



# QATAR

## SELECTED ISSUES

May 2018

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# QATAR

## SELECTED ISSUES

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# PERFORMANCE AND VULNERABILITIES OF QATAR'S NONFINANCIAL CORPORATE SECTOR<sup>1</sup>

*Qatar's non-financial corporate (NFC) sector balance sheets have remained healthy. Sensitivity analysis shows that Qatar's NFC sector would be able to withstand adverse scenarios of higher interest rate and earnings shocks.*

## A. Introduction

**1. Qatar's non-financial corporate sector (NFC) is sizable in terms of the overall share of economic activity.** The total turnover of these companies was US\$ 28 billion in 2016 (about 18 percent of total GDP and one-quarter of non-hydrocarbon GDP).<sup>2</sup> Assets of listed and non-listed NFCs in Qatar were estimated at about 115 percent of non-hydrocarbon GDP in 2016 (text table, below).

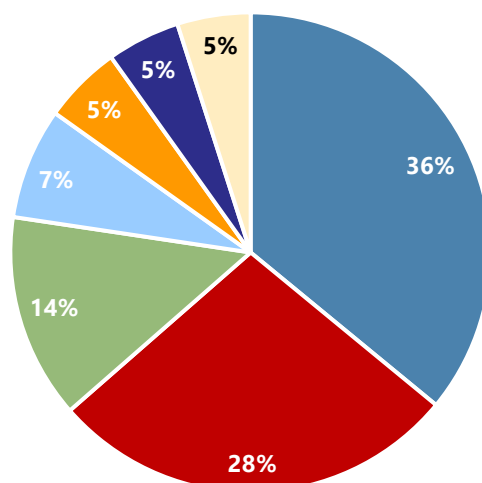
**2. The NFC is highly concentrated, with the services sector representing more than 81 percent of total NFC assets.** The largest three firms in terms of assets in 2016 were in the services sector (text chart, below). Ooredoo – a telecom company – is the largest company in Qatar capturing 22 percent of total NFC assets and 27 percent of the services sector assets. Qatar Airways is the second largest company with 22 percent of total NFC assets and 28 percent of services sector assets. The third largest company is Ezdan Holding Group – mostly involved in real estate development – which represents 12 percent of total NFC assets and 15 percent of assets in the services sector.

**3. The manufacturing and primary sectors represent a combined 19 percent of total NFC assets.** The manufacturing sector makes up 17 percent of this 19 percent, while the remaining assets fall under the primary sector. The largest company in the manufacturing sector is Qatar Fertilizer Company which specializes in chemicals, rubber, plastics, and non-metallic products. The company represents 4 percent of total NFC assets and 25 percent of manufacturing sector assets. Gulf Drilling International Limited is the only primary sector company and specializes in providing drilling rig and related services to the oil and gas sector. It represents about two percent of total NFC assets.

<sup>1</sup> Prepared by Olumuyiwa Adedeji and Sohaib Shahid, with research assistance provided by Brian Hiland.

<sup>2</sup> Data were primarily collected from Orbis and cover 36 nonfinancial corporates for the period 2009–2016. Data were also collected from IMF Corporate Vulnerability Utility (CVU) and the Qatar Bourse. Data are until 2016, unless specified otherwise.

### Market Capitalization by Sector, June 2016



■ Banks and Finance
 ■ Industrial  
■ Real Estate
 ■ Telecom  
■ Transport
 ■ Consumer Goods & Services  
■ Insurance

Source: Bloomberg; and IMF staff calculations.

### Nonfinancial Corporate Sector: Selected indicators

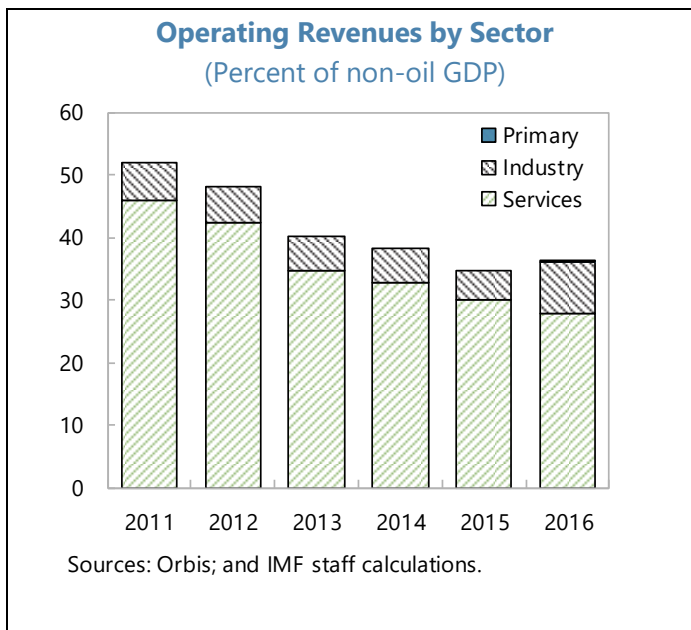
	2013	2014	2015	2016
	<i>(Billions of U.S. dollars)</i>			
Total assets	112.6	122.5	125.6	115.4
Cash	16.2	14.5	20.3	12.7
Total liabilities	32.6	38.9	38.5	37.4
Net profits	5.6	6.5	6.0	4.2
	<i>(Percent)</i>			
Assets to GDP	60.3	61.7	60.9	70.1
Assets to Non Oil GDP	143.6	139.2	128.2	114.1
Debt to Equity	54.2	57.2	55.4	64.8
ICR <sup>1</sup>	4.7	5.4	5.4	4.4
Return on Assets	5.0	5.3	4.8	3.7
Return on Equity	9.4	9.5	8.7	7.3

Sources: IMF Corporate vulnerability utility (CVU); Orbis; and IMF staff calculations.

