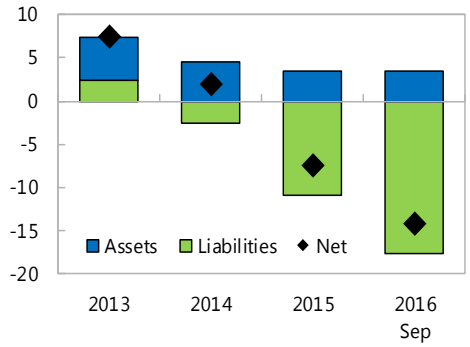


Sources: Qatar Central Bank; and Haver Analytics.

7. Foreign liabilities have increased substantially since 2015. The gap between private sector credit and total deposit growth has been felt in the interbank market where the spread between Qatar money rates (QMR) interbank rates, and Libor rates widened in October 2015 after a period of low spreads (see Figure 5). To face their liquidity needs, banks have tapped wholesale funding and expanded their corporate and nonresident deposit base. Consequently, foreign liabilities have substantially increased in 2016 (see Figure 3).

Figure 3. Qatar. Annual Change in Bank Foreign Assets and Liabilities, 2013–16

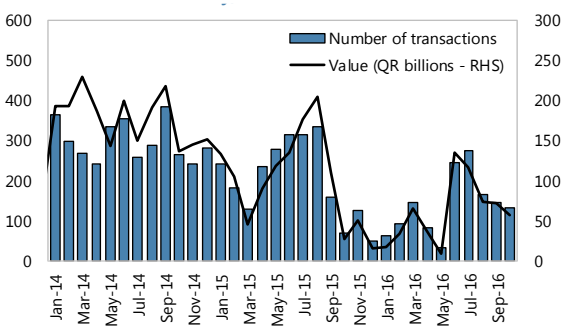
Percent of previous year GDP



Sources: World Economic Outlook; and IMF staff estimates.

8. The transactions in the interbank market were lower in 2016 (see Figure 4)**.** Liquidity pressures intensified especially the first quarter of 2016, but improved later. The total absorption of liquidity decreased from almost QR 42 billion in 2014 to QR 7 billion by end-October 2016 (see Table 3). Treasury bills accounted for QR 8 billion injected, while treasury bonds accounted for QR 11 billion absorbed. QCB increased its use of T-bills to manage liquidity while the holding of T-bonds was reduced. In addition, QR 1.6 billion was held through reserve requirements, the lowest figure in recent years.

Figure 4. Interbank Market Activity, 2014–16



Sources: Qatar Central Bank; and Haver Analytics.

Table 3. Liquidity Management (QR million)
Net Absorption (-)/Injection (+)

	QMR (net)	T-Bills	T-Bonds *	Required Reserves	Total
2013	8,271	0	-16,000	-4,404	-12,133
2014	-6,759	0	-32,000	-3,077	-41,835
2015	7,781	7,000	-22,000	-1,939	-9,158
2016 (end-October)	-2,150	8,000	-11,200	-1,633	-6,982

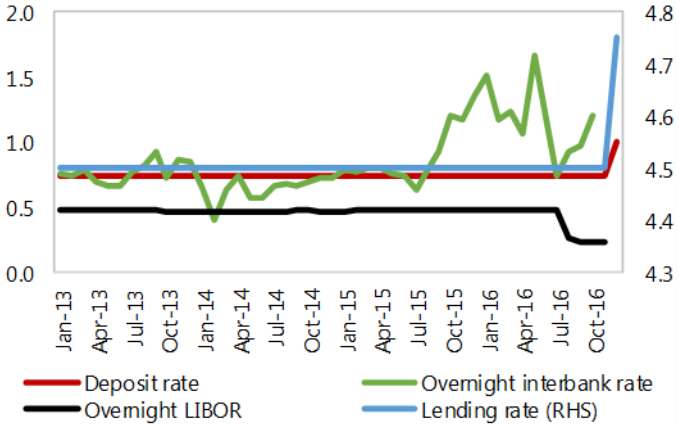
* It only includes auctions of bonds (conventional and sukuk) introduced since March 2013 consistent with the FSR.
Source: Qatar Central Bank

C. Liquidity Management Tools

9. QCB relies mainly on the following liquidity management instruments:

- *Reserve requirement ratio (RR)*: The reserve requirement ratio is defined over the average of commercial banks' foreign and domestic deposit held during the previous month. The required reserves are unremunerated and must be maintained on a daily basis. Banks will be penalized if they fail to fulfill the reserve requirement. QCB has in the past used the RR ratio as an instrument to absorb liquidity. The RR was raised in several steps between September 2007 and April 2008, from 2.75 to 4.75 percent, with the explicit motivation of absorbing liquidity and moderating credit growth. It has remained unchanged since then.

