Middle East and Central Asia Department

Gulf Cooperation Council Countries

Enhancing Economic Outcomes in an Uncertain Global Economy

Prepared by a team led by Samya Beidas-Strom, Tobias Rasmussen, and David O. Robinson, and comprising Joshua Charap, Abderrahmane Cherif, May Khamis, Ananthakrishnan Prasad, Arthur Ribeiro da Silva, Pedro Rodriguez, and Renas Sidahmed

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Executive Summary

This paper covers a range of topics relating to key economic policy issues in the GCC countries.[1] The individual chapters present analytical work exploring options to foster growth, enhance the effectiveness of fiscal and monetary policies, and reduce vulnerabilities—all with a view to strengthening macroeconomic outcomes and promoting the attainment of the GCC countries' development objectives. The analysis highlights the interconnectedness of policy making and economic outcomes in the GCC countries with the global economy—not just through the price of oil, but also through the role of expatriate labor, spillovers from global financial markets, and the impact of fiscal and monetary policies pursued in the advanced economies and emerging Asia.

Chapter 1, on growth strategies, outlines the GCC countries' development plans and progress made. Reflecting common goals and similar starting points, the national development strategies share many common themes, including a focus on economic diversification and the creation of employment for nationals. Over the past decade, all GCC countries have experienced relatively strong growth in the non-oil economy, particularly in services, but hydrocarbon dependence—measured in relation to nominal GDP and as a source of fiscal revenues—has increased in many countries as a result of higher oil prices. In several countries unemployment has become a concern and with more than 4 million nationals likely to enter labor markets over the next five years—compared to approximately 5 million nationals employed in 2010—issues surrounding employment creation are a clear priority. Meeting national development objectives will therefore require not just an acceleration of economic growth, but a reorientation of the growth model to ensure the creation of employment opportunities for nationals. Key components will be improving productivity, fostering

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[1] The GCC (Gulf Cooperation Council) is comprised of Bahrain (BHR), Kuwait (KWT), Oman (OMN), Qatar (QAT), Saudi Arabia (SAU), and the United Arab Emirates (UAE).

the emergence of the private sector, and in some cases ensuring that labor market policies support the employment of nationals.

Chapter 2, on GDP and welfare, explores the issue of identifying an appropriate measure of welfare in the GCC (or other commodity-based economies). Reflecting the dominant role of the oil sector and the preponderance of expatriate labor, GDP—whether total or non-oil—in these countries is only weakly linked to variables such as employment and consumption that are central to economic well-being. Indeed, the sharp reduction in imports seen in some countries during 2009 suggests a greater adverse shock to consumption levels at that time than would be apparent from looking only at non-oil GDP measures. The analysis reinforces the need to assess progress in major policy areas against a series of dimensions: for employment objectives, the number of jobs created, in which sectors, and at what qualifications could be the principal indicators; and for living standards, the volume and composition of consumption.

Chapter 3, on fiscal policy, analyzes the key role of fiscal policy in converting the GCC countries' revenues from natural resources into expenditure decisions that shape social and economic outcomes for both current and future generations. The volatility of oil prices and the persistence of oil price shocks create an unusual degree of uncertainty in government revenues, and have produced large (and sustained) swings in fiscal balances. Spending levels have generally followed oil prices—increasing on the upswing and decreasing as prices fell—but have typically been adjusted by less than the change in revenues. The policy response to the global crisis was somewhat of a watershed, with many countries implementing fiscal expansions in response to the fall in revenue. After reviewing past fiscal policy implementation, two important issues for the future are considered—possible anchors for fiscal policy over the medium term, and the role of fiscal multipliers and automatic stabilizers in adjusting the fiscal stance in response to short-term fluctuations in the non-hydrocarbon economy.

Chapter 4, on the monetary transmission mechanism, evaluates the degree of monetary policy independence in GCC countries. Consistent with the pegged exchange rates to the U.S. dollar and the openness of the GCC countries' capital accounts, the results show that GCC policy rates largely move in line with U.S. interest rates in the long term. In the short term, however, there is some deviation, as countries have employed their available tools—such as reserve requirements, loan-to-deposit ratios, and other macroprudential instruments—to influence domestic liquidity and credit conditions. Going from policy to retail rates, the link becomes weaker in all countries, with less than full pass-through in the long term and a generally slow speed of adjustment. Overall, the estimations suggest that U.S. monetary policy has not, surprisingly, an important impact on broad money, non-oil activity, and

inflation in the GCC. Continued efforts to develop domestic financial markets will increase interest rate pass-through and strengthen monetary policy transmission.

Chapter 5, on financial distress dependence, examines the evolution of credit default swap (CDS) spreads for the GCC, in order to derive measures of contagion. The results identify a sharp increase in risks at the time of the global financial crisis—probably driven by global risk aversion—but relatively limited contagion from regional events such as the Dubai World debt restructuring and, more recently, from political and social unrest in the some countries in the Middle East during the early part of 2011.

Chapter 6, on international spillovers, explores the linkages between fiscal policy decisions in Saudi Arabia and the global economy as well as the impact on the Saudi economy of a growth shock in emerging Asia. The analysis employs an augmented three-region version of the IMF's Global Integrated Monetary and Fiscal model. The results indicate that Saudi Arabia's fiscal multipliers are low, in part due to the large leakage via imports, but that the composition of fiscal spending matters greatly. The global spillovers are largest in Asia via the trade channel. A potential growth slowdown in emerging Asia would have a significant adverse impact on Saudi Arabia in the short term—largely through a decline in demand for oil—but less so over the medium to long term.

Chapter 7, on corporate sector vulnerabilities, analyzes the evolution of the balance sheets of listed non-financial companies during and after the global financial crisis. As anticipated, corporate vulnerabilities rose during the crisis in all countries and all sectors. However, the recovery has been rapid, with corporates returning to strong profitability in 2010 and in many cases reducing vulnerabilities to close to pre-crisis levels. The corporate sector has, on aggregate, also built a large cash cushion that helps to mitigate risks from potential shocks, particularly to interest rates.

1   Growth Strategies[1]

Each GCC country has articulated a development strategy based on economic diversification and the creation of employment for nationals. As measured by real GDP, all GCC countries have over the past decade experienced relatively strong growth in the non-oil economy, particularly in services. The United Arab Emirates has also seen a sizeable increase in the share of non-oil exports in total exports. In terms of both fiscal revenue and nominal GDP, however, progress towards diversification has been more limited, reflecting higher oil prices. Moreover, although new jobs have been created, employment of nationals has lagged while the number of expatriate workers has risen sharply. In light of the rapidly-growing workforce, unemployment among GCC nationals could increase by as many as 2 to 3 million over the next five years, compared to approximately 5 million employed nationals in 2010. Accordingly, policies are needed to ensure not just high growth, but growth that creates needed employment opportunities for nationals.

Introduction

GCC countries share a common vision for economic development, set out in national development plans that highlight the need for diversification of the productive base to reduce dependence on the hydrocarbon sector and to create more employment opportunities for young and growing populations.[2] National development plans have a long history in some GCC countries as a means of setting out development objectives, particularly

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[1] Prepared by Joshua Charap.
[2] The Economic Vision 2030 for Bahrain (www.bahrainedb.com/EDBInBahrain.aspx?id=2224), Kuwait: Medium-term Development Plan for the Years 2010/11–2013/14 (scpd.gov.kw/arabic/fp/default.aspx), Oman: Eighth Five-Year Development Plan (2011–2015) (www.mone.gov.om), Qatar National Vision 2030 (www.gsdp.gov.qa), Saudi Arabia: Ninth Development Plan (2010–2014) (www.mep.gov.sa), The Abu Dhabi Economic Vision 2030 (www.gsec.abudhabi.ae), and The Dubai Strategic Plan 2015 (www.dubai.ae). There are separate plans for Abu Dhabi and Dubai, but no specific plans for the United Arab Emirates as a whole.

following the lows in oil prices in 1998–99. All of the latest plans emphasize economic diversification and an increase in the labor force participation of nationals.

Most plans stress the need to boost productivity and competitiveness, and include promotion of a business environment conducive to growth. Targeted areas also include integrating economies with the global knowledge economy, encouraging entrepreneurship, attracting foreign investment, fostering innovation, and ensuring access to finance for small and medium-sized enterprises (SMEs). Other themes focus on recognition of the need to improve education and health outcomes, and the desirability of improving the efficiency of the public sector.

Progress Toward Diversification

Hydrocarbon dependency has changed little over the last decade, with fiscal dependency mostly increasing (Figure 1.1). During 1990–99, hydrocarbons generally accounted for about 80 percent of revenue and exports of goods and services in the GCC, with the exception of Bahrain. In the period 2000–09, fiscal dependency mostly increased, with the majority of GCC countries converging toward hydrocarbons accounting for almost 90 percent of revenue and 80 percent of exports. The exception was the United Arab Emirates, where hydrocarbons have fallen to about 60 percent of exports and their share in revenue has fallen slightly.

The shift toward greater dependency on hydrocarbons reflects the increase in oil prices over the past decade. In nominal terms the share of the

Figure 1.1. GCC: Hydrocarbon Dependency, 1990–2009[1]

(Percent)
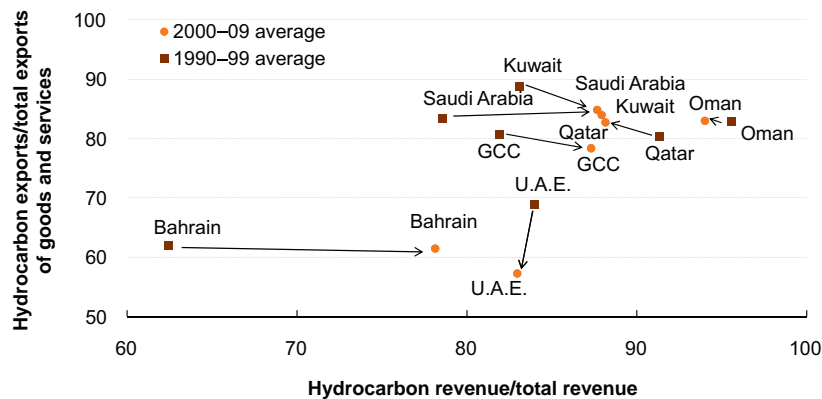
Sources: Country authorities; and IMF staff estimates.
[1]Total government revenue includes investment income, which is included in hydrocarbon income.
Total exports exclude re-exports.

**Table 1.1. GCC: Non-hydrocarbon GDP as a Share
of Total GDP; 1990, 2000, 2010**

	1990	2000	2010
Bahrain	81	72	75
Kuwait	52	48	48
Oman	52	49	46
Qatar	62	40	43
Saudi Arabia	64	59	48
U.A.E.	60	71	66
GCC	61	59	51

Sources: Country authorities; and IMF staff estimates.

non-hydrocarbon sector in GDP has generally decreased over the past decade (Table 1.1). Measured in real terms, however, growth in the hydrocarbon sector was less than that of the non-hydrocarbon economy. As set out in Appendix 1A, the bulk of non-hydrocarbon growth has been in the services sector, partly reflecting greater spending on nontradables made possible by higher oil revenue. Most tradables are imported. The non-hydrocarbon sector continues to make a small contribution to revenue, reflecting the policy decision to provide a low-tax environment to stimulate private sector activity (including the absence of a corporate income tax in most countries) and the absence of a personal income tax. Studies for a GCC-wide VAT are being undertaken and the date for implementation has not been set.

Services have contributed about half of real GDP growth during the last decade and at least three-quarters of non-hydrocarbon growth. Divergence across GCC counties can be observed among the service sectors: In the period 2000–09, financial services grew rapidly in Bahrain, Kuwait, Qatar, and the United Arab Emirates, while real estate services grew rapidly in the United Arab Emirates. Government services grew throughout the region, most markedly in Bahrain and the United Arab Emirates. A construction boom was most pronounced in the United Arab Emirates, with significant growth in Qatar and Oman. Tourism is a rapidly growing sector in several countries, with Saudi Arabia—based on religious tourism—among the top 20 destinations in the world by number of tourists.[3] Manufacturing industries, typically export-oriented and in fairly energy-intensive products, are emerging in some countries and include plastics, petrochemicals, and aluminum smelting. Bahrain, the United Arab Emirates, and, to some extent, Qatar, had increases in non-hydrocarbon manufacturing.

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[3] Source: unwto.org.

3

Employment Creation

Economic growth in the GCC has been labor-intensive and associated with a large inflow of foreign labor.[4] As shown in Figure 1.2, all GCC countries have had a sharp rise in expatriate employment, largely in the private sector, but also in the public sector in Kuwait and Qatar. The elasticity of employment creation to non-hydrocarbon growth is calculated and presented in Figure 1.3 to analyze employment data underpinning Figure 1.2.[5] As shown in Figure 1.3, a 1 percent increase in non-hydrocarbon GDP is associated with an increase in total employment ranging from 0.75 percent in Oman to 1.77 percent in Dubai. Within total employment creation, a 1 percent increase in non-hydrocarbon GDP has led to an increase in employment of nationals ranging from 0.45 percent in Qatar to 1.53 percent in Oman.[6] These elasticities are relatively high compared to those of other countries, and are consistent with low productivity growth as found by Arezki and Cherif (2010).[7]

The shortage of jobs for nationals has not been the result of inadequate job creation, but of the types of jobs created. As shown in Table 1.2, between 2000 and 2010 approximately 7 million new jobs were created in the GCC, of which fewer than 2 million went to nationals. Many of the positions filled by expatriates were low-skill and low-paying construction jobs, but a large part also went to highly educated professionals for jobs where there was a shortage of nationals with the requisite skills. Data on unemployment are mixed and not necessarily comparable across countries. In Saudi Arabia, for example, the increase in employment has not been sufficient to maintain the unemployment rate for nationals below 10 percent in the past several years with unemployment concentrated among new entrants to the labor market.[8]

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[4] Michaels (2011) examined the impact of oil discovery on economic developments in U.S. counties—where there is also relatively free movement of labor. He argued that the discovery of oil had a favorable impact on underdeveloped regions and that the resultant increase in population was also beneficial because it generated demand for infrastructure (such as airports) that helped the county develop. These findings highlight the potentially positive impact that an influx of expatriate workers may have on GCC economies.

[5] As noted in Figure 1.3, the data used for this analysis are based on different time periods and this may be contributing to the variation in results. For example, the data suggest that the elasticity in Oman may have been increasing in recent years while the elasticity in Saudi Arabia may have fallen.

[6] The data for Dubai do not distinguish residence across emirates within the United Arab Emirates; therefore it is difficult to distinguish "nationals."

[7] "Okun's Law" is an empirically observed relationship between unemployment and output, first quantified by Arthur M. Okun. For the United States it shows that a 1 percent increase in the unemployment rate is correlated with a reduction in GDP of approximately 2 percent. A loose interpretation of this Law, when applied to GCC growth rates and employment, could imply that, over time, a 1 percent increase in GDP should be expected to generate close to a 0.5 percent increase in employment.

[8] Official data on unemployment of nationals include the following estimates: Bahrain, less than 4 percent (2011); Kuwait, about 3 percent (2010; includes individuals not actively seeking employment); Qatar, 2.4 percent (2009); Saudi Arabia, 10.5 percent (2009); and, Dubai, less than 1 percent (2009).

Figure 1.2. GCC: Labor Force by Sector and Origin, 1969–2009
(Thousands of workers)

Bahrain
Kuwait
Oman
Qatar
Saudi Arabia
Dubai and Abu Dhabi
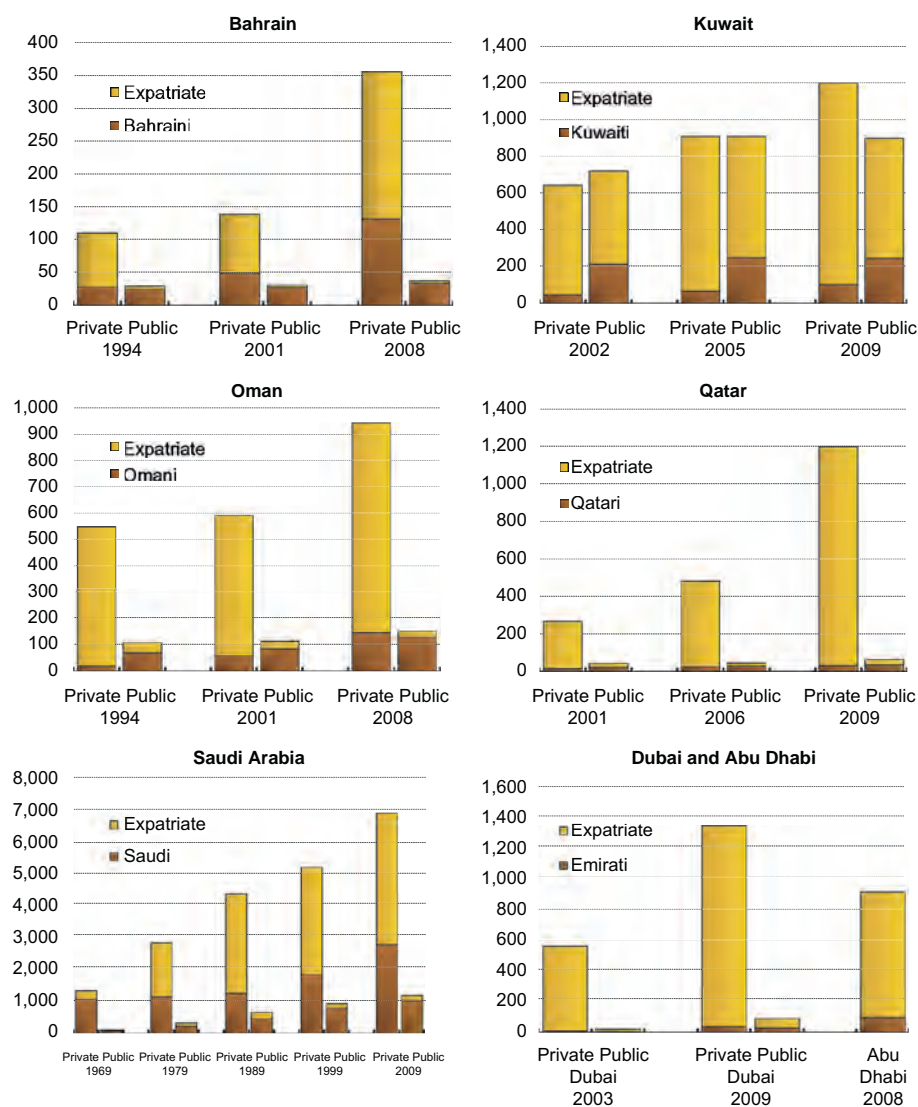
Sources: Country authorities.

Relatively young populations imply a large number of new entrants to the labor force.[9] Figure 1.4 presents employment rates in Bahrain and Saudi Arabia (by gender and age). The data demonstrate some commonality of low rates of youth employment in the region.

Although overall job creation is set to remain high, based on past trends there could be as many as 2 to 3 million additional unemployed GCC citizens by 2015.

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[9] In Saudi Arabia, for example, almost half of the Saudi population is under 15 years of age, compared to about 20 percent in Norway, Singapore, and the United States.

Figure 1.3. GCC: Relationship between Growth in Non-government Employment and Growth in Real Non-hydrocarbon GDP, 1992–2009
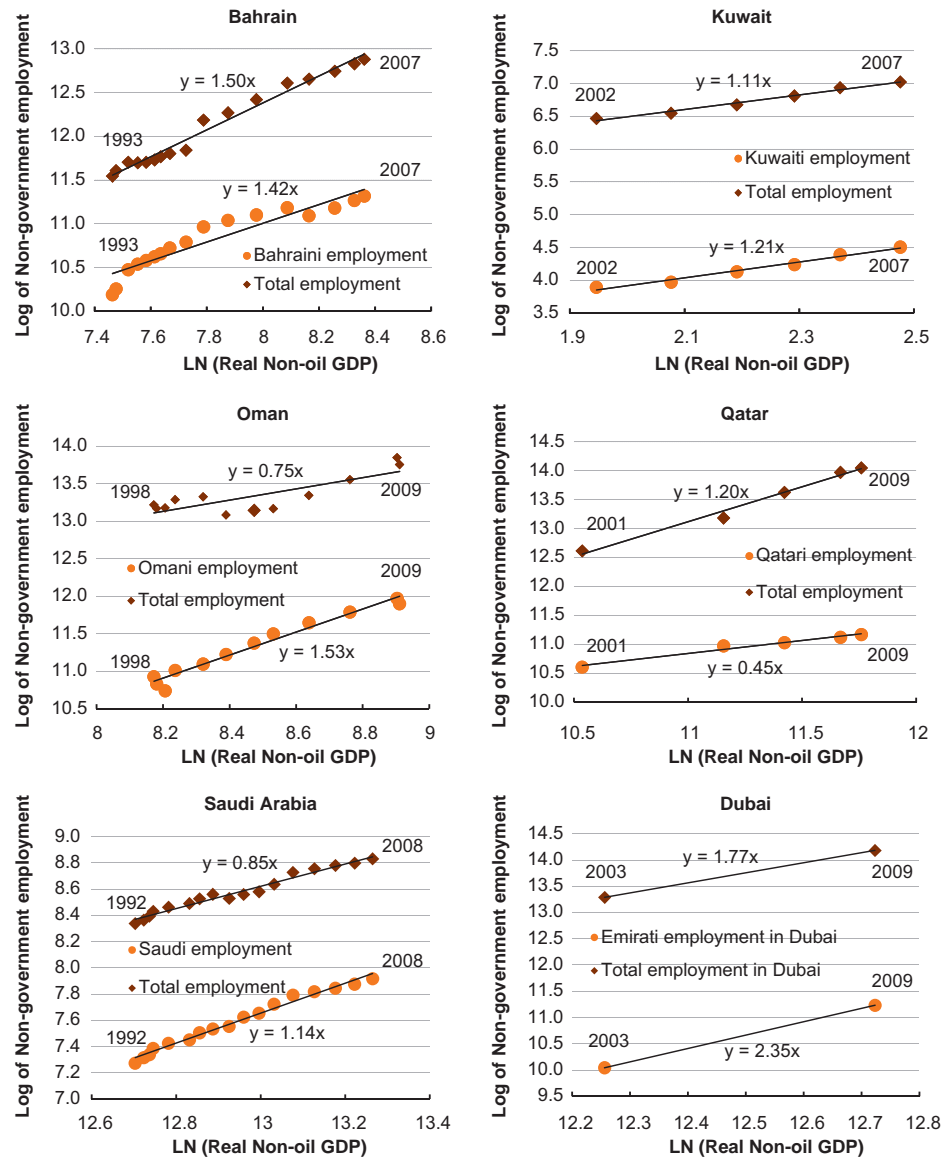
Sources: Country authorities; and IMF staff estimates and projections.

Applying the relationships between employment and growth identified in Figure 1.3 and using non-hydrocarbon GDP growth forecasts, it is straightforward to extrapolate a baseline for new job creation through 2015.[10] On this basis, GCC countries could be expected to increase employment by

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[10] This forecast excludes the impact of explicit job creation measures in Bahrain (20,000 new jobs funded by the public and private sectors, announced on March 5, 2011), Oman (50,000 new jobs announced on February 27, 2011), and Saudi Arabia (60,300 new public-sector jobs announced on March 18, 2011).

Table 1.2. GCC: Job Creation, 2000–15

	2000–10 Estimate			2010–15 Forecast		
	Total job creation	Private sector job creation	Public sector job creation	Total job creation	Private sector job creation	Public sector job creation
	(Thousands)			(Thousands)		
Bahrain	297	284	14	167	155	12
Bahraini	55	42	13	43	32	11
Kuwait	986	680	306	636	365	270
Kuwaiti	135	65	69	106	32	75
Oman	527	481	46	466	414	53
Omani	157	105	52	118	73	45
Qatar	1,118	1,078	40	865	827	39
Qatari	40	21	19	43	22	22
U.A.E.	1,546	1,391	155	1,060	954	106
Emirati	110	99	11	84	75	8
Saudi Arabia	2,598	2,344	254	2,502	2,153	349
Saudi Arabian	1,302	1,068	234	1,172	865	307
Total	**7,072**	**6,258**	**814**	**5,696**	**4,867**	**829**
o/w nationals	**1,799**	**1,401**	**398**	**1,567**	**1,100**	**467**

Sources: Country authorities; and IMF staff estimates and forecasts.

almost 6 million workers during 2010–15—but less than one-third of the new jobs would go to GCC nationals. Over the same period, however, more than 4½ million new nationals will be old enough to work and, with labor force participation likely to increase, the number of unemployed would increase.[11]

Absent a change in labor market dynamics, the amount of additional growth necessary to meet employment objectives could be substantial. In Saudi Arabia, for example, the relationship between non-hydrocarbon GDP and employment of nationals, observed during 2004–09, suggests that a non-hydrocarbon growth rate of approximately 7½ percent would be needed to create 230,000 new jobs annually. This is the estimated amount needed to achieve the targeted halving of the unemployment rate to 5 percent over the next five years, given the assumed labor force participation rate.[12]

Bringing down unemployment of nationals will require a combination of strong economic growth and ensuring that nationals are in a position to take

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[11] New labor market entrants during 2010–15 were calculated from population estimates and projections available at: http://esa.un.org/unpd/wpp/unpp/panel_indicators.htm.

[12] This compares to an annual average of 4½ percent non-hydrocarbon growth and 108,000 new jobs created during the past five years.

Figure 1.4. Bahrain and Saudi Arabia: Population and Employment, 2009–10

Bahrain: Estimated Population and Workforce by Age and Gender, 2010 (Thousands)

Saudi Arabia: Population and Employment by Age and Gender, 2009 (Millions)

Sources: Country authorities.
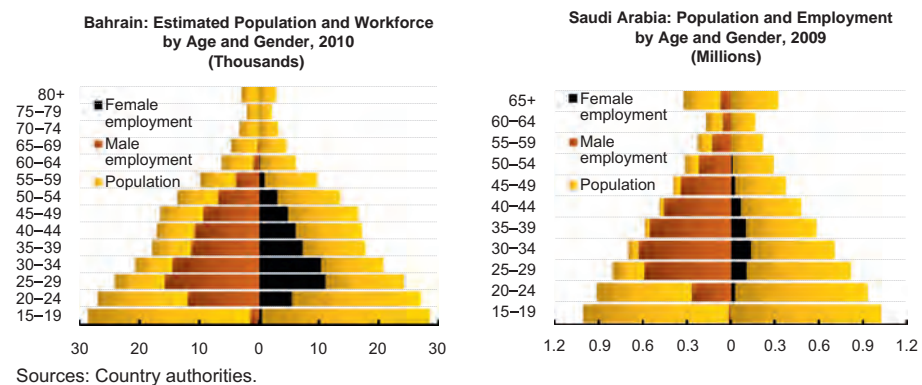
the jobs that are created. Most GCC countries have had programs in place for increasing employment of nationals for several years, including quotas, training and placement services, and subsidies and other incentives (see Baldwin-Edwards, 2011). These initiatives will likely need to be supplemented by measures to address factors such as skills mismatch and high reservation wages of nationals. The challenge is to promote the employment of nationals without imposing undue costs of doing business that would erode competitiveness and potentially reduce growth.

Business Environment, Education, and Health

International indicators show a mixed picture of the business environment, and most development plans in the region state the need to strengthen the business environment further to support growth (Table 1.3). Some countries, including Saudi Arabia, score highly in the "Doing Business" indicators, while other GCC countries are ranked below the advanced country average. Identified problem areas include enforcing contracts (all GCC countries), obtaining credit (especially Oman and Qatar), starting a business (especially Kuwait and Qatar), protecting investors (especially the United Arab Emirates), closing a business (especially the United Arab Emirates), and trading across borders (especially Kuwait). According to the Global Competitiveness Index, Qatar and Saudi Arabia rank at or above the advanced country average. These rankings identify a mixed range of weaknesses including health and education (particularly in Kuwait, Oman, and Saudi Arabia) and labor market efficiency (Kuwait and Saudi Arabia).

The long-term growth potential of the economy will depend on the education and health of the workforce. A World Bank (2008) study of education in the Middle East and North Africa concluded that once basic education needs have been met, effective participation in secondary and tertiary education requires a complex mix of factors—not just higher spending. Accordingly,

Table 1.3. GCC: Governance and Business Environment Indicators, 2010–11

"Doing Business" indicators[1]

	Bahrain	Kuwait	Oman	Qatar	Saudi Arabia	U.A.E.	GCC	Emerging	Advanced	Developing
Overall rank	28	74	57	50	11	40	43	100	27	102
Starting a business	78	141	76	111	13	46	78	98	52	100
Dealing with construction permits	17	91	70	30	14	26	41	97	52	99
Registering property	29	90	21	58	1	4	34	94	57	94
Getting credit	89	89	128	138	46	72	94	89	39	88
Protecting investors	59	28	93	93	16	120	68	88	59	103
Paying taxes	14	9	8	2	6	5	7	99	53	68
Trading across borders	33	113	88	46	18	3	50	102	28	50
Enforcing contracts	117	114	104	95	140	134	117	98	35	38
Closing a business	26	61	72	36	65	143	67	105	20	42

Global Competitiveness Index[2]

	Bahrain	Kuwait	Oman	Qatar	Saudi Arabia	U.A.E.	GCC	Emerging	Advanced	Developing
Overall rank	37	35	34	17	21	25	28	81	21	85
Basic requirements	21	36	24	13	28	8	22	82	22	85
1st pillar: institutions	27	46	16	10	21	20	23	80	26	83
2nd pillar: infrastructure	27	60	33	25	28	3	29	82	19	85
3rd pillar: macroeconomic stability	11	2	3	8	22	12	10	77	47	80
4th pillar: health and primary education	36	68	99	15	74	38	55	82	19	85
Efficiency enhancers	33	68	48	26	27	21	37	80	19	84
5th pillar: higher education and training	44	83	63	32	51	36	52	83	19	85
6th pillar: goods market efficiency	9	54	25	12	10	6	19	80	26	82
7th pillar: labor market efficiency	28	64	36	14	66	26	39	77	38	81
8th pillar: financial market sophistication	20	63	30	19	22	33	31	77	36	81
9th pillar: technological readiness	27	77	59	36	42	14	43	84	20	86
10th pillar: market size	98	59	73	66	22	51	62	77	35	81
Innovation and sophistication factors	55	60	47	23	26	27	40	81	20	84
11th pillar: business sophistication	55	58	45	21	19	22	37	80	20	84
12th pillar: innovation	59	76	47	23	28	30	44	81	19	82

Sources: www.doingbusiness.org, 2011; and the World Economic Forum *Global Competitiveness Report*, 2010–11.
[1]Out of 183 countries.
[2]Out of 133 countries.

education reform should focus on achieving better outcomes and on preparing graduates to meet the needs of the private sector. As set out in Figure 1.5, with the exception of Saudi Arabia, GCC countries tend to spend comparatively less on education than countries with similar levels of income, and none performed well on an internationally standardized mathematics test. Similarly, GCC countries spend comparatively less on health than countries

Figure 1.5. GCC: Education, Health, and Infrastructure, 2007–08

Relationship Between Public Expenditure on Education and GDP per Capita (log), 2008 (or latest)

Trends in International Mathematics and Science Study, 2007 Math Results[1]

Relationship Between Health Expenditure per Capita and GDP per Capita (log), 2007

Relationship Between Infant Mortality (per 1,000 Live Births) and GDP per capita, 2008

Quality of Roads (7 - "Extensive and Efficient by International Standards"), by GDP per Capita

Quality of Electrical Supply (7 - "Meets the Highest Standards in the World"), by GDP per Capita

Sources: World Economic Forum, *Global Competitiveness Report 2008–09*; World Development Indicators; International Association for the Evaluation of Educational Achievement (IEA).
[1]A global standardized test of students in grade 8.

