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Assessing Concentration Risks in GCC Banks

Prepared by Staff of the International Monetary Fund

I N T E R N A T I O N A L M O N E T A R Y F U N D

* The views expressed in this paper are those of the authors and do not necessarily represent the views of the IMF, its Executive Board, or IMF management.

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EXECUTIVE SUMMARY¹

- **Bank in the Gulf Cooperation council (GCC) face concentration risks in their credit portfolios.** While the GCC banks have credit exposures to different sectors of the economy, even the non-oil sectors are dependent on developments in the oil sector (either directly or through government spending). This economic structure constrains the ability of banks to truly diversify their credit portfolio. Further, banks have exposures to connected counterparties that arise from the ownership and control links in the GCC corporate sector. It is important that banks hold sufficient capital in light of these risks in their portfolios.
- **The financial stability of the banking system is important for lending in GCC economies, especially to non-oil sectors.** GCC economies are bank-centered with still developing local debt markets. Shocks to banks are then costly since tighter credit will translate quickly into output losses.
- **The analysis in this paper looks at aspects of concentration risk in the GCC and uses credit risk modeling techniques to estimate the capital buffers required in light of these risks.** The results suggest that the capital held by banks in the region is generally adequate to compensate for the concentration risks they face.
- **As regulation and supervision in the GCC develops in line with evolving international practices in the coming years,** a primary goal should be to ensure that existing strong capital buffers are maintained.
- **The analysis in the paper also highlights some areas where bank regulation, supervision, and information disclosure in the GCC could be strengthened.**
 - Stress test exercises should be calibrated to fully capture the existing and evolving nature of interconnections and exposure concentration. Greater legal powers are required for the regulators to collate information on the ultimate beneficial owner to better supervise banks' risks derived from interconnectedness.
 - GCC central banks should align their single-name and aggregate large exposure regulations with the new Basel guidelines to better monitor banks' risks.
 - Increased availability of data and further disclosures are needed for a better assessment of risks.

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I. INTRODUCTION

1. **Banks in the GCC region generally hold high levels of capital.** This prudent approach enabled the banks in the GCC to weather the global financial crisis, with the banking system generally remaining a bastion of financial stability amidst a global financial system that was in turmoil. This paper looks at the banking system in the GCC and revisits the issue of bank capital in light of the potential risks GCC banks face in their credit portfolios.
2. **The GCC economies remain dependent on oil as a key driver of growth.** This dependence on oil leads to credit portfolios that have large correlations with government expenditures, which in turn are correlated with oil developments. As a result, banks' portfolios do not benefit as much from the potential diversification that lending to different sectors of the economy would usually provide. Rather, most sectors are ultimately driven by government spending. The geographic distribution of banks' credit exposures is also concentrated in the GCC region contributing to the oil exposure of banks. Consequently, GCC banks' net income is highly correlated with oil-driven fiscal developments. This implies that the oil price is a significant risk factor driving credit default. In addition, lending to large and connected private and public sector groups can result in concentrated exposures to these groups and sometimes represent a large percentage of bank capital and have the potential to impair bank solvency in the event of default.
3. **In the face of these risks, the regulatory framework in GCC countries provides banks with additional strength in terms of higher capital standards.** Pillar 1 of the Basel framework does not cover concentration risk, and it is important that the Pillar 2 interaction between banks' own evaluations of their capital adequacy (ICAAP) and supervisors' subsequent review (SREP) captures it.² The GCC regulatory framework that includes the Basel II standardized approach, high minimum capital requirements, and limits on aggregate large exposures and related-party lending, seems to appropriately be more conservative than in other jurisdictions to address these risks. Limits on aggregate large exposures and related-party lending complement the Basel risk-based capital framework, protecting banks from large losses resulting from the sudden default of a single counterparty.
4. **The rest of the paper is organized in the following manner.** Section II discusses the gross and net exposures and the capital structure of the GCC banking system. Section III analyzes the economic concentration of banks' credit exposures. Section IV identifies the single name and group-concentrations in GCC countries. Section V then discusses the effects

² A number of quantitative methods to measure the extra capital needs for concentration risk have been proposed through the years, but they generally address only 'single-name' concentration and are either quite complex to implement or not very robust in their results. For a description of sectoral versus single-name concentration and a review of the mentioned literature, see Basel Committee on Banking Supervision, "Studies on Credit Risk Concentration", November 2006.

of economic concentration, single-name large exposures, and connected counterparties on bank capital ratios. The final section VI makes recommendations for strengthening the resilience of GCC banking systems.

II. BANK CAPITAL AND GROSS EXPOSURES IN GCC COUNTRIES

5. **Banks in the GCC countries have sizeable capital buffers by international standards.** When compared to international peers in Western Europe and North America with a large number of international branches and subsidiaries, capital adequacy ratios (CARs) in GCC banks, especially Tier 1 capital, are high (Table 1). On average, Tier 1 capital ratios are 2–3 percentage points higher in GCC banks than in international peers.

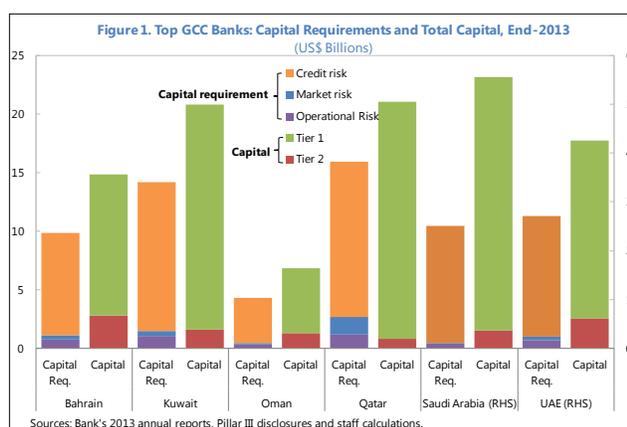
6. **GCC Banks are holding high levels of high-quality capital.** To meet the capital requirements and standards enforced by domestic regulators, GCC banks maintained capital adequacy ratios higher than 15 percent at end-2013. In addition, Tier 1 capital represented more than 80 percent of total capital, except in the United Arab Emirates (UAE). The larger share of Tier 2 capital in the UAE banks reflects the capital support provided by the central bank during the 2009 financial crisis. Capital requirements for credit risk represented more than 90 percent of total capital at end-2013, except in Qatar where market risk was also a source of capital requirements (Figure 1).

7. **GCC capital adequacy frameworks are broadly in line with the Basel II accord and are moving toward Basel III regulations (Annex I, Table 1).** All GCC countries rely on the Basel II standardized approach where risk weights are defined according to the Basel II accord and based on the borrowers' credit rating. Accordingly, minimum capital requirements are set as a percentage of risk weighted assets. These are obtained by risk weighting net exposures based on borrowers' credit ratings, where net exposures are obtained

Table 1. Top GCC Banks: Capital Adequacy and Tier 1 Capital Ratios, and Selected Countries, 2013
(In percentage)

	Number of Banks	Average Tier 1 Capital Ratio	Average Capital Adequacy Ratio
Canada	4	11.0	12.6
France	4	14.1	14.8
Germany	3	13.9	16.9
Italy	3	10.9	14.2
Spain	3	12.5	14.7
Switzerland	3	17.4	21.5
United Kingdom	5	12.5	18.2
United States	5	12.5	14.5
Bahrain	5	14.8	18.8
Kuwait	5	15.3	16.7
Oman	5	12.9	15.9
Qatar	5	15.2	15.8
Saudi Arabia	6	16.6	17.7
United Arab Emirates	5	14.7	17.1

Source: Bloomberg and staff calculations.



by subtracting credit risk mitigation (CRM) from on- and off-balance sheet gross exposures. An overview of banking regulation in the GCC is provided in Annex II.

8. **The current high capitalization of GCC banks will make it easier for them to move to and comply with Basel III standards.** As GCC banks have high levels of high quality capital (equity), they will not be affected by the exclusion of Tier 2 capital instruments nor by the higher levels of equity required in Tier 1 capital in Basel III. GCC countries, except the UAE, are in advanced stages of implementation of the new capital standards. Kuwait, Oman, Saudi Arabia and Qatar have issued regulations, while Bahrain has issued a consultation paper and is in the process of receiving feedback from banks. The UAE is yet to issue draft regulations related to the implementation of Basel III capital standards.³

9. **GCC banks' gross exposures are concentrated in claims on corporates, sovereigns, and public sector entities.** The largest asset class in GCC banks' gross exposure consists of claims on corporates. The more than 50 percent share of claims on corporates, sovereigns, and public sector entities in gross exposures is a consequence of not only the limited opportunities for consumer and mortgage lending in GCC countries, but also of the economic and corporate structure in GCC countries with oil driving most of the economic activity and the interconnectedness between financial, industrial, and commercial private and public sector groups (Figure 2).⁴ Consequently, lending is an important source of income for GCC banks. Fees associated with originating and subscribing syndicated loans and bonds also constitute an important source of net income of banks, reflecting participation in project financing in the region.

10. **Net exposures after credit risk mitigation (CRM) represented about 90 percent of gross exposures at end-2013.**⁵ GCC banks use CRM to reduce their gross exposures and the impact on capital. The reduction in gross exposures underscores the use of CRM techniques such as netting arrangements, financial and real estate collateral, and bank guarantees, as a way to reduce the impact of gross exposures on capital requirements.

³ UAE banks are expected to easily comply with the new Basel III capital standards since their minimum capital requirement ratio is 12 percent.