Figure 5. QMR Standing Facility and Interbank Rates, 2013–16
(Percent)



Sources: Qatar Central Bank; and Haver Analytics.

- *Qatar Money Market Rate (QMR)* standing facility: This, along with auctions of T-bills/bonds, is the main instrument used by QCB to manage liquidity (see Figure 5).

- *Treasury bonds and T-bills*: They have been extensively used to accommodate liquidity in 2015 and 2016 (See Box1).

- *Repurchase agreements (Repos)*: QCB enters into repurchase agreements with commercial banks—backed by government securities—but does not conduct *reverse repos*. Consequently, this instrument is only designed to inject and not absorb liquidity. As there is no active repo market, banks typically initiate the transaction at a predetermined rate set by QCB. The repo rate was equal to that of the QMR credit rate since 2011. In December 2016, the repo rate has been

reduced to 2.25 percent from 4.5 percent and its maturity changed from 14 to 7 days. *Public deposit management*: The government and semi-government institutions account for almost 34 percent of total resident deposits in Qatar in December 2016. However, as government deposits are not under direct control of QCB, they are generally not part of QCB's liquidity management framework.

- *Macroprudential instruments (MaP)*: QCB also considers macro-prudential tools as an indirect channel to manage liquidity through the credit creation process. Liquidity requirements for banks, including the leverage ratio and the liquidity coverage ratio, have been implemented as part of Basel III requirements. Personal lending regulation has macroprudential significance because of its high share in total lending and the moral hazard related to the possible debt-bailout expectations of nationals. Qatar has imposed a differentiated ceiling on individual loans to nationals and expatriates (QR 2 million and 6 years for Qatari citizens and QR 400,000 and 4 years for non-Qatari residents). In 2016, a maximum ceiling for net open positions was established at 25 percent of capital and reserves for U.S. dollars and 5 percent of capital and reserves for other currencies. To help contain liquidity risk and the reliance on wholesale funding, a new loan-to-deposit ratio requirement has been announced to be set at 100 percent by end-2017. This ratio is being questioned by some banks in the current juncture and it is still under discussion.

Box 1. Local Currency Government Securities Market Developments in Qatar

Developing the local currency debt market is an important policy priority for Qatar. Among other benefits, further development of the domestic market can help reduce Qatar's reliance on foreign funding as Qatar advances its diversification agenda and prepares for the FIFA 2022 World Cup.

The responsibility for domestic debt management is de facto assigned to QCB. The institutional framework for domestic debt management between the Ministry of Finance (MoF) and QCB is not published. QCB, in consultation with the MoF, is responsible for the design of the issuance plan and execution of the transactions.

Local currency government debt is mainly composed of Treasury bonds and Treasury bills (T-bills). The issuance of Treasury bonds predates T-bills. T-bills were introduced in 2011 for management of short-term liquidity with a preannounced issuance calendar. This was supplemented by the introduction of quarterly auction of T-bonds since 2013 for managing structural liquidity of more enduring nature as well as to help in the formation of a yield curve for longer maturities and thereby providing a major boost to the development of the domestic debt market. Treasury bonds have been issued domestically since 1999 for investment funding, liquidity management and market development. They are used with medium (3 years) to long-term maturities (10-years) (see Table 3.1). Both conventional and Shariah-compliant securities are issued. Rates are fixed by QCB. Both T-bills and T-bonds (except Sukuk) are listed at Qatar Exchange (QE) for secondary market trading. Sukuk represent about one third of the total. However, the secondary market is not very active.