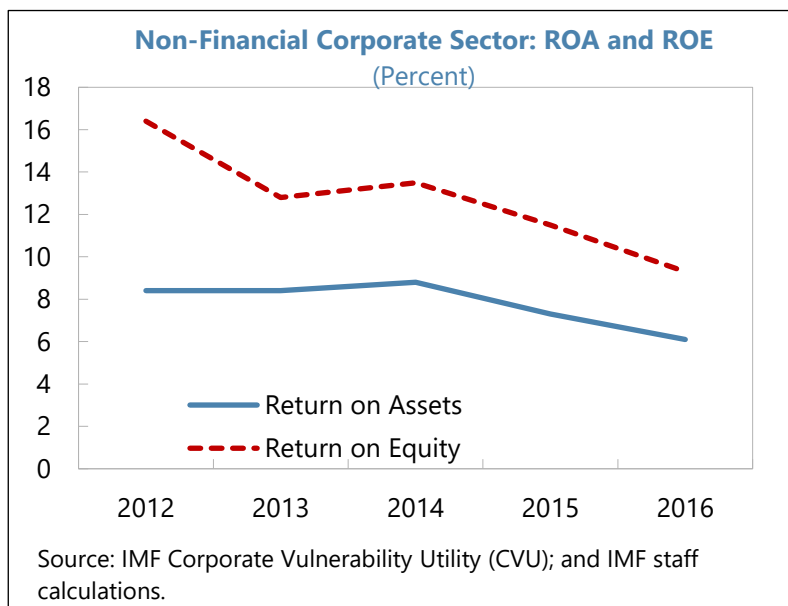
<sup>1</sup> Interest coverage ratios are calculated based on data from Orbis.

## B. Non-financial corporate sector performance

**4. Operating revenue (as a share of non-oil GDP) has been on a downward trend even before the fall in hydrocarbon prices, with a slight recovery in 2016 (text chart).** While the operating revenue has not been able to keep pace with the growth of nominal non-hydrocarbon GDP, its cumulative average growth rate (CAGR) was 0.5 percent during 2011–16<sup>3</sup>. The observed decline came mainly from the services sector, with a fall in operational revenue as a share of non-oil GDP by about 12 percentage points of non-oil GDP between 2011 and 2016.



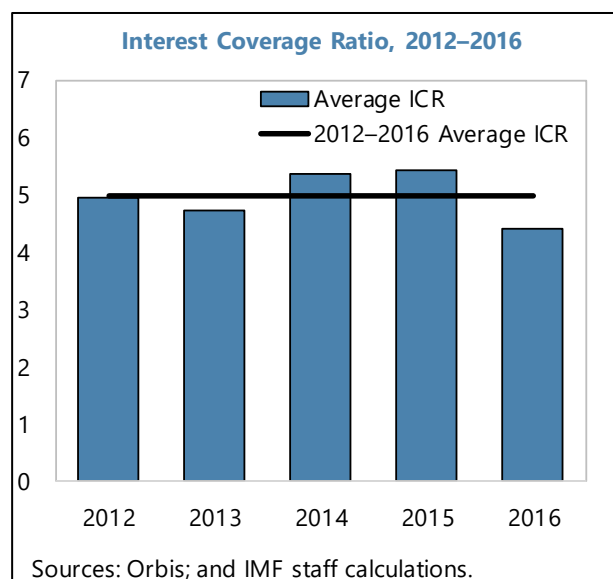
**5. Profitability of Qatari corporates has declined since 2012 (text chart).** Qatar’s NFCs remain profitable but have seen their profitability decline in recent years. The decline in profitability is apparent from 2015 to 2016 in the context of lower non-hydrocarbon GDP growth, fiscal consolidation and reduced oil prices. due to the fall in oil prices and is consistent with trends in other countries in the GCC.<sup>4</sup>



<sup>3</sup> CAGR =  $\left(\frac{\text{Ending Value}}{\text{Beginning Value}}\right)^{1/n} - 1$ , where n is the number of years.

<sup>4</sup> Preliminary data suggests that, excluding banks and insurance corporates, total profits of corporates listed on the Qatar Stock Exchange were US\$ 3.6 billion in 2017, an increase of 0.7 percent compared to 2016.

**6. Debt servicing capacity remains comfortable despite the low hydrocarbon prices.** After a decline in 2015 – following the decrease in oil prices – Qatar’s Interest Coverage Ratio (ICR) fell in 2016, but on average remains at comfortable levels indicating the resiliency of its debt servicing capacity.<sup>5</sup> Though a high ICR shows that Qatar’s debt servicing capacity is adequate, results should be interpreted with caution as the sample consists of only 36 corporates.



### C. Sensitivity Analysis

**7. Stress tests are used to assess the resilience of the Qatari NFC sector to interest rate and earning shocks. The sensitivity analysis uses three scenarios:<sup>6</sup>**

- **Scenario 1:** An increase in the cost of funding by 200 basis points with no change to aggregate earnings.
- **Scenario 2:** An increased in the cost of finding by 200 basis points with a 20 percent decline in aggregate earnings.
- **Scenario 3:** An increase in the cost of funding by 500 basis points with a 30 percent decline in aggregate earnings. This would be entail a much more pessimistic outlook for the economy, which is not our baseline scenario.