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with the same level of income and have worse infant mortality outcomes than would be expected, given income levels.

In addition to efforts to improve the quality of the health and education sectors, certain GCC countries need additional infrastructure investment. The quality of roads is rated as adequate in the GCC, although Kuwait and Qatar have worse roads than would be expected in light of their income levels. The supply of electricity is classified as particularly problematic in Kuwait and Bahrain. Investment in roads and electricity should target bottlenecks that are a constraint to economic development and should attempt to ease capacity constraints.

Conclusion

While economic growth has increased during the past decade it has not delivered all the desired outcomes. Government expenditure has supported high growth rates in the non-hydrocarbon economy and put in place adequate or good infrastructure. Nevertheless, employment for nationals falls short of what is needed, and the economies remain highly dependent on hydrocarbons. To a large extent, these shortcomings can be traced back to insufficient productivity growth and to economic development that has relied on an inflow of often low-skilled foreign labor at wages below what nationals are willing to accept. The challenge is to move into activities with higher value added; to meet development objectives, emphasis should be placed on improving productivity through strengthening education systems and increasing human capital. The current high oil price provides fiscal space—and thus a good opportunity—to tackle this fundamental challenge, albeit against the backdrop of the need for some countries to increase savings over the medium term to ensure intergenerational equity.

All countries have articulated ambitious development plans. Achievement of the objectives of the plans, notably job creation for nationals, rests on making local workers more productive, thereby raising their attractiveness as employees—but it will take time to achieve. In the near to medium term, some active labor market interventions may continue to be needed. This will require careful balancing between administratively burdensome regulations, such as quotas for the employment of nationals, and the need for policies to build incentives for growth in private sector employment without the creation of unnecessary distortions. In this connection, a retrospective analysis of the effectiveness of labor market policies could provide analytical underpinnings for future policy formulation. In order to foster the employment of nationals, a number of areas for consideration would be: (i) providing incentives for nationals to acquire the skills needed for private sector employment; (ii) evaluating the appropriateness and calibration of a tax on foreign workers

(for example as an extension of plans to increase fees for work permits, as is under consideration in some countries) in a manner that minimizes distortions in the local labor market while redressing the effect of high reservation wages of nationals; and, (iii) considering the timeframe and scope for offering the private sector financial and other incentives to employ nationals.

Appendix 1A: Contribution of the Non-hydrocarbon Sectors[1]

Appendix Figure 1A.1.GCC: Average Contribution to Growth by Sector, 1991–2009

Bahrain	1991–99	2001–09
Hydrocarbons	1.2	-0.4
Manufacturing (non-hydrocarbon)	0.6	0.9
Construction	0.1	0.5
Services	2.2	5.3
Other	0.2	0.2
Total	4.4	6.6

Kuwait	1993–99	2001–07
Hydrocarbons	1.0	1.8
Manufacturing (non-hydrocarbon)	0.3	0.4
Construction	0.2	0.2
Services	2.8	4.8
Other	0.0	0.0
Total	4.9	7.3

Oman	1991–99	2001–09
Hydrocarbons	4.4	-0.1
Manufacturing (non-hydrocarbon)	0.2	0.3
Construction	0.3	0.7
Services	2.8	3.8
Other	0.3	-0.1
Total	7.9	4.6

Qatar	1991–99	2001–09
Hydrocarbons	4.3	5.0
Manufacturing (non-hydrocarbon)	0.3	0.8
Construction	0.3	0.9
Services	1.4	6.2
Other	0.0	0.1
Total	6.3	13.1

Saudi Arabia	1991–99	2001–09
Hydrocarbons	0.7	0.4
Manufacturing (non-hydrocarbon)	0.2	0.4
Construction	-0.2	0.3
Services	1.3	2.2
Other	0.5	0.1
Total	2.5	3.2

U.A.E.	1994–99	2001–08
Hydrocarbons	-0.2	0.8
Manufacturing (non-hydrocarbon)	1.1	0.7
Construction	0.5	1.5
Services	3.6	4.0
Other	0.4	0.0
Total	5.4	7.0

Sources: Country authorities; and IMF staff estimates.

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[1] For each table, the data for growth rates in that table are computed as geometric averages adjusted to impose a summing-up constraint.

Appendix Figure 1A.2. GCC: Average Contribution to Non-oil Growth by Sector, 1991–2009

Bahrain	1991-99	2001-09
Manufacturing (non-hydrocarbon)	0.8	1.1
Construction	0.1	0.6
Services	3.0	6.1
Other	0.3	0.2
Total non-hydrocarbon	4.1	8.0

Kuwait	1993-99	2001-07
Manufacturing (non-hydrocarbon)	0.5	0.8
Construction	0.3	0.4
Services	5.5	9.2
Other	0.0	0.0
Total non-hydrocarbon	6.3	10.4

Oman	1991-99	2001-09
Manufacturing (non-hydrocarbon)	0.4	0.6
Construction	0.5	1.3
Services	4.6	6.8
Other	0.4	-0.1
Total non-hydrocarbon	5.8	8.5

Qatar	1991-99	2001-09
Manufacturing (non-hydrocarbon)	0.5	1.6
Construction	0.6	1.8
Services	2.6	11.8
Other	0.0	0.2
Total non-hydrocarbon	3.7	15.4

Saudi Arabia	1991-99	2001-09
Manufacturing (non-hydrocarbon)	0.2	0.5
Construction	-0.2	0.4
Services	2.1	3.2
Other	0.8	0.2
Total non-hydrocarbon	2.9	4.2

U.A.E.	1994-99	2001-08
Manufacturing (non-hydrocarbon)	1.7	1.0
Construction	0.8	2.1
Services	5.5	5.7
Other	0.6	0.0
Total non-hydrocarbon	8.5	8.7

Sources: Country authorities; and IMF staff estimates.

Appendix Figure 1A.3. GCC: Average Contribution to Services Growth by Service, 1991–2009

Bahrain	1991-99	2001-09
Transport and communication	0.5	0.9
Trade, hotels, and restaurants	1.0	0.5
Banks and insurance	0.8	2.9
Real estate	0.6	0.9
Government	0.6	1.8
Social, personal, and other services	0.1	1.0
Total services	3.5	8.0

Kuwait	1993-99	2001-07
Trade, hotels, and restaurants	0.8	0.9
Transport, storage, and communications	1.2	2.5
Financial institutions and insurance	0.7	3.3
Real estate and business services	0.1	1.1
Community, social, and personal services	2.5	2.5
Total services	5.3	10.2

Oman	1991-99	2001-09
Wholesale and retail trade	0.6	2.0
Restaurants and hotels	0.1	0.2
Transport and communications	0.7	1.3
Financial and business services	0.7	0.5
Ownership of dwellings	0.8	0.9
Public administration and defence	1.1	1.2
Other services	1.4	1.1
Total services	5.3	7.2

Qatar	1991-99	2001-09
Trade, restaurants, and hotels	1.4	1.9
Transport and communications	0.6	1.7
Finance, insurance, and real estate	2.0	4.0
Other services	0.0	9.3
Total services	3.9	16.8

Saudi Arabia	1991-99	2001-09
Trade and tourism	0.6	0.7
Transport, storage, and communications	0.3	0.8
Finance, insurance, and real estate	0.3	1.2
Community, social, and personal	0.2	0.3
Government	1.1	1.1
Total services	2.4	4.1

U.A.E.	1994-99	2001-08
Trade	3.1	4.8
Transport, storage, and communications	1.1	1.0
Finance and insurance	0.9	0.8
Real estate	2.0	1.6
Government	0.5	0.3
Other services	0.4	0.3
Total services	8.0	8.8

Sources: Country authorities; and IMF staff estimates.

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2 GDP and Welfare in the GCC[1]

In the oil-dependent economies of the GCC, both GDP—the standard measure of the size of an economy—and non-oil GDP are shown to provide only limited information on movements in economic well-being. Neither of these variables is closely linked to employment and consumption, two variables that have a direct relation to economic welfare—during the global financial crisis, for example, several GCC countries experienced substantial declines in consumption despite positive non-oil GDP growth. Thus, in analyzing policy options and outcomes in these economies, great care has to be taken to select appropriate target measures.

Introduction: GDP, the Economy, and Welfare

It is well known that GDP is an imperfect measure of economic well-being.[2] It excludes production taking place outside of markets, such as volunteer work or unpaid domestic services, and it typically does not fully capture activity in the informal sector, among other reasons. Moreover, it does not account for depreciation of physical capital or depletion of natural resources. Despite these shortcomings, GDP is still commonly used to gauge economic progress because it is readily available and tends to be closely correlated with other indicators of welfare such as health and education. As shown below, however, the problems with using GDP as a measure of economic well-being are particularly pronounced for GCC economies and, depending on the objective at hand, there are other available indicators that may be more informative.

Using GDP as an indicator of economic well-being in GCC countries raises several issues. First, with the GCC oil sector accounting for, on average,

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[1] Prepared by Abderrahmane Cherif and Tobias Rasmussen.
[2] See, for example, Jones and Klenow (2010).

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43 percent of total GDP over the past decade, these countries are highly exposed to commodity price variability, and their purchasing power is consequently often more influenced by price movements than by the quantity of output that they produce. Second, with the oil sector representing only a small fraction of employment and with expatriate workers accounting for more than half of the total labor force, the typical links between output and the employment and income of nationals are much weaker than in other parts of the world. In the following sections we explore each of these dimensions and the implications for welfare measurement.

Income

GDP in constant prices is typically assumed to represent real purchasing power, but the link between these two concepts is particularly weak in the GCC. Inferring a country's real purchasing power from its real GDP is only valid to the extent that it produces solely for domestic absorption—and this is far from being the case in the GCC. Since close to half of these countries' total GDP comes from the oil sector, real GDP is to a large extent determined by the number of barrels of oil produced, and most of these are exported. Consequently, GCC countries' purchasing power is highly sensitive to terms-of-trade effects—i.e., changes in the ratio of export to import prices—and changes in consumer prices often differ markedly from changes in GDP deflators. Moreover, with oil production showing low or negative correlation with oil prices, real GDP is significantly less volatile than nominal GDP and may not even move in the same direction. As a result, changes in real GDP say relatively little about changes in real purchasing power. Changes in nominal GDP, in contrast, capture movements in income but do not account for price changes.[3] The differences between these variables can be substantial. In 2009, for example, the GCC countries' total real GDP increased marginally, while their combined nominal GDP measured in U.S. dollars fell by almost 19 percent, primarily as a result of lower oil prices.

Non-oil GDP is less subject to price swings than total GDP, but it also has its shortcomings as an indicator of purchasing power in the GCC. First, consisting to a large extent of services, GDP of the non-oil sector is more prone to measurement problems than that of the oil sector where output is more readily quantifiable. Second, and more important, non-oil GDP represents only a part of total production and therefore provides an incomplete picture of developments in the GCC economies. As most tradable goods are imported and, with the exception of Bahrain and U.A.E., non-oil

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[3] Even nominal GDP does not capture all income, as it excludes net transfers and factor income from abroad—items included in GNDI—with remittances and investment income making a substantial difference for GCC countries.

exports are small, non-oil GDP is mainly a measure of the output of non-tradable goods and services in these economies. As such, non-oil GDP says relatively little about total purchasing power, a large part of which is spent on imports. It is also mainly driven by the public sector, since provision of government services is typically the largest single component and the other components are highly influenced by government spending. Again, the 2009 episode presents a telling example. While the collapse in oil prices led to a sharp decline in both nominal oil GDP and fiscal revenues in that year, continued increases in government spending kept real non-oil GDP growth positive in all GCC countries except Kuwait and Oman. Clearly, in these countries, positive growth in real non-oil GDP does not preclude a major decline in real income or vice versa.

Employment

Generating jobs for GCC nationals is one of the region's top economic policy priorities. This reflects the need to provide employment opportunities for a young and fast-growing population. It also reflects two standout features of the GCC economies: the highly capital-intensive nature of the oil sector and the preponderance of expatriate labor. Despite accounting for almost half of GDP, the oil sector employs less than 3 percent of the region's labor force. And the share of nationals in total employment ranges from about half in Saudi Arabia to less than 10 percent in Qatar. As a result, a large part of economic activity is effectively not directly related to employment of nationals.

GDP growth provides limited information on changes in employment. From Chapter 1 it is clear that levels of real non-oil GDP have over time tended to increase in line with aggregate employment. When looking at year-to-year growth rates, however, the correlations between output and employment in the GCC are relatively weak (Table 2.1). Even for non-oil GDP the correlations are not high in the GCC and they are generally much lower than in advanced economies. Moreover, given the role of expatriate labor in the GCC, these correlations could be overstating links to employment of nationals. Consequently, the objective of increasing employment of nationals in the GCC does not boil down to one of increasing non-oil GDP growth. As a case in point, an important and highly cyclical sector such as construction is almost entirely manned by foreign labor, and increasing activity there—for example by increased public investment—would likely have a minimal short-term impact on the number of jobs for nationals. More generally, it is uncertain to what extent an increase in aggregate labor demand would translate into jobs for expatriate workers or for locals. In addition, with government services accounting for more than one-third of non-oil GDP and with about one-third of nationals employed in the public sector, employment

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Table 2.1. GCC: Correlation between Annual Growth Rates of Employment and Real GDP, 1991–2010

Country	Total GDP	Non-oil GDP
	GCC countries	
Bahrain	0.16	0.36
Kuwait	0.19	0.60
Oman	0.67	0.56
Qatar	0.18	0.42
Saudi Arabia	0.16	–0.02
U.A.E.	–0.19	0.49
GCC average	0.19	0.40
	Other countries	
Norway	0.36	0.66
USA	0.88	...
Korea	0.90	...
Singapore	0.19	...
Indonesia	–0.04	...
Turkey	–0.29	...
Mexico	0.41	...
Average	0.34	...

Sources: IMF, World Economic Outlook database; and IMF staff calculations.

numbers in the GCC are heavily dependent on fiscal policy—particularly the level of current expenditure—and are not just a function of non-oil GDP. Indeed there is evidence to suggest that the causality runs from fiscal spending to non-oil GDP and employment rather than the other way around (Husain et al. 2007).

Welfare

The most direct measure of welfare would be the value of consumption in constant prices. Unfortunately, such data are generally not part of officially produced statistics in the GCC, which typically include a breakdown of GDP by expenditure only in current prices. Converting published nominal consumption values—comprised of both private and government use as well as domestic and imported components—into real terms is complicated by the difficulty in establishing the appropriate deflator.[4] Moreover, the type of

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[4] As price developments affecting government services differ from those affecting personal consumption expenditure, the relevant deflators will also differ. Moreover, although the consumer price index and the personal consumption expenditure deflators are conceptually close, they can differ because of differences in purpose, methodology, and coverage, as shown in Fixler and Jaditz (2002).

consumption matters, with tradable goods—which are typically imported—not easily substituted for domestically produced nontradables. In the next section we explore the dynamic behavior of consumption, its components, and its relationship with other macroeconomic variables in the GCC.

Import and Consumption Dynamics

Imports

Imports are a key driver of consumption dynamics, as a large part of GCC consumption is sourced from abroad. Total imports in these countries have during the past two decades averaged about 42 percent of GDP and 79 percent of consumption, the latter figure being significantly higher than typically observed elsewhere in the world (Table 2.2). Although part of imports is invested rather than consumed, the high ratio of imports to consumption makes clear that import and consumption dynamics are closely intertwined.

Imports are generally much more volatile than non-oil GDP in the GCC (Figure 2.1). Most of the countries have during the past two decades experienced several episodes of negative growth in import volumes. Non-oil GDP growth, in contrast, has almost always been positive—Oman being an exception with three years of negative non-oil GDP growth since 1990.

Table 2.2. GCC: Imports of Goods and Services, 1990–2010 Average

Country	Percent of GDP	Percent of Consumption
GCC countries		
Bahrain	67	125
Kuwait	29	53
Oman	41	76
Qatar	30	86
Saudi Arabia	31	56
U.A.E.	54	79
GCC average	42	79
Other countries		
Norway	29	45
USA	15	18
Korea	40	58
Singapore	187	361
Turkey	25	31
Mexico	29	38

Sources: IMF, World Economic Outlook database; and IMF staff calculations.

Figure 2.1. GCC: Growth Rates of Volume of Imports of Goods and Services and of Real Non-oil GDP, 1991–2010
(Percent)
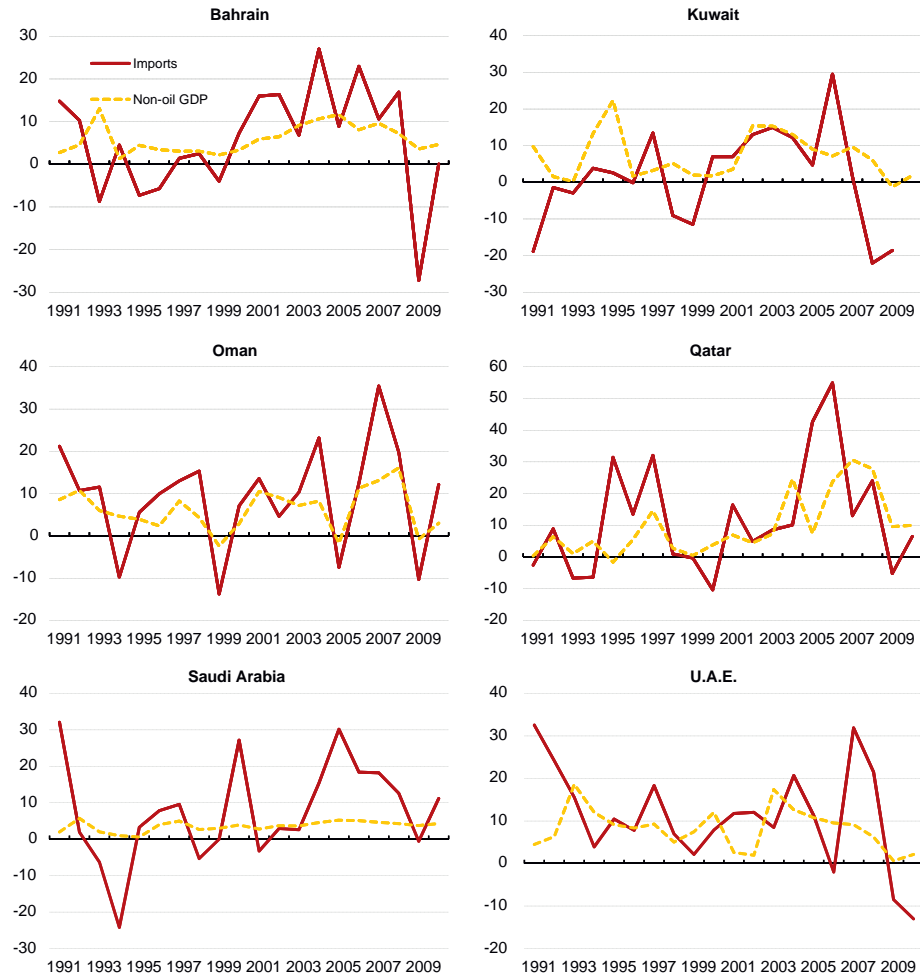
Source: IMF, World Economic Outlook database.

That trade is more volatile than output is true for most other countries as well, but this volatility has a relatively greater impact in the GCC given these countries' greater dependence on imports. Detailed import data for Saudi Arabia that exclude investment goods are not notably less volatile than total imports, implying high levels of volatility in consumption (Box 2.1).

Co-movement between imports and output in the GCC is also lower than in other countries (Table 2.3). The correlations in GCC countries have generally been around 0.5 or less, compared to often above 0.9 in the rest of the world.[5]

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[5] The negative correlation for Kuwait is a consequence of developments during the 1990–92 war; calculated over 1994–2010 the correlation is close to the GCC average.

Box. 2.1. Insights from Detailed Import Data for Saudi Arabia

Given that most tradable goods are imported, disaggregated import data reveal much about the behavior and volatility of different categories of consumption in the GCC. In particular, these data can help distinguish between durable and nondurable

goods and the extent that imports are associated with investment or consumption. Using time series available for Saudi Arabia, we divide imports into four categories (accounting on average for more than 93 percent of total merchandise imports): food, other nondurable consumption goods, intermediates, and durables—and we deflate each category by corresponding price indices in the World

Saudi Arabia: Growth Rates of Imports, 1992–2010
(Percent)

Sources: Country authorities.

Economic Outlook Global Assumptions dataset. The results show that the volume of imported consumption goods has exhibited frequent declines and a degree of volatility almost on par with that of intermediates and durables—goods that are more closely associated with production and investment. The four categories of imports showed mostly synchronous declines in 1993–94, 1998, and 2009—years when oil prices fell. Among these episodes, it was only in 2009 that nondurable consumption imports did not fall as much as intermediates and durables, suggesting that the large fiscal stimulus in that year was successful in supporting consumer demand but that private sector investment declined sharply nonetheless.

Indeed, only Oman, with a correlation between imports and non-oil GDP of 0.76, comes close to the typical level, perhaps reflecting that its oil resources are smaller than those of most other GCC countries.

Consumption

Movements in real consumption are in this section evaluated by deflating the nominal consumption series with the domestic consumer price index. This measures the purchasing power of consumption expenditure as if it had

Table 2.3. GCC: Correlation Between Annual Growth Rates of Import Volumes and GDP, 1991–2010

Country	Total GDP	Non-oil GDP
	GCC countries	
Bahrain	0.09	0.31
Kuwait	−0.62	0.32
Oman	0.54	0.76
Qatar	0.45	0.43
Saudi Arabia	0.64	0.49
U.A.E.	0.10	0.20
GCC average	0.20	0.42
	Other countries	
Norway	0.62	0.88
USA	0.95	...
Korea	0.91	...
Singapore	0.75	...
Turkey	0.91	...
Mexico	0.95	...

Sources: IMF, World Economic Outlook database; and IMF staff calculations.

Table 2.4. GCC: Annual Growth Rates of Real GDP, Imports, and Consumption, 1991–2010

(Percent)

Country	Total GDP		Non-oil GDP		Imports		Consumption	
	Mean	Std-dev	Mean	Std-dev	Mean	Std-dev	Mean	Std-dev
Bahrain	5.3	2.7	5.9	3.4	5.7	12.5	4.1	4.0
Kuwait	5.6	17.0	7.0	6.3	7.5	30.5	5.0	5.9
Oman	4.5	3.0	6.3	5.0	9.2	12.2	5.4	5.9
Qatar	10.5	8.9	9.5	9.6	11.8	17.5	11.0	20.9
Saudi Arabia	3.0	2.7	3.6	1.4	7.7	13.6	3.9	5.3
U.A.E.	5.3	4.7	8.3	4.9	11.2	11.8	5.7	5.9
GCC average	5.7	6.5	6.8	5.1	8.9	16.4	5.8	8.0

Sources: IMF, World Economic Outlook database; and IMF staff calculations.
Note: GDP measured in constant prices, imports of good, and services in volume, and consumption is the nominal value deflated by domestic CPI.

all been spent in accordance with the weights in the CPI basket.[6] Although the consumption series estimated in this way are only an approximation, the results in Table 2.4 provide strong indication that real consumption

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[6] As a robustness check, nominal consumption series were also deflated with U.S. consumer prices to reflect the real purchasing power of consumption expenditure if it had been spent abroad. For the GCC countries, the two deflators produce similar correlations with non-oil GDP, reflecting the countries' exchange rate pegs to the U.S. dollar and the relatively high correlation between their CPI and that of the United States.

**Figure 2.2. GCC: Growth Rates of Consumption Deflated by Domestic CPI
and of Real Non-oil GDP, 1991–2010**

(Percent)
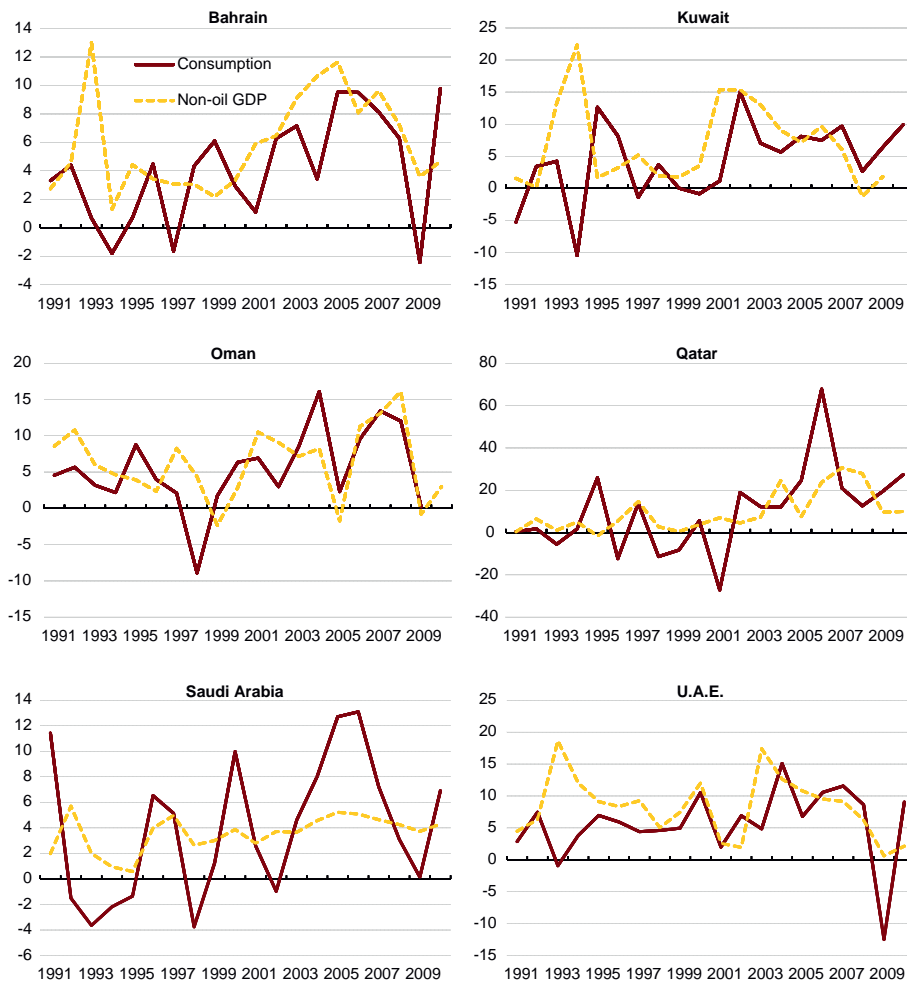
Source: IMF, World Economic Outlook database.

values in the GCC have mostly been considerably more volatile than non-oil GDP. This stands in contrast to the situation in advanced economies where consumption is generally found to be more stable than output (Aguiar and Gopinath, 2007). With Figure 2.2 showing a pattern that is very similar to that for import growth in Figure 2.1, it is clear that the large swings in import volumes in the GCC have not just affected imports of investment goods but have also been associated with large swings in the real value of consumption. Accordingly, a focus solely on developments in non-oil GDP would lead to an underestimation of changes in economic well-being in these countries.

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Tradable versus nontradable goods

The movements in total consumption examined in the previous section do not fully capture movements in welfare.[7] Firstly, from a welfare point of view, the concern would mainly be about consumption per capita, so one has also to take population growth into account. Secondly, if declines in consumption are associated with changes in composition, then economic well-being could well be more negatively affected than the aggregate numbers would suggest. For example, if a necessity good such as food experiences a decline while the consumption of a nontradable such as local transportation increases, then the fact that overall consumption continues to increase does not rule out a decline in welfare. More generally, when goods are imperfect substitutes, the composition of consumption becomes important for welfare analysis.

The distinction between different types of goods is especially important in the GCC, as some categories of consumption are likely to be considerably more volatile than others. Given the considerable overlap, movements in the volume of consumption of nontradables are likely to closely follow those in non-oil GDP. Consumption of tradables, in contrast, is mostly imported and will therefore tend to display a higher volatility in accordance with the findings above. As a result, it is possible that declines in aggregate consumption mask even larger declines in welfare.

In order to make operational the distinction between nontradable and tradable goods, we apply the simplifying assumptions that all of the former (which we denote by C_N) are consumed domestically and that all of the latter (which we denote by C_T) are imported with all investment goods also imported.[8] From the GDP accounting identity (where Y is output, C is consumption, I is investment, X is exports, and M is imports), we have:

$$Y = C + I + X - M.$$

From our simplifying assumptions we get that $C_T + I = M$. Consequently, using the accounting identity, we get:

$$C_N = Y - X, \text{ and}$$
$$C_T = C - C_N$$

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[7] This section applies an idea developed in Cherif and Hasanov (2011).

[8] These assumptions are, of course, only an approximation as GCC countries do also consume some domestically produced tradable goods and part of investment inputs will also be locally sourced. The magnitude of such trade is likely to be relatively small, however.

Accordingly, we calculate the real value of consumption of nontradable goods by subtracting the nominal value of exports from the nominal value of total GDP and then deflate the result by domestic consumer prices. Consumption of tradable goods can then be calculated as a residual.