Domestic Government Bond Issuances

Domestic Government Bond Issuances and Outstanding Amount (as of end Dec 2016)

Treasury Bonds issued in 2016 (QR Million)					
	3-year	**5-year**	**7-year**	**10-year**	**Total**
Conventional	2,550	1,925	6,125	875	11,475
Sukuks	1,450	1,200	1,100	1,975	5,725
Total	4,000	3,125	7,225	2,850	17,200
Treasury Bonds issued in 2015 (QR Million)					
	3-year	**5-year**	**7-year**	**10-year**	**Total**
Conventional	5,550	5,575	1,750	1,100	13,975
Sukuks	1,900	2,150	1,950	2,025	8,025
Total	7,450	7,725	3,700	3,125	22,000
Treasury Bonds issued in 2014 (QR Million)					
	3-year	**5-year**	**7-year**	**10-year**	**Total**
Conventional	10,100	5,950	950		17,000
Sukuks	9,100	4,950	950		15,000
Total	19,200	10,900	1,900		32,000
Treasury Bonds issued in 2013 (QR Million)					
	3-year	**5-year**	**7-year**	**10-year**	**Total**
Conventional	6,000	6,000			12,000
Sukuks	2,000	2,000			4,000
Total	8,000	8,000			16,000
Outstanding from pre-2013 issuances					**24,276**
Maturity of bonds issued since 2013					**8,000**
Outstanding as at end December 2016					**103,476**
Note: Outstanding as at end December 2016 is derived as outstanding from pre-2013 issuances plus issuances since 2013 minus maturities since 2013					
Source: Qatar Central Bank					

Box 1. Local Currency Government Securities Market Developments in Qatar (concluded)

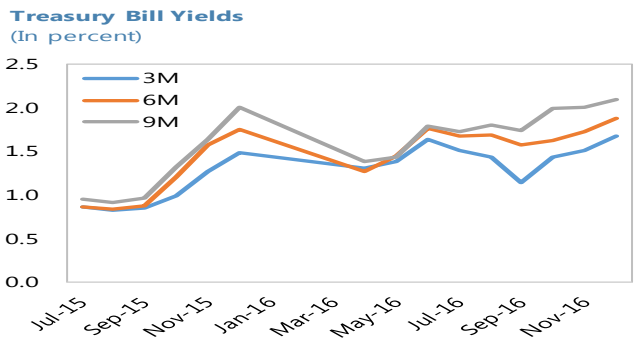
Auctions of all maturities are subject to a limited amount on offer. Initially, at each auction, an amount of QR 2 billion was offered for the three-month maturity and QR1 billion for the six and nine-month maturity each. Since the emergence of liquidity pressures, these amounts have been subject to adjustments based on evolving liquidity conditions. All banks in Qatar are eligible to bid at the auctions and each bank can submit one bid for each maturity. The auction is organized as a multiple price bid. There is no limit on the size of a bid by a single bank. Results are posted on QCB's website.

Secondary market trading has so far been negligible. Since December 2011, all T-bills have to be listed at the Qatar Exchange (QE) and secondary trading has to take place on QE, thus over-the-counter trading is not allowed. The three-six-nine-month T-bills issued to Islamic banks are not tradable, but can be used as collateral with QCB for repo transactions. Foreign investors are eligible to buy T-bills in the secondary market, via registered brokerage firms at the QE. However, trading by foreign investors has been negligible. QE has established trading platforms for both T-bills and government bonds. The secondary market is regulated and supervised by the Qatar Financial Market Authority.

Qatar has made significant efforts to develop its domestic government securities market but further progress is still needed. An independent debt office, the Office for Management of Credit Policies and Debt has been established. However, a transparent debt management strategy is still not in place. Currently, little information is publicly available beyond the basic results for previous T-bills auctions. The legal basis for debt management policy and operations as well as the division of responsibilities between QCB and the ministry of finance should be publicly disclosed to enhance good governance, transparency, and accountability. In addition, with regard to debt strategy, disclosure of debt management goals and instruments strengthens the strategy's effectiveness and credibility. Transparency and simplicity also help reduce uncertainty among investors and lower transactions cost. It is best practice to publish an annual report in which the results of the issuances are presented in light of the stated strategies and targets. The lengthening of the maturity profile of debt issuance will also help the emergence of a risk-free yield curve across the term structure which would serve as a reference for pricing other financial instruments.