**8. A company is “at-risk” if it generated insufficient Earnings Before Interest and Taxes (EBIT) to cover its interest expense.** For explanatory simplicity, this paper defines a company-at-risk if  $ICR < 1$ , based on IMF (2016). However, there is no consensus on the company-at-risk threshold. IMF (2014) uses a threshold of  $ICR < 2$ , Chivakul and Lam (2015) use  $ICR < 1.5$ .<sup>7</sup>

**9. Sensitivity analysis shows that Qatar’s NFC sector is resilient to funding and earnings shocks.** The baseline median ICR in 2016 was 7.6 (see text charts below). ICR falls progressively under all three scenarios as the severity of the scenarios increases (from Scenario 1 to Scenario 3). Under each scenario, however, the ICR stays above the debt-at-risk threshold of  $ICR < 1$ , indicating that the Qatari NFC sector is protected from negative shocks to funding and earnings.

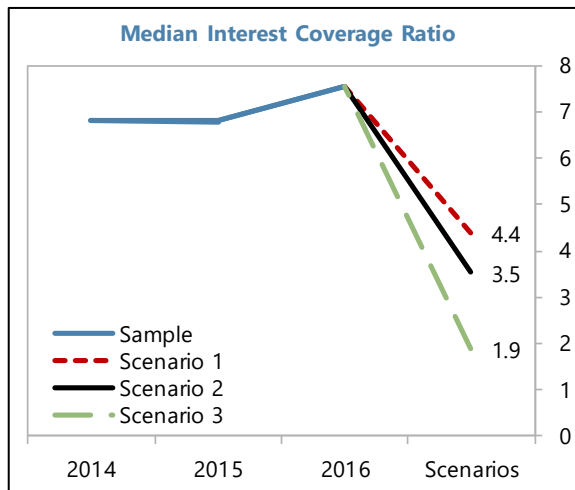
<sup>5</sup> ICR is calculated as Earnings Before Interest and Taxes (EBIT) divided by the corporates’ interest expenses for the same period. The lower the ratio the more the corporate is burdened by debt. ICR should be interpreted keeping in view that it does not include principal payments that the corporates have to make.

<sup>6</sup> QCB undertakes comprehensive stress tests in their annual financial sector assessment.

<sup>7</sup> See IMF (2016) for a discussion on the ICR threshold.

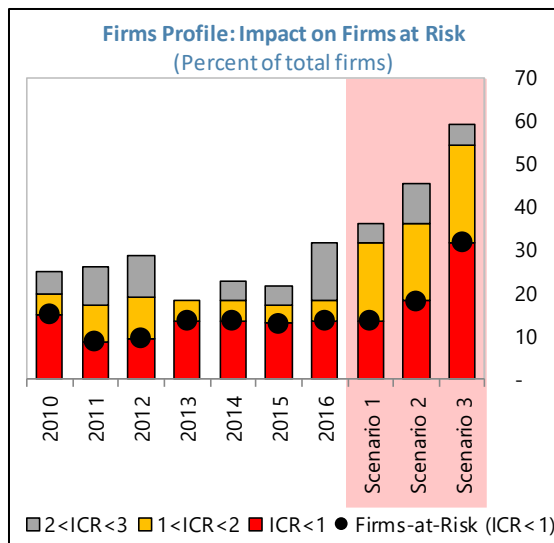
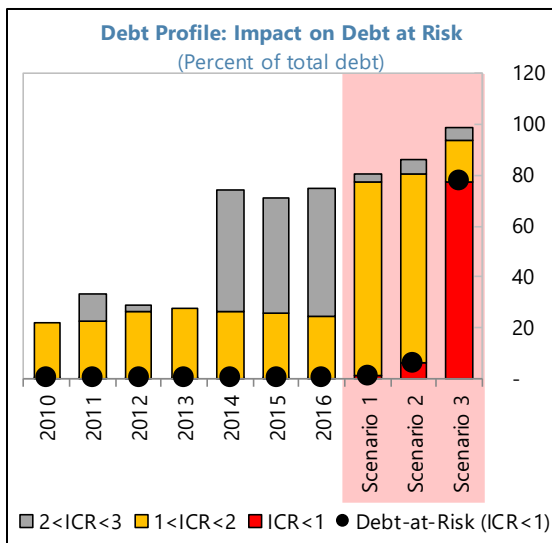
**10. Corporates’ debt-at-risk remains limited across all but the most severe scenario (text chart).**

In the first two scenarios, the debt at risk as a percentage of total debt remains limited—1 percent and 6 percent for the first two scenarios, respectively (text chart). This can partially be explained by a 0.1 percent debt-at-risk in 2016, which is also the base year. In scenario 1—a 200-basis point increase in the interest rate—the debt at risk moved marginally to 1 percent. In Scenario 2—a 20 percent decrease in earnings added to Scenario 1—the debt-at-risk goes to 6 percent of total debt. In the most severe scenario, scenario 3—increase in funding cost by 500 basis points with a 30 percent decline in aggregate earnings—debt-at-risk jumps to 77 percent of total debt.



**11. Almost a third of Qatari firms are at risk under the most severe scenario (text chart).**

In 2016, 14 percent of the corporates were at risk, i.e., corporates with an ICR < 1. Under scenario 2, this number climbed to 18 percent, while under the most severe scenario (Scenario 3), this ratio reached 32 percent of total firms.



