GCC PETRODOLLAR SURPLUSES AND THE US CURRENT ACCOUNT IMBALANCE

Shawkat HAMMOUDEH[1]

Ramazan SARI[2]

Eisa ALESIA[3]

Abstract

Given the secrecy that wraps the flows of the GCC countries' petrodollar surpluses to the United States and the pressures on these countries to spend and recycle more, this study attempts to uncover the direct and reverse causal relationships between the GCC financial accounts and the US current account deficit. It examines whether the GCC petrodollar surpluses are part of the global savings glut (an external factor) that causes the US current account deficit, or on the contrary this deficit is home-grown and the petrodollar savings glut hypothesis does not hold. It particularly focuses on the world's important oil exporters to find out if the homegrown deficit hypothesis holds for the world's largest oil consumer. The implications and policy recommendations for this significant source of global external imbalances are provided

Keywords: *Capital Account; Financial Account; Direct and Reverse Causality*

GCC PETRODOLAR FAZLALIĞI VE ABD CARİ AÇIK DENGESİZLİĞİ

Özet

GCC (Körfez İşbirliği Konseyi) ülkelerinin petrodolar fazlasının ABD'ye akmasının ve bu ülkeler üzerinde söz konusu akışı sağlamaya yönelik baskının gizliliği varsayımı altında bu çalışma, GCC ülkelerinin finansal hesapları ile ABD

cari açığı arasındaki nedensellik ilişkiyi ortaya çıkarmayı amaçlamaktadır. GCC ülkelerindeki sermaye hesabı fazlalığının, ABD'deki cari açığa sebep olması ve böylece söz konusu açığın uluslararası tasarruf fazlalığından kaynaklanıp kaynaklanmadığı, ya da açığın tamamen yerel sebeplerden kaynaklandığı ve böylece uluslararası tasarruf hipotezinin yanlış olup olmadığı incelenmektedir. Çalışma ile, özelikle önemli petrol ihracatçısı ülkelere yoğunlaşarak, yerel kaynaklı cari açık iddiasının dünyanın en büyük petrol tüketicisi için doğru olup olmadığı araştırılmaktadır. Çeşitli politika önerileri de çalışmada yer almaktadır.

*   **Anahtar Kelimeler:** *Sermaye Hesabı; Finansal Hesap; Direkt ve Ters Nedensellik*

1. Introduction

The six member states of the Gulf Cooperation Council (GCC), namely Bahrain, Kuwait, Oman, Qatar, Saudi Arabia and United Arab Emirates (UAE) have a collective GDP of about $750 billion in 2006, making them the 16 [th] largest economy in the world just below Australia.[4] In 2007, their GDP is estimated at $900 billion reflecting higher oil revenues. These countries share common economic, financial, oil and political characteristics. They are currently members of a common market and aspire to be a monetary union with a common currency and a joint central bank in the near future.[5] Most of these members, which have special relations with the United States, are oil-exporters with vast amounts of oil reserves. They use oil exports to finance their economic growth and prosperity. On the other hand, they inherently have limited absorptive capacity as manifested by their accumulation of mammoth foreign assets, reaching about $804 billion in 2004 (Lane and Milesi, 2006) and rising rapidly to $1,600 billion in 2007, representing 225 percent of their collective total gross domestic product.[6] These assets are expected to become about $3 trillion in the next few years, necessitating the need for finding safe and profitable places elsewhere for investing those petrodollar surpluses. The GCC countries have complete capital mobility but they still have strong clinging restrictions on their stock markets and banking systems, which limit the sophistication of their financial systems and the pace of their economic developments, and contribute to the accumulation of foreign assets.

---

[4] http://en.wikipedia.org/wiki/List_of_countries_by_GDP_%28nominal%29

[5] Oman opted not to join the monetary union and UAE objected to the location of the joint central bank.