10. As liquidity pressures emerge, the treasury yields become flatter. T-bill issuances have been successful in absorbing liquidity in the past. However, as liquidity pressures intensified, yields increased. However, the cancellation of the auctions in the first quarter of 2016 led to a decline of the yields (see Figure 6). When auctions were reestablished, yields began to rebound.

Figure 6. Treasury Bill Yields
(In percent)



Sources: Qatar Central Bank

D. Liquidity Forecasting

11. Liquidity Forecasting is essential to determine the size and timing of liquidity operations. In 2013, T-bills auctions were offered at fixed amounts. As liquidity pressures emerged, these amounts have been adjusted according to the evolving liquidity conditions. Without appropriate liquidity forecasting, the central bank runs the risk of draining too much or too little liquidity, which could result in excess swings in interbank rates. This would impact monetary policy implementation and discourage banks from taking positions because of the risks involved. Moreover, if a central bank consistently fails to absorb excess liquidity due to poor liquidity forecasting or the lack thereof, other systemic problems may develop with consequences for financial stability such as asset price bubbles, excessive lending, and possibly inflation.

12. Liquidity management is based on a forecast of the balance sheet of the central bank. The central bank can judge the scope of its market interventions to maintain the appropriate level of liquidity in the system by the difference between the supply and demand. The supply side is composed of factors beyond the control of the central bank (autonomous supply factors) and those directly managed by the central bank through its liquidity instruments (policy factors). The demand side is comprised of the required reserves and the excess reserves.

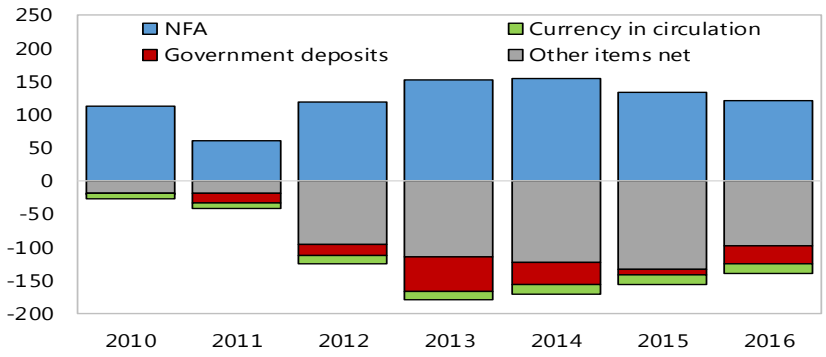
13. The central bank needs to forecast the supply factors -the autonomous factors- which are not under its direct control. The main determinants underlining these factors and that need to be taken into consideration for liquidity forecasting are (see Table 4):

- *Net foreign assets (NFA)*: this is one of the most important components in terms of relative size and volatility (Figure 7). The net foreign asset position is determined by the central bank foreign exchange sales and purchases with commercial banks. The government is the main supplier of foreign exchange as a large share of foreign currency denominated hydrocarbon export revenues goes to the government and some of the revenues are transferred to the sovereign wealth fund. Imports and remittance payments constitute the main sources of demand for foreign currency. Private cross-border capital flows also play an important role in determining the accumulation of NFA. Detailed information about expected outcomes on the oil and gas exports are key in this respect.

- *Government deposits: T*he Qatari government operates through a multi-treasury account system. Movements of government deposits significantly alter the liquidity position in the system. Adopting a system which helps forecast the evolution of government accounts, with input from the finance ministry, will facilitate projections of government net disbursements.

Figure 7. Relative Importance of Autonomous Supply Factors, 2010–16

(QR billions)



Sources: Qatar Central Bank; and IMF staff calculations.

- *Currency in circulation:* in the short term, this component is usually determined by the number of transactions in the economy, as there is a cost for holding cash. There is a strong seasonal component, even in countries with a developed financial system, where more savings and transactions do not use cash. In the long run, the demand for currency depends on the economic activity, as the velocity of money is usually stable. Innovations on the payment system may bring structural changes.