**D. Concluding remarks**

**12. The NFC sector in Qatar has remained broadly resilient under low oil prices and when put under interest and earnings shock.** Though profitability, as measured by ROE and ROA, of Qatari corporates has declined, it is still high. Qatari companies remain resilient in the face of moderate to severe interest and earnings shocks, as median ICR of Qatari firms remains well above 1. The impact of these shocks on debt-at-risk and firms-at-risk is also limited.

## References

Chivakul, M. and W. Raphael Lam. 2015. "Assessing China's Corporate Sector Vulnerabilities." Working Paper No. 15/72, International Monetary Fund, Washington.

IMF. 2014. "Moving from Liquidity- to Growth-Driven Markets", Global Financial Stability Report, April 2014. International Monetary Fund, Washington.

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# ASSESSING THE RESILIENCE OF THE BANKING SYSTEM TO MACROECONOMIC SHOCKS IN QATAR<sup>1</sup>

*Banks are well-positioned to weather the impact of an increase in nonperforming loans (NPLs) from lower oil/LNG prices, weaker private sector credit and real GDP growth, and downturn in the equity market. Bank capital would only be put under pressure in the event of a very sharp economic downturn.*

## A. Introduction

**1. Commercial banks in Qatar are profitable, liquid, and well capitalized.** On average, NPLs are low at 1.5 percent of gross loans, the capital adequacy ratio is 16.6 percent, and provisions are comfortable at 85 percent of NPLs.<sup>2</sup> Qatar Central Bank's (QCB) ability to supervise and regulate the banking system is strong, as demonstrated by the early adoption of Basel III standards.

**2. NPLs tend to have been influenced by oil prices, private sector credit growth, and growth of the non-oil private sector (Figure 1).** Macro-financial linkages tend to amplify the effects of oil price movements. Sustained lower oil and LNG prices have been associated with fiscal tightening, and reduced growth rates of nonoil private sector GDP<sup>3</sup> and real credit extension. Moderation in economic activity has been accompanied by lower equity prices, creating negative wealth effects. Higher NPLs have been associated with worsened creditworthiness of borrowers and tightened liquidity conditions.<sup>4</sup> With a fairly large financial sector—bank assets in Qatar amount to about 200 percent of GDP—a deterioration in banks' balance sheets may feedback into the real economy as banks tighten credit conditions. Due to the exchange rate peg, higher interest rates that accompany US monetary policy tightening could raise borrowing costs and put additional pressure on asset quality.

**3. The QCB's stress tests for December 2017 show that the banking system is resilient to severe shocks.** Stress tests of the banking sector are conducted by QCB on a regular basis and published in the Financial Stability Reports. The stress tests performed on September 2017 data for the entire banking system examined the impact on banks' capital ratios of an increase in NPLs by 25 percent and additional provisioning ranging between 50 and 70 percent.<sup>5</sup> The stress test results show that the capital ratios of the banks decline by between 2 and 3 percentage points under various scenarios.

<sup>1</sup> Prepared by Anastasia Guscina, with research assistance provided by Brian Hiland and Tucker Stone.

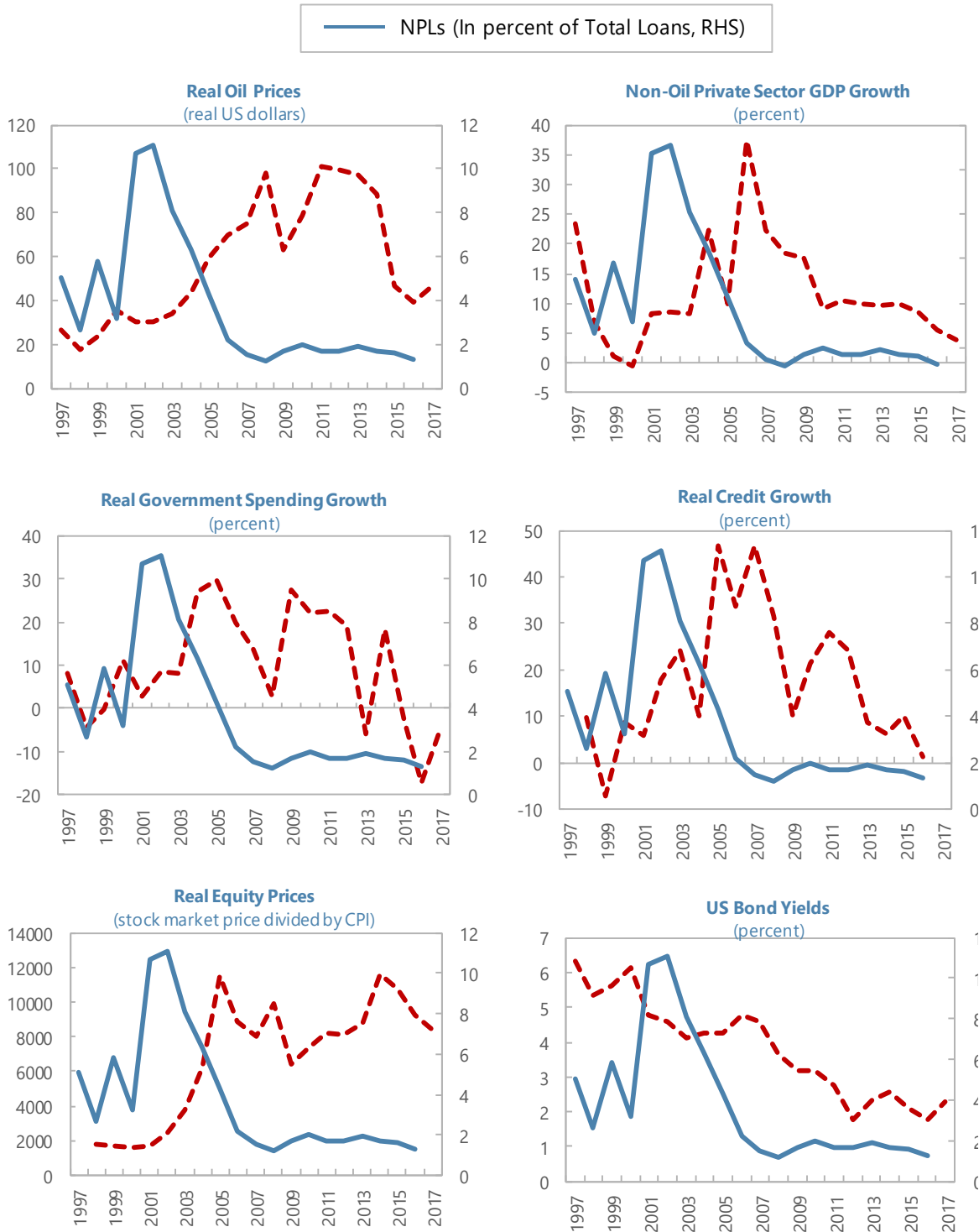
<sup>2</sup> Based on publicly available data on financial stability indicators for all commercial banks (all branches inside Qatar) as of September 2017.