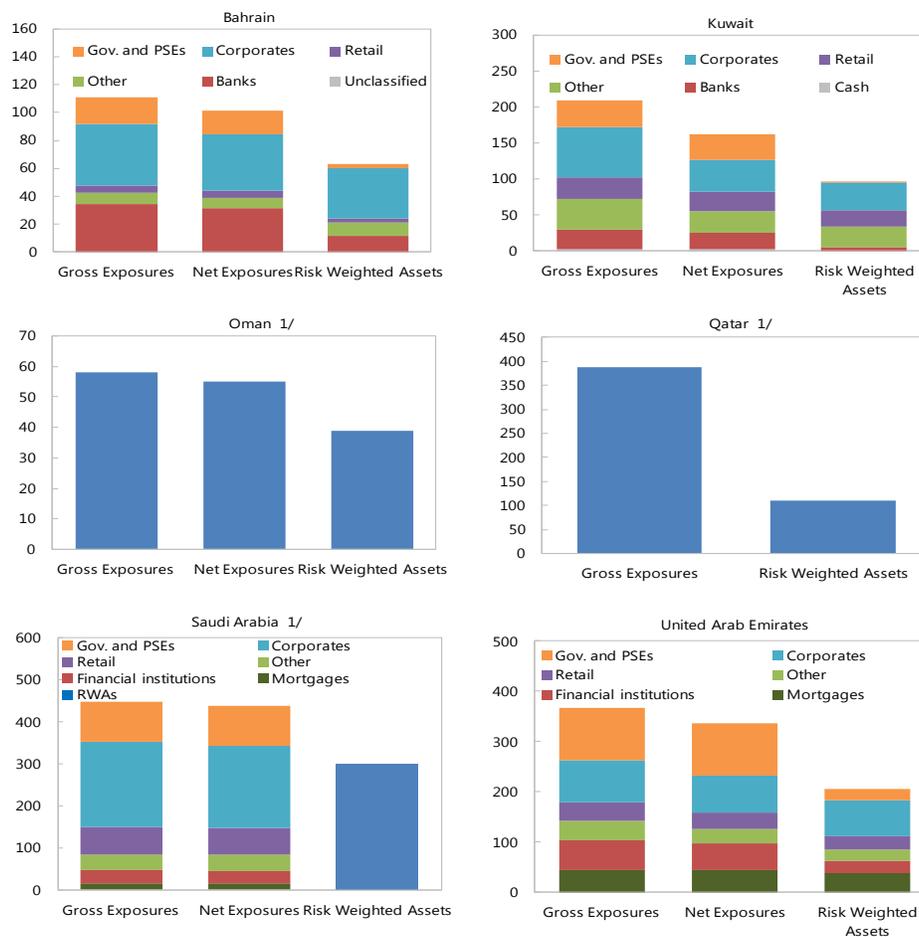
⁴ Basel II pillar 3 disclosures provide investors with a tool to monitor risk taking in banks. The quality of the pillar 3 disclosures is important for understanding risk-taking in banks. The analysis in this section relies on the quality of pillar 3 disclosures in the top 5 banks in each GCC country. Bahraini, Kuwaiti and the UAE banks provide a consistent breakdown in gross and net exposures (after risk mitigation) and risk weighted assets by asset class, whereas consistent breakdown by asset class in risk weighted assets and net exposures is not available in Oman nor in Qatar. Saudi banks do not provide a breakdown in risk weighted assets by asset class.

⁵ Credit risk mitigation reduces gross exposures by the amount of the collateral posted by borrowers and guarantees provided by third-parties. Unfunded (off-balance sheet) exposures are converted into credit equivalents by a credit conversion factor (CCF) which also reduces gross exposures.

However, the use of real estate collateral in some GCC countries highlights the importance of transparent and independent collateral appraisal in credit risk management.⁶

11. **Claims on sovereigns and public sector entities also reduce the impact of capital requirements on banks.** Reflecting the zero risk weight assigned to claims on sovereigns in the Basel II accord and the larger share of claims on sovereigns and the public sector in total gross exposures, risk weighted assets in Qatari, Kuwaiti, and UAE banks represented about 57 percent of gross exposures on average at end-2013. As claims on corporates are associated with higher risk weights, the larger share of claims on corporates in Saudi banks also implied higher risk weighted assets as a percentage of gross exposures at end-2013 (Figure 2).

Figure 2. Top GCC Banks: Gross and Net Exposures and Risk Weighted Assets, End-2013

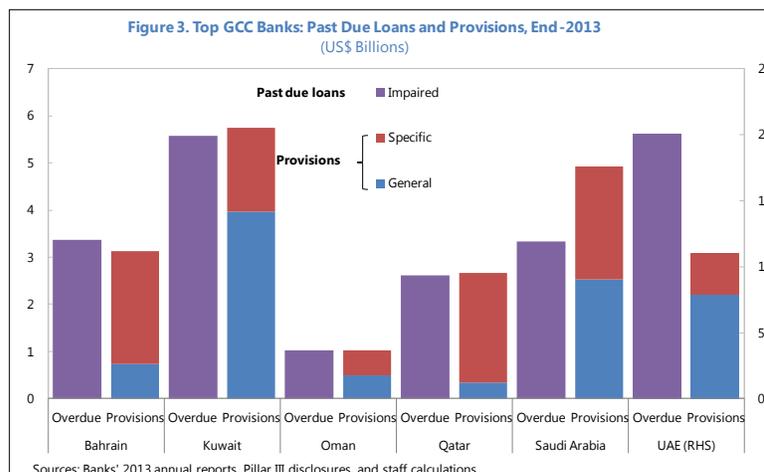


Source: Banks' 2013 annual reports, Pillar III disclosures, and staff calculations.

1/ No consistent breakdown by asset class in risk weighted assets and net exposures is available in the Basel pillar 3 disclosures of Omani and Qatari banks. Saudi banks do not provide a breakdown in risk weighted assets by asset class.

⁶ Without real estate in the CRM, Saudi and UAE banks had a smaller set of CRM techniques available to reduce their gross exposures.

12. **Total provisions in GCC banks generally fully cover nonperforming loans.**⁷ They are important for capital ratios because under-provisioning can lead to an overstatement of capital ratios. The coverage ratio, measured as total provisions (general and specific) to nonperforming loans (or impaired loans), was above 100 percent at end-2013, except in the UAE and Bahraini banks (Figure 3).⁸ More than 70 percent of total provisions comprised specific provisions in Bahraini, Qatari, and the UAE banks at end-2013, while general provisions were higher than specific provision in Kuwaiti and Saudi banks.⁹



13. **Loan loss provisioning regulations in GCC countries are broadly in line with international best practices, despite differing features among GCC countries (Annex I, Table 2).** All GCC countries (except Bahrain) apply IFRS or supervisory loan classification category which produce higher amount of provisions. All GCC countries consider collateral value in determining provisions. GCC countries allow tax deductibility for specific provisions. General provisions are required in all GCC countries. Specific provisions for NPLs are also broadly in line with international good practices. However, the delinquency periods for NPLs under loan classification norms differ, being more conservative in Kuwait, Qatar, and Saudi Arabia, and less so in Oman and in the UAE.

III. SECTORAL CONCENTRATION: THE OIL AND NON-OIL SECTORS IN GCC COUNTRIES

14. **The economic structure of the GCC implies a high concentration of banks' credit exposures in sectors that are ultimately dependent on oil.** Although GCC banks have credit exposures to different sectors, it is important when assessing their risk profile, to

⁷ NPLs are measured as impaired and overdue loans in excess of 90 days as a percentage of total loans, except in Oman banks.

⁸ In particular, the Emirates National Bank of Dubai (ENBD) has only partially provisioned for the Dubai World and Dubai Holdings debt, which makes the average coverage ratio look worse in UAE banks as compared with other GCC banks. ENBD exposure to Dubai World and Dubai Holdings amounted to \$2.6 billion and \$1.24 billion at end-2013, respectively, while provisions were about \$118 million and \$683 million, respectively.

⁹ Under Basel II, provisions in banks should cover expected losses while capital is a buffer against unexpected losses.

recognize their dependence on developments in the oil sector (oil and hydrocarbon are used interchangeably). Developments in the oil market are important not only for direct exposures to the oil sector, but also because other sectors to which banks lend are dependent on government spending which is related to oil revenues. This implies that the portfolio-diversification benefits arising from lending to non-oil sectors are less because of the correlation between the oil and non-oil sectors.

A. Economic and Geographic Concentration of Banks' Credit Exposures

15. **Banks' credit exposures show concentration in a few economic sectors, with differences across countries.** Herfindahl index (HHI) measures, by bank and by country, highlight concentration in credit exposures in the GCC (Annex III).¹⁰ Credit exposure to the government sector is important for Saudi Arabia and some of the Qatar and UAE banks. Exposure to financial institutions is important in Bahrain's banks and some banks in Kuwait, Qatar and UAE. Relatively high concentration in real estate/construction is present in some banks in Kuwait, Oman, Qatar, and UAE, while personal credit is most relevant in Oman.¹¹

16. **Sectoral concentrations in GCC banks appear relatively high compared with banks in advanced economies.** While it is difficult to find comparable studies, those available focus on a fraction of banks' portfolios and suggest relatively high sectoral concentrations in GCC banks. While top sectoral exposures in GCC banks often account for more than 30 percent of banks' portfolios, Düllmann and Masschelein (2006) find that banks' corporate loan portfolios in Germany, Belgium and Spain are relatively evenly distributed. Jahn et al (2013) study concentration in German banks including both the corporate and household sectors (but excluding lending to monetary financial institutions, all layers of government, and long-term mortgage loans), and find that lending to private households and services is important (with 27 and 25 percent shares respectively). Increasing the portfolio coverage in the aforementioned studies to obtain sectoral shares that would be comparable to estimates in this paper would deliver smaller sectoral concentrations in the mentioned advanced countries and point to a relatively high sectoral concentration in GCC banks.