14. *The demand for bank reserves is partially controlled by the central bank.*

- *Required Reserves (RR): required reserves are calculated based on previous month's deposit balances and maintained on a daily basis.*

- *Excess Reserves (ER):* There are different reasons which motivate banks to hold excess balances. These may be related to the low interest rate environment, less sophisticated liquidity management procedures in some banks, or can be held as precautionary buffers. Patterns of holding excess reserves may also vary towards the end of the maintenance period established by the central bank. Patterns of behavior observed in the past are usually used as benchmark to forecast excess reserves.

Table 4. Simplified Central Bank Balance Sheet 2016
(QR billions)

Assets	181,444	Liabilities	181,444
Net Foreign Assets (NFA)	114,207	Currency in circulation	16,184
		Government deposits	1,312
Other items	22,669	Other items net	125,144
		Required reserves	33,022
		Excess reserves	3,656
QMR Standing facility		QMR Standing facility	
Credit 1/	44,567	Deposits	2,125
		Certificate of deposits	0

Sources: Qatar Central Bank; and IMF calculations.
1/ Refers to claims on commercial banks.

15. Obtaining accurate data base is critical for ensuring quality of the liquidity forecast. Using the most recent balance sheet of the central bank and counting with advanced information on future movements is critical to guarantee the quality of the process. A regular review of forecast errors is also needed to continue improving accuracy.

E. The Link Between Lending Rates and Liquidity Indicators for Qatari Banks

16. Tight liquidity conditions or excessive reliance on one single source of funding are expected to impact banks' lending conditions. The panel chart shows some trends in selected indicators for a sample of 13 Qatari banks for which data were available in Fitch between 2007–2016. Despite some cyclical variations, lending rates have not changed much since 2008. The size of bank assets in this sample has not expanded since 2008, although there was a peak in 2011 led by the increase in oil prices. Deposit rates decreased until the oil price boom, then increased when banks competed to attract funding as the loan-to-deposit ratio increased. Liquid assets have also decreased, while provisioning has increased as low oil prices increased liquidity pressures and risks.

17. This section analyzes the relationship between individual bank lending rates and various indicators of liquidity.[3] The regressions are estimated using ordinary least squares and feasible generalized least squares assuming heteroscedasticity. The OLS estimates account for about 83 percent of the bank-by-bank variation in the lending rates. The descriptions of the variables used and the banks of the sample are found in Annex 1.