<sup>3</sup> Defined as a real non-hydrocarbon GDP that excludes government services. The data comes from national accounts, GDP at constant prices by sectors.

<sup>4</sup> In a downturn, should banks get concerned about their ability to access capital markets, they might engage in "precautionary hoarding" of funds for reasons exogenous to the borrowers' creditworthiness.

<sup>5</sup> In addition to NPL shocks, the QCB's stress tests include shocks to the funding side of banks' balance sheets.

Figure 1. Qatar: Key Economic Indicators, 1997–2017



Sources: Country authorities; Bloomberg; Haver; and IMF staff calculations.

**4. The main goal of the macroeconomic stress tests is to identify structural vulnerabilities in the banking system and assess its resilience to shocks.**<sup>6</sup> The note does not try to update the detailed stress tests conducted by QCB. Rather it uses publicly available bank-by-bank data, regression analysis, and a range of economic scenarios to revisit the possible impact of lower oil prices, lower economic and credit growth, and lower stock market prices on Qatari banks. While liquidity stress tests could have usefully supplemented credit risk stress tests in this note, they were not conducted due to lack of data.

**5. The results should be interpreted with a range of caveats in mind.** First, the information content of publicly available bank-level balance sheet data is relatively limited compared to the data banks are mandated to provide to QCB in the context of its supervisory and regulatory mandate. Second, any analysis based on historical data might not always account for the effects of recent changes in policy frameworks. Third, the data spanning 1997–2017<sup>7</sup> may not capture a sufficient number of oil price and financial cycles. Fourth, there is considerable parameter uncertainty surrounding the estimated relationship between macroeconomic shocks and NPL ratios.

## B. Determinants of NPLs in Qatar – Econometric Exercise

**6. The relationship between macro and financial market variables and NPL ratios was estimated through panel data econometric techniques.** The analysis relied on publicly available bank-by-bank data (from Fitch and Bloomberg) on balance sheets and profit/loss accounts for 11 banks. Due to a relatively small data sample and data gaps, the standard GMM techniques using lagged structures lead to an overidentification problem. To mitigate these problems, the econometric technique used in this paper follows Driscoll and Kraay (1998) technique with fixed effects. The error structure in Driscoll and Kraay (1998) estimation is assumed to be heteroskedastic, autocorrelated up to some lag, and possibly correlated between the panels (banks). This nonparametric technique of estimating standard errors does not place any restrictions on the limiting behavior of the number of panels. Consequently, the size of the cross-sectional dimension in finite samples does not constitute a constraint on feasibility. The results are broadly similar when other estimation techniques are used, such as OLS and fixed effects.

**7. NPLs in Qatar appear to be driven by nonoil private sector GDP growth, private sector credit growth, and developments in the stock market (Table 1).** In line with the literature on credit risk, the dependent variable is a logit transformation of the NPL ratio (i.e.  $\log(\text{NPLs}/(1-\text{NPLs}))$ ). This ensures that the variable is not bounded by 0 to 1 interval and is distributed symmetrically. The results suggest that the growth rate of nonoil private sector GDP<sup>8</sup>, real growth of credit to private sector and real equity price (in logs) are key determinants of bank-level NPL ratios.<sup>9</sup>

<sup>6</sup> See Drehmann, 2009.

<sup>7</sup> For most banks, third quarter data were used in 2017.

<sup>8</sup> Defined as a real non-hydrocarbon GDP that excludes government services.

<sup>9</sup> To get from nominal to real, all these variables were deflated by the overall CPI.