[6].China's corresponding foreign assets amount to $1,000 billion in 2006, representing 42 per cent of its GDP. http://www.zawya.com/Story.cfm?id=ZAWYA20070606033334&Section=Markets&page=Money&l= 033300070606

The current account surpluses make these countries major net lenders on the capital account. The United States, which is a big recipient of their petrodollars and has had a huge current account deficit every year except one since 1982 (see Figure 1), is a major borrower on the current account.[7] A recent study by International Institute of International Finance (IIF) estimates that 55% of the GCC petrodollar surpluses, accumulated during the period 2002-2006, has been invested in the United States, 18% in Europe, 10% stayed in the Middle East, 10% in Asia and the rest went to other countries. But the US official record seems to under-report those investments, while this is not the case for the US investment of the North Sea oil-exporting country, Norway (Setser and Ziemba, 2007) which shows adequate exposure. This point makes it necessary to use time series techniques to uncover the "secrets" of the GCC investments in the United States, as well as to shed the light on the causes of the US current account deficit when it comes to the petrodollar savings of major oil-exporting countries.

The GCC countries may reap important financial benefits from financing the US current account deficit including return, safety and liquidity. Since the oil barrel is priced in the US dollar, financing the US current account amounts to supporting the dollar. A strong dollar is important for the GCC countries because it determines the purchasing power of their oil revenues which are used in importing more goods and services from Japan and EU zones than from the United States. The share of foreign imports of aggregate GCC imports is 25% from the EU bloc and 6.5% from Japan, compared to 9.2% from the United States in 2005 (Eleisa and Hammoudeh, 2007). Furthermore, the GCC countries have complete capital mobility and peg their currencies to the dollar. A stable dollar brings forth to the GCC economies all the benefits associated with a stable exchange rate. However, precipitous dollar depreciation could have a possibly devastating consequence on their dollar peg, their economies and those of other developing countries.[8] Moreover, putting economic, political and diplomatic risks aside, the GCC countries are criticized by their fellow Arab and Moslem countries for investing most of their savings in an unfriendly superpower instead of investing them in their countries.[9] These criticisms increased after the 2008 subprime crisis in the United States.

In light of the above special economic, oil and exchange rate characteristics and political considerations it will be interesting to examine the relationship between

---

[7] The US current account deficit reached more than $800 billion at the end of 2006, representing 6.5% of GDP (see Fig. 1, and WSJ, June 16-17, 2007, A 4).

[8] For more information, see Obstfeld and Rogoff (2004) and Roubini and Setser (2004)

[9] Institute of International Finance (IIF) grades the economic, political and diplomatic risks in the Arab countries as Medium, Medium and High (Handy and Reeve, 2007).

the financial accounts of these oil-exporting countries and the current account of the United States, the world's largest net borrower on capital account. We will concentrate on two related issues: 1) is the US current account deficit caused by external factors and if so, does the petrodollar savings glut of the oil exporters contribute to that?; 2) is the US current account deficit home-grown and is not caused by the savings glut of the oil exporters? The results should provide unavailable information to the world community on the causes of the US current account deficit from the point of view of the oil-exporters and their petrodollars. They will also provide useful information to the GCC countries on their involvements in financing the US deficit and supporting the US dollar as an anchor of their currencies, and to the Arab and Moslem countries on importance of diversion of the GCC investments outside the Greater Middle East region.

The academic literature neglects to investigate the role of the oil-exporting countries to help cause the US current account deficit and to be a growing source of global "saving glut" and external imbalances. The literature gives adequate attention to different sources that explain the US record deficit and the global imbalances but not to the petrodollar surpluses. Bems et al. (2007) identify five shocks related to technology and policy that stand in their views as the suspects behind the deteriorations of the US current account. Gruber and Kamin (2007) give several explanations for the US current account deficit and the external account surpluses of the Asian developing countries. Devereux and Genberg (2007) compare the impacts of Asian exchange rate appreciation with fiscal adjustment on the US current account deficit correction. They note that there may be a welfare conflict between regions on the best way to achieve the adjustment. Chinn and Ito (2007) assess key assertions that underline the global saving glut hypothesis. They contend that the US current account behavior is borderline anomalous. On the other hand, the East Asian developing countries would have smaller current account surpluses if they have more developed financial markets and legal systems, and greater domestic investment.