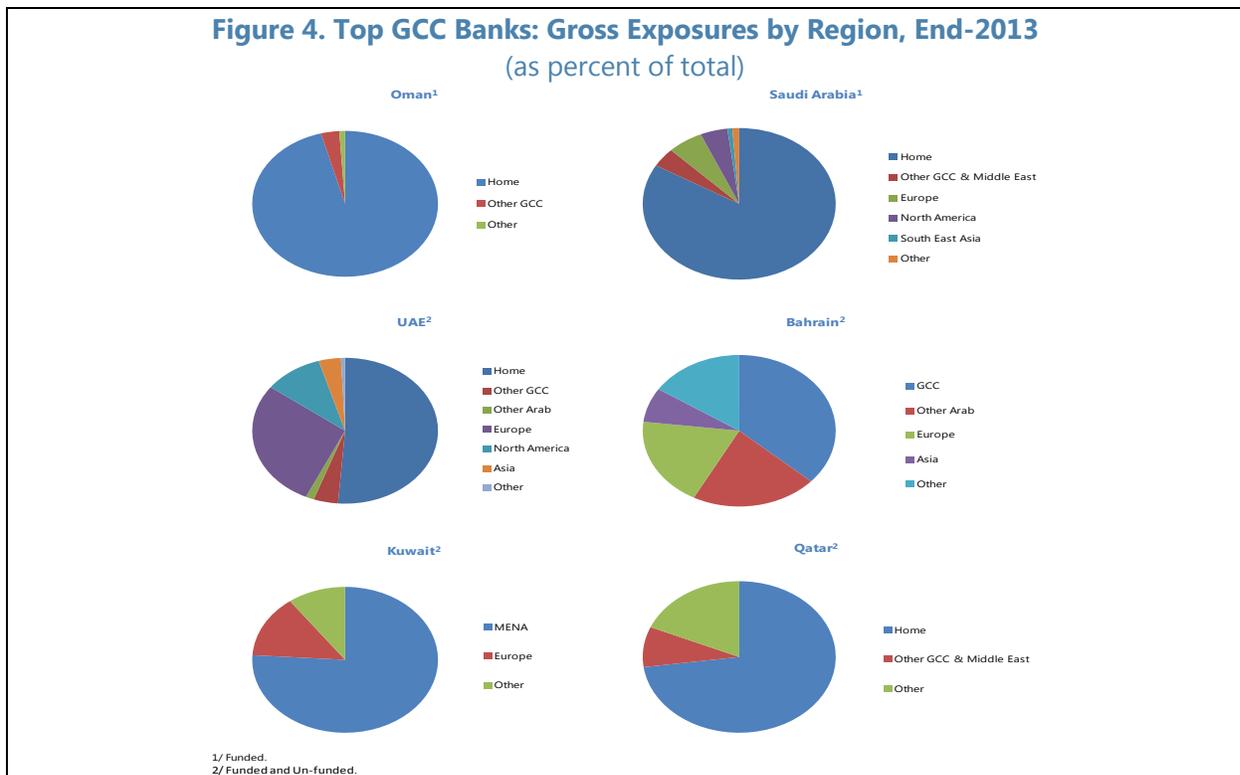
¹⁰ HHI provides a measure of the average exposure of the bank, weighted by sectoral shares (by squaring the shares of sectoral exposures, HHI gives more weight to largest exposures). End-2013 data for gross credit exposures for the top 5/6 banks of each GCC country are used in the analysis. HHI index is defined as $HHI_j = \sum_{i=1}^N s_i^2$, where j represents a given bank, i represents the sector (Agriculture, Government, Personal & Housing, etc, from 1 to N), and s_i represents the share of sector i in bank j 's gross exposure (between 0 and 100). By definition HHI_j varies between 0 and 10,000, with 10,000 representing full concentration of the portfolio of bank j in one sector. Under the classification of gross exposures in 10 different sectors ($N=10$), a perfectly even portfolio would deliver HHI equal to 1,000 (and HHI equal to 500 would represent even concentration when $N=20$). Disclosure requirements under Basel II Pillar 3 are used to define sectors for each banking system.

¹¹ All studied banks have information on funded and non-funded gross credit exposures, except Saudi banks and one bank in UAE. Therefore for Saudi Arabia and UAE the data used are funded gross credit exposures.

17. **Many GCC banks' do not lend much outside of the Middle East region meaning that international diversification does not typically reduce exposure to the hydrocarbon sector (Figure 4).** While there is variation among countries, banks' credit exposures to the GCC and other Arab countries is between 75 and 100 percent for four of the GCC countries, with UAE and Bahrain showing less concentration in the region (though still around 50 percent in both cases).

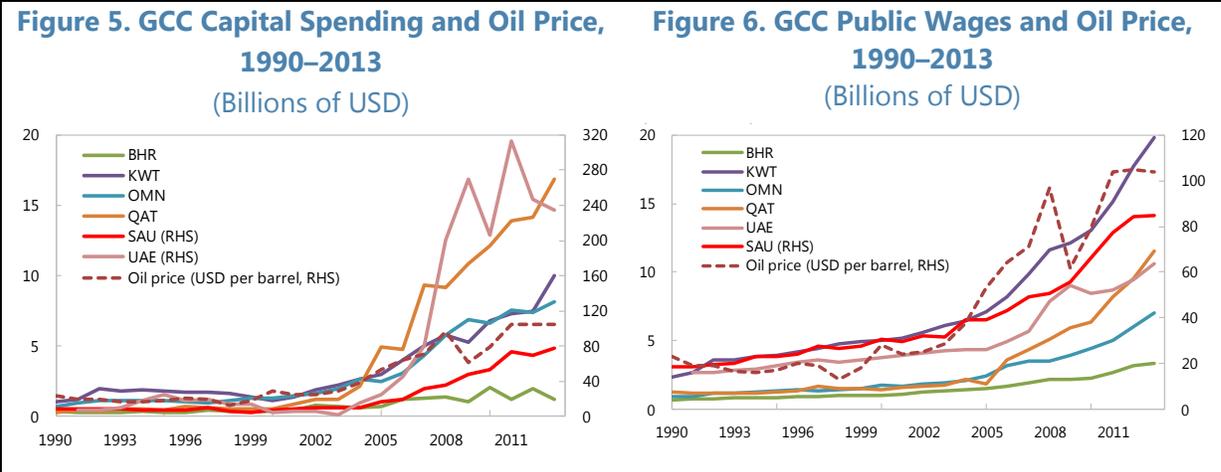
B. Oil and Non-oil Sectors in GCC Countries

18. **The oil sector is the important driver of economic activity in the GCC countries.**¹² Oil revenues dominate fiscal revenues and support government spending. Oil revenue as a percentage of total government revenue was close to 80 percent, on average, for the GCC countries in 2013. As shown in Figures 5 and 6, government spending is highly correlated with developments in the oil sector, and the average correlation between government capital spending and oil prices (in first differences) is 0.33 for the period 1995–2007, while the average correlation between public sector wages and oil prices (in first differences) is 0.38 for the same period.¹³

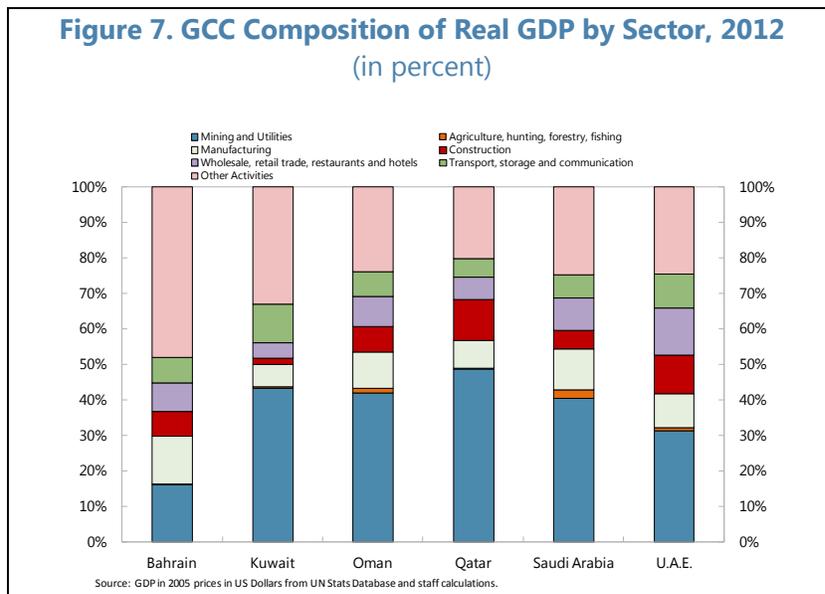


¹² For the period 1995–2007, non-oil growth is positively correlated with oil prices for the 6 GCC economies with an average correlation of 0.54 (the average correlation is 0.37 with respect to yearly changes in oil prices).

¹³ UAE data for capital spending include also that of SOEs via government loans.



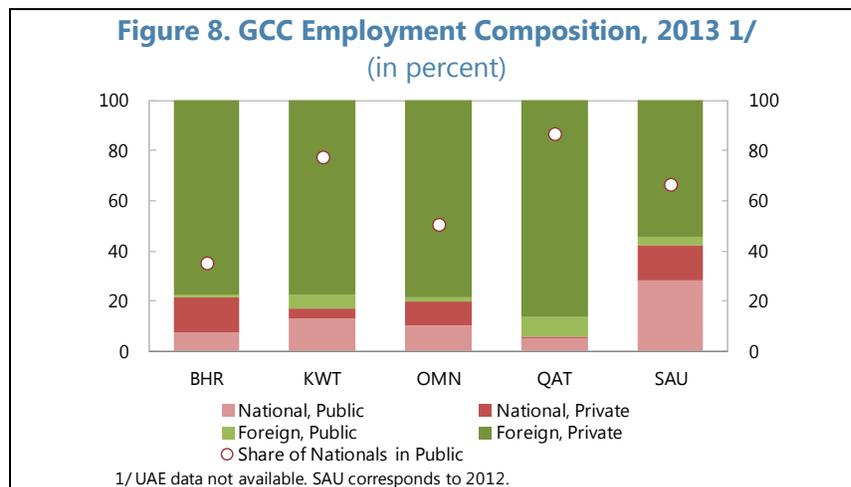
19. **The sectoral composition of GDP shows a large share of oil output, with non-oil output also heavily reliant on oil revenues (Figure 7).** As of 2012, the share of hydrocarbon GDP was over 30 percent in all GCC economies, except for Bahrain where it was 16 percent (similar to Norway). However, oil revenues are also key drivers of non-oil activity via fiscal spending including capital spending (infrastructure) and public sector wages. Non-oil industrial activities are commonly energy intensive and resource related (metals, petrochemicals, and construction), while services (retail, restaurants, transport, communication, and social services) are heavily driven by oil revenues and government spending (Husain et al. 2008, Cherif and Hasanov 2014). Manufacturing is often linked to oil, construction is importantly driven by government projects that are financed with oil revenues, and commerce is fueled by domestic consumption dependent on public sector wages that also depend on oil revenues.



20. **For GCC economies, value added in almost all components of GDP moves with the oil cycle.** For the period 1971–2012, correlations between oil prices and components of GDP (in first differences) are mostly positive, indicating the relevance of the oil cycle for overall economic activity. Wholesale, retail trade, restaurants, and hotels show the highest average correlation for the GCC economies (at 0.33), while agriculture, hunting, forestry, and fishing is the only sector for which the average correlation is negative (at -0.08).