Making the further assumption that utility is a Cobb-Douglas function of the two types of consumption (nontradable and tradable), we can calculate the change in utility from per capita consumption (denoted by c_N and c_T).[9] That is, we assume that utility is given by

$$U = \left(c_N\right)^{\alpha}\left(c_T\right)^{1-\alpha},$$

where α is the share of non-tradable goods in total consumption expenditure and c_N and c_T are calculated by dividing the aggregate consumption values with total population. Accordingly, we can infer that the welfare gain, denoted by λ, is given by the following formula:

$$(1 + \lambda) = \left(1 + g_N\right)^{\alpha}\left(1 + g_T\right)^{1-\alpha},$$

where g_N and g_T are the growth rates of nontradable and tradable goods consumption. The variable λ represents a growth rate of consumption that would lead to an equivalent change in utility. A positive λ would indicate a welfare gain while a negative would indicate a loss. Figure 2.3 shows the evolution of the welfare gains/losses calculated in this way, and we see that it, like aggregate consumption, has also been more volatile than non-oil GDP. Again, 2009 stands out as a year where most of the GCC countries experienced substantial declines in welfare as measured here (Box 2.2).

Choosing the Right Indicator

The previous sections have shown that GDP can be a poor measure of welfare in the GCC. GDP—whether total or non-oil—in these countries is only weakly linked to variables such as employment and consumption that are central to economic well-being. Consequently, using GDP as the sole metric for evaluating economic progress can lead to highly misleading conclusions. A stark example of this is that several of the GCC countries were much

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[9] The Cobb-Douglas form implies that the two types of goods are neither substitutes nor complements. To the extent that tradable and nontradable goods are actually complements—which is arguably the case—and that one falls more than the other, then this functional form implies an underestimation of the actual decline in utility. Indeed, if the two types of goods are perfect complements, the change in utility would be determined entirely by the good experiencing the largest decline.

Figure 2.3. GCC: Growth Rates of Welfare and of Real Non-oil GDP, 1991–2010

(Percent)
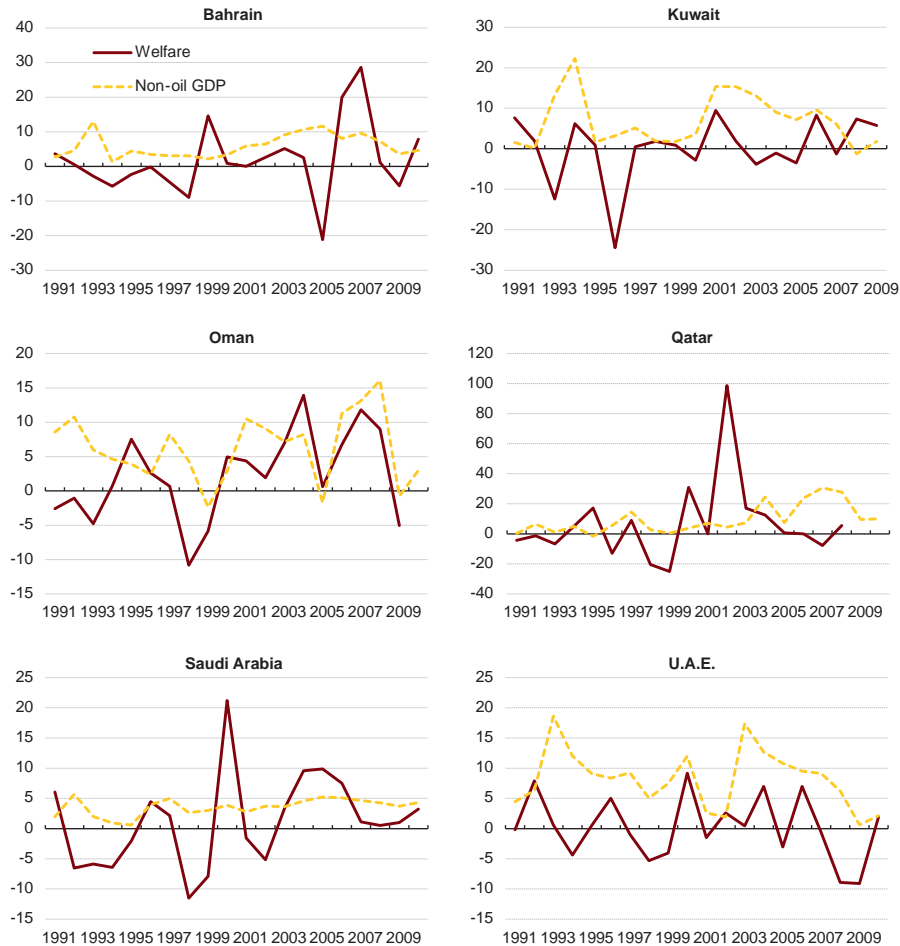
Sources: IMF, World Economic Outlook database; and IMF staff calculations.

harder hit by the downturn in the global economy in 2009 than their mostly robust rates of growth in non-oil GDP would suggest.

One implication of these findings is that policymakers should carefully tailor indicators of progress to individual policy objectives. Given that GDP, employment, and consumption are only weakly related, meeting a target for higher GDP provides little assurance that it will be associated with the expected benefits. Instead of using a single summary indicator of overall progress, policymakers will be better served by looking at separate indicators, depending on the particular objective at hand, be it job creation or boosting living standards. For employment objectives, the number of jobs created, in which sectors, and at what qualifications should be the principal indicators. And for

Box. 2.2. The 2009 Global Downturn

While non-oil GDP generally held up well in 2009, other indicators discussed in this chapter point to sizeable declines in economic well-being in several GCC countries during the global financial crisis. Along with the decline in income resulting from

the drop in oil prices, all six GCC countries experienced a decline in the estimated volume of imports, with growth rates ranging from –0.5 percent in Saudi Arabia to –27 percent in Bahrain, the latter partly driven by a lower price of oil imports used in the refining industry. Bahrain and the United Arab Emirates also experienced sizeable reductions in aggregate real consumption, while Bahrain, Oman, and the

GCC: Annual Growth Rates of Non-oil GDP, Imports, Consumption, and Welfare, 2009

(Percent)
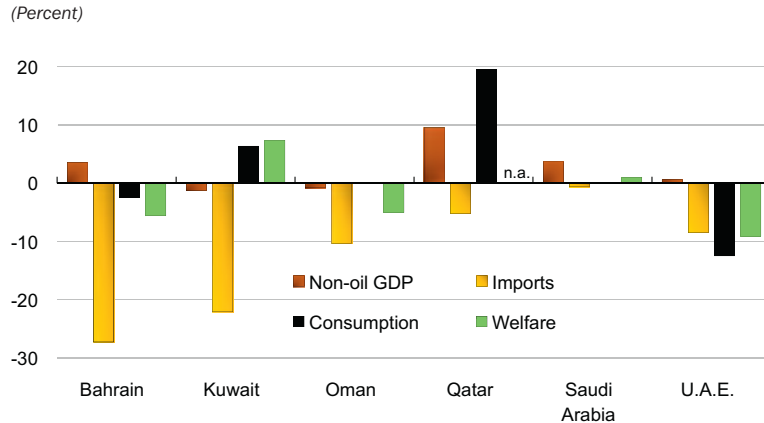
Sources: IMF, World Economic Outlook database; and staff calculations.
Note: GDP measured in constant prices, imports of good and services in volume, consumption is the nominal value deflated by domestic CPI, and utility is as defined in this chapter. The welfare change for Qatar is not reported due to missing data.

United Arab Emirates recorded declines in the applied measure of welfare. Although many of these numbers are subject to measurement error—particularly the estimates of imports in volume terms and real consumption—these figures provide strong indication of several instances of sizeable losses in overall economic well-being in 2009 that stand in stark contrast with the mostly positive growth rates in non-oil GDP.

living standards one would want to look at the volume, type, and composition of consumption.

In evaluating the usefulness of GDP as an overall indicator of progress it is important to note that it may not only be weakly linked with particular welfare objectives but can potentially point in the wrong direction. For example, it may well be that achieving higher employment of nationals in the GCC will require sacrificing some economic growth over the medium term. Similarly, to the extent that it is possible to reduce consumption volatility in the GCC this is something that would be worth pursuing, even if it involves some loss in output.

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3   Fiscal Policy Issues in GCC Countries[1]

Fiscal policy plays a key role in the GCC in converting revenues from exploitation of the region's natural resource wealth into expenditure decisions that shape social and economic outcomes for both current and future generations. The volatility of oil prices—and the persistence of oil price shocks—creates an unusual degree of uncertainty in government revenues that has produced large swings in fiscal balances, with prolonged periods of both surplus and deficit. Spending levels have generally followed oil prices—increasing on the upswing and decreasing as prices fell—but have typically been adjusted by less than the full amount of the change in revenues. The policy response to the global financial crisis was somewhat of a watershed, with many countries implementing fiscal expansions despite falling revenues. After reviewing past fiscal policy implementation, two key issues for strengthening future policy implementation are considered—possible anchors for fiscal policy over the medium term, and the role of fiscal multipliers and automatic stabilizers in adjusting the fiscal stance in response to short-term fluctuations in the non-hydrocarbon economy.

Introduction

Fiscal policy is the key policy instrument in GCC countries, balancing stabilization, development, and intergenerational objectives. The *stabilization role* of fiscal policy is to smooth the impact of economic fluctuations caused by domestic and external shocks (e.g., oil price movements) through the timing of taxation and spending decisions. The *developmental role* is of importance because the budget channels large hydrocarbon-related revenues into the economy with the aim of improving welfare.[2] Finally the

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[1] Prepared by Pedro Rodriguez.

[2] Notice that the developmental role is presented in this chapter in a broad sense, and should not be interpreted as equivalent to, or implying, activist industrial policies. Furthermore, it is important to highlight that the importance of the developmental role is also related to the fact that the private sector has so far been nascent, and that the active domestic labor force is experiencing shortages of the skills needed to contribute to raising productivity (see Chapter 1).

intergenerational aspect reflects the fact that the hydrocarbon reserves, while plentiful in many countries, are depletable; decisions to extract the resource and spend the proceeds—or alternatively the decision not to tax certain activities—represents the use of resources that would otherwise have been available to future generations.

The various objectives of fiscal policy raise differing, and potentially conflicting, policy decisions. While the stabilization role is primarily driven by short-term considerations, and is implemented via automatic stabilizers[3] and/or discretionary decisions, the developmental role is usually associated with medium- and long-term objectives, thus providing an anchor for the government's budget. With these three roles of fiscal policy in mind, in the rest of this chapter we study the challenges of fiscal policy in the GCC, how its implementation has been shaped by these challenges, and discuss issues important for the design of fiscal policy in future.

The Two Key Challenges for Fiscal Policy in the GCC

How much of the hydrocarbon revenues should be spent, saved, and invested? This is a key decision, particularly from a medium- and long-term perspective, given that the large share of hydrocarbons in fiscal revenues, their exhaustibility, and their price volatility (Figure 3.1) suggest that part of the hydrocarbon revenues need to be saved either for expenditure smoothing or for intergenerational equity considerations.[4,5] The magnitude of these oil price swings should not be understated, as they imply, on a per capita basis, enormous fluctuations in income (Table 3.1).

How should fiscal policy react to the fluctuations in domestic economic activity in a context in which non-hydrocarbon sectors are small and measures of economic activity are not necessarily correlated with measures of employment due to a highly elastic supply of labor?[6] A traditional approach of imputing

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[3] Automatic stabilizers have basically been absent in GCC countries' fiscal toolkit, so discretionary policies have traditionally been more important in the implementation of fiscal policy.

[4] It should be noted that the notion of hydrocarbon reserves being exhaustible is not so clear for several GCC countries, as proven reserves are very large (close to a century) and possible new discoveries, together with advances in oil extraction technologies, create a great deal of uncertainty as to the ultimate size of exploitable reserves.

[5] Hamilton (2008) analyses quarterly oil price data for the period 1970–2008 and argues that the statistical properties of the series are consistent with the claim that the real price of oil seems to follow a random walk without a drift, and that to predict oil prices it would not be naïve to offer the current price as the forecast. In addition, he cautions that big forecast errors can occur under a random walk process, particularly given the variability of oil prices: 'Four years from 2008:Q1, we may have still "expected" the price of oil to be at $115 a barrel, though we would in fact not be all that surprised if it turned out to be as low as $34 or as high as 391!'

[6] See Chapter 2, which discusses issues related to the measurement of GDP and welfare in the GCC.

Figure 3.1. Real Oil Prices, 1970–2010

(2005 U.S. dollars)
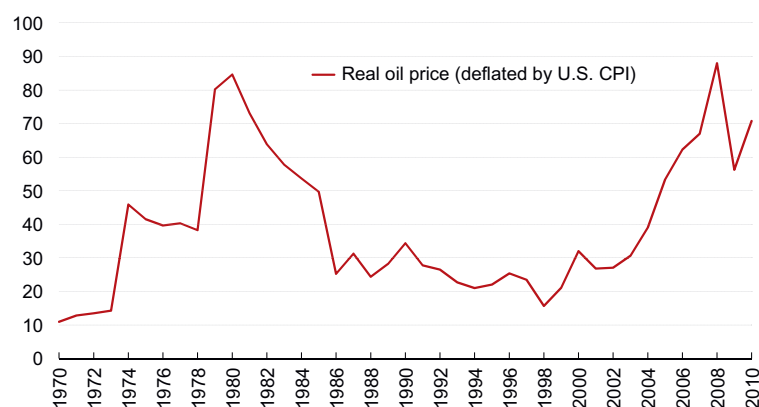
Sources: IMF World Economic Outlook; and IMF staff calculations.

Table 3.1. GCC: Exports' Sensitivity to Oil Prices, 2010

	Oil exports (US$ billions) (2010)	Oil exports per capita (US$ thousands) (2010)	$10 Change in Oil Price	
			Change in oil exports (US$ billions)	Change in oil exports per capita (US$ thousands)
Bahrain[1]	5.4	4.9	0.7	0.6
Kuwait	59.1	16.4	7.5	2.1
Oman	23.9	8.0	3.0	1.0
Qatar	61.0	35.9	7.7	4.5
Saudi Arabia	205.4	7.9	26.0	1.0
U.A.E.	77.5	15.3	9.8	1.9

Sources: Country authorities; and IMF staff estimates.
[1]Net of oil imports for refining.

an output gap and then adjusting fiscal policy in response to the magnitude of such a gap loses part of its meaning given that potential output changes as new mobile factors of production are added to, or subtracted from, the economy.

Implementation of Fiscal Policy—A Retrospective, 1980–2010

Data on fiscal outcomes covering the past 30 years suggest that fiscal policy has responded to the challenge of how much to spend, save, and invest, with short-term stabilization objectives playing a secondary role. As illustrated below, there is a high positive correlation between hydrocarbon revenues and expenditures, that is, the level of fiscal expenditure has tended to increase (or decrease) as hydrocarbon revenues increased (or decreased). However,

changes in overall fiscal balances have generally been less than changes to revenues, which suggests that fiscal policy has acted so as to save part of revenue windfalls and to smooth expenditures when revenues decline. Fiscal stances have generally followed the change in non-hydrocarbon economic activity—partly a reflection of the importance (directly and indirectly) of the government sector in non-hydrocarbon activity—although this pattern was reversed in many countries during the recent crisis, when fiscal spending increased in most countries despite falling hydrocarbon revenues.

Fiscal policy and hydrocarbon revenues

The trajectory of hydrocarbon revenues and the non-hydrocarbon primary deficit exhibit positive correlation (Figure 3.2). The non-hydrocarbon primary deficit measures the magnitude of hydrocarbon resources that the government channels into the economy. The high and positive correlation between hydrocarbon revenues and government expenditures (Figure 3.3) in part reflects the historically very low levels of taxation of the nonhydrocarbon sector. Nevertheless, some key features of fiscal policy management in the GCC can be derived from comparing the paths of hydrocarbon revenues and the non-hydrocarbon primary deficit:

- First, the path of the deficit is flatter than the path of the revenues, indicating that governments have been saving a fraction of these revenues.

- Second, the volatility of the deficit is much lower than the volatility of revenues—the standard deviation of the growth in the former being just 30–55 percent the standard deviation of the latter (Figure 3.4).

These two features of the management of hydrocarbon revenues are reflected in the net accumulation of financial assets. Perhaps with the exception of Kuwait and the United Arab Emirates, the accumulation of financial assets was relatively modest during the period of low hydrocarbon revenues—two countries even accumulated large fiscal deficits over that period (Figure 3.5, Figure 3.6). As hydrocarbon revenues picked up, particularly after 2004, financial assets were accumulated (or liabilities were reduced), but this trend was reversed by the 2009 dip in oil prices.

This pattern is likely to have held in previous oil price cycles (e.g., in the 1970s). Data from 1969 for Saudi Arabia for example show the accumulation of surpluses during the high oil price phase of the late 1970s and early 1980s—despite increased spending levels—followed by almost two decades of fiscal deficits as the oil price remained low.[7] Movements in cumulated

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[7] Charts for the other GCC countries are not shown due to lack of data for the pre-1980 period.

Figure 3.2. GCC: Government Hydrocarbon Revenues and Non-hydrocarbon Primary Deficit, 1980–2010
(Real US$ billions)
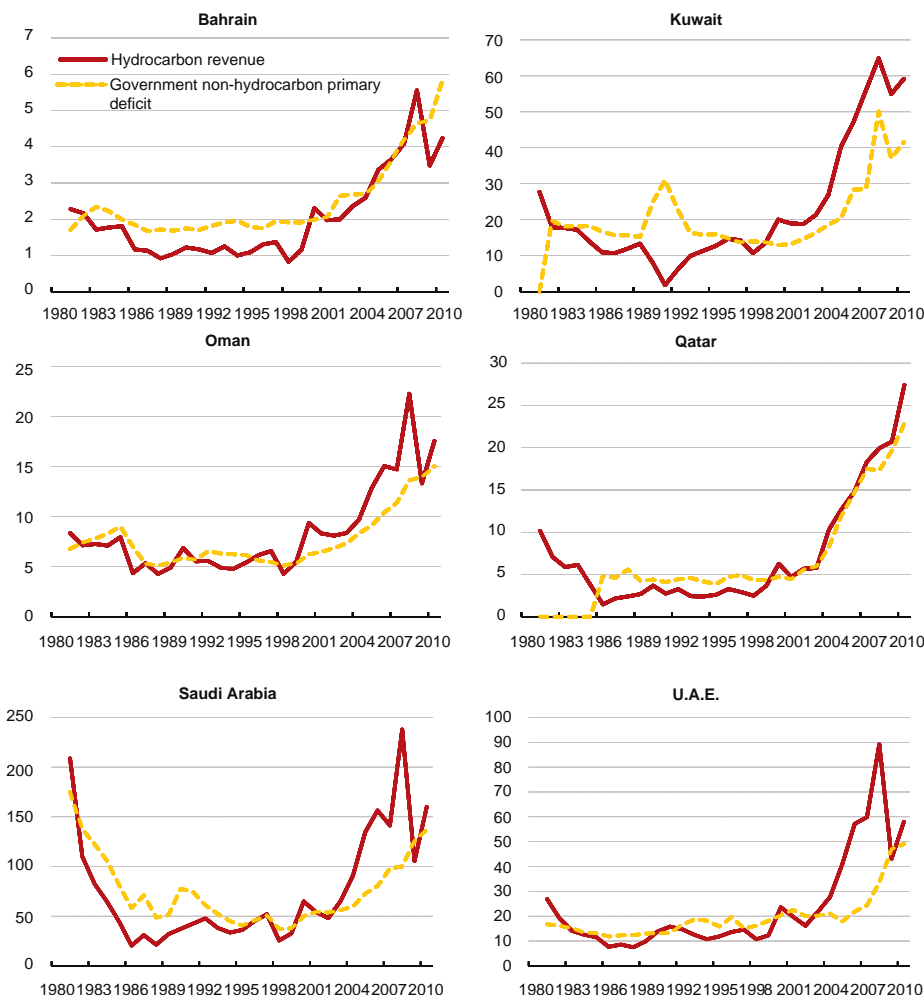
Sources: Country authorities; and IMF staff estimates and projections.
Note: Real data calculated deflating by U.S. CPI, with base year 2005.

fiscal savings probably reflect governments' intention to save part of the hydrocarbon windfalls both for their use during periods of low hydrocarbon prices and for future generations. But it also probably reflects relative downward rigidity of expenditures, which may be difficult to cut even as oil prices decline significantly. An indication of this may be the protracted period of decline in assets (or even accumulation of liabilities) that took place in several of the countries starting in the mid 1980s—in particular, given the difficulty in predicting oil prices, it is unlikely that such a pattern resulted solely from the expectation that hydrocarbon prices would increase in the future. It is likely to have reflected expenditure rigidities.

Figure 3.3. GCC: Government Hydrocarbon Revenues and Total Expenditure, 1980–2010

(Real US$ billions)
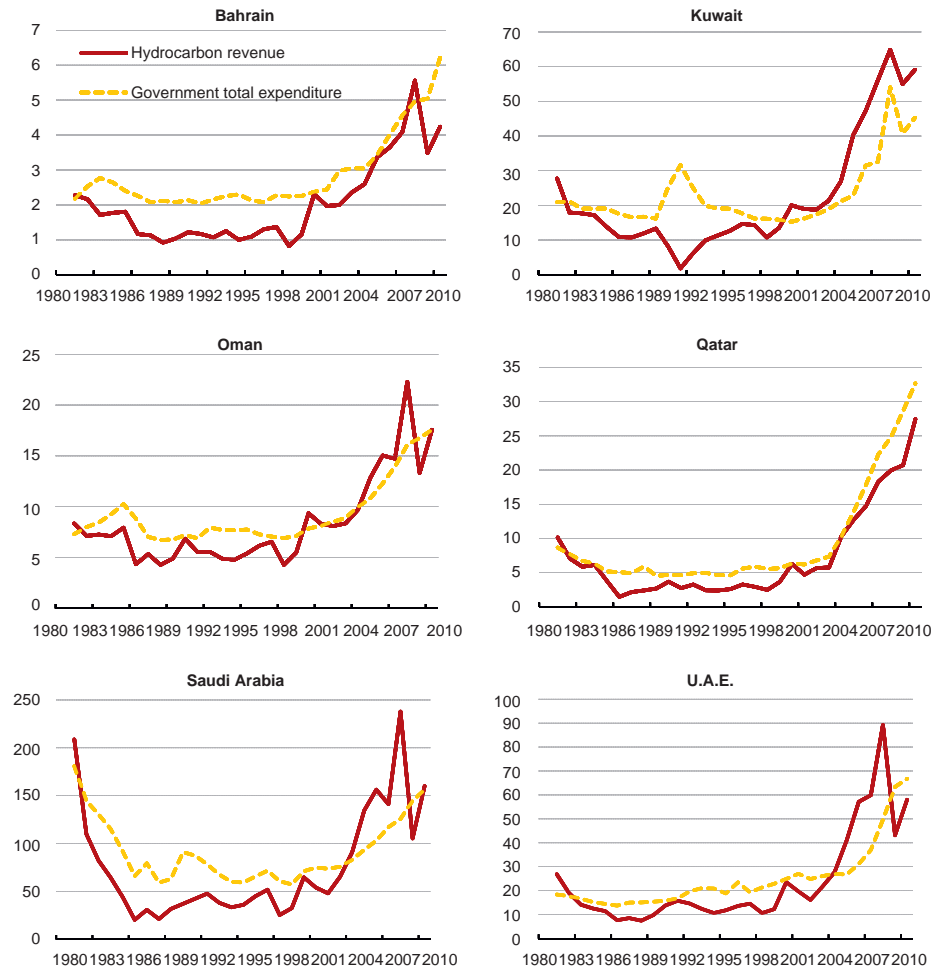
Sources: Country authorities; and IMF staff estimates and projections.
Note: Real data calculated deflating by U.S. CPI, with base year 2005.

Overall, the qualitative response of fiscal policy to fluctuations in hydrocarbon revenues has been broadly consistent with the statistical properties of oil price shocks. If real oil prices follow a behavior similar to a random walk without drift, then shocks to oil prices are mostly permanent, which would justify increasing (reducing) expenditures—and the non-oil primary deficit—when oil prices increase (decline). Assessing the quantitative response is more complicated, and we return to this issue in the following section.

Fiscal policy and domestic economic activity

The stabilization role of fiscal policy in the GCC can be examined via simple time series plots of the fiscal impulse—defined here simply as the rate of

**Figure 3.4. GCC: Volatility of Government Hydrocarbon Revenues and
of Government Non-hydrocarbon Primary Deficit, 1980–2010**

(Percent)
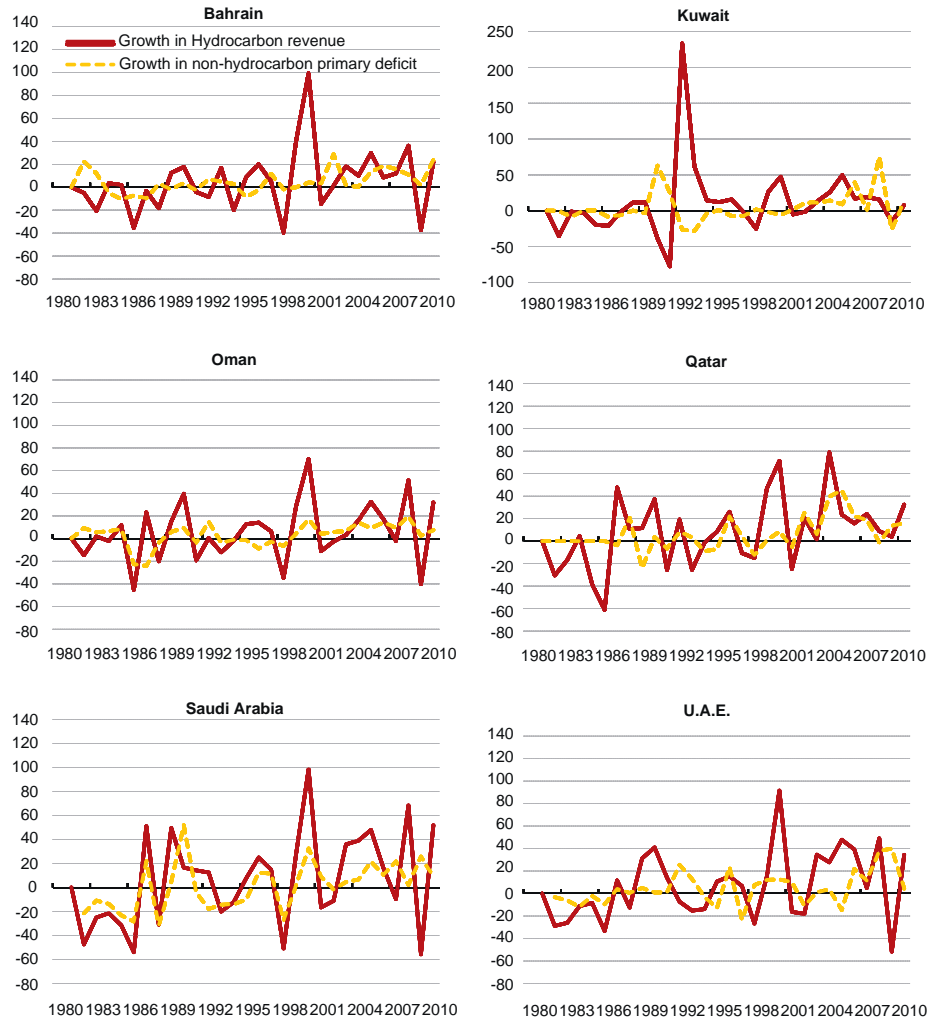
Sources: Country authorities; and IMF staff estimates and projections.
Note: As described in Figure 3.1, the source variables are measured in constant U.S. dollars, and 2005 is the
base year for the U.S. CPI.

growth in real government primary expenditures—with non-hydrocarbon
GDP growth (Figure 3.7).[8] The positive correlations between the fiscal
impulse and the growth in non-hydrocarbon output suggests that the fiscal
impulse has generally been in the same direction as growth, with growth
increasing when fiscal policy becomes more expansionary and vice versa.
A correlation of course does not imply causality, and the positive correlation

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[8] The conventional approach of measuring domestic business cycles through the output gap of the non-
hydrocarbon GDP and using the output gap to calculate the cyclicality of fiscal policy (through the cyclically
adjusted non-hydrocarbon primary deficit) generates a similar result of a generally positive correlation between
the fiscal impulse and the output gap. See Abdih and others, 2010, for a description of that approach.

Figure 3.5. GCC: Government Hydrocarbon Revenues and Cumulated Fiscal Balances, 1980–2010

(Real US$ billions)
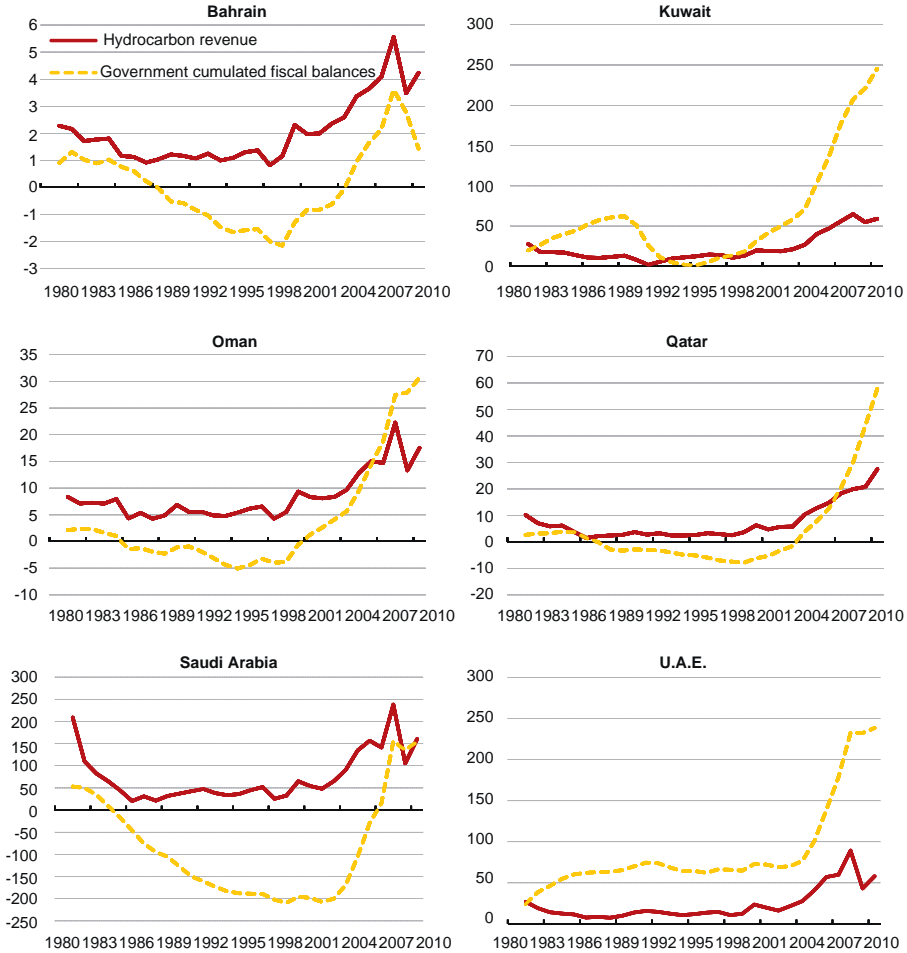
Sources: Country authorities; and IMF staff estimates and projections.
Note: Real data calculated deflating by U.S. CPI, with base year 2005.

in part reflects the strong linkages between fiscal expenditure and non-oil GDP (see section on fiscal multipliers below, and Husain et al, 2008) rather than an adjustment of the underlying fiscal stance to movements in non-hydrocarbon GDP. The policy response to the 2009 crisis was somewhat different, with only Kuwait and Oman having a reduction in the fiscal impulse as output slowed, and the other countries increasing the fiscal impulse despite the economy slowing (and oil prices falling).