Our focus in this paper is on the role that the major-oil exporting countries of the GCC region play in causing the US current account deficit if their petrodollar surpluses are part of the global "saving glut". The US government statistics do not show adequately the flows of their surpluses to the United States.[10] To our knowledge, no academic research has been done on this subject and there is a current need to fill this gap. We seek to discern if any of the six GCC countries'

---

[10] GCC investors quite often use financial intermediaries based in the United Kingdom to buy US securities anonymously. See Toloui (2007)

financial accounts (Granger) cause the US current account deficit by examining the causal relation between the two accounts.

This paper is organized into six sections. After this introduction, Section 2 presents the balance of payments accounting. Section 3 provides the empirical methodology and Section 4 discusses the results. Section 5 examines the impulse function response. Section 6 concludes the paper and provides policy implications.

2. Balance of Payments Accounting

The basic identity for a balance of payments is written as:

Current account + capital account + statistical discrepancy = 0.

If the statistical discrepancy is zero, then a deficit (surplus) in the current account is matched by a surplus (deficit) in the capital account. A country that has a surplus (deficit) in the capital account like the United States (GCC country) has a deficit (surplus) in the current account. A surplus (deficit) in the capital account implies that the country is a net debtor (lender) to the rest of the world. Based on this framework, the United States has been a net debtor and most of the GCC countries are usually net lenders.

The above framework for a given country includes ex post accounting identities and does not provide causal relationships between the current and capital accounts or between the current account and the financial account or its components, despite the fact that the capital or financial account is considered to finance the current account for that country. In this paper, we examine a group of developing countries that have common special characteristics which made them net lenders to developed countries, particularly, the United States. In light of the recent announcements on the relevance of the global "savings glut" to the US current account deficit, the causal relationship that is of interest to us is not the relationship between own current account and own capital or financial account for a certain oil-based GCC country or the United States but the relationship between the individual GCC countries' capital or financial account and the world's largest debtor's current account. When an oil export revenue, which is denominated in the US dollar, flows into a GCC country's current account, part of this revenue will go to that country's official settlement balance and will be monetized. The remaining part depending on the size of the oil revenue will go largely to the three components of the financial accounts of the most developed countries, particularly, the United States. Greater demand for US assets pushes down their yield, and the lower borrowing costs induce more borrowing, whether for consumption or investment. The ensuing expansion in US economic activity would increase inflation and appreciate the US real exchange

rate (RER), contributing to the deficit in the US current account. In this case, the individual GCC country's current account drives the U.S. capital (financial) and current accounts. But this relationship could be formed the other way and be demand-induced where the GCC petrodollars could initially have been originated in the United States and transferred to the GCC countries as a result of spending. The U.S consumes 25% of the world's oil production, and Saudi Arabia used to be the top oil-exporter to the U.S., and now is the second after Canada. In this case, the US current account deficit pushes or "causes" the GCC financial accounts.

There is no direct literature on the subject matter of this paper. However, there are studies that examine the impact of capital, flowing into the United States on its current account deficit. Cooper (2001, p. 218) argues that "the U.S. deficit is financed by net capital inflows only in an ex post accounting sense. In economic terms, it is more nearly correct to say that net capital inflows cause the current account deficit." However, Poole (2001) posits that changes in the financial account which originated from overseas has been driving the changes in the US current account for many years. In this paper, we will test the causal relationship to ascertain whether the petrodollars are part of the global "savings glut" that helps cause the US current account deficit or the US deficit is home-grown and is just attracting foreign funds.

3. The Method

We will examine causal relationships between a GCC country's financial account and the U.S. current account defined as shares of respective GDPs, subject to data availability. We use the Toda and Yamamoto (TY hereafter) approach (Toda and Yamamoto, 1995) in our analysis. This approach offers potential solutions to the methodological problems listed in Stern (2004). The TY procedure does not require prior knowledge on cointegration and, therefore, avoids the pre-test bias. It can be employed for any arbitrary level of integration of the series used. Since the GCC financial accounts' and US current account's variables in the VARs are expressed as ratios of the respective country's GDP, they turn out to have mixed degrees of integration. Finally, the TY approach involves a VAR in levels, and thus, there is no loss of information due to differencing.