Alternatively, when looking at correlations between changes in oil prices and the shares of GDP components, oil price changes are most positively correlated with the share of transport, storage, and communication in GDP for GCC countries (with construction also showing a positive correlation for 3 GCC countries, manufacturing for 4 GCC countries, and wholesale, retail trade, restaurants, and hotels for 5 GCC countries). On the other hand, mining and utilities (including hydrocarbon value added) show a negative correlation with oil price changes for 4 GCC countries, and agriculture, hunting, forestry, fishing show a negative correlation for 5 GCC countries. These findings are consistent with the relative expansion of some non-hydrocarbon economic activity at times when oil prices increase (together with a decrease in the share of hydrocarbon value added in GDP), and highlights the link between the oil cycle with the creation of value added in sectors beyond hydrocarbon.

21. **Bank credit is importantly driven by government current and capital spending and oil developments.** Fiscal spending in infrastructure and investment projects fuels bank credit to public sector entities or private contractors. In particular, the average correlation between government capital spending and loans to real estate/construction (in first differences) is 0.2 for GCC economies (increasing to 0.3 excluding Qatar that shows the only negative correlation) and 0.84 (in levels). Bank credit for personal lending is importantly driven by public sector wages and oil developments. Fiscal spending on public sector wages fuels bank credit for personal and housing purposes as banks are able to deduct loan payments directly from government employees' paychecks. Correlations between public sector wages and personal loans are positive (at 0.2 for first differences and 0.96 in levels) for 1994–2013 or the closest available time period.



22. **The labor market structure in the GCC contributes to a heightened exposure of banks to oil sector developments.** With banks mostly lending to nationals, and nationals mostly working in the government sector (Figure 8), banks' personal lending is importantly exposed to oil developments affecting government employment and wages. The average share of nationals employed in the public sector is over 60 percent (and varies between 35 percent for Bahrain and 87 percent for Qatar), while, on average, 17 percent of total employment is in the public sector.¹⁴ Oil revenues fueling public sector wages and employment in turn fuels personal credit, increasing banks' indirect exposure to the oil sector.

IV. SINGLE-NAME AND GROUP CONCENTRATION IN GCC COUNTRIES

23. **The Basel Committee on Banking Supervision, in April 2014, published standards that set out a supervisory framework for measuring and controlling large exposures, which will take effect from 1 January 2019.** Under the framework, large exposures are defined as the sum of all exposures to a counterparty or to a group of connected counterparties equal to or above 10 percent of the capital base (Tier 1 capital), and they should not be higher than 25 percent of the bank's capital base. Further, the Basel committee has recommended that banks should report to the supervisor exposures equal to or greater than 10 percent of the capital base.

A. Large Exposures in GCC Countries

24. **Regulations in the GCC are broadly consistent with the new Basel standard for measuring and controlling large exposures (Annex I, Table 3).** The UAE introduced the 25 percent of capital base limit for single large exposures as recommended in the Basel guidelines—even though the definition of the capital base includes Tier 1 and Tier 2 capital, Tier 1 accounts for most of the capital. Saudi Arabia has implemented the 25 percent limit of capital, but the Saudi Arabia Monetary Agency can approve up to a 50 percent limit in the public interest and subject to conditions it may impose. Qatar has a lower limit of 20 percent, and the definition of the capital base in Qatar only includes Tier 1 capital. Bahrain, Kuwait, and Oman have the tightest regulation limiting the large exposures to 15 percent of capital base (Box 1).

25. **Some GCC countries have set limits on aggregate large exposures even though these are not required under the Basel guidelines.** The new Basel guidelines for measuring and controlling large exposures have not set any limits on aggregate large exposures (the sum of all exposures classified as large), but some international practices had emerged. Europe, for instance, had an aggregate limit on large exposures of 800 percent of capital base in the initial capital requirements regulation and directive (CRD). Among GCC countries, Kuwait

¹⁴ UAE data not available.

and Saudi Arabia have the tightest aggregate large exposure limit of 400 percent of capital base; Qatar has a 600 percent aggregate limit; and Bahrain and the UAE have a 800 percent aggregate limit. Aggregate large exposure limits have not been set up in Oman.

Box 1. Supervisory Framework for Measuring Large Exposures

A bank may have exposures to a group of counterparties with dependencies that imply that they are all likely to fail simultaneously. In other words, this means that the group poses a single risk similar to that of a single counterparty. A key lesson from the financial crisis is that it is important for banks to consistently measure, aggregate, and control exposures to these counterparties.

The new Basel standard on measuring and controlling large exposures has defined large exposures as the sum of all exposures to a counterparty or to a group of connected counterparties equal to or above 10 percent of the capital base (Tier 1 capital). The large exposures include on- and off-balance sheet exposures and are on a gross basis before credit risk mitigation. The Basel committee on banking supervision has recommended that banks should report to the supervisor the exposures equal to or above 10 percent, all the exemptions granted, and the 20 largest exposures irrespective of the value of these exposures relative to the capital base. The guidelines also prescribe that the sum of all the exposure values of a bank to a single counterparty or to a group of connected counterparties must not be higher than 25 percent of the bank's available eligible capital base at all times.

The Basel standard on measuring and controlling large exposures has defined connected counterparties as a group of counterparties linked by a control relationship (either direct or indirect) or an economic interdependence. This definition is wide enough to include both public and private entities connected under different circumstances. In the case of connected counterparties, the exposures to all of them should be considered as a large single exposure for reporting and compliance purposes under the new BIS large exposure standard.

26. **Based on publicly available information, exposures on a single-name basis in the GCC banking system appear to generally be below the Basel large exposure reporting threshold.** Staff do not have full information about the credit portfolios of the banks, but some inferences can be made based on information contained in the published balance sheets of a sample of publicly listed and private companies with publicly available financial statements. To estimate the size of borrowing on an individual basis, an analysis is carried out that compares the total debt of the sample of publicly traded companies with the capital base of the 5 largest domestic banks in each GCC countries (Table 2). This analysis assumes that the sample of companies are financed by the top 5 banks and that the individual company exposures are approximated by data on short and long term debt or on bonds and syndicated loans. However, the analysis caps the maximum assumed financing from the top 5 banks by enforcing the large exposure limits where information on country or bank compliance with the limits is available.¹⁵ Of course, this analysis may overestimate bank

¹⁵ The five largest borrowers account for about seven percent of the Omani banks total credit portfolio (35 percent of capital) (Central Bank of Oman, 2014), while the top 10 largest borrowers represented about 109 percent of Tier 1 capital in Qatar at end-2012 (Qatar Central Bank, 2012).The 10–20 largest borrowers in

(continued)

borrowing if corporate debt is held outside the banking system, while the analysis does not say anything about individual bank exposure to individual companies as it estimates the potential exposure of the top 5 banks combined.

27. **With these caveats in mind, most loans and bonds appear to be less than the Basel 10 percent reporting threshold requirement.** Less than 5 percent of estimated borrowers in Bahrain (one borrower), Kuwait (5 borrowers), and Saudi Arabia (5 borrowers) are larger than the 10 percent reporting threshold, while about 9 percent of the total number of borrowers (10 borrowers) in the UAE and 8 percent (9 borrowers) in Oman are larger than the 10 percent reporting threshold. At 28 percent (8 borrowers), Qatar has the highest estimated percentage of individual corporate loans and bonds above the 10 percent threshold. Nevertheless, the risks of losses arising from largest borrowers cannot be neglected since the estimated borrowing exceeding the 10 percent threshold represent more than 40 percent of the total borrowing in four of the six countries.

Table 2. Top GCC Banks: Single Party Exposures^{1,2}

	Number of Obligors 3/	Total Borrowing		Share of Total Borrowing that Are within:			Number of Obligors above 10 Percent of Capital
		US \$ Million	As a % of Top 5 Banks' Exposures to Corporates, Government, and PSEs	Range of Capital (in percent)			
				0-10	10-25	25 +	
Bahrain	33	7,071	9	65	35	0	1
Kuwait	199	37,415	34	61	39	0	5
Oman	119	21,624	37	61	39	0	9
Qatar	29	41,696	21	23	77	0	8
Saudi Arabia	154	113,028	38	59	41	0	5
UAE	117	193,095	102	27	20	53	10

Source: Bloomberg, top 5 banks' Pillar 3 disclosures, and Staff calculations.

1/ Percent of tier 1 and 2 capital of top 5 banks.

2/ Bahrain, Kuwait and Oman have a 15% limit, Qatar a 20% limit, and Saudi Arabia and the UAE a 25% limit.

3/ Includes companies and government entities.

three Kuwait banks in the sample represented more than 18 percent of their gross loans, advances, and Islamic financing (96–224 percent of their capital base) according to their annual reports. Central Bank of UAE (2013) does not report name concentration risk, but indicates that banks rely on name lending which leads to credit concentration risk. The 5 year phase-out period to comply with the new large exposure limits in the UAE is an indication that there are large exposures above the new regulatory limit. Finally, the Saudi Arabia Monetary Agency (SAMA) can extend the large exposure limit up from 25 percent to 50 percent of the capital base as per legal provision under the Banking Control Law. However, it has rarely used this power in practice. Information on the share of the largest borrowers in the loan portfolio or as percentage of their capital base is neither available in Saudi banks' pillar 3 disclosures nor in SAMA publications. SAMA has clarified that the largest borrowers are within the permissible 25 percent limit.

B. Related Parties and Connected Counterparties

28. **Most GCC countries have imposed strict limits on related party lending.** The Basel Core Principles require banks to report and monitor any transactions with related parties—defined as entities over which the bank exerts control and that exert control over the bank, the bank’s major shareholders, board members, senior management, and key staff, their direct and related interests, and their close family members as well as corresponding persons in affiliated companies—and to take appropriate steps to control or mitigate the risks. GCC countries are consistent with the general practice of not granting more favorable terms for related party exposures than for non-related parties. Single exposures to related parties in Saudi Arabia are limited to 10 percent of the capital base, but no unsecured exposure to related parties is allowed. Kuwait allows bank exposures to their subsidiaries or affiliated companies up to 20 percent of the capital base for any single company.

29. **GCC countries have also set aggregate limits on related party exposure which can be higher than the limits on aggregate connected counterparties.** Bahrain and Oman have the strictest regulation on exposure to related parties, with 25 percent and 35 percent of capital base, respectively. Saudi Arabia only allows secured exposures to related parties up to 50 percent of the capital base on aggregate. Kuwait and Qatar have higher aggregate related party lending limits at 100 percent of capital base, and the UAE has set it even higher at 110 percent of the capital base.