Responding to shocks: the Great Recession versus the Asian Crisis

Comparing the fiscal response to the global financial crisis—labeled by many as the Great Recession—and to the Asian Crisis offers interesting insights

Figure 3.6. Saudi Arabia: Government Hydrocarbon Revenues, Expenditure, and Fiscal Balance, 1970–2009
(Billions of Saudi Riyals)
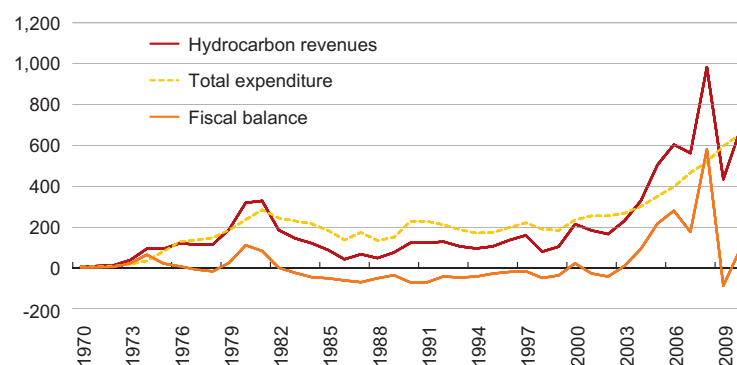
Sources: Country authorities.

into how GCC countries have managed fiscal policy under highly uncertain conditions. Both the Asian Crisis and the Great Recession produced large declines in oil prices—more specifically, average oil prices declined 32 and 36 percent in 1998 and 2009, respectively, vis-à-vis the previous years. But while the oil price shocks were relatively similar, the fiscal policy responses to these two crises were quite different: on the one hand, the fiscal impulse in 1998 was essentially zero or negative in four out of the six countries; on the other hand, five out of the six countries had positive fiscal impulses in 2009, and only Kuwait and Oman had lower fiscal impulses in 2009 than in 1998 (Figure 3.8).[9] These differing policy responses were likely due to different fiscal positions at the beginning of each crisis. The Asian crisis took place after a protracted period of low oil prices, while the Great Recession took place after several years of high oil prices which had provided an opportunity for countries to build up substantial policy buffers. In addition, domestic financial and real estate sectors were hit hard during the Great Recession, which may have compelled GCC governments to support their economies more than they had at the time of the Asian crisis.

Fiscal Policy Design in the GCC—Considerations

How can GCC countries improve their fiscal policy management in the future, in particular in terms of attaining the above development and stabilization objectives? Here we focus on two policy decisions: (i) *how much* hydrocarbon resources should be channeled into the economy and whether the *form* they take matters; and (ii) the impact of fiscal policy on the

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[9] Furthermore, governments' support to the economy was in some cases larger than suggested by the fiscal impulse—e.g., in Kuwait, where the country's Sovereign Wealth Fund also provided support.

Figure 3.7. GCC: Fiscal Impulse and Real Non-oil GDP Growth, 1990–2010
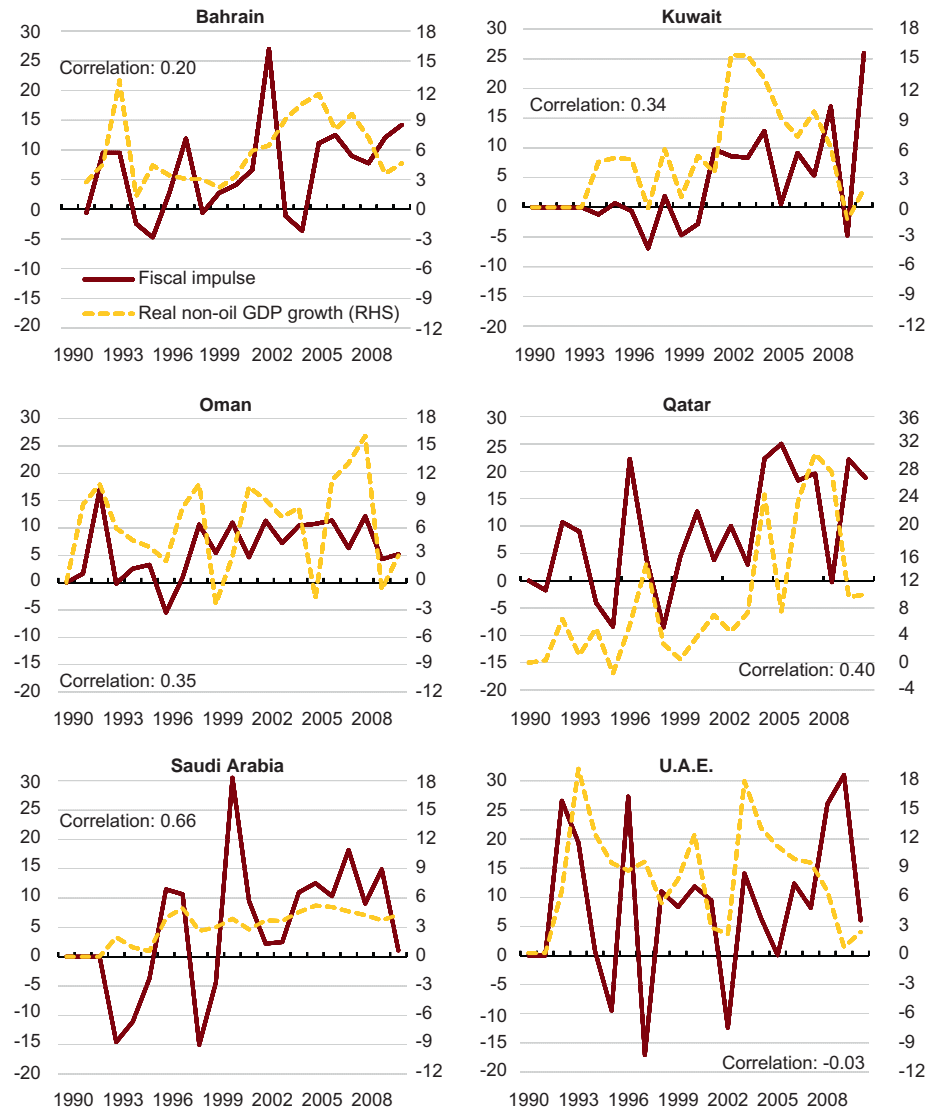
Sources: Country authorities; and IMF staff estimates and projections.
Note: The fiscal impulse is defined as the annual growth in real (i.e., deflated by nonhydrocarbon GDP deflator) government primary expenditure.
Note: Data for Kuwait were adjusted to exclude government transfers to the social security fund and subsidies (mainly oil-related).

non-hydrocarbon economy. We relate the first of these two points to possible anchors for fiscal policy stemming from the permanent income hypothesis and the precautionary savings motive, and the second to the role of fiscal multipliers and automatic stabilizers. Other considerations—the efficiency of public spending or fiscal rules to contain discretion in spending decisions for example—are of course also important for the ultimate impact of fiscal policy on welfare.

Figure 3.8. GCC: Fiscal Impulse; 1998, 2009
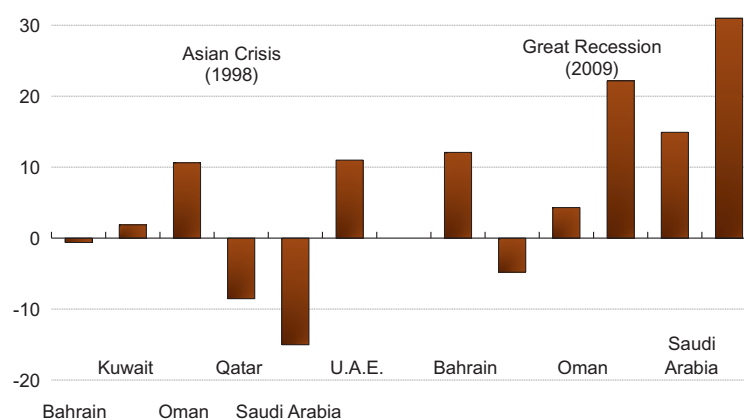
Source: IMF staff calculations.

Channeling hydrocarbon resources into the economy—level and composition

A building block—the permanent income hypothesis. A starting point for assessing the level of expenditure of hydrocarbon revenues can be derived from an application of the permanent income hypothesis (PIH) (Barnett and Ossowski, 2002; and Ossowski et al. 2008). By this benchmark, countries save a fraction of the hydrocarbon revenues every period in order to accumulate financial wealth and generate a future income stream that guarantees a path for government expenditure that is both stable and equitable across generations. Recently, van der Ploeg (2011) has explored how some country-specific considerations—scarcity of physical capital, institutional factors, and households' liquidity constraints—may modify the implications of the PIH benchmark.

The PIH model has been applied widely in both GCC countries and elsewhere. Overall, recent applications of this benchmark to GCC countries suggest there is (i) room for fiscal expansion in Qatar (IMF 2011a); (ii) room for fiscal expansion in Kuwait in the short term but the need for fiscal consolidation in the medium term (IMF 2011b); and (ii) a deficit beyond long-term sustainable levels in Saudi Arabia (IMF 2011c), and the United Arab Emirates (Cevik, 2011).[10] While these results are quite sensitive to difficult-to-predict parameters such as the future path of oil prices, real rate of return of financial assets, and population growth, they nonetheless provide useful benchmarks, and can be combined with sensitivity tests to increase the robustness of the assessments.

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[10] Fiscal expansion (consolidation) above is defined as an increase (decrease) in the non-hydrocarbon primary deficit. For an application to Norway see Jafarov and Leigh (2007).

Incorporating the impact of uncertainty—precautionary savings.
The benchmarks derived from the PIH are useful, but do not take into
account the uncertainty associated with volatile hydrocarbon revenues.
Such volatility provides an incentive for governments to accumulate an
extra buffer of financial resources beyond what would be suggested by the
PIH—the precautionary motive for savings. But it is difficult to compute
benchmarks for saving rules that take into account this precautionary savings
consideration; and, perhaps more importantly, the computation of saving
rules requires assumptions about each government's risk aversion.

Bems and Carvalho Filho (2009) tackle the precautionary saving motive for
exporters of exhaustible resources in the context of equilibrium current
account estimations. While such a setting is different from the purely fiscal
context discussed in this chapter, it is nonetheless useful for GCC countries,
given that both external and fiscal receipts largely come from exports of oil or
gas. Using end-2006 data, the authors find an optimal precautionary savings
of around 3 percent of GDP for the average of countries in their sample.
For the GCC countries in particular, the figures were: 5.6 percent of GDP
for Kuwait, 2.5 and 2.4 for Saudi Arabia and the United Arab Emirates, and
25.7 percent of GDP for Qatar.[11]

Overall, these results suggest the need for lower non-hydrocarbon primary
deficits than those derived from the PIH, but, importantly, they do not
significantly change the quantitative assessments obtained using the PIH. The
results also show that assessments in cases such as Qatar in 2006 need to be
taken with care, given that precautionary savings may be large.

**Does the form of expenditure matter?—the role of government
investment.** An important element not captured in the traditional
benchmarks mentioned above is the role of government investment. If
governmental domestic investment spending generates future returns, this
could alter the calculation of the PIH non-hydrocarbon deficit benchmarks,
resulting in higher non-hydrocarbon primary deficits (relative to those implied
by the PIH) given that the larger capital stock may benefit future generations
(being a form of saving). As Cherif and Hasanov (2011) put it, "there is a
trade-off between investment and buffer-stock saving." Furthermore, as
discussed in van der Ploeg (2011), in capital-scarce economies it may be
optimal to direct part of the savings to public and private capital, rather than
to foreign assets. In principle, the notion of government investment could

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[11] The result for Qatar reflects the expectation in 2006 of a very large increase in hydrocarbon revenues, which
under the PIH implied that the country should be consuming against that future income (and so running a
low current account surplus). But since the large increase was in the future, the precautionary savings motive
indicated that consumption against those revenues should be more moderate.

also apply to investments in human capital, as those could also generate future returns to the economy and the government.

However, quantifying the effect of government investment on the PIH benchmarks is not an easy task, especially given the uncertainty about the future return on investment. Furthermore, it is also difficult to measure what fraction of those investments represent actual additions to a country's capital stock, and what fraction represents just replacement of existing capital stock (e.g., due to obsolescence or depletion). These issues may be particularly important for those countries with larger capital expenditure in their budgets—Oman, Qatar, and Saudi Arabia (Figure 3.9). In this context, improving fiscal statistics would significantly help keep account of the implications of capital expenditure on future generations and, more narrowly, for the calculations of the PIH.[12]

Figure 3.9. GCC: Capital Expenditure to Non-hydrocarbon GDP, 1980–2010
(Percent)

Sources: Country authorities.
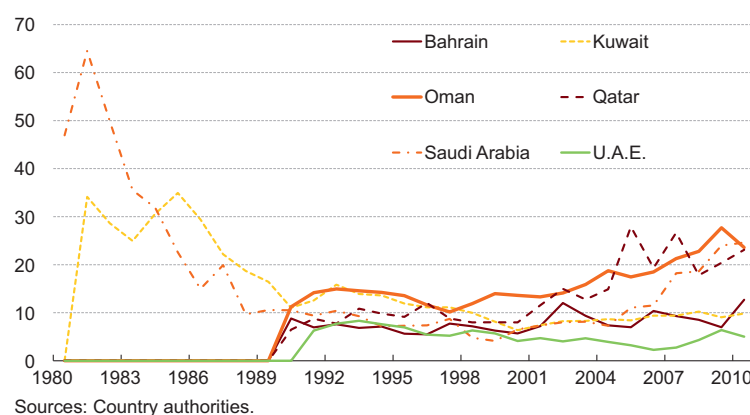
The impact of fiscal policy on the non-hydrocarbon economy—fiscal multipliers and automatic stabilizers

Assessing the extent to which fiscal policy can stabilize domestic economic fluctuations—or alternatively destabilize the economy for example by inducing overheating through too rapid an expansion of public spending in the face of absorption constraints—requires estimates of the dynamic response of the non-hydrocarbon GDP to fiscal policy changes. Indeed, in the context of the Great Recession, there has been a renewed interest in this subject—otherwise known as fiscal multipliers. Fiscal multipliers measure how

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[12] In particular, the IMF's Government Finance Statistics Manual 2001 introduces a set of tables that help keep track of the full government balance sheet, including financial and fixed capital. Furthermore, it incorporates the consumption of fixed capital in the calculation of the fiscal balance, in order to reconcile the trajectory of the stocks (i.e., the stock of financial and fixed assets) with the trajectory of the flows (i.e., the fiscal balances).

a country's GDP changes as the government changes taxes or expenditures. Overall, the recent literature has found that fiscal multipliers vary substantially according to country characteristics (Spilimbergo and others, 2009, and Ilzetzki and others, 2011).

Estimates of fiscal multipliers in the GCC have varied widely. Espinoza and Senhadji (2011) find government expenditure multipliers—i.e., the change in non-oil GDP in response to a change in government expenditure—to be in the range of 0.2–0.3 (short-term multiplier) and 0.4–0.7 (long-term multiplier). They also found different multipliers for capital and current expenditures, with the long-term multiplier for the former being in the range of 0.6–1.1, and a range of 0.3–0.7 for the latter.[13] Rodriguez (2011) finds somewhat larger multipliers for Kuwait, in the range of 0.9–1.3.[14] He also finds that most of the impact in Kuwait tends to occur in the same year that government expenditure takes place, and only capital expenditure tends to have a persistent impact. Like Espinoza and Senhadji (2011) capital expenditures have higher multiplier effects. The model-based simulations for Saudi Arabia presented in Chapter 6 suggest fiscal multipliers somewhat similar to those estimated in the empirical literature.

Implementation of the stabilization role of fiscal policy requires a combination of discretionary decisions and automatic stabilizers. The latter—features of the tax and transfer systems that tend by their design to offset fluctuations in economic activity without direct intervention by policymakers—have to a large extent been absent from the GCC policy toolkit, given the limited role of domestic taxation in these countries, the largely untargeted system of subsidies/transfers, and the relatively small role of the private sector in employment of GCC nationals. The limited role of automatic stabilizers in the GCC hinders the stabilization role of fiscal policy, as it implies reliance on purely discretionary policies, which tend to slow the execution of fiscal policy, and make targeting harder than if it had been designed in advance. Recent work on fiscal policy in the MENA region (Ben Slimane and Ben Tahar, 2009) suggests that institutional factors may indeed play a role in explaining the generally limited role of fiscal policy in stabilizing output.

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[13] Note that the concept of a fiscal multiplier is expressed relative to a change in GDP. For the GCC countries, if employment of nationals is the target variable rather than a measure of GDP, then the efficacy of current and capital expenditures could be reversed—capital spending tends, at least in the short-term, to generate employment for expatriate labor, whereas current spending is more likely to affect employment of nationals.
[14] In Rodriguez (2011), the impact of government expenditure occurs contemporaneously in most specifications. So, this range refers to both short-term and long-term multipliers, as they become quantitatively equivalent when the impact is only contemporaneous.

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4

Monetary Policy and the Transmission Mechanism in the GCC Countries[1]

In light of the dollar peg and the openness of GCC capital accounts, it would be reasonable to expect GCC countries to have limited monetary policy independence. This chapter confirms that GCC policy rates largely follow U.S. interest rates in the long term, with some degree of deviation in the short term. The speed at which each GCC rate adjusts to its long-term relationship with the U.S. rate varies, with Bahrain being the fastest and Oman the slowest. The pass-through of policy rates to retail rates is on the low side, possibly reflecting the shallowness of money markets in GCC countries, and the manner in which GCC countries operate monetary policy and manage liquidity and credit—through interest rates and reserve requirements, loan-to-deposit ratios, and other macroprudential measures. Continued efforts to develop the domestic financial markets will increase interest rate pass-through and strengthen monetary policy transmission.

Introduction

The dollar peg provides the nominal anchor for monetary policy for all GCC countries, but countries employ a variety of instruments to influence liquidity conditions.[2] In light of the peg and openness of the GCC capital accounts (Tables 4.1, 4.2, 4.3), it would be reasonable to expect limitations on monetary policy independence and a convergence of nominal interest rates in the GCC to U.S. interest rate levels. Within the limits of the peg, the GCC countries conduct monetary policy and manage short-term liquidity conditions through open market operations and standing facilities, while using liquidity and reserves requirements, long-term government deposits, and macroprudential instruments to manage structural liquidity conditions (Table 4.4). In some instances, including in response to credit growth and

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[1] Prepared by Ananthakrishnan Prasad and May Khamis.
[2] In Kuwait, a dollar peg was in place from 2003 to May 2007, while a basket peg with undisclosed weights was in place before and after this period.

Table 4.1. GCC: Provisions Specific to the Financial Sector
(As of 2008, unless otherwise indicated)[1]

Legend: 🟥 = No restrictions. 🟨 = Restrictions exist.

Measure	BHR	KWT	OMN	QAT	SAU	UAE
XII.1. Provisions specific to commercial banks and other credit institutions						
XII.1.a. Borrowing abroad						
XII.1.b. Maintenance of accounts abroad	🟥	🟥	🟥	🟥	🟥	🟥
XII.1.c. Lending to nonresidents (financial or commercial credits)	🟨	🟨	🟨	🟥	🟨	🟨
XII.1.d. Lending locally in foreign exchange	🟥	🟥	🟥	🟥	🟥	🟥
XII.1.e. Purchase of locally issued securities denominated in foreign exchange	🟥	🟥	🟥	🟥	🟥	🟥
XII.1.f. Differential treatment of deposit accounts in foreign exchange						
XII.1.f.1. Reserve requirements	🟨	🟥	🟥	🟥	🟥	🟥
XII.1.f.2. Liquid asset requirements	🟥	🟥	🟥	🟥	🟥	🟥
XII.1.f.3. Interest rate controls	🟥	🟨	🟥	🟥	🟥	🟥
XII.1.f.4. Credit controls	🟥	🟥	🟥	🟥	🟥	🟥
XII.1.g. Differential treatment of deposit accounts held by nonresidents						
XII.1.g.1. Reserve requirements	🟨	🟥	🟥	🟥	🟨	🟥
XII.1.g.2. Liquid asset requirements	🟥	🟨	🟥	🟥	🟥	🟥
XII.1.g.3. Interest rate controls	🟥	🟥	🟥	🟥	🟥	🟥
XII.1.g.4. Credit controls	🟥	🟥	🟥	🟥	🟥	🟥
XII.1.h. Investment regulations						
XII.1.h.1. Abroad by banks	🟥	🟥	🟥	🟥	🟨	🟨
XII.1.h.2. In banks by nonresidents	🟥	🟥	🟨	🟥	🟨	🟨
XII.1.i. Open foreign exchange position limits	🟥	🟨	🟨	🟥	🟥	🟥
XII.1.i.1. On resident assets and liabilities	🟥	🟥	🟥	🟥	🟥	🟥
XII.1.i.2. On nonresident assets and liabilities	🟥	🟨	🟥	🟥	🟥	🟥
XII.2. Provisions specific to institutional investors						
XII.2.a. Insurance companies						
XII.2.a.1. Limits (max.) on securities issued by nonresidents	🟥	🟥	n.a.	🟥	🟨	🟥
XII.2.a.2. Limits (max.) on investment portfolio held abroad	🟥	🟥	n.a.	🟥	🟨	🟥
XII.2.a.3. Limits (min.) on investment portfolio held locally	🟥	🟥	n.a.	🟥	🟨	🟥
XII.2.a.4. Currency-matching regulations on assets/liabilities composition	🟥	🟥	n.a.	🟥	🟥	🟥
XII.2.b. Pension funds						
XII.2.b.1. Limits (max.) on securities issued by nonresidents	🟥	n.r.	n.a.	n.a.	🟥	n.a.
XII.2.b.2. Limits (max.) on investment portfolio held abroad	🟥	n.r.	n.a.	🟨	🟥	n.a.
XII.2.b.3. Limits (min.) on investment portfolio held locally	🟥	n.r.	n.a.	🟨	🟥	n.a.
XII.2.b.4. Currency-matching regulations on assets/liabilities composition	🟥	n.r.	n.a.	🟨	🟥	n.a.
XII.2.c. Investment firms and collective investment funds						
XII.2.c.1. Limits (max.) on securities issued by nonresidents	🟥	🟥	n.a.	🟨	🟥	n.a.
XII.2.c.2. Limits (max.) on investment portfolio held abroad	🟥	🟥	n.a.	🟨	🟥	n.a.
XII.2.c.3. Limits (min.) on investment portfolio held locally	🟥	🟥	n.a.	🟥	🟥	n.a.
XII.2.c.4. Currency-matching regulations on assets/liabilities composition	🟥	🟥	n.a.	🟥	🟥	n.a.

[1] 🟥 No restrictions.

🟨 Restrictions exist.

Source: IMF, Annual Report on Exchange Arrangements and Exchange Restrictions.
Note: n.r. indicates no response from the authorities on this entry.

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Table 4.2. GCC: Restrictions on Capital Account Transactions

(As of 2008, unless otherwise indicated)[1]

Cell legend: N = No restrictions (dark red); R = Restrictions exist (yellow); blank = no data/subheading.

Measure	BHR	KWT	OMN	QAT	SAU	UAE
XI.1.a. Repatriation requirements	N	N	N	N	N	N
XI.1.a.1. Surrender requirements	N	N	N	N	N	N
XI.1.a.1.(i). Surrender to the central bank	N	N	N	N	N	N
XI.1.a.1.(ii). Surrender to authorized dealer	N	N	N	N	N	N
XI.1.b. Controls on capital and money market instruments						
XI.1.b.1. On capital market securities						
XI.1.b.1.i. Shares or other securities of a participating nature						
XI.1.b.1.i.1. Purchase locally by nonresidents	R	R	R	R	R	R
XI.1.b.1.i.2. Sale or issue locally by nonresidents	N	R	N	R	R	R
XI.1.b.1.i.3. Purchase abroad by residents	N	N	N	N	N	N
XI.1.b.1.i.4. Sale or issue abroad by residents	N	N	N	N	R	N
XI.1.b.1.ii. Bonds or other debt securities						
XI.1.b.1.ii.1. Purchase locally by nonresidents	N	N	N	N	N	N
XI.1.b.1.ii.2. Sale or issue locally by nonresidents	N	R	N	R	R	R
XI.1.b.1.ii.3. Purchase abroad by residents	N	N	N	N	N	N
XI.1.b.1.ii.4. Sale or issue abroad by residents	R	R	N	N	N	N
XI.1.b.2. On money market instruments						
XI.1.b.2.i. Purchase locally by nonresidents	N	N	N	N	N	N
XI.1.b.2.ii. Sale or issue locally by nonresidents	N	R	N	N	R	N
XI.1.b.2.iii. Purchase abroad by residents	N	N	N	N	N	N
XI.1.b.2.iv. Sale or issue abroad by residents	N	N	N	N	N	N
XI.1.b.3. On collective investment securities						
XI.1.b.3.i. Purchase locally by nonresidents	N	R	N	N	R	R
XI.1.b.3.ii. Sale or issue locally by nonresidents	N	R	N	N	R	R
XI.1.b.3.iii. Purchase abroad by residents	N	N	N	N	N	N
XI.1.b.3.iv. Sale or issue abroad by residents	N	N	N	N	R	N
XI.1.c. Controls on derivatives and other instruments						
XI.1.c.1. Purchase locally by nonresidents	N	R	N	N	N	N
XI.1.c.2. Sale or issue locally by nonresidents	N	R	N	R	R	N
XI.1.c.3. Purchase abroad by residents	N	N	N	N	N	N
XI.1.c.4. Sale or issue abroad by residents	N	N	N	N	N	N
XI.1.d. Controls on credit operations						
XI.1.d.1. Commercial credits						
XI.1.d.1.(i). By residents to nonresidents	N	N	N	N	R	N
XI.1.d.1.(ii). To residents from nonresidents	N	N	N	N	R	N
XI.1.d.2. Financial credits						
XI.1.d.2.(i). By residents to nonresidents	N	N	N	N	R	N
XI.1.d.2.(ii). To residents from nonresidents	N	N	N	N	R	N
XI.1.d.3. Guarantees, sureties, and financial backup facilities						
XI.1.d.3.(i). By residents to nonresidents	N	N	N	N	R	N
XI.1.d.3.(ii). To residents from nonresidents	N	N	N	N	R	N
XI.1.e. Controls on direct investment						
XI.1.e.1. Outward direct investment	N	N	N	N	N	N
XI.1.e.2. Inward direct investment	R	R	R	R	R	R
XI.1.f. Controls on liquidation of direct investment	N	N	N	N	N	N
XI.1.g. Controls on real estate transactions	R	R	R	R	R	R
XI.1.h. Controls on personal loans						
XI.1.h.1.(i). By residents to nonresidents	N	N	N	N	N	N
XI.1.h.1.(ii). To residents from nonresidents	N	N	N	N	N	N

[1] ■ No restrictions.

▨ Restrictions exist.

Source: IMF, Annual Report on Exchange Arrangements and Exchange Restrictions.

Table 4.3. GCC: Changes in the Extensity of Capital Controls, 1980–2008

	1980	1985	1990	1995	2000	2001	2002	2003	2004	2005	2006	2007	2008
Bahrain													
Kuwait													
Oman													
Qatar													
Saudi Arabia													
U.A.E.													
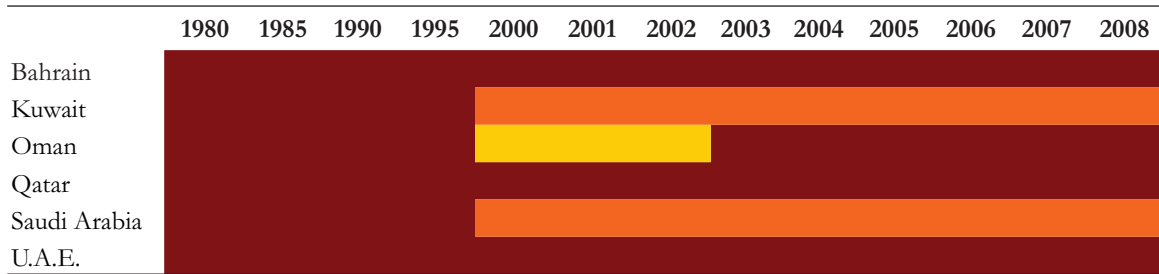
Source: Chinn-Ito index (degree of capital account openness), http://web.pdx.edu/~ito/Chinn-Ito_website.htm

More open   Less open

to inflationary pressures, interest rates in GCC countries deviated transitorily vis-à-vis U.S. rates.

This chapter evaluates empirically the degree of monetary policy independence in GCC countries, and provides insights into the transmission mechanism of monetary policy. It summarizes the results of a recent study by Bova and Senhadji (2009) on convergence between U.S. and GCC countries' policy rates. It then presents the results of a study by Espinoza and Prasad (forthcoming) that estimates the degree of pass-through of changes in monetary policy rates to domestic retail rates; evaluates the short-and long-term dynamics of adjustment; and explores the channels of transmission of monetary policy, via monetary aggregates and economic activity, within a panel Value at Risk (VAR) framework.