**Table 1. Macroeconomic Determinants of NPLs in Qatar**

Dependent variable: NPL logit	(1)	(2)	(3)	(4)	(5)	(6)
Logit of NPL ratio (L1)	0.539*** (0.103)	0.535*** (0.100)	0.527*** (0.101)	0.540*** (0.107)	0.535*** (0.107)	0.523*** (0.102)
Log (real Equity price) (L1)		-0.170*** (0.064)	-0.144** (0.064)		-0.126* (0.051)	-0.130** (0.064)
Real private sector credit growth, % (L1)			-0.409** (0.170)	-0.283* (0.152)	-0.281*** (0.084)	-0.293* (0.151)
Banks' liabilities to nonres. growth, % (L1)				-0.115** (0.043)	-0.071 (0.051)	
Real non-oil private sector GDP growth, % (L1)						-0.434*** (0.162)
Constant	-0.775*** (0.188)	-0.066 (0.378)	-0.112 (0.376)	-0.679*** (0.209)	-0.171 (0.394)	-0.149 (0.379)
Observations	131	128	128	130	128	128
Adjusted R-squared	0.300	0.352	0.375	0.354	0.3803	0.382
Prob>F	0.000	0.000	0.000	0.000	0.000	0.000
Notes: Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1						
Notes: Estimations based on annual data during 1997-2017 period; panel regression with robust standard errors. The regressions include fixed effects and based on Driscoll and Kray (1998) estimation technique.						

**8. The results are consistent with prior empirical literature on NPL determinants and economic intuition.**<sup>10</sup> Higher non-oil private sector growth and stronger performance of the stock market should boost wealth creation, expand credit creation and lower the rate of defaults. The relationship between NPL ratios and private sector credit growth is not straightforward. On the one hand, higher private sector credit growth signifies a general economic upturn and can be associated with lower NPL ratios. On the other hand, if credit expansion comes at the expense of loan quality, it should lead to higher NPLs. In the case of Qatar, higher credit growth supports economic activity and does not come at the expense of loan quality. A decline in banks' liabilities to nonresidents (capital outflow) should lead to higher NPLs, as it proxies for investors' concerns over financial sector's health. While the result is not always statistically significant, it comes with the expected sign

<sup>10</sup> See Espinoza and Prasad (2010) and Khandelwal, Miyajima, and Santos (2016).

in all specifications and is robust to using other estimation techniques (OLS, fixed effects).<sup>11</sup> Real government spending growth, housing prices, and domestic and US interest rates are not found to directly affect NPL ratios in a systematic way (not shown in the table).<sup>12</sup> Unemployment rate was not used in the regressions - since in Qatar the relative importance of the foreign labor force means that unemployment is very stable and very low. Since the pegged exchange rate regime does not give rise to exchange rate risks for banks' foreign currency exposures, we did not include the exchange rate in the model of NPLs.<sup>13</sup>

**9. Supplementing the macroeconomic determinants of NPLs, the next empirical estimation explicitly controls for firm-level characteristics (Table 2).** In particular, we look at the risk factors suggested by the literature: different measures of capital adequacy (Tier 1 CAR, and total risk-based CAR), leverage ratio, bank size (proxied by log of total assets) and liquidity ratio. The analysis shows that both macroeconomic variables and bank-specific variables matter for the evolution of NPLs. While private sector credit growth and performance of non-oil economy seem to be the key macro-determinants of NPLs, capital adequacy and bank size were also found to be significant bank-specific variables. Better capitalized banks (as proxied by Tier 1 CAR) tend to have lower NPLs the following period and the result is statistically significant in all specifications. Larger banks tend to have lower NPLs, although the result is significant only at 10 percent level. Leverage and liquidity ratios do not appear to be statistically significant in the estimations. The macroeconomic conditions were found to be important and with the expected sign in all specifications.

### C. Testing Banking Sector's Resilience – Stress-Testing Exercise

**10. Using these parameter estimates and projections for macroeconomic variables (Figure 2), the future estimated path of bank-level NPLs can be derived. Based on the estimated relationship,** NPL ratios are projected for the 11 banks for 2018–20, starting with NPL ratios at end-2017, as new NPLs accumulate according to the baseline trajectories of oil prices, nonoil private ~~11.~~ sector GDP growth, real private sector credit growth, and growth in stock market prices, as projected by IMF staff. In particular, oil prices increase from US\$54.4 a barrel in 2017 to US\$65 a barrel in 2018, before declining to US\$58 a barrel by 2020. Non-oil private sector real GDP growth moderates from 4 percent in 2017 to 3.6 percent in 2018, before recovering to 3.9 percent in 2019. Real growth of bank credit to the private sector (deflated by overall CPI) is also expected to soften from 5.5 percent in 2017 to about 2 percent in 2018, before recovering to 4.8 percent in 2020. With subdued growth of non-oil private sector GDP and real credit and depressed oil prices despite the recent rebound, the average NPLs in the sample of 11 banks would increase to almost 3 percent

<sup>11</sup> In the case of Qatar, nonresident withdrawals that started in June 2017 were not based on concerns over banking sectors' health. Timely liquidity injections into the banking system helped reinforce investors' confidence in the banking system and prevented negative feedback loops with the real economy.

<sup>12</sup> Real estate price index for Qatar covers a relatively short period of time. Sound regulations with respect to real estate exposures may help minimize the direct impact of real estate downturn on NPLs.

<sup>13</sup> Industry-level controls (e.g. share of foreign banks, 3-bank asset concentration) are often incorporated in econometrical estimations on panel data from more than one country. The econometric estimation in this note is conducted only on Qatari banks.

of total loans in 2018, 3.8 percent in 2019 and reach almost 5 percent in 2020. The model is somewhat biased toward overestimating the rise in NPL ratios, due to a strong autoregressive tendency.