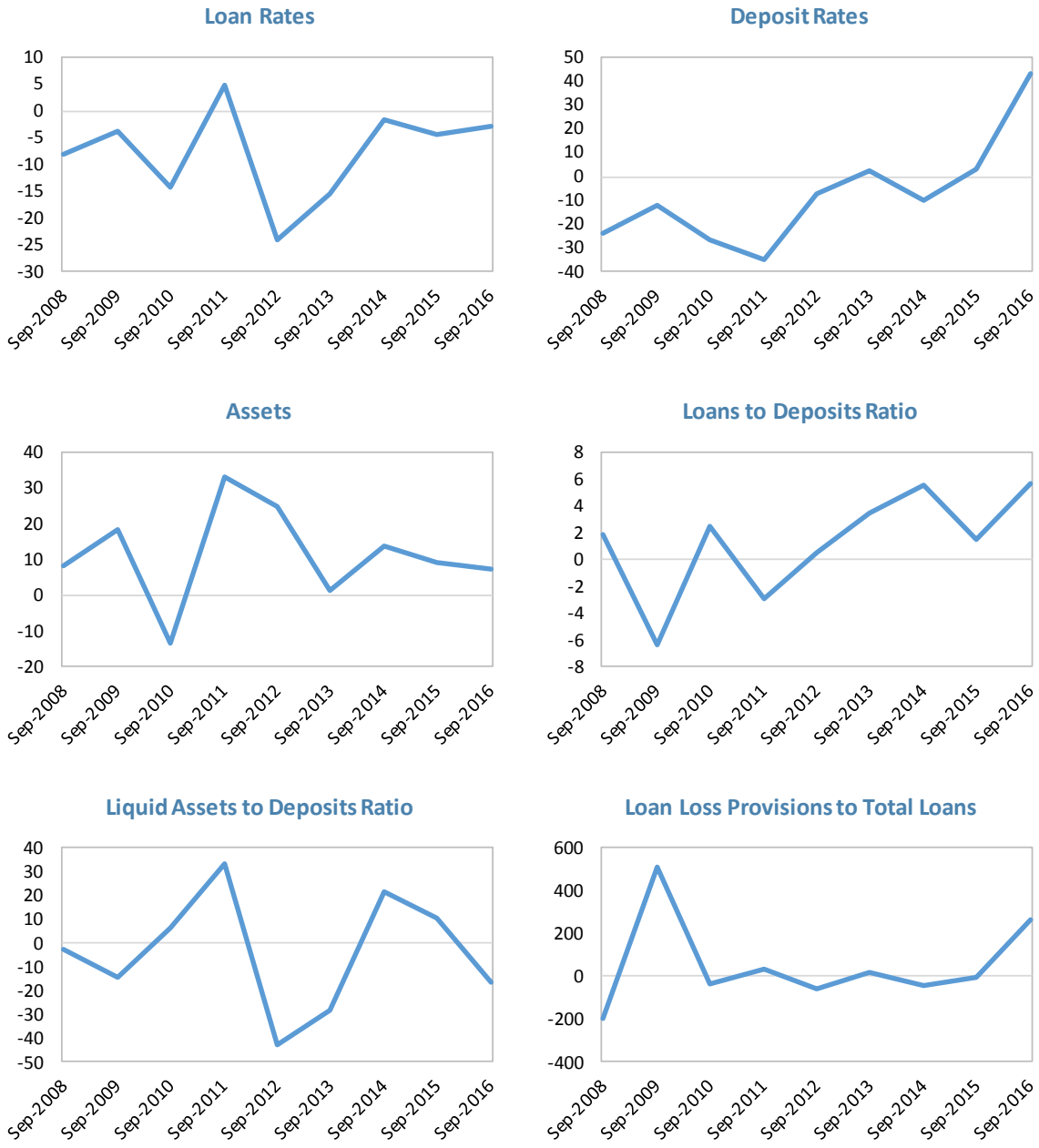
[3] This section follows a similar analysis done by Chailloux and Hakura for the UAE.

Table 5. Effects of the Liquidity Indicators on Bank Lending Rates 1/

	OLS	GLS
Explanatory variable: Lending Rate		
Deposit rate	1.75 **	1.84 **
	(0.236)	(0.164)
Log(assets)	-0.006 *	-0.007 **
	(0.003)	(0.003)
Loans to deposit ratio	-0.039	-0.048 **
	(0.032)	(0.02)
Off balance sheet items to deposits ratio	0.002	0.003
	(0.005)	(0.0037)
Liquid assets to deposits ratio	-0.002	-0.014
	(0.026)	(0.014)
Loan loss provisions to total loans	2.55 **	2.47 **
	(0.787)	(0.641)
Constant	0.11 **	0.132 **
	(0.048)	(0.03)
R-squared	0.83	...
N	33	33

Sources: Fitch; and IMF staff estimates.
1/ ** denotes significance at the 5% level and * denotes significance at the 10% level. Standard errors are in parentheses.

Figure 8. Trends in Qatar Banking Indicators 1/
(Annual Percentage)



Source: Fitch; and IMF staff estimates.
1/ The charts reflect the median observation for the banks included in the sample.

18. The sensitivity of lending rates to bank liquidity indicators varies. Results from the analysis are similar to those found for a study for the UAE.[4] Lending rates are very responsive to deposit rates since the Qatari bank system is mainly funded by deposits (see Table 5). Lending rates are also responsive to the loan loss provisions, and to the loan-to-deposit ratio. These are indicators regulated by QCB. Banks which have to provision a large amount of their loans against losses have higher costs which could be reflected in higher lending rates, even if non-performing loan ratios are not a major issue for financial stability risks. The loan-to-deposit ratio shows how banks try to expand their loan portfolio which is a good indicator of potential liquidity risks. Larger banks tend to have lower lending rates, reflecting some possible economies of scale.