GCC three-month interbank rates, a proxy of policy rates, are found to be closely associated with U.S. rates in the long term, but there were various degrees of deviation, particularly after the global crisis. These were found to result from consideration of domestic inflation and other conditions, including country risk premiums. The speed of adjustment to changes in the U.S. policy rates are found to be highest for Bahrain and Qatar, followed by Saudi Arabia and the United Arab Emirates, with Kuwait and Oman having the slowest adjustment. The pass-through of changes in the policy rate to local deposit and lending rates also varies among countries, with the strongest pass-through indicated in Bahrain and Kuwait, and a very limited pass-through observed in Oman and Qatar.[3] Finally, an estimated panel VAR

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[3] The pass-through for Saudi Arabia and the United Arab Emirates was not evaluated because of data limitations.

Table 4.4. GCC: Monetary Policy Operations

	Open Market Operations				
	T-bill	**Sale of CDs**	**Repo operations**	**FX sale**	**FX swaps**
Bahrain	Yes (by government), three and six months and 1 year.	No	Yes	Yes	Yes
Kuwait	Yes	Yes, three- and six-month CDs are auctioned. CDs cannot be used for repo operations but can be redeemed at CBK by approval.	On daily basis using T-bills and bonds, with maturities of overnight, 1 week and 1 month. For Islamic banks, 1 week and 1 month Tawarruq is used.	Yes	No
Oman	No	Yes (weekly)	Yes	Yes	Yes
Qatar	Yes	Yes (varying maturities)	Yes (2 weeks/ 1 month)	Yes	No
Saudi Arabia	SAMA issues central bank bills (called t-bills) for liquidity management purposes.	No	The interbank market is shallow and consists of uncollaterized deposit trades. SAMA does not intervene in the interbank market, but the SIBOR (interbank rate) is affected by the repo and reverse repo facilities.	SAMA does not intervene in the spot market, but has intervened in the FX forward market on a couple of occasions.	Yes
U.A.E.	No	Yes. Very broad range of maturities below and beyond one year.	Yes. Repo facilities are based on conventional and Islamic CDs (the latter since Nov. 2010). Also, there is an option for early redemption of CDs.	Yes	Yes. Introduced in 2008 to mitigate the FX liquidity effects of the global financial crisis. It is not used actively anymore.

Table 4.4. GCC: Monetary Policy Operations (continued)

	Standing Facilities			
	Deposit facility	**Lending facility**	**FX sale**	**FX swap**
Bahrain	Overnight and one week	Overnight against bank's holding of T-Bills or deposits with the central bank, one-week against bank's holdings of government Ijara sukuk.	Yes	1-week and 1-month
Kuwait	Overnight	Discount window. Overnight for standard credit and longer than a week for nonstandard. Not used generally but acts as the main policy rate.	No	Yes
Oman	No	Discount of T-bills, commercial paper, Repo, and direct lending.	Yes	Yes
Qatar	Overnight	Overnight/Repos	Yes	No
Saudi Arabia	Overnight reverse repo facility	Overnight repo facility	Yes	Yes
U.A.E.	Yes, unremunerated.	Advances up to 7 days without collateral and up to 6 months with collateral. It was introduced Sept. 22, 2008. Also, there is an overdraft facility at penalty rates over repo rate.	Yes	Yes. Introduced in 2008 to mitigate the FX liquidity effects of the global financial crisis. It is not used actively anymore.

Table 4.4. GCC: Monetary Policy Operations (continued)

			Monetary/Prudential Ratios				
	Liquidity requirements	Reserve requirements	Unconventional placement of central bank and government deposits at commercial banks	Macroprudential ratios	Interest rate controls	Main policy rate	Comments
Bahrain	No	Yes	Yes	Voluntary loan/deposit ratio	No	One-week deposit rate	Liquidity is not actively managed and is limited to standing facilities
Kuwait	Yes	No	Yes	Loan/deposit ratio and temporary credit growth limits.	Yes, lending rate ceilings are set at a specified margin over the reference (discount) rate.	Discount rate	Lending is actively managed through OMO.
Oman	No	Yes	Yes	Loan/deposit ratio and ceiling on bank lending to households.	Ceiling on consumer lending rate.	Discount rate	
Qatar	Yes	Yes	Yes	Credit ratio.	Lending rate ceiling on personal loans assigned to salary, and overall limit on such loans.	Qatar Central Bank deposit and lending rates.	Liquidity is managed through CDs (being replaced by T-bills) and reserve requirements.
Saudi Arabia	Yes	Yes	Yes	Loan/deposit ratio. Liquid assets to short-term liabilities ratio, lending restrictions on consumer loans.	No	Repo and reverse rate.	The interbank market is shallow so there is limited role for OMO. Primary liquidity management tools are repo facilities, T-bills, FX swaps and prudential tools such as reserve requirements and the loan to deposit ratio.

Table 4.4. GCC: Monetary Policy Operations (concluded)

	Liquidity requirements	Reserve requirements	Unconventional placement of central bank and government deposits at commercial banks	Monetary/Prudential Ratios Macroprudential ratios	Interest rate controls	Main policy rate	Comments
U.A.E.	No	Yes	Yes	Credits cannot exceed stable resources, defined as 85% of customer deposits of less than 6 months, 100% of deposits and market funding over 6 months, and free own funds.	No	1-week CD repo rate.	Liquidity Support Facility introduced in Sept. 2008. Under this facility, a bank can submit its portfolio of debt securities to the CBU for evaluation. The CBU will accept as eligible only those securities which satisfy its guidelines (only debt securities without embedded options). Additional conditions apply.

Sources: Country authorities; and IMF staff estimates.

model suggests that there is a strong and statistically significant impact of U.S. monetary policy on broad money, non-oil activity, and inflation in the GCC region.

The Behavior of GCC Monetary Policy vis-à-vis the United States

Is there space for independent monetary policy in GCC countries?

A casual inspection of interest rate trends between January 1993 and May 2009 indicates that the GCC three-month interbank rates have closely mirrored the U.S. rates in Bahrain and Saudi Arabia, but there were varying degrees of deviation in Kuwait, Qatar, Oman, and the United Arab Emirates, particularly since the beginning of the global crisis in 2007 (Figure 4.1). Bova and Senhadji (2009) examine interest rate convergence between the GCC countries and the United States, and find that the covered interest rate parity condition holds in the GCC, although with differences across countries. They also find that the GCC rates are all co-integrated with the U.S. rate, and that the long-run coefficient is very close to one, which constitutes an additional validation of the interest parity condition.[4]

The speed at which each GCC rate adjusts to its long-run relationship with the U.S. rate can be estimated via an error correction model (Table 4.5). Estimates indicate that the Bahraini rate is the quickest to adjust to deviations from the long-run relationship (less than two months), followed by Qatar (less than four months), Saudi Arabia (more than four months), and the United Arab Emirates (about six months). Kuwait and Oman have the slowest adjustment (about a year). For all economies but the United Arab Emirates, the speed of adjustment is estimated to have slowed in the years corresponding to the financial crisis.

The variance decomposition and GMM estimates support earlier findings that the U.S. rate is highly relevant for all the GCC rates. It also indicates some degree of maneuvering space where interest rate spreads are found to be associated with monetary policy intervention whenever inflation, speculative attacks on the currency, and stock market performance are at stake.

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[4] Due to lack of data on expected exchange rates, the study only tests for the validity of the covered interest parity condition. A co-integration relationship and an error correction model (ECM) are also estimated for the interest rate spreads in order to evaluate long- and-short run dynamics. Finally, the study carries out a decomposition of the variance of the interbank rates and GMM estimates to evaluate the relative impact of the U.S. rate and domestic variables—CPI inflation, the spot and forward exchange rate ratios, and the stock market index—on monetary policy.

Figure 4.1. GCC: Domestic and U.S. Interbank Rates, 1993–2008
(Percent)
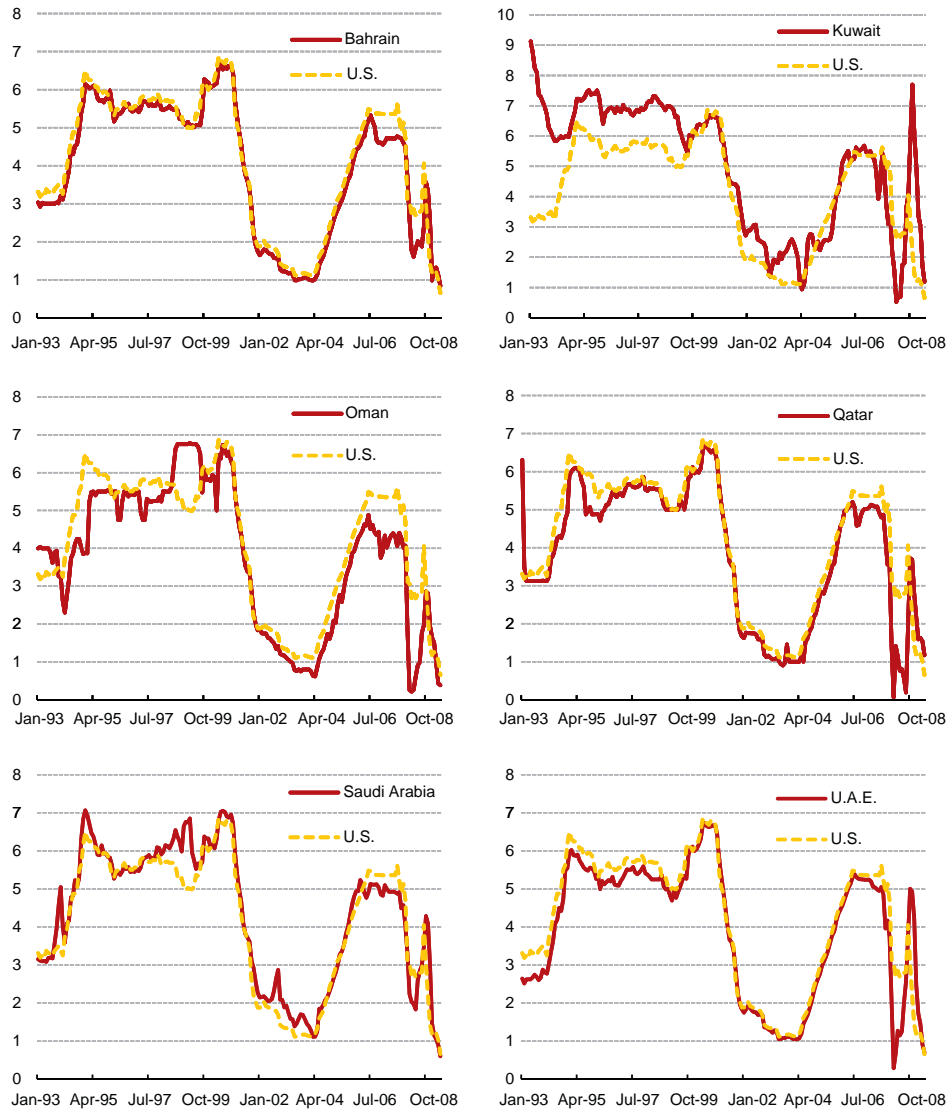
Sources: Saudi Arabian Monetary Agency; and International Financial Statistics.

The speed of adjustment of GCC rates to U.S. rates has been converging in most cases, with capital inflows resulting when central banks sought to maintain higher interest rates. Nevertheless, the speed of convergence was found to have changed substantially during two specific episodes, 1998–99 and 2007–09, when there were substantial differences in the U.S. and GCC business cycles. Negative and positive spreads were purposely maintained by the central banks to reduce inflation, counteract speculation, or stimulate economic activity, as was the case after the stock market crash in 2006. For instance, in Qatar, the central bank had maintained higher interest rates

Table 4.5. GCC: Beta-convergence Coefficients

Bahrain	Kuwait	Oman	Qatar	Saudi Arabia	U.A.E.
–0.377	–0.098	–0.112	–0.303	–0.21	–0.17
(0.00)	(0.00)	(0.02)	(0.007)	(0.00)	(0.016)

Sources: Bova and Senhadji, 2009.

compared to U.S. interest rates—predicated on the objectives of containing inflation and preventing the extension of bad loans—between September 2008 and August 2010. However, the divergence in interest rates results in a net capital inflow through the banking system. Qatar Central Bank's net foreign exchange reserves increased by $9 billion to $18.5 billion in 2009; and remunerated deposits with the central bank increased by $5.5 billion during this period. A combination of convergence of policy rates after August 2010 and liquidity measures was required to reverse these flows.

How do retail interest rates react to policy action?[5]

Interest rate pass-through. The pass-through of policy rates varies among countries and over different time spans. In some countries, deposit rates are stickier than lending rates while in others the reverse is true.[6]

Evidence is inconclusive as to whether the response is symmetric to monetary policy signals. A few studies find an asymmetric response: the pass-through is quicker when monetary policy is tightened and sluggish when monetary policy is easing (Sellon, 2002). Other studies, however, do not find any evidence in favor of this proposition. The pass-through would depend upon a number of factors such as: the structure of the financial system (for example, the extent of the regulation of the financial system, ceilings on interest rates, and geographical and product-line restrictions); the degree of competition between intermediaries; the usage of variable-rate products (both deposits and loans) by the banking system; the existence of lottery systems for

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[5] The analysis presented in the rest of this chapter is based on Prasad and Espinoza (forthcoming).

[6] For instance, in the Euro area, overnight deposit rates and "deposits redeemable at notice of three months" are the stickiest, with even long-run pass-through of, at most, 40 percent. The low pass-through in this case can be attributed partly to the way these deposits are administered in some euro area countries, and partly to the fact that demand for such deposits is relatively inelastic. In contrast to the euro area evidence, Mizen and Hofmann (2002) find that, for the UK, pass-through in the case of deposit rates is larger than that for lending rates. Between various types of loans, pass-through in the case of consumer lending is found to be the weakest, reflecting a variety of factors—weak competition, inelastic demand, asymmetric information, and credit rationing (Bondt, 2002; Bond et al. 2003). In the United States, credit card rates even today remain the stickiest, with pass-through of only 0.3 percent during the 1990s, albeit higher than the almost negligible level during the 1970s (Sellon, 2002).

deposits; negative real interest rates for deposits over a prolonged period; the response of portfolio substitution to the policy rate; and the transparency of monetary policy operations.

Estimates of interest rate pass-through are generally on the low side. As discussed in the previous section, the interbank rate is used as a proxy for policy rates, and the lending and deposit rates are the retail rates used for the estimations.[7] Figure 4.2 depicts all three rates for the sample period 2004–10 for Bahrain, Kuwait, Oman, and Qatar.[8] Estimates for these four GCC countries suggest that the interest rate pass-through was 0.30 and 0.50 for lending and deposit rates, respectively; i.e., a reduction of 100 basis points (bps) in the policy rate led to a reduction of almost 50 bps in the banks' deposit rates and 30 bps in their lending rates.[9] Retail rates used in the estimates include rates on existing loans and deposits as well as new, so actual transmission to new deposit and loan rates might be somewhat higher. More importantly, market frictions do still apply. In Oman, for example, there is a ceiling on personal lending of more than 40 percent of credit portfolio and a high interest rate cap. Limits to real estate lending, and both absolute and interest rate ceilings on personal loans, are also present in Qatar. In Kuwait, the lending rates are benchmarked to the discount rate. Limits on consumer credit are also the case in Bahrain. However, there are signs of an increase in pass-through over time, reflecting policy efforts to develop markets.

Measures of interest rate convergence in the GCC countries point to deepening financial integration. Espinoza and others (2009) found some evidence of financial integration using beta-convergence, and estimated a half-life of two to five months.[10] They also found the cross-sectional variation among interest rates in GCC countries to decline, notwithstanding a widening in this variance with the emergence of the global financial crisis. The authors note that within the limits of the peg, the GCC countries

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[7] For Oman, the overnight rate is used because it is the only available rate. For the United States, the three-month US-Libor rate is used.

[8] Saudi Arabia and the United Arab Emirates are excluded because of lack of data on retail rates. For Bahrain, the deposit rate is the average time deposit rate (three to six months maturity) and the lending rate is the average lending rate (total, including overdraft approvals). For Kuwait and Oman, the rates are the weighted average deposit and lending rates across maturity. For Qatar, the deposit rate is the one-year time deposit rate, and the lending rate is for loans of less than three years' maturity.

[9] GCC-wide long-term relationship (fixed-effect regression, estimation in levels):

Deposit Rate$_{i,t}$ = α + 0.50 Interbank rate$_{i,t}$ + μ_i + $\varepsilon_{i,t}$ $\qquad$ R^2 = 0.28
$\qquad\qquad$ (4.72)

Lending Rate$_{i,t}$ = α + 0.30 Interbank rate$_{i,t}$ + μ_i + $\varepsilon_{i,t}$ $\qquad$ R^2 = 0.21
$\qquad\qquad$ (1.91)

[10] The first measure, beta-convergence, evaluates whether interest rates in countries with relatively high spreads have a tendency to decrease rapidly, relative to those in countries with low spreads. The second measure, sigma-convergence, which draws from the growth literature, tests whether the cross-country standard deviation of interest rates had a declining trend.

Figure 4.2. GCC: Interbank and Retail Interest Rates, 2004–11
(Percent)

Bahrain

- 3-month Interbank rate
- Deposit rate[1]
- Lending rate

[1]Time deposit rate (3-month)

Kuwait

- 3-month Interbank rate
- Deposit rate[1]
- Lending rate

[1]Weighted average.

Oman

- Overnight Interbank Rate
- Deposit rate[1]
- Lending rate

[1]Time deposit rate (weighted average).

Qatar

- 3-month Interbank rate
- Deposit rate[1]
- Lending rate

[1]One-year time deposit rate.
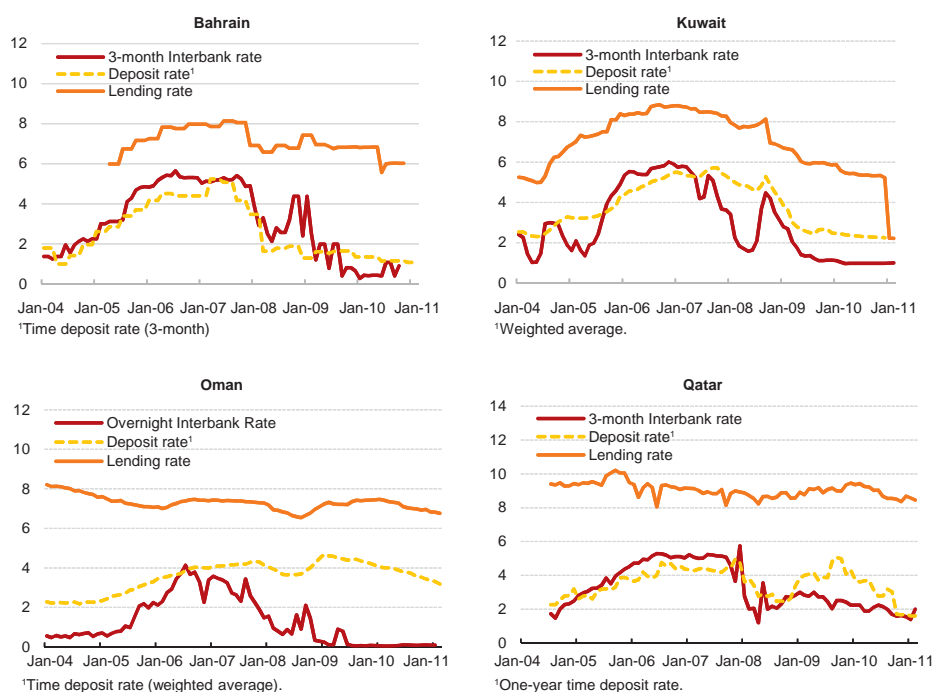
Source: Haver database; and country authorities.
Note: Excludes Saudi Arabia and the U.A.E.

operate monetary policy and manage liquidity and credit through interest rates and reserve requirements, loan-to-deposit ratios, and other prudential norms.

These estimates are subject to a number of limitations. In view of the relatively small sample size, the estimates are only indicative of the size of the pass-through. Moreover, the sample includes periods which before the global crisis saw significant increase in inflation, driven mainly by rents, and after the global crisis, which saw a significant decline in policy rates. Accordingly, the size and the speed of the pass-through could differ in case of a policy tightening cycle since pass-through, as the review of cross-country studies shows, could be asymmetric.

Co-integration analysis and dynamic adjustment of retail rates. The short-term dynamics and long-term transmission from interbank rates to domestic retail rates can be analyzed using a simple co-integrated VAR. The co-integrated VAR is constructed for only two variables, the interbank rate (IB) and the bank interest rate under study (R represents alternatively the deposit rate and the lending rate). More precisely, the following model was estimated on monthly data covering the period January 2004–December 2010:

$$\begin{cases} \Delta IB_t = \alpha^1 + \sum_{1 \leq s \leq 11} \beta_s^1 \Delta IB_{t-s} + \gamma_s^1 \Delta R_{t-s} + \lambda^1 (IB - R)_{t-12} + \varepsilon_t^1 \\ \Delta R_t = \alpha^2 + \sum_{1 \leq s \leq 11} \beta_s^2 \Delta IB_{t-s} + \gamma_s^2 \Delta R_{t-s} + \lambda^2 (IB - R)_{t-12} + \varepsilon_t^2 \end{cases}$$

The long-term relationship between interbank rates and bank lending rates differs significantly between countries (Table 4.6).[11] The raw data (Figure 4.2) suggest that the long-term relationship is the strongest for Bahrain and Kuwait. In Bahrain, a 100 basis points increase in the interbank rate is associated, in the long term, with a 63 basis points increase in the deposit rate, and a 29 basis points increase in the lending rate. In Qatar, the relationship is weaker, though still significant for the deposit rate, while there is no relationship between rates in Oman.

Table 4.6. GCC: Co-integrating Vector[1]

Long-term Sensitivity to Interbank Rate	Deposit Rate	Lending Rate
Bahrain	0.63	0.29
Kuwait	0.80	0.74
Oman	–0.05	0.03
Qatar	0.20	0.01

Sources: Espinoza and Prasad, forthcoming.
[1] Excludes Saudi Arabia and the U.A.E.

Adjustment speeds implied by the short-term dynamics also differ across countries. Adjustment is relatively slow in Bahrain, with rates adjusting fully after 20 months. In Kuwait, the adjustment of deposit rates is also slow, with only half of the adjustment captured in the first 12 months after the shock. The adjustment is, however, faster for lending rates. In Oman and in Qatar, shocks to the interbank rates have an immediate effect on deposit and lending rates (albeit with a small sensitivity, of around 1/10th) but most of the impact vanishes after six months.

The forecast error variance decomposition of the co-integrated VAR model (Table 4.7) indicates that the contribution of interbank shocks to lending and deposit rates is high, except in Oman, where there is no long-term relationship. Shocks to interbank rates would contribute 30 to 57 percent of the variance of deposit and lending rates in the region. The countries in which the long-term relationship is the strongest are

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[11] The co-integrated VAR is estimated with 12 lags. The Bayesian information criterion and the Schwartz criteria suggested using a very long lag structure (more than 36 lags) but this is not compatible with the number of observations in the data set. Since these criteria tend to overestimate the number of lags needed, the model was restricted to the 12 lags that are typically needed with monthly data.

Table 4.7. GCC: Forecast Error Variance Contribution of Interbank Rates, 12 Months Ahead[1]

	Deposit Rate	Lending Rate
Bahrain	0.52	0.30
Kuwait	0.87	0.54
Oman	0.10	0.16
Qatar	0.38	0.28

Sources: Espinoza and Prasad 2011, forthcoming.
[1] Excludes Saudi Arabia and the United Arab Emirates.

also the countries for which shocks to interbank rates matter the most, but interbank rates also contribute significantly to the variance of deposit and lending rates via short-term effects (as witnessed by the variance decomposition in Qatar).

Monetary Transmission in the GCC

The monetary transmission mechanism is the process by which monetary policy decisions influence economic outcomes such as output, employment, and inflation. Traditionally, four key channels of monetary policy transmission are identified; interest rate, credit aggregates, asset prices, and exchange rate channels. An expansionary monetary policy is expected to lead to a lowering of the cost of loanable funds, which in turn raises investment and consumption demand, that eventually gets reflected in aggregate output and prices. Monetary policy also affects the supply of loanable funds, i.e., the credit channel. The credit channel makes a distinction between banks and nonbanks as sources of funds, and between internal and external finance, with bank lending as a sub-channel. A contractionary monetary policy that decreases bank reserves also curtails banks' lending capacity. Changes in interest rates could also induce movements in asset prices generating a wealth effect, which is commonly known as the asset price channel. High interest rates can induce an appreciation of domestic currency, leading to a reduction in net exports, and, hence, in aggregate demand and output; i.e., what is termed the exchange rate channel. The main channels of transmission in the GCC are likely to be the interest rate, credit, and asset price channels—under a fixed exchange rate regime the exchange rate channel is inactive.

The impact of monetary policy shocks on macroeconomic variables in the region can be examined using panel VAR data for the six countries of the GCC. A panel VAR is used because only annual data are available, limiting the data points. Limitations of this approach include the assumption of homogeneity of coefficients among the six countries in the different equations estimated. A panel VAR was estimated on non-oil real GDP

growth, CPI inflation, and broad money growth—M2, which is the conduit for monetary policy transmission from the United States to the GCC countries in this model—for the period 1978–2009.[12] The federal funds rate was used as an indicator of imported monetary policy, and the U.S. CPI inflation was used to identify monetary shocks. All variables were found to be stationary using the Levin-Lin-Chu panel unit root test. Finally, all the variables were demeaned using the Helmert procedure as in Love and Zicchino (2006). The VAR was estimated with three lags.

Overall, the estimations suggest that there is a strong and statistically significant impact of U.S. monetary policy on broad money, non-oil activity, and inflation in the GCC. An increase of 150 basis points in the federal funds rate decreases broad money growth by more than 1 percentage point and non-oil activity by 1.5 percent two years after the shock. The forecast error variance decompositions also confirm that monetary shocks have a significant impact on the economy. Shocks to the federal funds rate and to broad money contribute between 15 and 20 percent to the variance of non-oil growth and inflation in the region.[13]

Summary and Policy Implications

The results presented above confirm that GCC policy rates largely follow the U.S. interest rates in the long term, with some degree of deviation in the short term. The speed at which each GCC rate adjusts to its long-term relationship with the U.S. rate varies, with Bahrain having the fastest adjustments, followed by Qatar, Saudi Arabia, and the United Arab Emirates. Kuwait and Oman have the slowest adjustment. The deviations reflect that within the limits of the peg, the GCC countries operate monetary policy and manage liquidity and credit through interest rates and reserve requirements, loan-to-deposit ratios, and other prudential measures.

The pass-through of policy rates to retail rates is on the low side, possibly reflecting the shallowness of money markets in the GCC countries and banking sector regulations. Continued efforts to develop the domestic financial markets will increase interest rate pass-through and strengthen monetary policy transmission.

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[12] Data for Oman and the United Arab Emirates start in 1981; data for Qatar start in 1983.

[13] However, the results point at a "Price Puzzle" in the VAR, similar to that initially described by Sims (1992) for the United States and other advanced economies: shocks to the federal funds rate are followed by an increase in inflation in the United States and in the GCC—although this inrease is only temporary in the GCC (the impact of monetary contraction on inflation becomes negative after three years). This result suggests that the monetary shocks are not perfectly identified, and that there is some remaining endogeneity in the interest rate shock. The solution proposed in the literature—to add commodity prices or import prices—did not fully resolve the issue.

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5   Credit Default Swaps and Distress Dependence in the GCC[1]

Credit default swaps (CDS) have become a key instrument in analyzing financial risks. The evolution of sovereign CDS spreads in the GCC and other Middle Eastern countries is examined and a measure of contagion risks extracted. There are data limitations stemming in part from the low level of trading in Middle East CDS instruments and in the case of Saudi Arabia the absence of an underlying reference instrument. The analysis suggests only limited contagion from the Dubai World debt restructuring and the Arab Spring uprisings, with a far more significant impact from increased global risk aversion during the global financial crisis.

Introduction

In the past three years, sovereign CDS spreads in the GCC have demonstrated significant volatility, as well as a high degree of synchronicity, relative to those in other Middle Eastern economies (Figures 5.1 and 5.2). In particular, sovereign CDS spreads of most countries rose exponentially after the collapse of Lehman Brothers, and remained at historically high levels throughout most of 2009, before coming back down. In the GCC, there was another spike at the end of 2009, when Dubai announced a restructuring of Dubai World debt. More recently in 2011 (during the Arab Spring), the sovereign CDS spreads have again been moving in tandem.

The co-movement of the CDS spreads of GCC sovereigns could be explained by strong links between the countries. Namely, an increase in the distress level of one country could be accompanied by an increase in the distress level of other countries in the region, that is, there has been contagion. There are several potential reasons for this distress dependence among sovereigns. For example, trade linkages could play an important role.

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[1] Prepared by Arthur Ribeiro da Silva.

Figure 5.1. GCC: CDS Spreads, 2008–11
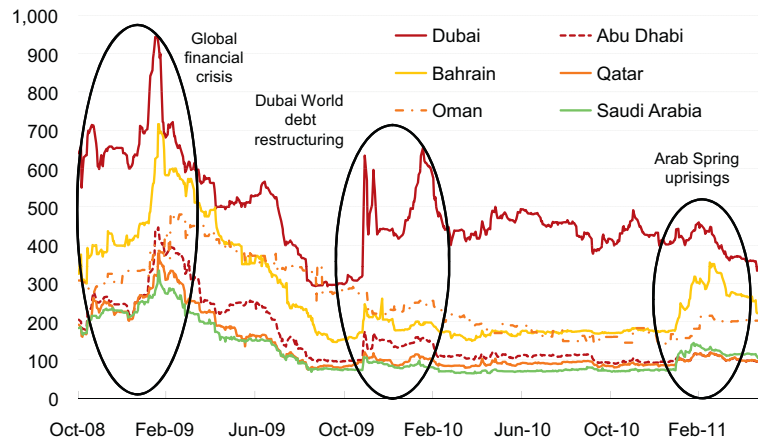
(Basis points)

Source: Markit.