30. **Banks also lend to connected counterparties that are linked by a control relationship (either direct or indirect) or an economic interdependence.** Ownership information from firms listed on the stock market can be used to get a partial picture of the degree of connectedness of GCC companies (this is not a complete picture because many companies are not listed). This information can then be used to build a picture of group exposure within banks’ lending portfolios (Box 2 and Santos (2015)).

31. **If connected counterparties are considered a single exposure, the average size of the exposures as a percentage of bank capital is larger.** If exposures by connected counterparties are consolidated at the level of the largest controlling-shareholder counterparty, staff’s assessment indicates that group borrowings above the 10 percent threshold are higher. This trend is more significant in Oman and the UAE, and less pronounced in the remaining four countries. The percentage of group debt in Qatar that is above the 10 percent threshold is 79 percent.¹⁶

¹⁶ The same assumptions as in the previous sub-section also apply in the analysis of group exposures.

Table 3. Top GCC Banks: Group Exposures^{1,2}

	Number of Groups 3/	Total Borrowing		Share of Total Borrowing that Are within:			Number of Groups above 10 Percent of Capital
		US \$ Million	As a % of Top 5 Banks' Exposures to Corporates, Government, and PSEs	Range of Capital (in percent)			
				0-10	10-25	25 +	
Bahrain	23	7,071	9	56	44	0	1
Kuwait	144	37,415	34	53	47	0	6
Oman	92	21,624	37	48	52	0	11
Qatar	25	41,696	21	21	79	0	8
Saudi Arabia	138	113,029	38	54	46	0	5
UAE	104	193,095	102	23	19	58	9

Source: Bloomberg, top 5 banks' Pillar 3 disclosures, and Staff calculations.

1/ Percent of tier 1 and 2 capital of top 5 banks.

2/ Bahrain, Kuwait and Oman have a 15% limit, Qatar a 20% limit, and Saudi Arabia and the UAE a 25% limit.

3/ Includes companies and government entities.

Box 2. Connected Counterparties in the GCC—A Network Analysis 1/

Ownership information from stock exchanges can be summarized in networks with all the links among connected counterparties.² Ownership networks are a system of links among shareholders and owned corporates organized in a way that visualization and analysis are made easier.

Available data on ownership in publicly listed GCC corporates can provide information on connected counterparties in the GCC corporate sector. Large ownership stakes are associated with right to appoint board members and control firms, which implies a control relationship and connected counterparties. Therefore, ownership data on publicly listed GCC corporates that are disclosed in GCC stock exchanges are important to assess the network of connected counterparties.³ However, the description of connected counterparties based on ownership data from stock exchanges and the more transparent privately owned corporates is not exhaustive. A large number of privately owned corporates with no disclosed ownership information is left unaccounted for. In addition, ownership information on publicly owned companies might not be properly disclosed and might not contain any detail on the ultimate beneficial owner.

Not only holding companies, family groups, and public sector entities, but also financial sector institutions and individuals are major shareholders in GCC countries. Staff analysis indicate that the average number of links (the degree) in GCC ownership networks is low on average, but high in a few cases. This means that most ownership is concentrated in a few players, including families, holding companies, financial institutions, and public sector entities.

¹For more information, please see Santos, A. (2015).

²Ownership networks have an extensive literature. See Gattfelder (2013) for more information on computing control in ownership networks when there are cross ownerships among corporates.

³The disclosure in GCC stock exchange is made for ownership stakes above 5 percent of market capitalization.

32. **Board member provides another way in which corporates, banks, and sovereigns can be connected.** Large controlling shareholders can appoint the majority of board members. GCC Board of Directors Institute (2011) reported that nine percent of the surveyed GCC board members sat on more than 4 boards while Aaltonen (2013) indicated that the average size of boards in the MENA region is 8.9 directors. As a result, corporates, banks, shareholders, and public institutions can also be part of a network of related parties through board membership. OECD et al. (2009) reported that 54 percent of MENA banks do not have independent directors, implying that the appointment of independent non-executive directors with no association with controlling shareholders is not a common practice in MENA corporates.

V. CONCENTRATION RISKS AND CAPITAL NEEDS

33. **GCC banks face a number of concentration risks in their credit portfolios.** The previous sections have highlighted traditional sectoral concentration, the correlation of activity in many sectors to oil prices and government spending, single name exposures, and lending to connected counterparties as being potential sources of risk in bank portfolios.

34. **Given the possible concentration risks in the credit portfolios of GCC banks, it is important to assess if banks are holding sufficient capital in light of these risks.** This, however, is an extremely difficult task not least because the full set of information needed for such an analysis is not publicly disclosed. In the paragraphs below, a methodology is applied to estimate the capital that banks should hold taking into account the concentration risks that they appear to face in light of the public information available. This analysis, however, is not exhaustive and can only give a broad indication of bank capital needed given the identified concentration risks.

35. **The analysis is based on a stylized credit portfolio model and simulates the losses that would be caused by a correlated default of large borrowers triggered by a common shock to their assets** (see Technical Appendix).¹⁷ The methodology relies on Expected Default Frequencies (EDFs) and asset values estimated by Moody's KMV over the period

¹⁷ A number of assumptions have gone into the analysis. Data on short-term and long-term debt and EDFs have been drawn from Moody's KMV's CreditEdge platform. Asset values tracing back to April 2009 were extracted from Moody's KMV's CreditEdge platform. As regards the composition of banks' portfolios, in the absence of specific information, the strategy was to generate hypothetical banks' portfolios by using listed companies' total debt (as observed in Moody's KMV database) and banks' loan breakdown by sector (as drawn from their public disclosure documents). For all countries except Oman, a specific percentage of domestic bank financing of listed companies' debt was used, based on available information on the share of foreign claims by Advanced Economy banks on total company exposures. For Oman, listed companies are assumed to be financed by 50 percent by the domestic banks. Scenarios also changed based on the EDFs used: End-2013 EDFs were rescaled according to either long-term average or peak EDFs. The companies were grouped in sectors according to the Pillar 3 sector classification adopted by banks and banks were assumed to grant loans to firms in each sector according to their share of loans to that sector.

2009–14 and attempts to uncover the degree of connectedness in a banks' credit portfolio by looking at the correlations among the listed companies that the bank is assumed to be lending to. The more highly correlated the underlying asset prices of the companies in the credit portfolio, the higher is the estimated concentration risk in the portfolio. The results of the analysis should be treated with caution because the sample of companies in the analysis—consisting of publicly listed companies—excludes many private companies. Further, detailed information on the distribution of corporate loans across banks is not known, and assumptions needed to be made about the percentage of corporate debt that is financed by domestic banks.

36. **With these caveats in mind, the analysis suggests that the GCC banks are generally holding sufficient capital in light of the concentration risks they currently face in their credit portfolios.** When average through the cycle expected default probabilities are used in the calculations, actual bank capital in all countries is higher than derived from the model-based estimates. Periods of stress may see higher levels of corporate default and asset correlations, and banks would need higher capital buffers to absorb the losses that could occur in this environment. This is modeled in a second scenario where peak default probabilities from the sample are used. Here, the estimated capital needed is in some cases higher than actual capital for a small number of banks. It is hence extremely important that, even where capital buffers prove sufficient with respect to the current level of risks, supervisors develop adequate tools to fully characterize the potential effect of increasing default probabilities in a highly concentrated environment.

VI. CONCLUSION AND POLICY RECOMMENDATIONS

37. **GCC banks face concentration risk in their portfolio.** While the GCC banks have credit exposures to different sectors of the economy, even the non-oil sectors are dependent on developments in the oil sector (either directly or through government spending). This economic structure constrains the ability of banks to truly diversify their credit portfolio. Further, banks have exposures to connected counterparties that arise from the ownership and control links in the GCC corporate sector. Banks need to hold sufficient capital buffers to be able to manage the risks that may emanate from these concentrations.

38. **Estimating the capital buffers that GCC banks should hold in light of these concentration risks is a difficult exercise.** The analysis in this paper is based on the techniques developed in central banks, banks, and supervisors, but it makes a number of important assumptions given that not all the required data are publicly available. Nevertheless, the results suggest that the capital being held by GCC banks appears to be sufficient in light of the concentration risks they currently face, although it needs to be kept in mind that in a situation of high economic and financial stress, the probability of corporate default and asset correlations may be higher than assumed in this paper.

39. **The analysis in the paper highlights some important areas for future regulatory and supervisory reforms in the GCC.** The existing regulatory framework is conservative, but there is still room for improvement. This is particularly true in areas related to credit risk reduction and single name exposures.

- *Credit risk reduction* : stress test exercises should be calibrated to fully capture the existing and evolving nature of interconnections and exposure concentration, based on a careful mapping of the relevant linkages between banks' obligors and among banks' themselves. Any assessment of connected counterparties that do not consider the ultimate beneficial owner is not exhaustive. GCC banks and supervisors should be given legal powers to examine relevant information on ultimate beneficial owner to better supervise banks' risks derived from high interconnectedness. Transparent and independent appraisal of collateral is also important for risk management.
- *Single-name exposures*: GCC countries should align their definition of the capital base in the single-name large exposure regulations with the new Basel single-name large exposure guidelines which consists only of Tier 1 capital. In addition, regulators that have not done so far should set up aggregate limits on large exposures to better monitor the risk facing individual banks and the banking sector.

40. **Lastly, increased availability of data and further disclosures are needed for a better assessment of risks.** This study relies on the publicly available Pillar 3 disclosures by banks. These should allow market participants to assess capital adequacy through information on the scope of consolidation, risk exposures, and risk assessments detailed information on risks and key parameters are important for a good assessment and market discipline. Overall, transparency and consistency should be further strengthened in Pillar 3 disclosures. It is recommended that a GCC-wide working group be set up to review international best disclosure practices and identify Pillar 3 requirements relevant to GCC banks taking into consideration the GCC banking environment and the existing accounting practices.