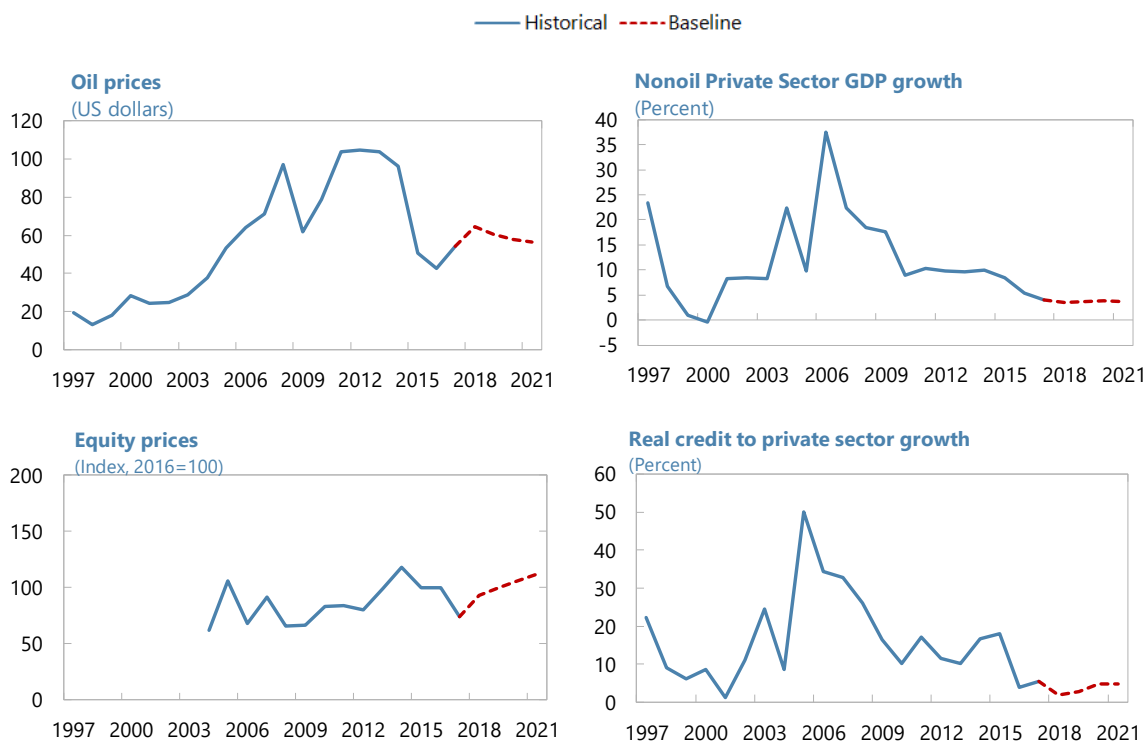
**Table 2. Macroeconomic and Firm-Specific Determinants of NPLs in Qatar**

Dependent variable: NPL logit	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Logit of NPL ratio (L1)	0.523*** (0.102)	0.507*** (0.105)	0.376*** (0.129)	0.365*** (0.125)	0.376*** (0.135)	0.363** (0.123)	0.377** (0.134)
Log (real Equity price) (L1)	-0.130** (0.064)	-0.185** (0.073)	0.098 (0.088)	0.072 (0.075)	0.097 (0.088)	0.063 (0.066)	0.07 (0.083)
Real private sector credit growth, % (L1)	-0.293* (0.151)	-0.320** (0.156)	-0.620*** (0.191)	-0.611** (0.226)	-0.617*** (0.229)	-0.607** (0.218)	-0.591** (0.231)
Real non-oil private sector GDP growth, % (L1)	-0.434*** (0.162)	-0.500*** (0.184)	-0.692** (0.337)	-0.689** (0.307)	-0.691* (0.342)	-0.643** (0.259)	-0.644** (0.288)
Leverage ratio (L1)		-1.147 (1.845)		-0.691 (2.129)	0.081 (2.100)	-0.783 (2.078)	0.001 (2.103)
Tier 1 CAR (L1)			0.927* (0.457)		0.942*** (0.224)		0.879*** (0.192)
Total risk-based CAR (L1)				0.620* (0.328)		0.585* (0.329)	
Liquidity ratio (L1)						-0.398 (0.376)	-0.459 (0.487)
Bank size (log of total assets) (L1)			-0.099* (0.050)	-0.091* (0.050)	-0.100* (0.050)	-0.114* (0.061)	-0.119* (0.067)
Constant	-0.149 (0.379)	0.159 (0.468)	-1.048** (0.448)	-0.959*** (0.289)	-1.108*** (0.399)	-0.734** (0.303)	-0.805** (0.351)
Observations	128	125	100	100	99	108	98
Adjusted R-squared	0.382	0.394	0.4022	0.3942	0.4174	0.4005	0.4229
Prob>F	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Notes:

Robust standard errors in parentheses. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Notes: Estimations based on annual data during 1997-2017 period; panel regression with robust standard errors. The regressions include fixed effects and based on Driscoll and Kray (1998) estimation technique.

**Figure 2. Macroeconomic Determinants of NPLs: Historical and Baseline**

Sources: WEO and IMF staff estimates.