Figure 5.2. Non-GCC: CDS Spreads, 2008–11

(Basis points)
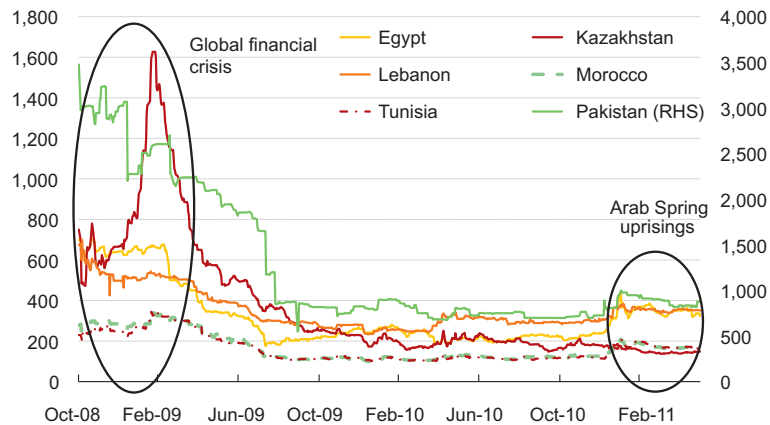
Source: Markit.

Capital flow linkages represent another possibility, especially given the investments made by GCC countries in the rest of the region, as well as the remittances of non-nationals in the GCC countries. The global financial crisis, but also significantly the Dubai World debt restructuring and the Saad and Al Gosaibi defaults,[2] had a considerable impact on the banking sector. Moreover, cross-border activities of financial institutions are increasing with the move to integrate financial and capital markets within the region, generating additional potential channels for contagion. Finally, as the Arab

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[2] For background on the Saad and Al Gosaibi defaults, see Economist (2009, 2010).

Spring uprisings in some countries in the Middle East have demonstrated, there are also cultural and political linkages that can considerably affect the distress level of these countries.

The Development of the CDS Market and CDS Spreads

Credit default swaps are, in reality, the simplest of all credit derivatives. A CDS is a form of insurance that protects the lender in case of loan default. When a lender purchases a CDS contract from a protection seller, the loan becomes an asset that may be swapped for cash if the loan defaults. The difference between a traditional insurance policy and a CDS is that anyone can purchase one, even those who have no direct interest in the loan being repaid. Moreover, a credit default swap is a contract in which the buyer of the CDS policy makes a series of payments (the CDS "fee" or "spread") to the protection seller and, in exchange, receives a payoff if the loan or any credit instrument named in the contract (typically a bond or loan) defaults, creating a credit event (Figure 5.3).

Figure 5.3. The CDS Contract
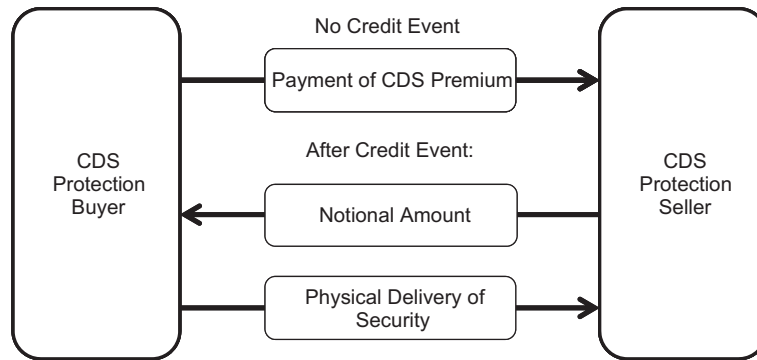
Credit default swaps have existed since the early 1990s, and increased in usage after 2003. At end-2007, the stock of outstanding CDS contracts amounted to $62.2 trillion, falling to $38.6 trillion by the end of 2008 (ISDA, 2010). The latest available data, for June 2010, place the notional value of outstanding CDS contracts at $26.3 trillion, but theoretically, the outstanding notional amount of credit default swaps may be larger than the total amount of debt of the reference entity (Figure 5.4).

Most CDSs are documented using standard forms promulgated by the International Swaps and Derivatives Association (ISDA), although some are tailored to meet specific needs. Credit default swaps have many variations. In addition to the basic, single-name swaps, there are basket default swaps (BDS), index CDS, funded CDS (also called a credit linked note), as well as loan-only credit default swaps (LCDS). In addition to corporations or

Figure 5.4. Global Notional Value of Outstanding CDS Contracts, 2001–10
(U.S. dollar trillions)
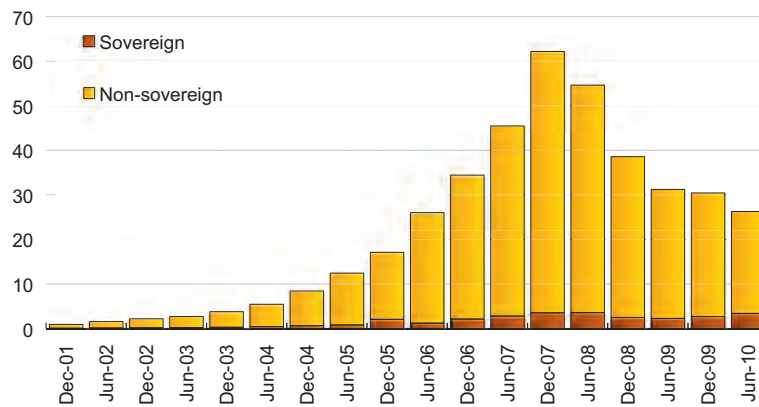
Sources: International Swaps and Derivates Association; and Bank for International Settlements.

governments, the reference entity can include a special purpose vehicle (SPV) issuing asset-backed securities (ABS) (Mengle, 2007). Credit default swaps are not traded on an exchange, and there is no required reporting of transactions to a government agency. During the 2007–10 financial crisis the lack of transparency became a concern to regulators, as was the trillion-dollar size of the market, which could pose a systemic risk to the economy (Kiff and others, 2009; and Sirri, 2008). In March 2010, the Depository Trust and Clearing Corporation's (DTCC) Trade Information Warehouse announced it would voluntarily give regulators greater access to its credit default swaps database (DTCC, 2010).

Settlement on a CDS contract is triggered by an "event." A CDS-related credit event can be a default of the reference entity, failure to meet its payment obligations (i.e. coupon for a bond), or any other event as defined in the contract. In return, the protection buyer pays a premium, equal to an annual percentage of the notional value of the underlying instrument, to the protection seller. This premium, most often quoted in basis points, is called the CDS spread. The spread is paid periodically (usually annually) until either maturity of the contract or default by the reference entity, at which point the protection seller pays the protection buyer the face value of the reference instrument, minus its post-default market value, settled either physically or through a cash settlement. *Physical settlement* entails a swap, with the protection buyer delivering the reference instrument to the protection seller against payment of its nominal value. *Cash settlement* involves the protection seller paying the protection buyer the difference between the nominal value of the reference instrument and its market value, after the credit event.

Market participation involves a wide range of financial institutions as well as other investors. Since a CDS acts as a hedge against default, thus

providing capital relief and insuring the protection buyer from credit losses, commercial banks, among other lenders, have been the natural buyers, while highly rated dealers, insurance companies, and financial guarantors would be the usual protection sellers, at least prior to the financial crisis. Unlike insurance contracts, however, credit default swaps do not require the protection buyer to hold the underlying instrument.[3] The protection buyer can thus purchase a CDS to gain a synthetic exposure to a reference entity.[4] Compared to owning (or even shorting) the underlying instrument, a CDS strategy leads to the same exposure, but only requires a small amount of initial capital, which would be equal to the collateral or margin posted with the protection seller. Especially in instances where the underlying instrument may be difficult to short (due to lack of liquidity), the CDS facilitates speculative short positions that profit from the deterioration in the creditworthiness of a reference entity.

Sovereign CDS Spreads in the GCC

Sovereign CDS spreads differ fundamentally from corporate CDS spreads, in part because of the rarity of the underlying credit trigger. Their rarity makes it difficult to determine how much investors would recover in the event of a bankruptcy—a key determinant of CDS pricing. The typical sovereign CDS events are (i) obligation acceleration, (ii) failure to pay, (iii) restructuring, and (iv) repudiation/moratorium. Unlike corporate CDS contracts, bankruptcy is not a credit event for sovereign CDS contracts, since there is no sovereign bankruptcy court to preside over sovereign bankruptcy proceedings. Furthermore, corporations usually have grace periods for debt payments before a credit event is declared. Governments do not have these grace periods.

Despite an increase in liquidity, discrepancies remain between sovereign CDS market-implied credit ratings and actual default ratings, compared to the corporate market.[5] This difference could have significant policy implications, where CDS spreads could influence credit ratings on sovereign governments in illiquid market conditions.

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[3] Just before the financial crisis, banks resorted to "off-loading" their balance sheets from mortgages (to leverage up and still meet Basel II capital requirements) by buying CDSs and selling the underlying asset (the mortgage) to SPVs (GFSR, April 2008).

[4] The risk of counterparties defaulting was amplified during the 2008 global financial crisis, particularly because Lehman Brothers and AIG were counterparties in a very large number of CDS transactions. This is an example of systemic risk, risk which threatens an entire market, and a number of commentators have argued that size and deregulation of the CDS market have increased this risk.

[5] European Central Bank (2009).

The Saudi Arabia sovereign CDS is an unusual instrument in that Saudi Arabia does not currently have external sovereign debt. In the absence of an underlying reference instrument, there is still a market for Saudi CDS contracts. One motivation is that Saudi Arabia could issue a bond in the future, in which case the CDS contract would apply to that bond. Second, Saudi Arabia may have to explicitly guarantee a debt in the future, for example from a quasi-sovereign entity, in which case it would then be covered by the CDS contract. Finally, Saudi CDS protection buyers may just be trying to hedge, or speculate, on credit risk in Saudi Arabia and in the region in general.

Evaluating Distress Dependence among GCC Sovereigns[6]

Methodology

The dynamics of the distress dependency between different sovereigns—the probability of sovereign distress in one country, given default in another country—can be derived from CDS data. The methodology is based on estimating empirically the linkages between different countries using the sovereign CDS spreads as inputs.

The probability of a sovereign default in country A, given a default in country B—$P(A/B)$—is obtained in three steps:

- The marginal probabilities of default for countries A and B, $P(A)$ and $P(B)$ respectively, are extracted from the individual CDS spreads for those countries.

- The joint probability of default of A and B, $P(A,B)$, is obtained using the CIMDO methodology developed by Segoviano (2006). This is a non-parametric methodology, based on the Kullback (1959) cross-entropy approach, which estimates the joint probability of default without imposing a (predetermined) distributional form while at the same time it is constrained to characterize the data. That is, the individual probabilities of default obtained from integrating the CIMDO joint probability of default must match the observed probabilities of default (extracted from the CDS spreads).

- Finally, the conditional probability of default $P(A/B)$ is obtained by using Bayes' law: $P(A/B) = P(A,B) / P(B)$, and similarly for $P(B/A)$.

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[6] Based on Caceres et al. (2010).

The spillover coefficient

A measure of distress dependence, the Spillover Coefficient (SC), is constructed to capture the probability of distress of a country conditional on other countries becoming distressed. The SC quantifies the role contagion plays in the underlying risk of default of a given country.

For each country A_i, the SC is computed using the formula:

$$SC(A_i) = \Sigma \, P(A_i \, / \, A_j) \cdot P(A_j) \quad \text{for all } j \neq i$$

which is the weighted sum of the probability of distress of country A_i, given a default in each of the other countries in the sample. This measure of distress dependence is weighted by the probability of default of each of these countries.

Finally, the countries that represent the largest source of contagion to the other countries in the sample are determined. This is done by calculating the contribution of each country to changes in the SC measure for all other countries in the sample, over a specified period.

Data

The data used consist of sovereign CDS spreads for 12 Middle Eastern countries, obtained from Markit for the period October 31, 2008 through May 31, 2011.[7] Of the GCC countries, Kuwait is excluded as it does not have CDS contracts negotiated on the market, while both Dubai and Abu Dhabi sovereign CDS spreads are included. Of the remaining Middle Eastern sovereigns, Jordan and Algeria are excluded, since their CDS data lack enough variability and availability. It should be noted that Bahrain, Egypt, Oman, and Tunisia—all of which have seen various degrees of social and political unrest during the first half of 2011—are included.[8]

Results

The global financial crisis was a period of great distress for the region, but events since then have not generated such large movements in absolute risk (Figure 5). The evolution of the SC for the 12 Middle Eastern countries shows a very sharp increase in risk for all countries, with risk

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[7] http://www.markit.com/en/
[8] Appendix 5B discusses information sources for CDS data.

Figure 5.5. Spillover Coefficients, 2008–11
GCC Countries
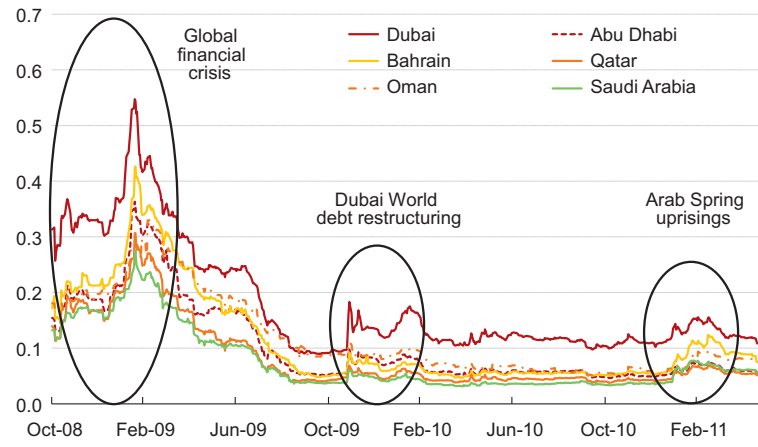
Source: Markit.

Non-GCC Countries
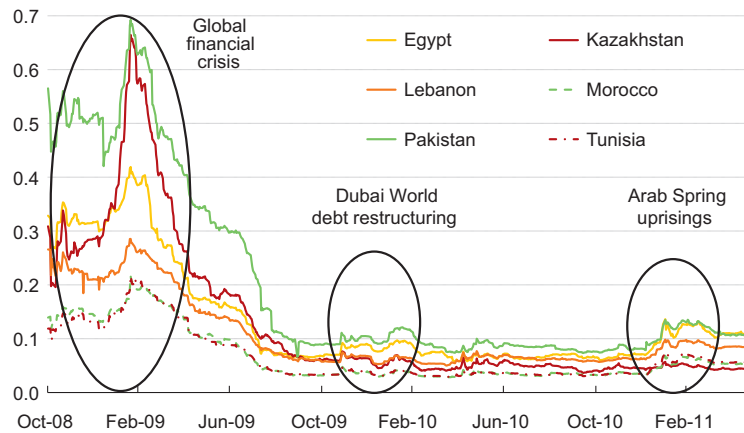
Source: Markit.

levels remaining elevated for a long period. Events since then—including the Dubai World debt restructuring and the Arab Spring uprisings—have produced increases in risk in the countries directly affected. These have spilled over into elevated perceptions of risk for other countries in the region, but the absolute magnitudes are far smaller than at the time of the global financial crisis.

The role of individual countries in generating risks for others in the sample provide insights into interlinkages and the probability of contagion, but not necessarily causation. The percentage contribution to the changes in each country's SC can be read along the rows of the tables in Appendix 5A. The last row in each table shows the weighted-average contribution to the changes in the SC from each of the column countries. This is a proxy for the source

Figure 5.6. Contribution to Changes in Spillover Coefficient, 2008–11

Global Financial Crisis: Oct. 31, 2008–Feb. 16, 2009
(Percent)

Dubai World Debt Restructuring: Nov. 2, 2009–Feb. 15, 2010
(Percent)

Arab Spring Uprisings: Jan. 11, 2011–Mar. 15, 2011
(Percent)
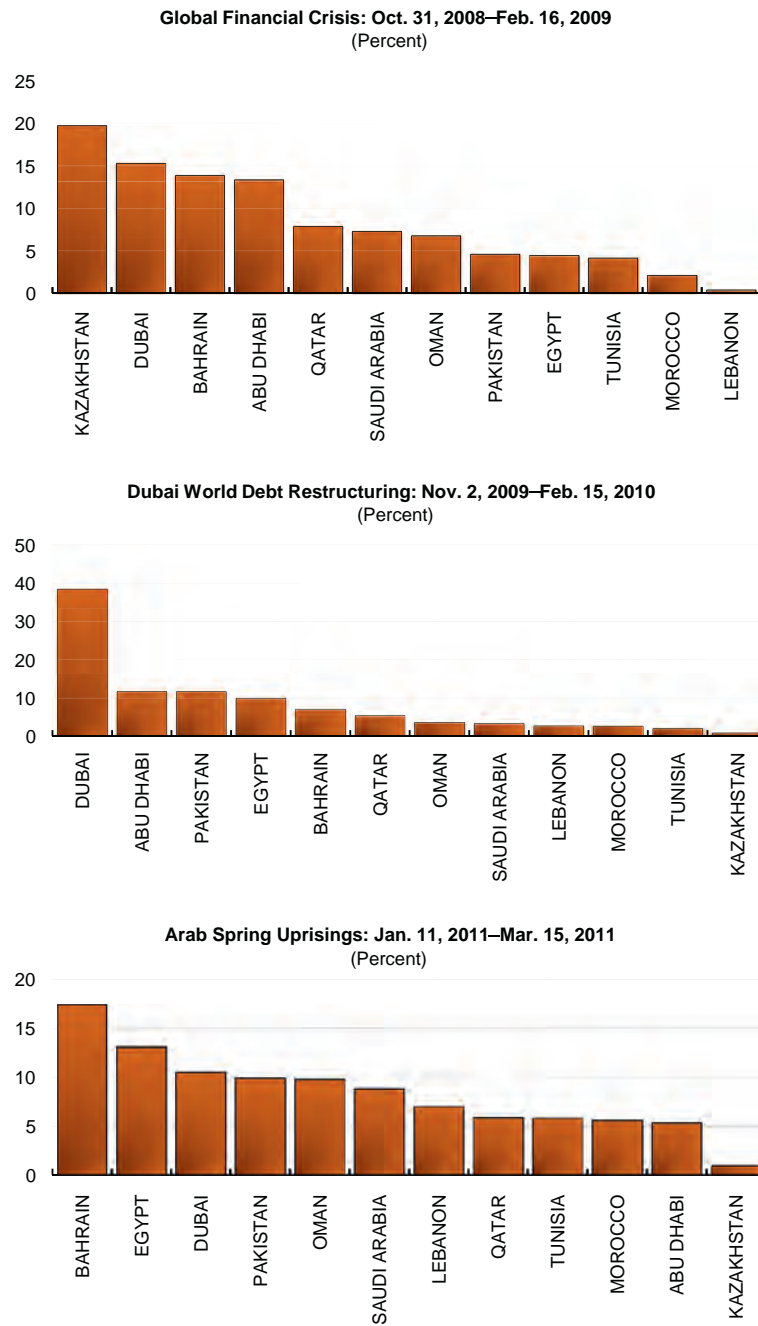
Source: IMF staff calculations.

of the market-based contagion to the other countries in the regional sample, emanating from each of these countries over the specified period. Results for the three distinct periods examined suggest (see Figure 5.6) the following:

- During the systemic outbreak period of the global financial crisis, from the end of 2008 through early 2009, the driving force—as seen in similar studies on Asia and Europe (Caceres and Unsal, 2011)—was clearly global risk-aversion, as reflected in Abu Dhabi, Bahrain, Dubai, and Kazakhstan.

- After the Dubai World debt restructuring announcement in November 2009, Dubai was clearly the dominant source of contagion in the region, accounting by itself for almost 40 percent of the elevation in risk and, together with Abu Dhabi, more than 50 percent.

- For the Arab Spring uprising period (the third table), Bahrain is identified as the leading source of contagion risk for most countries, closely followed by Egypt, although this ranking may in part reflect the precise sample period employed. The results suggest that Tunisia has not contributed greatly to risks in other countries.

Appendix 5A: Percentage Contributions to Distress Dependence[1]

Appendix Table 5A.1. Percentage Contributions to Distress Dependence

Oct.08–Feb.09	Dubai	Abu Dhabi	Bahrain	Qatar	Oman	Saudi Arabia	Egypt	Kazakhstan	Lebanon	Morocco	Pakistan	Tunisia	Total
Dubai		15.7	14.6	8.2	7.8	7.6	6.9	21.1	2.7	3.0	7.8	4.6	100.0
Abu Dhabi	17.6		11.6	7.8	8.3	6.9	8.5	15.5	4.3	3.4	11.9	4.2	100.0
Bahrain	15.8	11.3		7.6	7.6	7.4	7.5	17.7	4.2	3.7	12.5	4.8	100.0
Qatar	14.8	12.5	12.6		8.6	8.4	7.6	17.2	3.0	3.2	7.5	4.6	100.0
Oman	16.2	15.2	14.5	9.8		8.5	5.7	18.8	1.4	2.5	3.0	4.3	100.0
Saudi Arabia	14.7	11.9	13.1	9.0	8.0		7.9	16.5	3.2	3.1	7.3	5.2	100.0
Egypt	21.0	23.2	21.2	12.9	8.4	12.5		31.8	–8.7	–0.1	–27.1	4.9	100.0
Kazakhstan	17.0	11.2	13.1	7.7	7.4	6.9	8.4		4.4	3.9	14.7	5.3	100.0
Lebanon	87.5	124.5	124.7	54.4	21.4	54.1	–91.3	176.1		–32.4	–432.8	13.9	100.0
Morocco	19.2	19.0	21.2	11.1	7.7	10.1	–0.2	30.1	–6.3		–17.1	5.5	100.0
Pakistan	23.0	31.5	34.3	12.4	4.3	11.3	–26.3	54.1	–39.8	–8.1		3.2	100.0
Tunisia	15.0	12.3	14.3	8.3	6.8	8.8	5.2	21.6	1.4	2.8	3.6		100.0
Total	**15.3**	13.4	**13.9**	7.9	6.8	7.3	4.5	**19.7**	0.4	2.1	4.6	4.2	100.0

Appendix Table 5A.1. Percentage Contributions to Distress Dependence (concluded)

Nov.09–Feb.10	Dubai	Abu Dhabi	Bahrain	Qatar	Oman	Saudi Arabia	Egypt	Kazakhstan	Lebanon	Morocco	Pakistan	Tunisia	Total
Dubai		13.2	9.7	6.5	9.8	4.7	13.8	5.6	7.2	4.3	21.2	4.0	100.0
Abu Dhabi	33.7		8.2	7.0	8.4	4.4	11.1	3.3	4.7	3.6	12.7	3.0	100.0
Bahrain	38.6	12.8		6.9	3.8	4.6	9.5	1.1	3.1	3.6	13.3	2.7	100.0
Qatar	33.3	13.9	8.8		5.8	5.5	11.8	1.9	3.0	3.6	9.6	2.8	100.0
Oman	72.8	24.5	7.0	8.4		1.6	9.6	–14.5	–7.5	–0.5	1.2	–2.5	100.0
Saudi Arabia	37.9	14.0	9.4	8.7	1.7		12.5	–0.6	1.9	3.0	9.0	2.5	100.0
Egypt	40.8	12.9	7.1	6.8	3.8	4.6		1.5	3.5	3.5	13.0	2.5	100.0
Kazakhstan	163.7	37.7	7.8	10.8	–57.0	–2.3	14.5		–37.3	–7.7	–16.7	–13.4	100.0
Lebanon	71.4	18.2	7.7	5.9	–9.9	2.3	11.8	–12.6		0.9	6.0	–1.7	100.0
Morocco	43.0	14.2	9.1	7.1	–0.7	3.8	12.1	–2.7	0.9		10.9	2.3	100.0
Pakistan	54.3	12.8	8.5	4.8	0.4	2.8	11.3	–1.5	1.5	2.7		2.2	100.0
Tunisia	51.8	15.4	9.0	7.2	–4.5	4.1	11.0	–6.0	–2.3	2.9	11.3		100.0
Total	**38.5**	**11.8**	7.1	5.5	3.7	3.4	10.0	0.9	2.7	2.7	**11.7**	2.1	100.0

Jan.11–Mar.11	Dubai	Abu Dhabi	Bahrain	Qatar	Oman	Saudi Arabia	Egypt	Kazakhstan	Lebanon	Morocco	Pakistan	Tunisia	Total
Dubai		6.6	22.7	6.5	12.1	11.0	16.1	–1.1	6.2	5.4	9.0	5.5	100.0
Abu Dhabi	12.3		18.1	7.3	12.5	10.2	13.6	0.4	6.2	5.4	8.6	5.3	100.0
Bahrain	14.7	6.3		6.5	10.7	8.9	12.8	2.8	8.9	6.8	14.8	6.9	100.0
Qatar	11.1	6.7	17.3		12.5	11.3	13.8	1.3	6.2	5.8	7.9	5.9	100.0
Oman	12.9	7.1	17.7	7.8		9.7	14.2	1.9	6.7	5.6	10.6	5.7	100.0
Saudi Arabia	12.9	6.4	16.1	7.7	10.6		14.4	2.5	7.6	5.7	8.8	7.2	100.0
Egypt	13.2	6.0	16.4	6.6	11.0	10.1		1.9	9.0	6.7	12.9	6.2	100.0
Kazakhstan	–10.2	2.0	41.1	7.0	16.7	20.5	21.6		–2.9	6.6	–7.6	5.1	100.0
Lebanon	9.0	4.8	20.0	5.2	9.1	9.4	15.8	–0.4		6.9	12.6	7.7	100.0
Morocco	9.6	5.2	18.9	6.1	9.4	8.7	14.6	1.2	8.5		10.4	7.4	100.0
Pakistan	9.5	4.8	24.2	4.9	10.5	8.0	16.5	–0.8	9.2	6.1		7.2	100.0
Tunisia	9.4	4.9	18.3	6.0	9.1	10.5	13.0	0.9	9.1	7.1	11.7		100.0
Total	**10.5**	5.3	**17.4**	5.8	9.8	8.8	**13.1**	1.0	7.0	5.6	9.9	5.8	100.0

Source: IMF staff calculations.

[1] Figures in bold indicate those countries with the highest percentage contribution to distress dependence.

Appendix 5B: Data Sources

Credit default swaps are over-the-counter derivatives, meaning that they are not traded on an exchange. The CDS market is a dealer market, and so obtaining data on prices is not straightforward. A number of companies now offer such data, but their methodologies differ. The source for CDS spreads data in this paper, and used in the SC calculations, is Markit. Markit aggregates CDS valuation information, based on post-trade valuation information, which does not reflect specific trading information or actual transactions. Some companies, such as CMA Datavision, do publish CDS data based on transactions and real-time quotes. However, given the generally low level of trading activity in MENA region CDS contracts, strange price quotes can emerge, including plateaus if there are no trades for a number of trading days. For the period used in this paper, October 31, 2008 through May 31, 2011,

Correlation of Daily CDS Data From Markit and CMA Datavision	
Dubai	0.91
Lebanon	0.97
Pakistan	0.89

Sources: Markit; and CMA Datavision.

Appendix Figure 5B.1. Credit Default Swap Spreads, 2008–11

(Basis points)
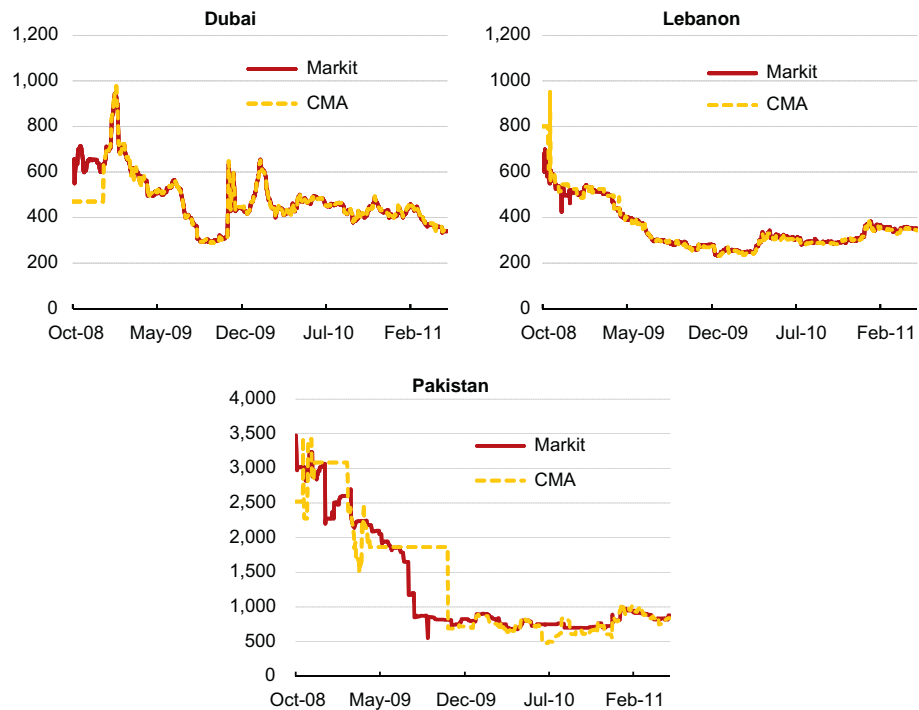
Sources: Markit; and DataStream for CMA Datavision data.

the correlation of the daily data from Markit and CMA Datavision is mostly 1.0 or very close to it, but there are some exceptions, with Dubai, Lebanon, and Pakistan at times displaying significant discrepancies.

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Economic Policy Spillovers: Saudi Arabia in the Global Economy[1]

Spillovers from Saudi fiscal decisions and a slowdown in emerging Asia are simulated using an augmented three-region version of the IMF's Global Integrated Monetary and Fiscal model (GIMF). Saudi fiscal multipliers are fairly low, due to the large leakage via imports, but the composition of fiscal spending packages matters greatly—public investment and transfers to liquidity-constrained consumers having the largest impact. Cross-border spillovers are largest to Asia, via the trade channel. A slowdown in emerging Asia would have important adverse spillovers for Saudi Arabia in the short term—largely through a decline in demand for oil—but less so over the medium to long term.

Introduction

Decisions taken in Saudi Arabia affect, and are affected by, the global economy. The global crisis highlighted the truly interconnected nature of the global economy and the critical role of spillovers from policy decisions in one country to others. At the height of the global crisis, Saudi Arabia implemented a large fiscal expansion to support the national economy while cognizant of the need to support global demand. Similarly, the fiscal spending packages announced in Saudi Arabia in early 2011, while intended to address domestic issues, will also impact economies within the region and globally. The oil market also provides important spillovers: Saudi Arabia is currently the second largest oil producer in the world and is the only producer with significant spare capacity that can be used to stabilize markets. But spillovers work both ways in the oil market—the level and composition of global growth have important impacts on the demand for oil, particularly growth in emerging Asia, which is becoming increasingly important in determining oil market fluctuations.