ANNEX I. TABLES ON BANKING REGULATION

Table 1. Basel II Regulation: Treatment of On-balance Sheet Claims

	Bahrain	Saudi Arabia	Kuwait	Oman	UAE	Qatar	BIS
CAR 2013	18.6%	17.7%	17.2%	16.2%	18.8%	15.8%	
CAR minimum	12%	8%	12%	12%	12%	10%	8%
Claims on Government	0%	0%	0%	0%	0%	0%	Risk weighting based on external credit assessment of country or country risk scores assigned by Export Credit Agencies (ECA) which follow the OECD agreed methodology. Preferential treatment is allowed.
Claims on GCC Government	0%	Risk weighting based on external credit assessment of country. Preferential treatment is allowed.	0%	Risk weighting based on external credit assessment of country, or country risk scores assigned by Export Credit Agencies (ECA) which follow the OECD methodology, unless the host country requires more conservative treatment. Preferential treatment is allowed.	0%	0%	
Other sovereigns	Risk weighting based on external credit assessment of country. Preferential treatment is allowed.		Risk weighting based on external credit assessment of country. Preferential treatment is allowed.		Risk weighting based on external credit assessment of country. Preferential treatment is allowed.	Risk weighting based on external credit assessment of country. Preferential treatment is allowed.	
Claims on public sector entities*	PSEs are treated as sovereigns if their supervisors treat them as such. Preferential treatment is allowed if rating of PSE is BBB- or above. PSEs with no explicit home country weighting or in countries of BB+ sovereign rating and below are risk weighted based on the credit rating of the PSE.	Risk weighted based on credit rating of PSE.	GCC PSEs are risk weighted as sovereigns if authorities treat them as such and claim is in local currency. All other PSE claims are risk weighted one grade less favorable than sovereign.	Claims on PSE are treated as claims on corporates.	Claims on GCC PSEs in their local currency are 0% if treated as PSE by local regulator. Foreign All other PSEs claims to be risk weighted one grade less favorable than their sovereigns.	Claims on GCC PSE are risk weighted at 0% if funded in local currency and 20% if funding is in foreign currency. Claims on GCC PSEs that operate as commercial organizations are treated as corporate. Non-GCC PSE claims are risk weighted at 100%.	The two options for claims on banks apply, which no preferential treatment for short term claims in option 2. Claims on certain domestic PSEs may be treated as claims on sovereigns in whose jurisdiction the PSE is established.

Table 1. Basel II Regulation: Treatment of On-balance Sheet Claims (concluded)

	Bahrain	Saudi Arabia	Kuwait	Oman	UAE	Qatar	BIS
Claims on Banks	Risk weighting based on external credit assessment of bank.	Risk weighting based on external credit assessment of bank.	Risk weighting Kuwaiti banks one grade less favorable than Government of Kuwait. Risk weighing foreign banks based on external credit assessment of bank.	Risk weighting banks based on external credit assessment of bank.	Risk weighing banks based on external credit assessment of bank.	Risk weighting banks based on external credit assessment of bank. Preferential treatment is allowed	Risk weighing claims on banks based on either the external credit assessment of the sovereign OR bank.
Claims on Corporate	Risk weighting based on external credit assessment of corporate.	Risk weighting based on external credit assessment of corporate.	Risk weighting based on external credit assessment of corporate.	Risk weighting based on external credit assessment of corporate, or 100% on all corporate claims (subject to prior approval)	Risk weighting based on external credit assessment of corporate.	100%	Risk weighting based on external credit assessment of corporate. OR 100% on all corporate claims.
Claims on non-mortgage retail portfolio claims	75% if less than BD 250,000.	75% if less than SR 5mn	Retail exposures less than KD 250,000 are risk weighted at 75%.	100% OR 75% if: less than 7 years, burden less than 65% of salary, and claims less than RO 50K.	75% if less than AED 2 MN.	75% and not to exceed QR 2.5 MN.	75% if less than 1 million Euros, and not exceeds 0.2% of retain portfolio
Claims secured residential mortgages	35% if the bank can justify foreclosure or repossession on claim without any impediments, or else 75%.	100%	35% if lower than KD 70,000.	100% OR 35% if LTV is 80% or less, real estate valuation report within last 3 years.	35% if LTV is less than 85% and exposure less than 10 MN AED	75%	35%
Claims secured Commercial Real Estate	100% OR 150% if external credit assessment is below BB-.	100%	100%	100%	NA	100%	100%

Preferential treatment: Where the host country supervisors mandate a certain risk weight on certain claims if the claim is denominated and funded in the local national currency.

*Commercial PSE are treated as corporate.

Table 2. GCC Banking System: Provisioning Rules

Provisioning		Bahrain	Kuwait	Oman	Qatar	Saudi Arabia	UAE
Requirements for general provisions		Yes	Yes	Yes	Yes, called risk reserve	Yes	Yes
level of general provisions (% of total loans).		Discretion	General provisions are applied on performing loans as follows : 1% of cash items & 0.5% of non cash items	2% of the outstanding performing 'personal loans' and 1% of outstanding performing 'other loans.'	1.5% of total net credit facilities excluding Government accounts.	1% of total loans	Gradually increased up to 1.5% of RWAs that do not have specific provisions against them.
Loan loss provisioning is based on IFRS or loan classification categories.		Based on IAS 39	Loan classification or IFRS, whichever is more	Loan classification or IFRS, whichever is more	Loan classification or IFRS, whichever is more	Loan classification or IFRS, whichever is more	IFRS plus min ratio per category of classified loan to ensure comparability across banks
If the latter, please provide provisioning requirements for each classification category substandard, doubtful, and loss loans) (%).	Sub-standard	50%	20% ¹	25%	20%	25%	25%
	Doubtful	Discretion	50% ²	50%	50%	50%	50%
	Loss	Discretion	100% ³	100%	100%	100%	100%
Are collateral values taken into account when calculating provisioning requirements?		Yes	Yes	Yes, only for doubtful and loss categories.	Yes	No	Yes
If yes, please indicate how.		Discretion	Amount of collaterals are deducted from outstanding balance, then the net exposure is multiplied by the percentage of provisions according to loan classification.	50% of the market value of collaterals in the form of real estate and MSM Securities are considered ⁴ , subject to the floor for cash provisions being 25%.	based on certain haircut for each collateral	NA	appraised value, adjusted during yearly supervisory reviews
Are specific loan-loss provisions tax deductible?		Yes	Yes. Since taxes are on net profit and specific provisions are deducted before net profit.	Yes	Yes, up to a certain limit according to tax law.	Yes	Yes; subject to approval of local government tax authority. Only foreign banks pay taxes.

¹ Substandard: 90–179 days delinquent. Or, less than 90 days if the bank so decides.

² Doubtful: 180 to 359 days delinquent or less than 180 days if the bank so decides.

³ Loss: 360 days or more delinquent or less the bank decides that the facilities require this.

⁴ In case of Real Estate, 50% of the market value or 100% of forced sale value (whichever is less) is considered. In case of MSM Securities, 50% of market value is considered.

Table 3. GCC Banking System: Large Exposure Regulation

	Bahrain	Saudi Arabia	Kuwait	Oman	UAE	Qatar	BIS
Large exposures limits	15%	25% (up to 50% with SAMA approval)	15%	15%	25%	20%	25%
Aggregate Large exposure limits (exposures greater than 10% of capital)	800%	400%	400%	NA	800%	600%	
Related Party Lending Limits	<p>Significant Shareholders 0%</p> <p>Directors 10%</p> <p>Associated Companies 15%</p> <p>Total 25% (including management)</p>	<p>10% and 50% on aggregate (all exposure must be secured)</p>	<p>Key management personnel 15% cumulative</p> <p>Subsidiaries 20%, and 60% cumulative</p> <p>Board of Directors, Principle owners and shareholders Key management personnel 50% cumulative</p>	<p>10%, and 35% on aggregate</p>	<p>Principle Shareholders 20%, and 50% in aggregate.</p> <p>Bank subsidiaries and affiliates 10% individually and 25% on aggregate.</p> <p>Board Members 5% individually and 25% aggregate.</p>	<p>Borrower group of the board member of the bank or subsidiary or his relatives and relatives 7%.</p> <p>Borrower groups for all members of board 35%.</p> <p>Relatives of members of the board 20%.</p> <p>Main shareholder 10%</p> <p>All parties with interrelated interest 100%</p>	
Capital Basel	Tier 1+Tier 2 + Tier 3	reserves and paid up capital	Tier 1 + Tier 2	net worth	Tier 1 + Tier 2	Tier 1	Tier 1

ANNEX II

BANKING REGULATION IN THE GCC

Minimum Capital Adequacy Ratios

GCC regulators, except Saudi Arabia, require higher minimum capital adequacy ratios (CARs) than the minimum in the Basel II accord. In 2009, GCC countries increased the minimum CARs in response to the financial crisis. Bahrain, Kuwait, Oman, and the United Arab Emirates have a 12 percent minimum CAR, while Qatar requires a 10 percent minimum CAR. Saudi Arabia has a minimum CAR of 8 percent, which is the same as the Basel II accord.

Risk Weights for Claims on Sovereigns

GCC regulators have set risk weight claims on their own government and other GCC sovereigns at zero percent. Consistent with Basel II, all GCC regulators have granted banks the option to assign risk weights ranging from zero to 150 percent to claims on non-GCC sovereigns based on the sovereign ratings provided by an external credit assessment institution (ECAI):

Credit Assessment of Sovereign	AAA to AA-	A+ to A-	BBB+ to BBB-	BB+ to B-	Below B-	Unrated
Risk Weight	0%	20%	50%	100%	150%	100%

However, only Oman has implemented the second option in Basel II in which the risk weights are based on country risk scores assigned by Export Credit Agencies (ECA) subscribing to the OECD agreed methodology:

ECA risk scores	0-1	2	3	4-6	7
Risk Weight	0%	20%	50%	100%	150%

GCC regulators except Qatar, allow their banks to risk weight claims on other sovereigns based on the preferential treatment in Basel II. This is based on lower risk weights assigned by the relevant national supervisors to bank exposures to the sovereign when denominated and funded in the domestic currency.

Claims on Public Sector Entities (PSEs)

GCC regulators have implemented the three Basel II options to risk weight claims on PSEs. Kuwait, Qatar, and the United Arab Emirates require their domestic PSEs to be risk weighted as sovereigns, and only allow similar risk weights to other GCC PSEs if other GCC supervisors apply the same criteria to their PSEs and the exposure is claimed and funded in the local currency. Bahrain also applies this option to its PSEs and other PSEs in countries rated BBB- or lower.

The second option is to risk weight PSEs one category less favorable than its sovereign. Kuwait and the United Arab Emirates apply the less favorable criteria for PSE claims funded in foreign currency while Qatar only applies it for GCC PSE claims funded in foreign currencies.