19. Lending rates do not respond in a statistically significant way to variations in either the ratio of liquid assets, or to off-balance sheet items. It would be expected that banks with high liquid assets which can act as a buffer against withdrawals of deposits would tend to lower their lending rates. However, the estimations did not reflect this hypothesis as the supply of liquidity is exogenously determined by capital inflows and outflows related to oil prices and the interest rate differential with the U.S. Federal fund rate (due to the peg). The sovereign debt market (T-bills specifically) also plays a role in regulating the overall needed liquidity in the banking system. The off-balance sheet commitments do not seem to affect lending rates. The off-balance sheet items can be considered as an indicator of future liquidity given that the off-balance sheet liabilities could give rise to a drain on liquidity in the future. Ideally, off-balance sheet liabilities should be part of the prudential supervision framework to take into account potential risks. In Qatar, off-balance sheet activities represent a share of 48.5 percent of total banking sector assets.

F. Policy Recommendations

20. Financial stability risks are contained but need to be carefully monitored. Overall, financial risks are moderate as banks' balance sheets remain strong. However, macro-financial linkages can amplify the effects of oil price movements over the cycle. Weaker government spending due to lower oil prices leads to lower non-oil output growth, tightening of banking sector liquidity, and moderate credit growth which could possibly impact the quality of asset prices thereby generating weaker bank balance sheets and negative wealth effects.

21. QCB is strengthening its financial stability risks monitoring by developing an early warning system (EWS). QCB has constructed a risk index, namely the Banking Stability Index (BSI), which includes five risk factors in the banking sector (soundness, fragility, liquidity, profitability and inefficiency) which together with stress testing monitor banking sector risks, including liquidity risks. In addition, QCB is developing an EWS to identify the key vulnerabilities going forward. A collection of variables has been selected, but further refining of indicators and benchmarks for identifying periods of distress needs to be developed.

22. Tight liquidity pressures linked to the new oil price environment have forced banks to reconsider their funding model based on deposits. Banks reacted to lower government deposits

[4] See Chailloux and Hakura 2009.

by attracting nonresident deposits and increasing wholesale funding to sustain robust credit growth. However, rapid increases in foreign liabilities creates additional risks linked to uncertain global financial market conditions, and possible foreign currency and maturity mismatches. The macroprudential tools already in place help in this respect. The buildup of liquidity risk related to short-term foreign borrowings channeled into funding medium and long-term domestic lending needs to be carefully monitored.

23. QCB has managed liquidity as reflected by low variability in interbank rates. The development of the domestic sovereign debt market, and in particular the issuance of T-bills, has helped QCB to manage liquidity. However, developing a liquidity forecast framework would further enhance QCB's ability to manage the timing and size of liquidity management operations. Strengthening the coverage of the balance of payments - with respect to private non-bank financial account transactions - and more clarity of government transfers in and out the sovereign wealth fund would help improve accuracy of liquidity forecasts. More transparency of the fiscal accounts and better data provision will also help in this respect.

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Annex I. Data Annex

Table 1. Definition of Variables

Variable name	Description (Fitch variable in [brackets])
Loan rate	[Interest income on loans] / [Gross loans]
Deposit rate	[Total interest expenses] / [Total Deps., Money Market & ST Funding]
Ln(assets)	Natural log of [Total Assets - Banks]
Loans to Deposits ratio	[Loans / Deposits and Money Market Funding (%)]
Off balance sheet items to deposits ratio	[Off Balance Sheet Items]
Liquid Assets to deposits ratio	[Liquid Assets / Deposits and ST Funding (%)]
Loan loss provisions to total loans	[Loan Loss Provisions / Gross Loans (av) (%)]

Table 2. Banks in the Sample

Al Khalij Commercial Bank (al khaliji) Q.S.C.	Qatar Central Bank
Barwa Bank	Qatar First Bank L.L.C
Doha Bank	Qatar International Islamic Bank
First Finance Company (Q.S.C.)	Qatar Islamic Bank (S.A.Q)
First Investor (The)	Qatar National Bank
International Bank of Qatar (Q.S.C.)	The Commercial Bank (Q.S.C.)
Masraf Al Rayan (Q.S.C.)	