The cross-border spillovers noted above can be analyzed using GIMF. GIMF features rich layers of intraregional trade, an oil market, and aggregate demand, allowing the transmission mechanism of the fiscal stimulus and external shocks to be fully articulated. The specific model employed here includes three regions—Saudi Arabia (SA), emerging Asia and China (AS), and the Rest of the World (RW)—and a separate oil sector (a similar model was used in IMF (2011) to model the long-run behavior of the oil market).

Variants of GIMF have been employed to analyze a wide range of policy issues in various countries. These include, among others, macroeconomic implications of alternative fiscal responses to commodity price booms in Australia (Hunt, 2008) and Chile (Kumhof and Laxton, 2009); the effectiveness of fiscal stimulus measures to cushion the global downturn in Australia (Hunt, 2009) and Korea (Eskesen, 2009); macroeconomic and structural policies needed to rebalance Asian demand (N'Diaye et al., 2010); the impact of fiscal consolidation in advanced economies (IMF, 2010a); quantifying the macroeconomic policy adjustment needed to prepare for participation in the European Monetary Union (Tamirisa and others, 2007); and alternative G20 scenarios to deliver sustainable and balanced global growth (IMF, 2010b).

The domestic impact of Saudi fiscal policy is constrained by relatively low fiscal multipliers, but the composition of the spending package matters. As in other studies, Saudi fiscal multipliers are found to be fairly low due to the large leakage, reflecting a high import content of spending and a relatively high marginal propensity to save. Depending on the composition of the spending, short-term multipliers could be in the range of 0 to 1.2—when the fiscal expansion is largely comprised of capital spending, the longer implementation cycle implies that the short-run expansion in GDP and increase in inflation will be smaller and more gradual than when it is implemented through an expansion in goods and services; and targeted transfers to liquidity-constrained groups have a durable impact on output while untargeted transfers have no impact.

Medium-term dynamics of the fiscal expansion are different from those of most other countries. In most countries,[2] increased government consumption implies smaller government savings, requiring higher public sector borrowing and increased interest payments, ultimately inducing increases in taxation. However, in Saudi Arabia, the absence of a debt burden, or at this juncture of a need for financing, leaves interest payments unaffected so that the net impact is a redistribution of wealth away from Saudi Arabia (in the form of lower net foreign assets (NFA)) in favor of other regions as international

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[2] See for example, Leigh (2008); and IMF (2010a).

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reserves are reduced. In the long run, NFA positions return to the steady-state calibration.

Weaker demand in Asia would have adverse effects on Saudi Arabia in the short run, but long-run effects are more mixed. A slowdown in demand from Asia, for example due to a decline in the productivity of the tradable sector, reduces the demand for oil and Saudi Arabia's output falls, and the trade balance initially deteriorates, generating a redistribution of NFA to the rest of the world. As demand stabilizes in the long run and trade balances narrow in Saudi Arabia and Asia, output, consumption, and investment in the rest of the world pick up.

The Global Integrated Monetary and Fiscal Model (GIMF)

GIMF is a multi-region dynamic stochastic general equilibrium model. The model integrates domestic supply, demand, trade, and international asset markets in a single theoretical structure, allowing transmission mechanisms to be fully articulated. Its features have been found important for replicating real-world behavior, including finite planning horizons of households and firms, gradual adjustment of prices and nominal wages to unexpected changes, and macrofinancial linkages in the form of a financial accelerator. The version employed in this paper has three economic regions—Saudi Arabia, emerging Asia (including China), and the rest of the world. Following the GIMF model featured in IMF (2011), an oil sector is added.

The behavioral assumptions within GIMF can be adjusted to reflect the policy framework in Saudi Arabia and the other regions (Appendix 6A). Governments finance expenditure through a range of tax and nontax revenues, and maintain nominal anchors. They purchase final goods for public consumption and to maintain public infrastructure, and add to the capital stock by increasing public infrastructure. Governments also provide transfers to households. Households are modeled as overlapping generations, living finite lives, consuming goods, and there are wage rigidities. Monetary policy is modeled as an augmented Taylor rule, seeking to stabilize output and inflation by adjusting the nominal interest rate. In the case of Saudi Arabia, the rule is fully tilted toward a preference for no nominal exchange rate volatility to reflect the fixed exchange rate regime. The rest of the world is assumed to follow an inflation-targeting regime. Inflation in Saudi Arabia adjusts to account for the real exchange rate movement (based on the underlying savings-investment behavior) relative to the fixed nominal exchange rate. Nominal rigidities here include sticky inflation Phillips curves in each sector of the economy. NFA is fixed in the model, and all regions return to their steady state in the long run (100 years).

The baseline model is established using end-2007 data (Appendix 6B). 2007 is used for the steady state in all GIMF simulations so as not to have the results tempered by the possibly temporary distortions introduced into the data by the financial crisis and recession beginning in 2008.

Fiscal Expansion in Saudi Arabia

A benchmark scenario is developed to assess the impact of a fiscal expansion in Saudi Arabia—constituting a combination of permanent and temporary measures—on the baseline underlying GIMF. First, a 1 percent increase in spending to GDP of each type of public spending is examined separately to identify the fiscal multipliers associated with each. Second, the cumulative impact of a 10 percent increase in spending (comprised of capital and current spending in equal amounts, with capital being temporary and carrying over for five years, while current spending is 40 percent permanent and 60 percent temporary) is examined. The permanent increase in current spending could be implemented through general or targeted transfers, or just goods and services.

Saudi fiscal measures produce effects on real GDP that are similar to if not larger than those predicted in previous studies. An expansion of 1 percent raises baseline output on impact by 0 to 1.2 percent (Figure 6.1).[3,4] As expected, the impact of one-off temporary measures quickly dissipates, but expenditures that carry over, including public investment, have a more permanent effect.[5] In part this persistence may reflect the large steady-state stock of assets and thus Saudi Arabia's ability to sustain a fiscal surplus (or deficit) for an extended period (i.e., unlike most countries, Saudi Arabia has no immediate need for a fiscal consolidation due to the lack of need for external financing).

The composition of fiscal spending matters. When fiscal expansion is implemented by increasing capital spending, the short-run expansion in GDP is smaller and more gradual (i.e., more durable) than when the spending goes to goods and services (Figure 6.1).[6] Moreover, the impact of general transfers is very modest compared to that of increases in targeted transfers, since the latter will reach liquidity-constrained households with a higher marginal

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[3] The short-run multiplier is defined as a one-year average of real GDP (deviation from baseline) for the cumulative fiscal expansion package divided by a 4.5 percent fiscal balance (as a share of GDP) adjustment (i.e., withdrawal of spending measures).

[4] See Leigh (2008); IMF (2010a); Fernández-Villaverde (2010); Espinoza and Senhadji (2011); and Rodriguez (2011).

[5] This could be because interest rate earnings provide an opportunity cost to capital spending, as the steady-state real gross interest rate is 3 percent per annum in GIMF.

[6] The smaller impact of capital spending on output differs from results found in the empirical literature.

Figure 6.1. Saudi Arabia: Impact of Fiscal Spending Measures on GDP
(Percent)
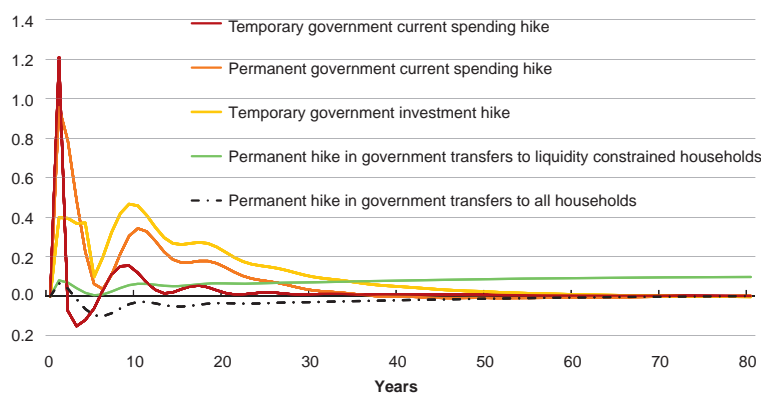
Source: IMF staff calculations.

propensity to consume, while the former save the transfer to smooth future consumption over time.[7]

A cumulative increase in total government spending of 10 percent of GDP has an initial (average of first two years) 4.7 percent expansionary impact on output and 2.9 percent on private consumption (Figure 6.2). The fiscal expansion will cause a pickup in inflation—which could reach 4.5 percent above the baseline in Year 1 and 1 percent above the baseline in Year 2—and it is assumed that the Saudi Arabia Monetary Agency does not tighten monetary conditions to contain the temporary spike in inflation. Hence, the real interest rate initially falls, consistent with the maintenance of the nominal exchange rate peg. As a result, there is a "double uptick effect" on the real economy which contributes to lifting output (and investment) above its steady-state level, well into the medium or long term. The real effective exchange rate initially appreciates, however, after a few years; it depreciates and results in a gradual recovery in the trade balance, after the initial large deterioration (between 9 and 11 percent during the first four years). Oil revenues, financial wealth, and NFA fall gradually as ratios to GDP. The current account gradually widens to a deficit of just over 5 percent of GDP, narrowing to 2.5 percent in the medium term.

Sensitivity analysis

Three alternative scenarios were carried out to identify the key sensitivities: a lower rate of public capital productivity (from 10 to 5 percent), a higher rate of depreciation of the government capital stock (from 4 to 8 percent), and

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[7] The increases in general and lump-sum transfers are to the same fiscal-instrument-to-GDP ratio of 1 percentage point.

Figure 6.2. Impact of Saudi Fiscal Expansion Package (10 percent of GDP): GIMF Simulations

(Percent or percentage point deviation from baseline)
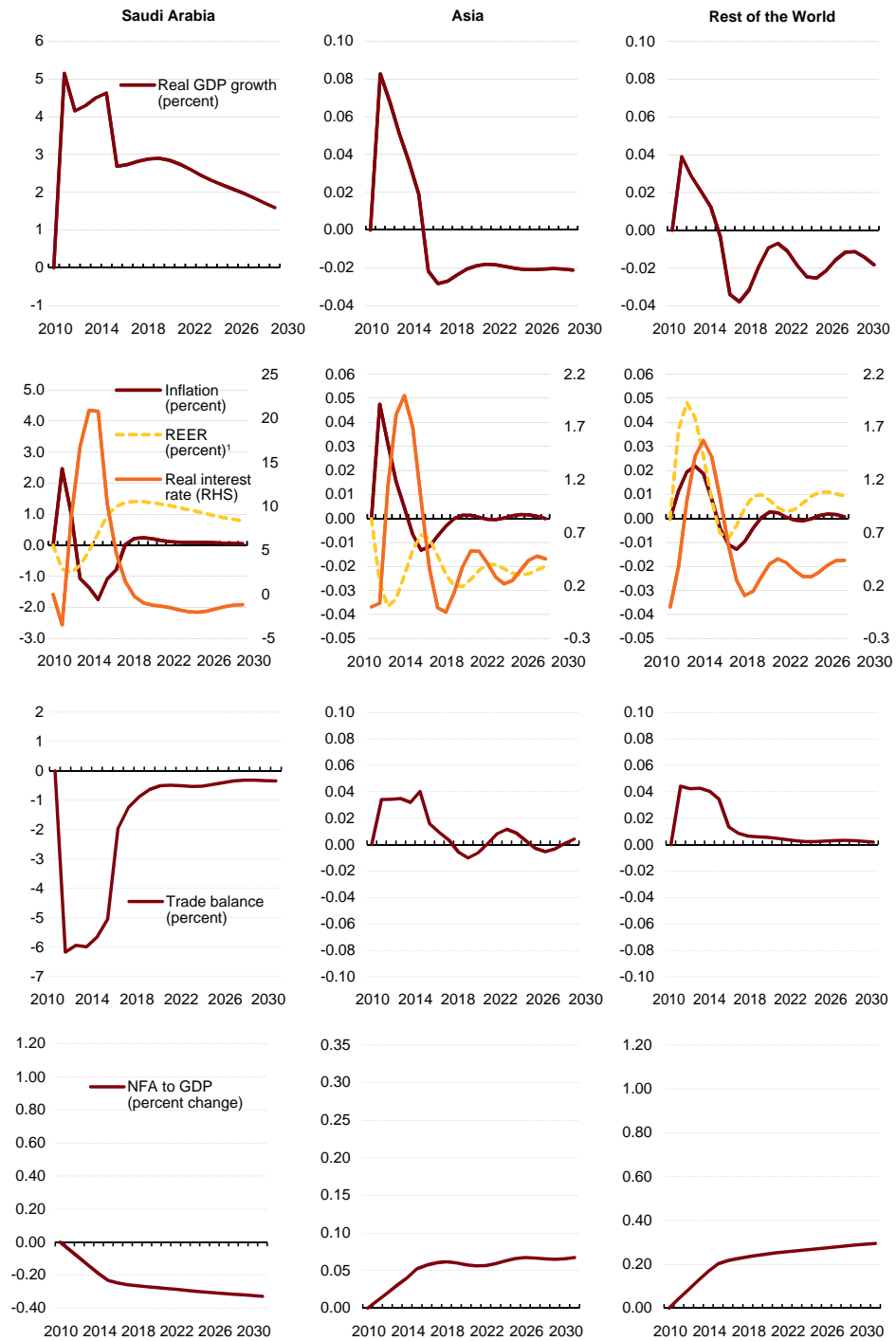
Source: IMF staff calculations.
[1]Increase indicates depreciation.

a higher steady-state interest rate (from 3 to 5 percent). These experiments reduced the impact on domestic demand (output and consumption) only modestly (Table 6.1).[8]

Table 6.1. Saudi Arabia: Baseline Fiscal Multiplier Sensitivity Analysis

(in percent of percentage points)

Fiscal Measures	Baseline	Lower Capital Productivity	Higher Depreciation	Higher Interest Rate
Temporary government current spending hike	1.21	1.21	1.21	1.11
Permanent government current spending hike	0.96	0.86	0.86	0.85
Temporary government investment hike	0.40	0.36	0.37	0.40
Permanent hike in government transfers to liquidity constrained households	0.08	0.08	0.08	0.08
Permanent hike in government transfers to all households	0.07	0.07	0.07	0.07

Source: IMF staff estimates.

Spillovers from the fiscal expansion

Spillovers from the fiscal expansion to output in other regions are modest, increasing growth in Asia on impact by 0.08 percent of real GDP and half of that in the rest of the world (Figure 6.2, columns 2 and 3). The trade balances of both regions (AS and RW) also improve a little (0.04 percent of GDP in both regions) on the back of the heavy import content of the Saudi fiscal expansion. Real consumption increases slightly in AS but deteriorates a little in the RW. Long-term dynamics are somewhat different from most other countries: in most countries, smaller government savings generated by larger government consumption tend to increase interest payments, inducing increases in taxation. However, as Saudi investment income falls, *ceteris paribus*, calling for a re-accumulation in NFA for intergenerational equity purposes,[9] a small redistribution of wealth in the form of net foreign assets, from Saudi Arabia (0.3 percent of GDP) in favor of Asia (0.08 percent of GDP) and the rest of the world (0.3 percent of GDP) takes place.

A Slowdown in External Demand

A growth slowdown in Asia—for example due to a permanent 2.5 percent decrease in the productivity of the tradable sector—affects Saudi growth by reducing demand for oil. As Asian output falls by about 1.3 percent, demand

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[8] Changing the share of liquidity-constrained households could also be an additional sensitivity analysis.
[9] NFA to GDP returns to its steady-state level gradually within 100 years.

Figure 6.3. Impact of 2.5 percent Decrease in Asian Tradable Productivity:
GIMF Simulations
(Percent or percentage point deviation from baseline)
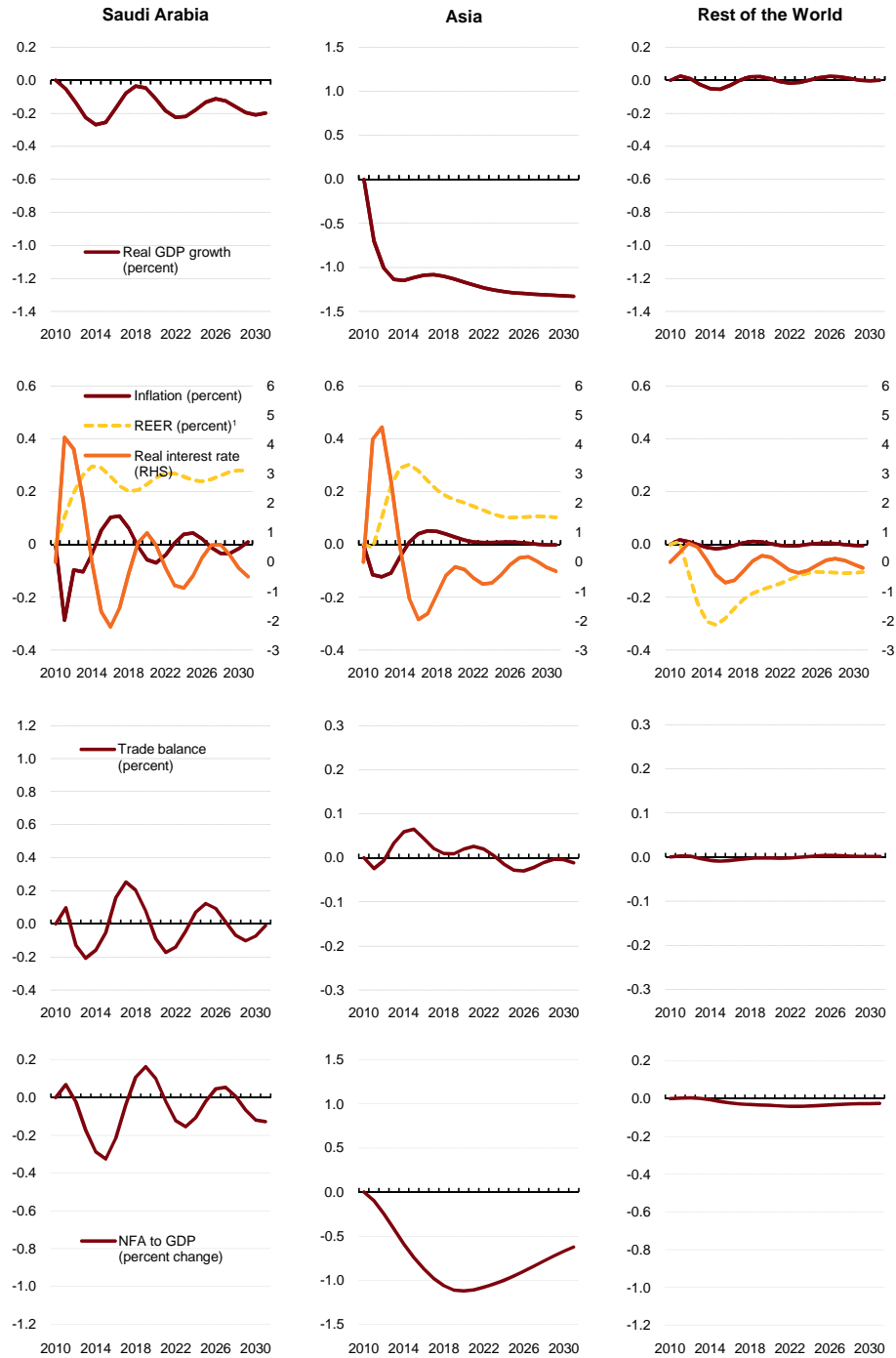
Source: IMF staff calculations.
[1]Increase indicates depreciation.

for oil from Saudi Arabia falls and thus Saudi Arabian output contracts gradually (to a trough of 0.3 percent in the fourth year of the shock), while real consumption and investment fall by a larger amount (1.0 and 0.6 percent, respectively) (Figure 6.3). The fall in output in Saudi Arabia is induced by falling oil prices on the back of a near-vertical global oil supply curve,[10] as the demand curve shifts down due to lower Asian demand. Consequently, Saudi Arabia's terms of trade weaken, causing the real exchange rate to depreciate. The upswing is temporary, causing the trade balance to shift between an improvement followed by a deterioration, with an eventual small fall in NFA in the long run. While this demand shock slows NFA to GDP accumulation in Asia, in the sixth year it returns to positive growth. Thus NFA wealth is redistributed away from Asia to Saudi Arabia, as the oil trade balance of Asia falls into deficit (Figure 6.3).[11] As demand stabilizes and trade balances narrow in Saudi Arabia and Asia over the medium term, output, consumption, and investment in the rest of the world pick up.

Directions of Future Work

The analysis presented above offers useful insights, but there are a number of possible extensions to the model that could provide richer insights into potential spillovers affecting Saudi Arabia. Two immediate priorities are: (i) to deepen the analysis of oil market behavior to enable an exploration of the implications for Saudi Arabia of its spare capacity in oil supply; and (ii) to develop a Mashreq[12] bloc that would capture the impacts of the Saudi economy on the MENA region through both trade linkages and flows of workers' remittances.

Appendix 6A. The Structure of the GIMF Model

GIMF, developed at the IMF by Kumhof et al (2010), is a multi-region dynamic stochastic general equilibrium model. The model integrates domestic supply, demand, trade, and international asset markets in a single theoretical structure, thereby allowing transmission mechanisms to be fully articulated. Its features have been found important for replicating real-world behavior, including finite planning horizons of households and firms, gradual adjustment of prices and nominal wages to unexpected changes, and

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[10] The short-run global supply curve has 3 percent price elasticity. See Appendix 6B for more details.

[11] Other shocks (such as a fall in oil intensity in Asia, perhaps due to a preference for renewable energy; and a capital tax shock, to address overheating and demand rebalancing in Asia towards consumption) were carried out with similar effects.

[12] The Mashreq is a net oil importer group of Middle Eastern countries comprised of Egypt, Jordan, Lebanon, and Syria.

macrofinancial linkages in the form of a financial accelerator. The model is well suited to analyzing the effects of monetary policy, fiscal policy, and structural reforms, as well as the global and regional implications of these policies and other events. The version employed in this paper has three economic regions—Saudi Arabia, emerging Asia (including China), and the rest of the world.

Following the version of GIMF featured in IMF (2011), an oil sector is added. In GIMF an economy is divided into 10 interlinked micro sectors.[1] There are wide-ranging nominal and real rigidities at the sectoral level generating realistic inertial dynamics for key macroeconomic aggregates. Unions, manufacturers, and distributors face nominal rigidities in price setting, while retailers and importers are subject to real adjustment costs as it is costly to rapidly adjust their sales volume. Manufactures are also subject to real adjustment costs in capital accumulation.

Each economy is populated with two types of households, overlapping generations (OLG) households, and liquidity-constrained (LIQ) households. The main difference between these two types of households is that the latter do not have access to financial markets, and are forced to consume their after-tax income each period. Unions buy labor services from the two types of households and sell them to manufacturers who also purchase capital goods from distributors and use the three production factors—oil, labor, and capital—to produce tradable and nontradable intermediate goods. The intermediate goods are then sold to domestic distributors and import agents of foreign countries—this is the first layer of trade (intermediate goods trade). Distributors combine domestic and foreign-produced tradable goods, along with nontradable goods, with positive benefits from public infrastructure, to produce output that will be used as inputs in the production of domestic consumption and investment goods, on the one hand, and as exports of those same goods on the other—this is the second layer of trade (final goods trade). Final goods producers sell their final outputs to the government and retailers, who in turn sell their output to households.

Oil is a third factor of production and also a second factor in final consumption, in addition to output of goods and services. The price and availability of oil therefore influence production as well as consumption possibilities and choices. The price responsiveness of oil demand is an important parameter determining the impact of changes in oil market conditions, reflecting the scope for the substitution of oil by other factors. On the supply side, there is an exogenous oil endowment which is exhaustible and costly to extract, with oil supply being responsive to higher oil prices with low price elasticity. Finally, there is a difference between the market price

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[1] Partial description of the oil sector can be found in Kumhof et al. (2010).

and extraction costs—oil rents. This rent is distributed between the domestic private sector and the government.

GIMF relaxes the conventional assumption that all government spending is wasteful and does not contribute to aggregate supply. Instead, public investment spending adds to a public capital stock, which enhances the productivity of the producers of domestic goods. The government determines how the fiscal-balance-to-GDP (surplus) ratio responds to excess revenue (from oil, in the case of Saudi Arabia) using a simple fiscal policy rule. The rule can be determined so as to be procyclical, neutral, or countercyclical. In the case of Saudi Arabia, it is assumed to be a budget surplus of 4.5 percent of GDP that stabilizes NFA at its end- 2010 level, 105 percent of GDP. All excess surpluses accrue to a hypothetical sovereign wealth fund.

Monetary policy is modeled as an augmented Taylor rule which traditionally aims to stabilize output and inflation through the manipulation of the nominal interest rate. In the case of Saudi Arabia and Emerging Asia, the rule is fully tilted towards a preference for no nominal exchange rate volatility to reflect the fixed exchange rate regime in these regions. Thus AS and SA target the nominal RW exchange rate, thereby importing the short-term nominal rate from RW. Inflation in SA (or AS) adjusts to account for the real exchange rate movement (usually based on the underlying savings-investment behavior) relative to the nominal fixed rate. The rest of the world is assumed to follow an inflation targeting regime. Nominal rigidities here include sticky inflation Phillips curves in each sector of the economy.

Appendix 6B. Calibration of the Three-bloc Augmented GIMF Model

The model is calibrated to contain three blocs: Saudi Arabia (SA), emerging Asia including China (AS) and the rest of the world (RW). Each period corresponds to one year.

Saudi Arabia is assumed to comprise 0.7 percent of world GDP and a steady-state inflation rate of 3 percent per year. Emerging Asia has a steady-state inflation rate of 3 per year, while RW has a rate of 2 percent per year. The steady-state rate of technological progress is assumed to be 2 percent per year, population is assumed to grow at 1 percent per year, and the real interest rate in emerging Asia and the RW is assumed to be 3 percent in the initial steady state. The structural parameters regarding household preferences and firm technology are set as follows: households in all blocs are assumed to have a planning horizon of 20 years, and a decline in lifecycle worker productivity of 5 percent per year. Fifty percent of Saudi Arabian and AS households are assumed to be liquidity-constrained, while this share is 30 percent in RW. These proportions are consistent with Kumhof and others (2010).

Appendix Table 6B.1. Saudi Arabia: Key Steady-State Calibration Values, 2007

Variable	Saudi Arabia	Asia	Rest of the World
Size (sums to 100)	0.694	12.745	86.564
Shares of GDP			
Private consumption	29.6	58.7	60.4
Private investment	25.0	24.8	15.0
Government consumption	41.6	12.3	18.6
Government investment	4.0	4.0	3.0
Net trade	0.0	0.0	0.0
Exports of goods and services (non-oil)	6.5	28.1	3.8
consumption	3.2	21.8	2.0
intermediate	3.3	6.3	1.8
Imports of goods and services (non-oil)	54.9	23.2	4.1
consumption	23.9	6.1	2.1
investment	19.8	5.5	1.1
intermediate	11.2	11.6	0.9
Net exports of oil	48.4	–5	0.3
Government debt (% GDP)	5.0	37.0	40.0
Government balance (% GDP)	–0.2	–1.6	–1.8
Transfers (% GDP)	9.9	9.5	8.8
Oil production and demand (% GDP)			
Total demand	3.5	6.0	4.2
for consumption only	1.4	1.4	1.4
Total supply	51.9	1.0	4.5

Sources: IMF, World Economic Outlook Database; and IMF staff estimates.

Fiscal sector: Fiscal parameters such as the ratios to GDP of government transfers, purchases of goods and services, and public investment are calibrated based on end-2007 data. The productivity of public investment is calibrated following Kumhof et al. (2010), who, drawing on a large number of OECD and emerging market studies, estimate the elasticity of aggregate output with respect to public capital at 0.14. Accordingly, the model is calibrated so that a 10 percent real increase in public investment is associated with a long-run increase in real GDP net of depreciation of about 1.4 percent. In the absence of shocks, the fiscal balance is set to equal the value that stabilizes the debt-to-GDP and NFA-to-GDP ratios at the end 2010 levels of 4.5 and 105 percent, respectively.

***Oil sector*:** In the simulations, the long-run price elasticity of oil demand in both production and consumption is assumed to equal 0.08.[1] However, in the short-run oil demand meets a virtually inelastic oil supply curve. Thus oil demand drives prices in the short run, and causes some overshooting in the clearing oil price. The contribution of oil to output parameters has been calibrated at 2 to 5 percent, depending on oil cost share in a given sector and region. Oil supply can be responsive to higher oil prices, with a low price elasticity of supply of 0.03. Initially 40 percent of oil revenue is assumed to be used to make payments for intermediate goods inputs and that thereafter the real extraction cost per barrel increases at a constant annual rate of 2 percent. While in industrial economies the government is assumed to extract only a small share of oil rent, Saudi Arabia and the oil exporters in the Emerging Asia bloc receive 90 percent of rents. These large rents are not immediately consumed; rather, they are accumulated in a U.S. dollar-based fund, with spending at a rate of 3 percent per annum.

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[1] This is consistent with estimations for 1990–2009, see IMF (2011).

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GCC Corporate Vulnerabilities[1]

Impact of the Global Financial Crisis and Post-Crisis Performance

GCC stock markets fell sharply in 2008/09 as spillovers from the global financial crisis—lower oil prices and falling real estate markets—affected the region. While stock markets have yet to recover to their pre-crisis levels, the corporate sector seems to have weathered the crisis well, with profitability recovering strongly in 2010. Balance sheet data on listed companies for the six GCC countries show that corporations did come under pressure in the latter part of 2008 and into 2009, but that these pressures have now eased. Standard vulnerability tests identify risks in some sectors linked to interest rates, but many firms are currently holding large cash cushions that help mitigate such risks.

Introduction

GCC stock markets fell sharply during 2008/9 (Figure 7.1). While direct exposures to toxic assets were probably small, GCC economies were significantly affected by the slowdown in global growth generating a collapse in the oil price (from a peak of $132.6 in 2008 to a trough of $41.7 in 2009), tightened access to international capital markets, falling real estate prices in several countries, and a dramatically altered risk assessment of the region following the debt-servicing difficulties of Dubai World. In such an environment, the corporate sector will be expected to come under pressure, but the GCC region has seen few instances of corporate bankruptcies and very limited recourse to special support for the financial sector (Khamis and others 2010).

The health of the corporate sector during this period can be examined using publicly available information on the balance sheets of listed companies. Using firm-level data, two distinct and complementary approaches are employed in evaluating the vulnerability of the corporate sector—the interest coverage ratio (ICR) based on balance sheet

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[1] Prepared by Renas Sidahmed.