The third option is for claims on PSEs to be risk weighted based on their credit assessment. Saudi supervisors require banks to apply this option for claims on all PSEs. In Bahrain, banks may use this option for claims on PSEs in countries rated BBB- or lower.

Credit Assessment of PSE	AAA to AA-	A+ to A-	BBB+ to BBB-	BB+ to B-	Below B-	Unrated
Risk Weight	20%	50%	50%	100%	150%	100%

Oman has the strictest regulation on PSEs, which treats them as corporations. Qatar also treats them as such if they operate as a commercial organization.

Claims on Banks

GCC supervisors use both options proposed by Basel II to set risk weights on bank claims. Kuwait assigns claims on local licensed banks, including their overseas branches, a risk weight that is one category less favorable than assigned to claims on the respective sovereign. Bahrain, Oman, Qatar, Saudi Arabia, and the United Arab Emirates use the second option and assign risk weights to banks based on their credit rating while Kuwait allows this option to be used on foreign banks, including Kuwaiti banks' overseas banking subsidiaries.

Claims on Corporates

GCC supervisors also use both options proposed by Basel II to set risk weights on corporates. All GCC countries except Qatar and Oman allow their banks to risk weight claims on corporates between 20 percent and 150 percent based on their credit rating of the corporate:

Credit Assessment of corporation	AAA to AA-	A+ to A-	BBB+ to BB-	Below BB-	Unrated
Risk Weight	20%	50%	100%	150%	100%

Qatar requires its banks to risk weight all corporate claims at 100 percent. On the other hand, Oman gives its banks the opportunity to choose either option but not both.

Claims on retail portfolios

GCC countries follow the Basel II in risk weighing retail exposures at 75 percent. There are no different risk weights that vary according to the credit score or rating of a borrower.

Claims on secured residential mortgages

Kuwait, Oman, and the United Arab Emirates require loans secured by mortgages on residential property that is or will be occupied by the borrower to be risk weighted at 35 percent, as according to Basel II. Bahrain applies the 35 percent risk weight only if the bank can justify foreclosure or repossession; otherwise, a 75 percent risk weight is applied. Qatar and Saudi Arabia apply a higher 75 percent and a 100 percent risk weight, respectively.

Claims secured by commercial real estate

All GCC regulators conform to the Basel II guidelines with a 100 percent risk weight for claims secured by commercial real estate. If the borrower is rated below BB-, Bahrain applies the risk weight that would correspond to a corporate with the same rating.

ANNEX III

Credit Exposures of GCC Banks

Gross credit exposures to financial institutions are salient in Bahrain’s top banks.

Financial institutions account for 35 percent of gross credit exposures for the combined top 5 banks (see Figure). While bank E stands out in terms of overall concentration (with HHI above 3,000), three of the top banks show similarly significant credit concentration in financial institutions (38–45 percent).¹ On the other hand, trading, services and manufacturing exposure is salient in banks A and E (just below 30 percent share), while bank C has a large exposure to the government sector (28 percent).

Gross credit exposures for top Kuwaiti banks are mainly in financial institutions, real estate and construction, and other.

While HHI for the combined top 5 banks does not indicate overall significant sectoral concentration (HHI of 1,860), particular banks exhibit relatively high concentrations in different sectors.² The highest sectoral concentration is identified in banks B and E. Bank B’s concentration is driven by the sector labeled as other (39 percent of its exposure), while bank E’s concentration is driven by financial institutions, real estate and construction, and other.

Gross credit exposures in Oman are concentrated in personal/housing exposures across top banks.

HHI for the combined top 5 banks is similar to HHIs for individual banks, where banks B and E show the highest overall concentration and also the highest concentration in personal/housing exposures (close to 40 percent of their portfolio).³ Another important sector in Omani top banks is real estate and construction, accounting for over 20 percent of credit exposures in banks B and D.

Gross credit exposures of combined top Qatari banks exhibit a large concentration in the government sector, though this is only significant in two of the top five banks.

Concentration in banks E and D stands out (HHIs of around 3,500 and 3,000 respectively) and it is mainly driven by exposure to the government sector in both cases (55 and 38 percent exposure shares respectively).⁴ Exposures to real estate/construction and financial institutions are salient for other top banks: Financial institutions account for 30–35 percent of exposures

¹ Banks’ exposures for Bahrain are grouped in 5–9 sectors, and would therefore deliver HHI of 1,111–2,000 under perfectly even credit distributions.

² Banks’ exposures are grouped in 5–6 categories, and would therefore deliver HHI of 2,000 or 1,667 under perfectly even credit distribution.

³ Banks’ exposures for Oman are grouped in 14 sectors, and would therefore deliver HHI of 714 under a perfectly even credit distribution.

⁴ Banks’ exposures for Qatar are grouped in 8 categories, and would therefore deliver HHI of 1,250 under perfectly even credit distribution.

for banks A and D, while real estate/construction account for 20 to 30 percent for banks A, B and C.⁵

Combined funded credit exposures for Saudi Arabia's top six banks show the highest concentration in the government sector. While five of Saudi Arabia's top six banks have relatively similar concentrations in gross funded exposures (with an average HHI of 1,355), bank A stands out with HHI of 2,500.⁶ Bank's A concentration is mainly driven by personal/housing exposure that amounts to 43 percent of its exposures. While exposure to government is significant for all banks, it is highest for banks C and E (with 26 percent of exposures in each).⁷

UAE's gross funded credit exposures for combined top banks are concentrated in financial institutions and government sectors, though not evenly across banks. Banks' HHIs range between 1,700 to 2,200, with banks A and B at the top of the range.⁸ Exposure to financial institutions is most significant for banks B, D and E, ranging between 29 and 24 percent of their exposures. Government exposure is most prominent in banks A and E, accounting for 24 and 28 percent of funded exposures respectively. Real estate/construction contributes to relatively high concentration in banks A and B, while Personal/housing exposure is salient for bank C.

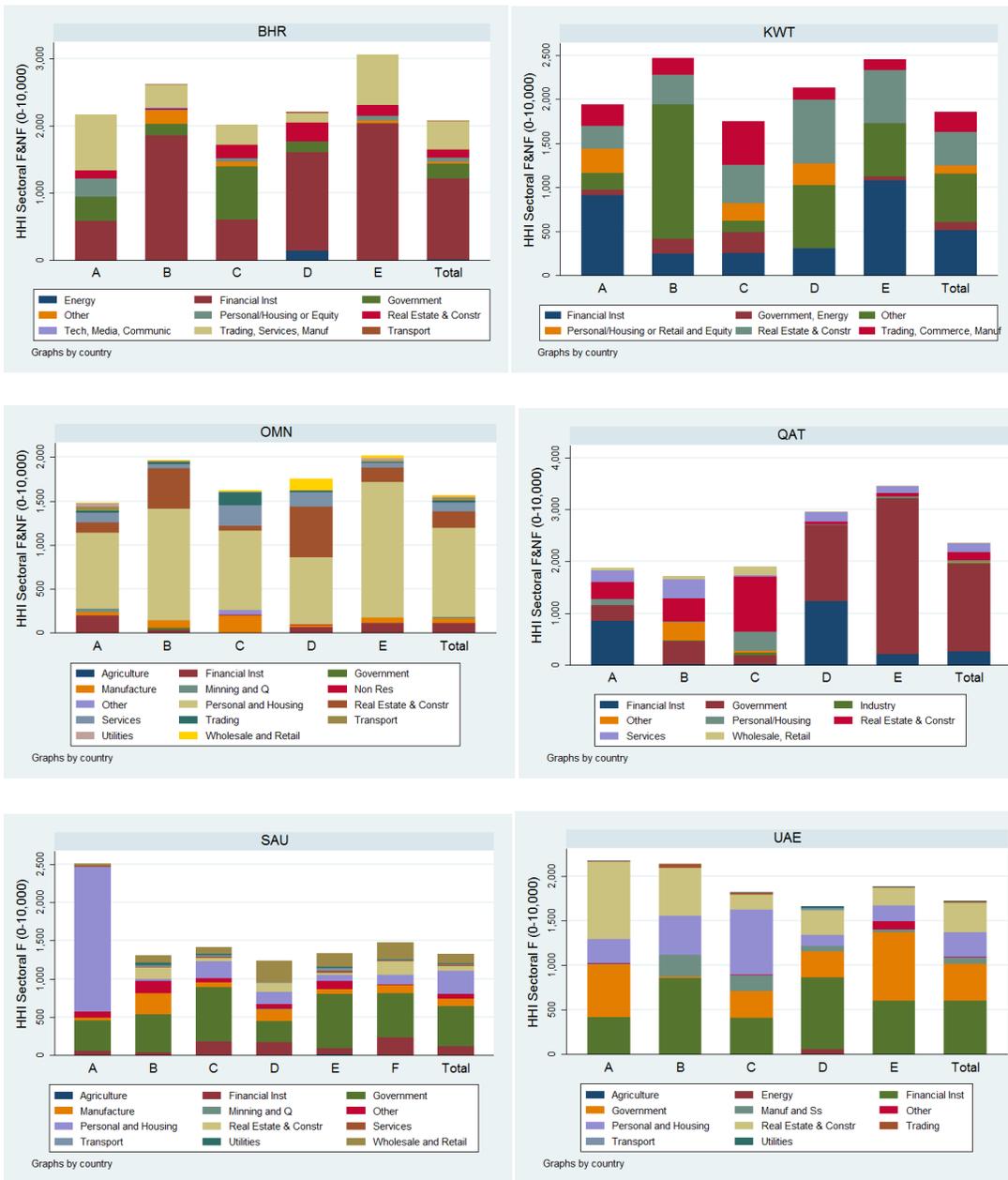
⁵Category financial institutions includes financial institutions for banks B and C, and contingent liabilities for banks A, D, and E.

⁶ A perfectly even credit exposure, under the twelve measured categories, would deliver HHI of 833.

⁷ Government includes quasi-government, and personal/housing in Saudi Arabia is "Consumer Loans and Credit cards," which includes mortgages.

⁸ A perfectly even credit exposure, under eleven sector categories, would deliver HHI of 909.

Top GCC Banks: HHI Index on Sectoral Gross Exposures, End-2013¹



¹ Given that the number of sectors varies across countries, a *normalized HHI* can be used for concentration comparisons across countries. Normalized HHIs deliver the following ordering of countries, ranked from most to least concentration in top banks' gross exposures: Qatar, Bahrain, Oman, UAE, Saudi Arabia and Kuwait. Normalized HHI is defined as $[(HHI/10,000)-(1/N)]/[1-(1/N)]$, ranging from 0 to 1, where 1 indicates full concentration of the portfolio in one sector and N represents the number of sectors.