**11. Given the NPL path, balance sheets and profit/loss accounts are simulated for the individual banks.** Liabilities remain constant while interest margins on current loans and liabilities, as well as net non-interest income decline from each banks' historical level. This assumption reflects potential margin compression due to slower economic activity, weaker credit demand, and potentially greater competition for funding. New NPLs are assumed to be provisioned at 110 percent, which further dents profits. When the capital ratio declines in the previous period, and provided that net income is positive in the current period, it is assumed that the bank builds capital by allocating 50 percent of profits. The rest is paid out as dividends. When net income is negative, capital covers the loss.

**12. Simulation results suggest that banks can comfortably withstand higher NPLs and lower profits (Table 3).** This finding owes to Qatari banks' strong starting position, with low NPLs, adequate provisioning, and solid profitability. Based on the above-mentioned assumptions and the central path of the NPL ratio, the average capital ratio remains above 16 percent over the projection period (baseline scenario).

**Table 3. Effects of Economic Scenarios on the Banking Sector – Baseline**

	Historical	Baseline		
	2017	2018	2019	2020
<b>Assumptions</b>				
Private sector real nonoil growth	4.0	3.6	3.8	3.9
Oil price (in U.S. dollars)	54.4	64.7	60.7	58.0
Equity price index	73.9	93.2	99.9	105.8
Real private sector credit growth	5.5	1.9	2.8	4.8
<b>Impact</b>				
Nonperforming loans (% of total loans)	2.1	2.9	3.8	4.9
Provisions (% of NPLs)	106.5	104.8	103.6	102.8
Capital adequacy ratio	16.4	16.3	16.3	16.3

**13. The banking system is resilient to a sharper fall in oil prices, credit growth, and non-oil private sector GDP growth as modeled in Scenario II (Table 4).** In shock scenario, all the macroeconomic variables decline by about 1 standard deviation (computed over 2008–2017 period). Oil prices are assumed to fall from US\$54.4 a barrel in 2017 to about US\$40 a barrel in 2018, before declining to US\$36 a barrel by 2020. Non-oil private sector GDP contracts by 1.2 percent of GDP in 2018 and remains little changed, while real credit to private sector contracts by about 4.7 percent in 2018 and 3.7 percent in 2019. Equity prices rebound less than under the baseline in 2018 and then decline by about 12 percent each year. Under this scenario, despite profitability declining and provisioning needs rising, the capital ratio declines only moderately to around 15 percent in aggregate, well above the 8 percent international regulatory minima. QCB sets the regulatory capital minima equal to 10 percent, 2 percentage points above Basel requirements.<sup>14</sup>

**Table 4. Effects of Economic Scenarios on the Banking Sector – Shock Scenario**

	Historical	Shock Scenario		
	2017	2018	2019	2020
<b>Assumptions</b>				
Private sector real nonoil growth	4.0	-1.0	-0.8	-0.6
Oil price (in U.S. dollars)	54.4	40.2	37.8	36.1
Equity price index	73.9	76.2	67.8	59.5
Real private sector credit growth	5.5	-4.7	-3.7	-1.8
<b>Impact</b>				
Nonperforming loans (% of total loans)	2.1	3.1	7.5	9.0
Provisions (% of NPLs)	106.5	104.4	101.8	101.5
Capital adequacy ratio	16.4	16.3	15.2	15.1

<sup>14</sup> In its stress-testing exercises, QCB also monitors CRAR ratio of 12.5 percent, which includes 2.5 percent conservation buffer.



**14. The banking system would remain resilient even in the presence of a very severe shock to all the NPL macro determinants (Table 5).** Under very severe shock scenario, with very sharp contraction in credit and non-oil GDP growth, stock market deterioration and oil price decline to about US\$25 a barrel, the aggregate CAR would still remain above the central bank's regulatory minimum two years after the shock. However, as the aggregate CAR declines to about 10.5 percent by 2020, 1 bank would drop to below 8 percent and 1 bank would be in the 8-10 percent CAR range. The resources required to recapitalize these 2 banks back to the 10 percent regulatory minima are relatively small, especially considering the sheer magnitude and the unlikely occurrence of these shocks.<sup>15</sup>

**Table 5. Effects of Economic Scenarios on the Banking Sector – Severe Shock Scenario**

	Historical	Severe Shock Scenario		
	2017	2018	2019	2020
<b>Assumptions</b>				
Private sector real nonoil growth	4.0	-3.3	-3.1	-2.9
Oil price (in U.S. dollars)	54.4	27.4	25.7	24.6
Equity price index	73.9	67.7	54.1	42.5
Real private sector credit growth	5.5	-8.0	-7.0	-5.1
<b>Impact</b>				
Nonperforming loans (% of total loans)	2.1	5.6	12.4	22.6
Provisions (% of NPLs)	106.5	102.5	101.1	100.6
Capital adequacy ratio	16.4	15.7	13.7	10.5
CAR < 8%				
Number of banks	0	0	0	1
8% < CAR < 10%				
Number of banks	0	0	1	1
CAR > 10%				
Number of banks	11	11	10	9

## D. Conclusion

**15. The QCB's continued prudent approach to regulation and systemic risk management remain essential.** Demonstrated resilience of the banking sector to both actual and hypothetical stress tests speak well of Qatar's regulatory and supervisory framework. Macroprudential regulation, particularly capital and liquidity buffers and countercyclical provisioning norms are essential for mitigating the impact of macroeconomic shocks on the banking system and the feedback effects of credit risks on the real economy.

<sup>15</sup> It would take 26 billion Riyals to bring the two banks back to the 10 percent QCB's prudential CAR minima.

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