Figure 7.1. GCC: Equity Prices, 2006–11
(Index, January 1, 2006=100)

Source: Bloomberg.
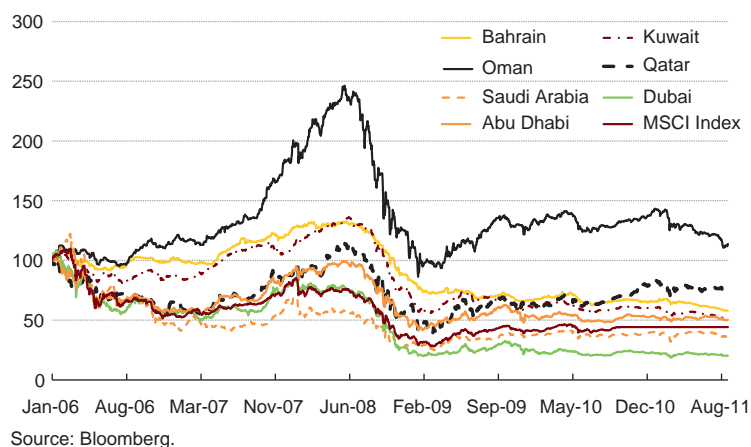
information and Distance to Default (DtD) ratios that combine both balance sheet and equity price data. Stress tests of corporate balance sheets with shocks to borrowing costs and profits are employed to shed light on the potential effect of worsening economic conditions on firms' financial health. The associated distress indicators have been found to be reasonably accurate (ex-post) in foreshadowing corporate and financial sector distress—for China (Heytens and Karacadag, 2001), Asia Banks Goldman Sachs (1998, 2000), India (Topalova (2004) and Oura and Topalova (2009)), Japan (Harada et al. 2010), Korea (Jones and Karasulu, 2006) and Mexico (Blavy and Souto, 2009).

The aggregate-level analysis shows that some firms came under pressure during the global crisis but positions have subsequently strengthened. The study employs data for 424 listed nonfinancial corporates in the six GCC countries. The analysis suggests that in aggregate the nonfinancial corporate sector in the GCC is in a strong position for debt servicing, with limited vulnerabilities to interest rate and income shocks. Stress tests at the sectoral level identify some susceptibility to interest rate risks, notably the real estate and service sectors in Kuwait and the United Arab Emirates, service sectors in Oman and Qatar, and, in Saudi Arabia, the petrochemical sector, and the agriculture and food sector.

Structure and Performance of the Corporate Sector

Size

Total assets of the 424 listed companies stood at about $631 billion–about 58 percent of the combined GDP of the GCC at end-2010 (Table 7.1).

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Table 7.1. GCC: Corporate Performance, 2007–10

(US$ billions)

	Number	Net Profit				Total Assets				Total Debt			
		2010	2009	2008	2007	2010	2009	2008	2007	2010	2009	2008	2007
Bahrain	18	0.78	0.26	1.25	1.12	7.07	7.14	7.58	7.47	1.12	1.38	1.58	1.82
Kuwait[1]	132	4.1	1.5	1.1	7.1	68.1	76.6	78.0	65.3	12.4	22.2	22.8	10.3
Oman	86	1.1	1.1	1.0	1.0	11.6	10.6	9.9	8.7	3.1	2.8	2.9	2.3
Qatar	32	4.5	6.0	4.5	3.4	98.5	76.9	58.1	43.3	28.5	23.8	18.8	12.3
Saudi Arabia	103	15.7	10.4	6.9	16.1	316.5	296.5	262.7	16.1	84.3	78.9	66.1	57.8
U.A.E.	53	0.5	4.5	7.8	6.8	128.8	126.4	116.9	88.9	37.0	33.4	29.9	25.2
Total	424	26.8	23.8	22.4	35.5	630.6	594.1	533.2	229.9	166.4	162.5	142.1	109.7

Source: IMF staff calculations based on Zawya.
[1]Net profit after unusual items.

These companies had a total debt of about $166 billion. Corporate leverage is within reasonable limits, with an aggregate debt-equity ratio of approximately 1.5 at end-2010.

Saudi Arabia's corporate sector is the largest among the six GCC countries in terms of asset size. At end-2010 its 103 listed companies with total assets of $317 billion constituted 70 percent of GDP and 86 percent of bank assets. The United Arab Emirates' 53 corporations, listed with total assets of $129 billion, constituted 43 percent of GDP and 36 percent of bank assets. Qatar's 32 listed corporations held assets of $99 billion, constituting 77 percent of GDP and 75 percent of banks' assets. In Kuwait, the assets of 132 listed corporations stood at $68 billion (51 percent of GDP and 43 percent of bank assets). Oman's 86 corporations had an asset base of $12 billion, constituting 20 percent of GDP and 36 percent of bank assets. Bahrain's 18 corporations had the smallest asset base, 7 billion constituting 31 percent of GDP and 13 percent of bank assets.

Profitability

Profits have recovered strongly since 2008, but with some weaknesses in Oman and Qatar, as well as in the real estate sector in Kuwait and the United Arab Emirates. Aggregate corporate profitability increased by over 50 percent in Saudi Arabia during 2010, driven by a near doubling of profits in the petrochemical sector—by far the largest individual sector—reflecting higher prices and sales volumes (Table 7.2). In Kuwait, the profitability of the corporate sector improved in 2010, notwithstanding the continued drag by the real estate sector. The improved performance was largely owing to an increase of about 150 percent in the profits of the industrial and service sectors. It is noteworthy that most sectors in the GCC countries recorded profits in both

Table 7.2. GCC: Sectoral Corporate Performance Analysis by Country, 2008–10

(US$ billions)

		Net Profit			Total Assets			Total Debt		
		2010	2009	2008	2010	2009	2008	2010	2009	2008
Bahrain										
	Industry	0.37	–0.19	0.79	3.62	3.79	4.14	1.06	1.24	1.45
	Hotel and tourism	0.06	0.05	0.06	0.51	0.44	0.40	0.02	0.00	0.00
	Service	0.36	0.41	0.41	2.93	2.92	3.04	0.04	0.13	0.13
Kuwait[1]										
	Food	0.2	0.2	0.1	2.8	2.7	2.8	0.4	0.5	0.7
	Industrial	0.3	0.1	–0.2	5.8	5.3	5.4	1.9	5.2	6.2
	Real estate	–0.4	–0.4	–0.3	22.0	24.1	25.1	5.0	4.4	3.9
	Service	4.0	1.6	1.4	37.5	44.5	44.8	5.1	12.1	12.1
Oman										
	Industry	0.3	0.2	0.2	2.5	2.0	2.1	0.6	0.4	0.6
	Service	0.7	0.8	0.8	9.1	8.6	7.9	2.6	2.4	2.3
Qatar										
	Industry	2.1	1.8	2.4	15.9	13.6	13.2	3.7	3.0	2.9
	Service	2.5	4.3	2.1	82.7	63.2	44.9	24.8	20.8	16.0
Saudi Arabia										
	Petrochemicals	8.6	3.1	7.6	146.0	136.6	117.6	55.4	52.5	39.5
	Cement	1.0	1.0	1.1	7.1	6.7	6.3	1.0	0.8	0.6
	Industrial investments	0.7	0.8	0.8	18.7	16.6	14.3	2.9	2.1	2.1
	Agriculture and food	0.7	0.6	0.4	10.1	9.5	8.0	1.4	1.4	1.3
	Retail	0.3	0.3	0.2	2.3	2.0	1.8	0.1	0.1	0.1
	Energy and utilities	0.6	0.3	0.3	51.3	44.8	39.1	8.1	5.9	5.4
	Telecommunication and IT	2.9	3.2	3.2	46.5	44.9	41.0	11.7	12.0	12.2
	Multi-investment	0.2	0.1	–8.0	13.3	15.4	15.4	3.3	0.0	0.0
	Real estate development	0.4	0.6	0.7	14.9	13.9	13.2	0.0	1.5	1.1
	Construction	0.0	0.1	0.1	1.3	1.2	1.2	0.2	0.2	0.2
	Transportation	0.2	0.1	0.2	3.4	3.5	3.3	0.0	0.0	0.0
	Tourism	0.0	0.1	0.0	0.5	0.5	0.5	0.0	0.0	0.0
	Media	0.0	0.0	0.1	0.9	0.9	1.0	0.0	0.0	0.0
U.A.E.										
	Transportation	2.55	3.04	3.03	36.06	34.60	30.64	4.11	3.55	3.43
	Real estate	–3.34	1.47	3.81	52.58	59.51	56.58	10.16	11.48	8.44
	Service	1.25	–0.06	0.93	40.14	32.31	29.64	22.74	18.38	18.02

Source: IMF staff calculations based on Zawya.

[1] Net proft after unusual items.

2009 and 2010—losses were limited to real estate sectors (Kuwait and the United Arab Emirates), industry (Bahrain) and services (United Arab Emirates).

Corporate Vulnerability Analysis

Interest coverage ratios

At the aggregate level, the interest coverage ratios (ICRs) point to comfortable levels of debt servicing capacity (Table 7.3). The ICR is defined as earnings before interest and taxes over interest expenses, and measures a firm's debt-servicing capacity. Firms with ICRs below 1 are unable to generate enough income to cover interest payments, and their debt is classified as distressed. At an aggregate level, the ICR for 2010 was 6.0, signifying that the corporate sector's interest-servicing capacity is comfortable. The ICR ranged from a high of 34.9 for Bahrain to a low of 2.8 for the United Arab Emirates. When cash cushions are taken into consideration, the ICRs improve substantially in all countries.

Table 7.3. GCC: Interest Coverage Ratio, 2010

	Number	Total Assets	Cash Cushions	Total Liabilities	Operating Income	Interest Expense	Short-term Debt	Total Debt	Interest Coverage Ratio	ICR w/ Cash	Average Interest Rate[1]
Bahrain	18	7.1	0.7	2.3	0.8	0.0	0.1	1.1	**34.9**	**65.4**	2.1
Kuwait	132	68.1	5.9	29.0	3.0	0.9	3.5	12.4	**3.2**	**9.6**	7.4
Oman	86	11.6	0.9	5.5	1.1	0.2	0.6	3.1	**7.6**	**13.3**	4.8
Qatar	32	98.5	14.7	56.2	4.6	1.5	0.4	28.5	**3.1**	**13.1**	5.2
Saudi Arabia	103	316.5	24.9	154.3	27.2	2.5	2.7	84.2	**10.8**	**20.8**	3.0
U.A.E.	53	128.8	11.0	74.9	5.5	2.0	4.6	37.0	**2.8**	**8.3**	5.3
Total	424	630.6	58.0	322.1	42.2	7.1	11.9	166.4	**6.0**	**14.2**	4.2

Source: IMF staff calculations based on Zawya.
[1]Average interest rate = interest expense/total debt*100.

The extent of risk, however, varies markedly by sector and by country, with overall ratios masking important differences (Table 7.4).

- *Saudi Arabia*: At end-2010, just 12 out of 103 firms had either operating losses or an ICR below 1 (two of them in the top 15 companies by asset size), their combined debt accounting for about 19 percent of total debt of firms. These companies, however, had adequate cash and cash-equivalent balances to service their current interest payments. The share of these corporations' assets in total assets was 13 percent.

Table 7.4. GCC: Financial Performance Analysis by Country, 2010
(US$ billions)

	Total Assets	Cash Cushions	Total Liabilities	Operating Income	Interest Expense	Short-term Debt	Total Debt	Interest Coverage Ratio	ICR w/ Cash	Average Interest Rate[1]
Bahrain										
Industry	3.6	0.2	1.7	0.4	0.0	0.0	1.1	19.9	28.4	1.9
Hotel and tourism	0.5	0.1	0.1	0.0	0.0	0.0	0.0	31,724.0	102,156.0	0.0
Service	2.9	0.4	0.6	0.4	0.0	0.0	0.0	120.0	263.1	8.2
Kuwait										
Food	2.8	0.2	0.8	0.2	0.0	0.2	0.4	5.5	12.2	8.8
Industrial	5.8	0.4	2.3	0.2	0.1	0.5	1.9	2.6	8.1	3.5
Real estate	22.0	0.7	11.2	0.2	0.3	0.9	5.0	0.7	3.0	6.6
Services	37.5	4.5	14.6	2.4	0.5	1.8	5.1	4.8	14.1	9.6
Oman										
Industry	2.5	0.2	0.9	0.2	0.0	0.3	0.6	11.7	20.8	3.4
Services	9.1	0.7	4.5	0.9	0.1	0.4	2.6	6.9	12.2	5.1
Qatar										
Industry	15.9	1.9	5.5	1.8	0.1	0.4	3.7	24.0	49.4	2.0
Services	82.7	12.8	50.7	2.8	1.4	0.0	24.8	2.0	11.1	5.6
Saudi Arabia										
Petrochemicals	146.0	17.4	74.6	12.6	1.3	0.4	55.4	9.4	22.4	2.4
Cement	7.1	0.2	1.5	1.0	0.0	0.0	1.0	120.6	145.6	0.8
Industrial investments	18.7	1.2	8.1	0.7	0.1	0.9	2.9	9.4	26.7	2.5
Agriculture and food	10.1	0.4	4.7	0.7	0.0	0.6	1.4			
Retail	2.3	0.8	1.4	0.3	0.0	0.0	0.1	28.3	102.7	7.1
Energy and utilities	51.3	1.9	31.4	0.6	0.0	0.0	8.1			
Telecommuni-cation and IT	46.5	1.9	23.2	3.8	0.8	0.7	11.7	4.6	6.9	7.1
Multi-investment	13.3	0.5	4.1	4.1	0.1	0.1	3.3	36.6	40.8	3.4
Real estate development	14.9	0.4	3.1	3.1	0.0	0.0	0.0			
Construction	1.3	0.0	0.7	0.1	0.0	0.0	0.2	22.9	31.3	1.9
Transportation	3.4	0.1	1.4	0.1	0.0	0.0	0.0	7.7	12.0	
Tourism	0.5	0.0	0.0	0.0	0.0	0.0	0.0			
Media	0.9	0.0	0.2	0.0	0.0	0.0	0.0	8.6	15.2	
U.A.E.										
Transportation	36.1	4.7	14.4	2.2	0.3	0.3	4.1	6.8	21.3	7.9
Real estate	52.6	3.5	29.8	1.0	0.5	4.1	10.2	2.2	9.9	4.5
Services	40.1	2.7	30.6	2.2	1.2	0.3	22.7	1.9	4.2	5.2

Source: IMF staff calculations based on Zawya.

[1]Average interest rate = interest expense/total debt*100.

These companies are performing at healthier levels in 2010 than in 2009, partly reflecting a decrease in total debt (by 23 percent) and total liabilities (by 20 percent).

- *Kuwait*: The resilience of the corporate sector improved in 2010. Corporate sector leverage has improved on account of a decrease of 44 percent in total debt and 9 percent in total assets in 2010. This decrease in total debt was not observed in the weaker segments where the level of debt of the companies with ICRs below 1 has increased. By sector, 37 companies—4 industrial (5 percent of total debt), 19 real estate (29 percent of total debt), and 14 service (17 percent of total debt)—out of the 132 listed companies had ICRs below 1 or operating losses, compared to 31 companies in 2009. These companies accounted for 51 percent of the total debt of the listed companies in 2010 as opposed to a share of 39 percent of total debt in 2009.[2] When cash cushions are included, the overall corporate sector performance improves substantially; 17 companies out of the 132 listed companies had ICRs below 1 or operating losses, compared to 15 companies in 2009.[3] These companies accounted for 12.5 percent of the total debt of the listed companies compared to a share of 7 percent of total debt in 2009.[4]

- *Qatar*: Two (one industry sector and one service sector) out of the 32 listed companies have ICRs below 1 or operating losses, with their debt accounting for 0.5 percent of the total debt.

- *Oman*: 19 (five industry sector and 14 service sector) out of the 86 listed companies have ICRs below 1 or operating losses, with their debt accounting for 7 percent of the total debt.

- *Bahrain*: One (one industry sector) out of the 18 listed companies has operating losses, with their debt accounting for 0.9 percent of total debt.[5]

- *United Arab Emirates*: 10 (five real estate sector, three service sector, and two transportation sector) out of the 53 listed companies have ICRs

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[2] In 2009, 30 out of 110 companies had ICRs below 1 or operating losses; 8 industrial (18 percent of total debt), 10 real estate (12 percent of total debt), and 12 service (8 percent of total debt).

[3] By sector – One industrial (0.1 percent of total debt), nine real estate (9.7 percent of total debt) and seven service (2.7 percent of total debt).

[4] Taking into account cash cushions, in 2009, 15 out of 110 companies had ICRs below 1 or operating losses; 4 industrial (1 percent of total debt), two real estate (2 percent of total debt), and nine service (4 percent of total debt).

[5] The data for Bahrain reflects only those companies that are currently listed on the Bahrain stock exchange, which therefore explains the outstanding performance. It does not reflect those companies that have been removed from public listings; United Paper Industries and Securities & Investment Co.

below 1 or operating losses, with their debt accounting for 12 percent of total debt. (Table 7.5).

Table 7.5. GCC: Extent of Risk by Country, 2010
(US$ billions)

	Companies w/ICR <1	Percent of Total Debt	Total Assets	Total Debt
Saudi Arabia	12 of 103	19.0	316.5	84.2
Kuwait	37 of 132	51.0	68.1	12.4
Qatar	2 of 32	0.5	98.5	28.5
Oman	19 of 86	7.0	11.6	3.1
Bahrain	1 of 18	0.9	7.1	1.1
U.A.E.	10 of 53	12.0	128.8	37.0

Source: IMF staff calculations based on Zawya.

Stress testing—interest rate and income shocks

Stress tests applied to ICRs show limited aggregate risks from interest rate and income shocks. The interest-paying capacity of the companies was stressed by increasing short term interest rates by 200 and 500 basis points from current levels, and by assuming a negative income shock of 25 percent:

• Even with a 500 basis points increase, the ICRs would remain above 1 at an aggregate corporate sector level for all the countries (Table 7.6). The number of companies with ICRs below 1 will increase, as expected, but not enough to suggest pressures on any of these countries' corporate debt-servicing capacity. Furthermore, when taking into account cash cushions, the outcomes are even more positive.

• Income shocks—a 25 percent decline—also do not point to debt-servicing pressures at the aggregate level (Table 7.7).

Table 7.6. GCC: ICR Performance Under an Interest Rate Shock, 2010

	200 bpts		500 bpts	
	ICR	ICR w/cash	ICR	ICR w/cash
Bahrain	17.9	25.5	7.9	14.7
Kuwait	2.5	7.6	1.9	5.7
Oman	5.3	9.4	3.7	6.5
Qatar	2.2	9.8	1.6	6.9
Saudi Arabia	6.6	12.4	4.0	7.8
U.A.E.	2.0	34.7	0.1	0.3

Source: IMF staff calculations based on Zawya.

Table 7.7. GCC: Income Shocks, 2010
(25 percent fall/increase)

	ICR	ICR w/cash
Bahrain	26.2	48.9
Kuwait	2.4	7.2
Oman	5.6	9.9
Qatar	2.3	3.3
Saudi Arabia	8.1	15.6
U.A.E.	2.1	6.3

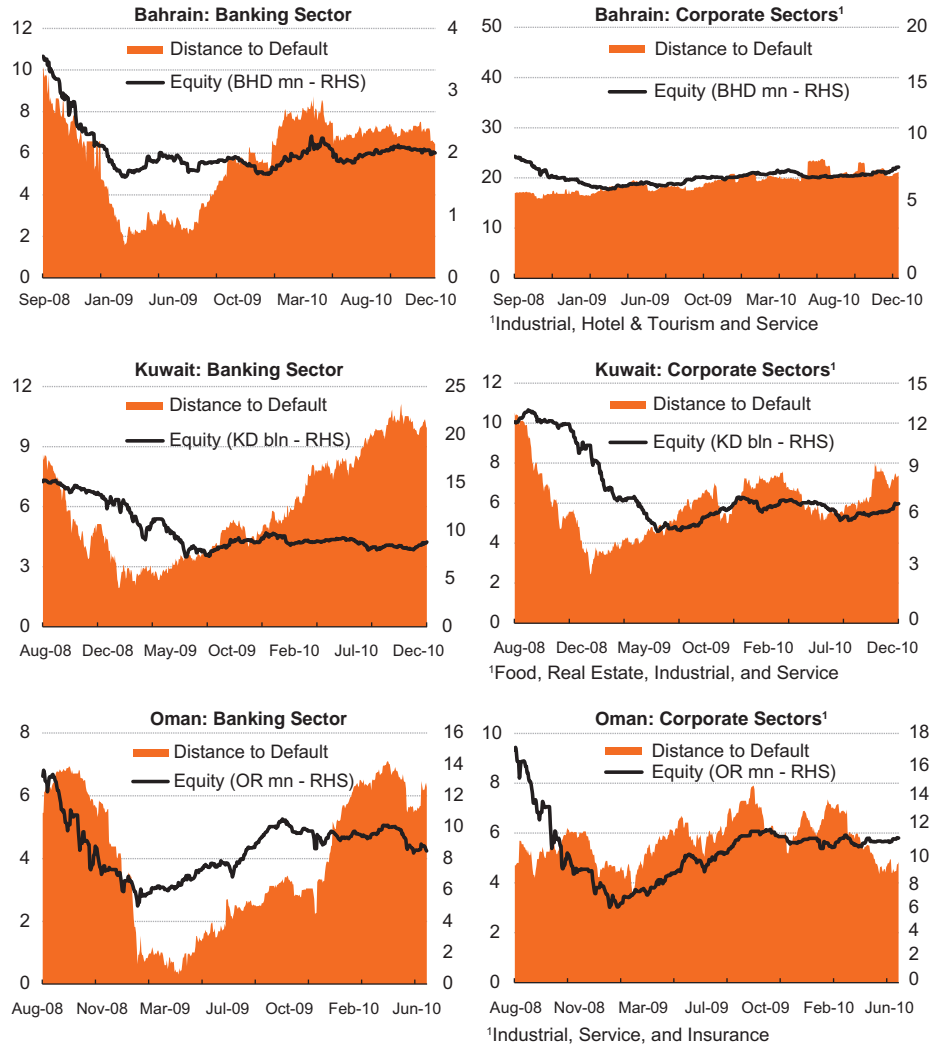Source: IMF staff calculations based on Zawya.

At the sectoral level, some vulnerabilities emerge. Despite fairly strong corporate balance sheets, higher interest rates and lower incomes could imply a much lower buffer against distress. Some sectors could face debt servicing problems if interest rates increase and their cash balances are depleted. For instance, if interest rates increase by say 200 to 500 basis points, or if these corporations face a revenue shock of, say, 25 percent, then debt servicing pressures could arise. These difficulties could affect the real estate and service sectors in Kuwait and the United Arab Emirates; service sector in Oman and Qatar; and the petrochemicals, and agriculture and food sectors in Saudi Arabia. Specifically:

- In Kuwait, for the industrial sector an increase of 500 bpts will cause two additional companies (accounting for an additional 7 percent of total debt) to have ICRs below 1. In the case of real estate sector, an increase of 500 bps will cause two additional companies (accounting for an additional 3 percent of total debt) to have ICRs below 1. For the service sector an increase of 500 bps will cause six additional companies (accounting for an additional 4 percent of total debt) to have ICRs below 1.

- In the case of Oman, for the industry sector an increase of 500 bpts will cause two additional companies (2 percent of total debt) to have ICRs below 1. A 500 bpts increase in interest rates would bring the ICRs below 1 for three more companies (accounting for 24 percent of total debt) in the service sector.

- In the United Arab Emirates' real estate sector an increase of 500 bpts will cause four additional companies (18 percent of total debt) to have ICRs below 1. A 500 bpts increase will cause one additional company in the service sector (2 percent of total debt) to have ICRs below 1.

Distance to Default

Distance-to-default (DtD) measures the extent to which a firm's total assets (at market value) need to fall for it to default within a year, given its current

Figure 7.2. GCC: Distance to Default of Banks and Nonfinancial Corporations, 2008–10

Bahrain: Banking Sector
- Distance to Default
- Equity (BHD mn - RHS)

Bahrain: Corporate Sectors[1]
- Distance to Default
- Equity (BHD mn - RHS)

[1]Industrial, Hotel & Tourism and Service

Kuwait: Banking Sector
- Distance to Default
- Equity (KD bln - RHS)

Kuwait: Corporate Sectors[1]
- Distance to Default
- Equity (KD bln - RHS)

[1]Food, Real Estate, Industrial, and Service

Oman: Banking Sector
- Distance to Default
- Equity (OR mn - RHS)

Oman: Corporate Sectors[1]
- Distance to Default
- Equity (OR mn - RHS)

[1]Industrial, Service, and Insurance

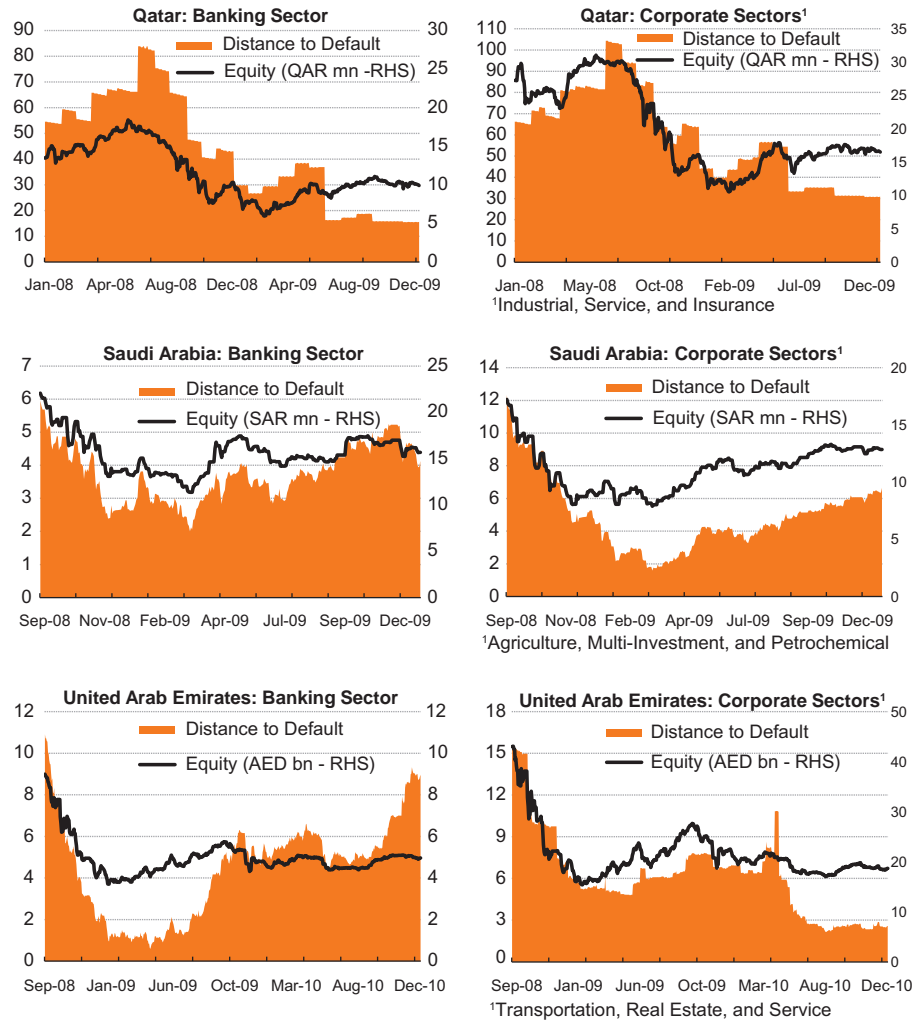Sources: RATS; Bloomberg; and IMF staff calculations.

balance sheet position.[6] For an individual firm, default occurs when the value of equity reaches zero. According to the methodology used in this analysis, a firm defaults when the market value of its assets falls short of its debt liability, or alternatively the market value of its equity falls to zero.[7] The DtD calculation is derived from "inverting" the Black Scholes Merton (BSM)

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[6] $DtD = \frac{\log(A) - \log(B) + [\mu - (\sigma_A^2/2)]}{\sigma_A}$;

A = assets, B = debt, σ_A = standard deviation of asset return, μ = expected return.

[7] Total liabilities have been used for the purpose of this analysis.

Figure 7.2. (concluded)

Qatar: Banking Sector
Distance to Default
Equity (QAR mn -RHS)

Qatar: Corporate Sectors[1]
Distance to Default
Equity (QAR mn - RHS)
[1]Industrial, Service, and Insurance

Saudi Arabia: Banking Sector
Distance to Default
Equity (SAR mn - RHS)

Saudi Arabia: Corporate Sectors[1]
Distance to Default
Equity (SAR mn - RHS)
[1]Agriculture, Multi-Investment, and Petrochemical

United Arab Emirates: Banking Sector
Distance to Default
Equity (AED bn - RHS)

United Arab Emirates: Corporate Sectors[1]
Distance to Default
Equity (AED bn - RHS)
[1]Transportation, Real Estate, and Service

Sources: RATS; Bloomberg; and IMF staff calculations.

model. The BSM model is most often used to price a derivative asset (e.g., a call option) as a function of the probability of events.[8]

The DtD calculations show that the banking and nonfinancial corporate sectors did come under pressures during the latter part of 2008 and into 2009, but that in most cases risks have reverted to pre-crisis levels (Figure 7.2). The results indicate that even though these sectors were affected by the global financial crisis, default risk remains low, signifying that banks and corporations

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[8] To calculate probabilities of default, Merton (1974) assumed that a company's equity is a call option on its assets (the equity has value only if the value of assets exceeds that of debt) and provided the formula needed to back up the probability of default from the value of equity and the volatility of the equity price.

in the GCC countries are generally well cushioned to withstand shocks. As expected, DtD and equity values are closely correlated—a high equity value implies that markets are assigning a strong probability that the future value of assets exceeds the company's debt.

Concluding Remarks

The nonfinancial corporate sector in the GCC countries has weathered the global crisis well. Near-term risks, derived from both stress tests of interest rate coverage ratios and distance to default calculations, appear manageable at the aggregate level, particularly when the large cash cushions currently held by many corporations are taken into consideration. Certain sectors—and individual entities—are, of course, more exposed than others.

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Gulf Cooperation Council Countries (GCC)
Enhancing Economic Outcomes in an Uncertain Global Economy