TECHNICAL APPENDIX: IMPACT OF CONCENTRATION ON BANK CAPITAL

The following analysis is based on a partial-portfolio calculation of credit risk and its comparison with a hypothetical IRB capital charge, to gauge the potential concentration risk in the credit portfolios of major banks in the GCC. At the level of approximation implicit in this analysis, the existing capital buffers look generally adequate with respect to concentration risk (with the possible exception of a few cases that would deserve further investigation). As this is mainly the result of the currently low level of firms' Expected Default Frequencies in the region, it becomes extremely important that supervisors develop adequate tools to fully characterize the potential perverse effect of increasing default probabilities in a highly concentrated environment: e.g. stress test exercises should be calibrated as to fully capture the existing and evolving nature of interconnections and exposure concentration, based on a careful mapping of the relevant linkages between banks' obligors and among banks' themselves.¹

The approach makes use of market-based information. In particular, data on short-term and long-term debt and EDFs have been drawn from Moody's KMV's CreditEdge platform. Asset values back to April 2009 have been extracted from an historical database of the same product which has allowed asset value correlations of listed companies to be estimated.

As regards the composition of banks' portfolios, in the absence of specific information, the strategy has been to generate hypothetical banks' portfolios. For that, use has been made of two available data sources: listed companies' total debt (as observed in Moodys' KMV database) and banks' loan breakdown by sector (as drawn from their public disclosure documents).

A specific percentage of domestic bank financing of listed companies' debt is assumed based on available information on the share of foreign claims by Advanced Economy banks on total company exposures. If this information is not available, a 50 percent financing share is assumed. Scenarios also changed based on the EDFs used: point-in-time values at end 2013 have been rescaled according to either long-term or peak averages in the 2006–14 period. The companies have been grouped in sectors according to the Pillar 3 sector classification adopted by banks and it has been assumed that each bank grants loans to firms in each sector according to its share of loans to that sector with respect to the whole banking system.²

¹ As there is no set of credit risk monitoring and management tools that makes any sense if not based on a robust representation of the connections among obligors, the objective should be that of creating a comprehensive database of groups of connected clients based on a uniform definition of connectedness. Given its complexity, the task must be based on the patient collection of data from different sources (large exposure reports, business and credit registers, onsite findings, news, etc.), plus the application of expert judgment and business intelligence.

² For example, if sector X is financed 20% by bank A and 30% by bank B, the debt of a firm in sector X is assumed to be financed (entirely or partially) 20% by the former bank and 30% by the latter.

This has allowed generating a ‘non-granular’ part of the portfolio, i.e. a portion with exposures of non-negligible size to obligors individually identified in terms of creditworthiness (through their Expected Default Frequencies) and dependency on a latent systematic factor (through their asset value correlations). The remaining part of each bank’s credit portfolio, not allocated to listed companies, has been considered as ‘granular’ and treated accordingly (through the use of sectoral averages of EDFs and asset value correlations).^{3,4}

In order to get a sense of the degree of concentration in these portfolios (both ‘single-name’ and ‘sectoral’ concentration), two different measures of credit risk have been calculated: the first is a Basel II IRB capital charge (according to the Foundation IRB approach) using the EDFs as probabilities of default and the regulatory asset correlation as prescribed by the Basel Accord.⁵ The second is a Credit VaR (Value at Risk) produced by a Monte Carlo simulation⁶ based on Vasicek model⁷ (which is the same methodological foundation of the IRB formula) and adopting the same inputs as for the IRB calculation, but using the asset correlations estimated from MKMV database instead of the ‘standard’ ones of the IRB approaches. For simplicity, a ‘flat’ 45 percent LGD (Loss Given Default) is employed in both calculations.⁸

The difference between the two credit risk metrics provides a measure of credit risk concentration. In fact:

- The IRB capital charge is based on the assumption of an infinitely granular portfolio, i.e. a portfolio with neither sectoral nor single-name concentration, while the Credit VaR calculation captures the potential increase in the credit risk of a portfolio caused by a concentration on certain names or sectors, even for names/sectors that exhibit lower than average EDFs;
- The IRB approach also adopts regulatory asset value correlations, with only minor adjustments (e.g. between corporate and retail, or depending on PDs and/or size), while the correlations used in the Credit VaR are, at least for the ‘non-granular’ part

³ Of course other sizable obligors (such as some non-listed companies or public sector entities) might have not been captured this way. From this point of view the following estimates of credit concentration represent an underestimate of the phenomenon.

⁴ Given the lack of information, no consideration is given to possible forms of credit risk mitigation.

⁵ Basel Committee on Banking Supervision (, paragraphs 272 for corporate exposures and 330 for retail.

⁶ 100,000 iterations were used for each simulation.

⁷ Vasicek, O. (2002) “. See also Gordy (2002).

⁸ It corresponds to the LGD for senior, unsecured claims on corporates, sovereigns and banks under the Foundation IRB approach.

of the portfolio, those specifically estimated firm by firm, hence reflecting more accurately their dependency on the general state of the economy.

The two measures have been calculated for the hypothetical portfolios of a group of large banks in Bahrain⁹, Kuwait¹⁰, Oman¹¹, Qatar¹², Saudi Arabia¹³ and UAE¹⁴. The population of the portfolios led to different sizes of the ‘non-granular’ portion, depending on the bank (see Table).

Portfolio Population: Size of the Non-Granular Portfolio (Range of banks’ values)		
	Assumed share of listed companies’ debt financed by domestic banks (per cent)	Size of the ‘Non-Granular’ Portfolio (share of banks’ portfolios represented by loans to listed companies; per cent)
Bahrain	75	5-7
Kuwait	90	16-22
Oman	50	7-13
Qatar	75	17-34
Saudi Arabia	70	25-42
UAE	50	9-41
Source: Staff calculations.		

The analysis shows that the Credit VaR (in percent of current Risk-Weighed Assets) is lower than minimum capital requirements for most countries under a scenario with “through-the-cycle” default probabilities (i.e. EDFs rescaled according to their long-term average), but that it is higher for almost all countries when using stressed default probabilities (i.e. EDFs rescaled according to their peak value in the sample period). While the existing capital

⁹ Arab Banking Corporation, Ahli United Bank, Bank of Bahrain and Kuwait, Gulf International Bank, Ithmaar Bank.

¹⁰ Burgan Bank, Commercial Bank of Kuwait, Gulf Bank of Kuwait, Kuwait Finance House, National Bank of Kuwait.

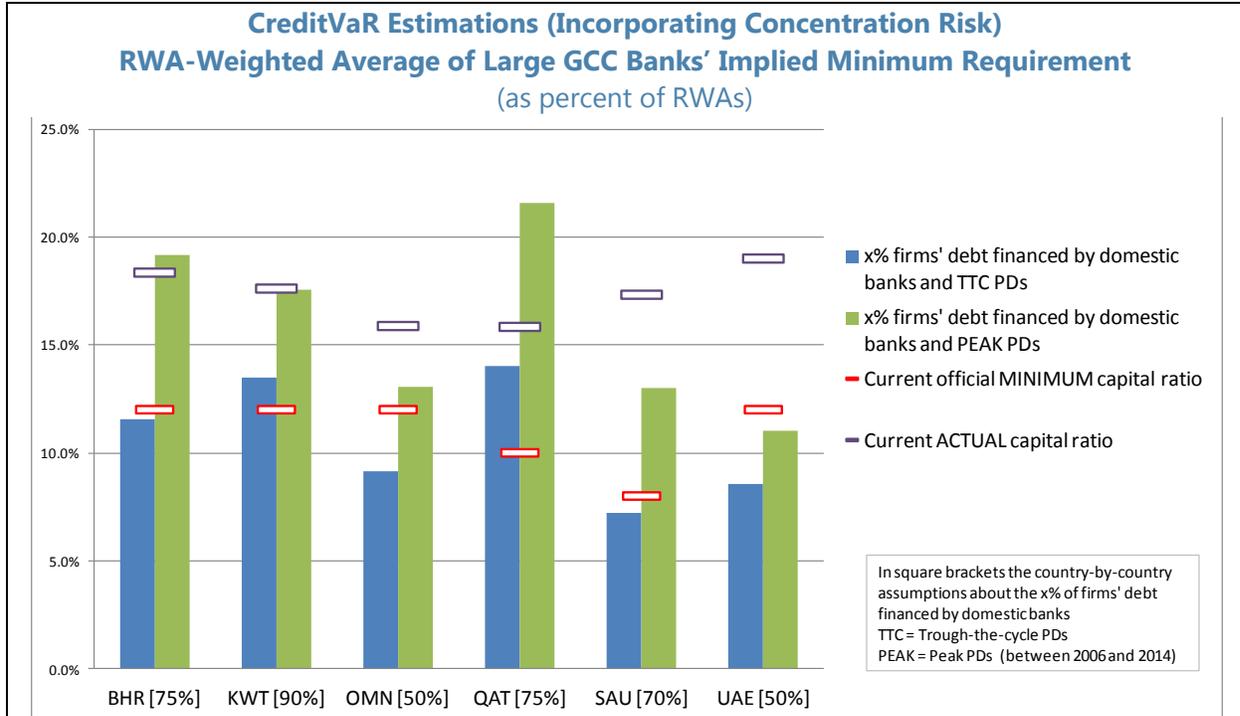
¹¹ Bank Dhofar, HSBC Oman, Bank Muscat, Bank Sohar, National Bank of Oman.

¹² Commercial Bank of Qatar, Doha Bank, Qatar Islamic Bank, Masraf Al Rayan, Qatar National Bank.

¹³ Al-Rajhi Bank, Saudi British Bank, Banque Saudi Fransi, National Commercial Bank, Riyadh Bank, Samba Financial Group.

¹⁴ Abu Dhabi Commercial Bank, Dubai Islamic Bank, Emirates NBD, First Gulf Bank, National Bank of Abu Dhabi.

buffers of these banks above the regulatory minimum are generally adequate with respect to the potential concentration risk in their portfolios, they can be eroded in a stressed environment and, according to the analysis, prove insufficient for some banks (i.e. some banks could experience capital shortfalls under stress).



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