The procedure relies on the knowledge of the maximum order of integration, d_{max}, and the optimal lag length, k. In order to determine the order of integration for the variables employed, we utilized the augmented Dickey and Fuller (1979), and Phillips and Perron (1988) unit root tests, referred to as ADF and PP tests, respectively. We consult the likelihood ratio test (LR), Akaike information criterion

(AIC), Schwarz information criterion (SIC), Hannan-Quinn (HQ) information criterion, and final prediction error (FPE) to determine the optimal lag length *k*. The ADF and PP tests suggest similar degrees of integration for each series employed. However, the suggested optimal lag length for the VAR system changes when different criteria are used. In this case, we will choose the estimated VARs that meet most of the criteria for optimal lag length. A Wald test is conducted on the first *k* parameters of the augmented VAR($k+d_{max}$) model and the statistic follows an asymptotic Chi-square distribution with *k* degrees of freedom ($\chi^2(k)$).

We use a simple bivariate VAR system to test the Granger non-causality between the GCC countries' financial accounts and the U.S. current account. As indicated above, the line is blurry between the GCC financial accounts and the residual OSA. The null hypotheses of the Granger non-causality are from *GCC FA* to *US CA* and/or from *US CA* to *GCC FA*. These hypotheses can be represented by the VAR

$$CA^{US}_t = \alpha_1 + \Sigma_k^{k+dmax}\beta_{1k}FA^{GCC}_{t-k} + \Sigma_k^{k+dmax}\gamma_{1k}CA^{US}_{t-k} + u_{1t}$$

(1)

$$FA^{GCC}_t = \alpha_2 + \Sigma_k^{k+dmax}\beta_{2k}FA^{GCC}_{t-k} + \Sigma_k^{k+dmax}\gamma_{2k}CA^{US}_{t-k} + u_{1t}$$

where FA^{GCC} stands for the financial account of *each* of the six GCC countries, CA^{US} represents the US current account, *k* shows the lag order selected, d_{max} represents the extra lags opted for all the variables in Eqs. (1), and FA^{GCC} and CA^{US} are measured as percentages of their respective GDPs[11]. The rejection of the Granger non-causality hypotheses from FA^{GCC}_{t-k} to CA^{US}_t and/or from CA^{US}_{t-k} to FA^{GCC}_t implies that $\beta_{1k} \neq 0$ and/or $\gamma_{2k} \neq 0$, respectively, or past FA^{GCC} predicts current CA^{US} or vice versa. More generally, the rejection of the non causality from past FA^{GCC} to current CA^{US} implies that a GCC country's *FA* petrodollars are part of the global "savings glut" that causes the US current account deficit. In this case the US current account is caused by an external factor. If a certain GCC's financial account is in surplus and the US current account is in deficit, as has been the case for years, the direct causality relationship may suggest that the financial account for that GCC country finance or predict the subsequent US deficit and its petrodollars are part of the global "savings glut". The rejection of the reverse non causality from past CA^{US} to current FA^{GCC} implies that the US current account is homegrown and is not

---

[11] Due to the data unavailability we could not use the "official reserves" in our analyses.

caused or predicted by the "petrodollars savings gluts". This case is relevant to the US oil imports which are part of its consumption of one quarter of World's oil production. Thus, a major exporter like Saudi Arabia has to respond to the US imports' needs.

4. Empirical Results

The correlation coefficient matrix in **Table 1** displays the contemporaneous correlations between the United States' share of its current account in its GDP and the shares of the individual GCC countries' financial accounts in their respective GDPs. This matrix shows that all GCC countries' financial accounts have a positive correlation with the current account, with the exception of that of Qatar. This is not a coincidence since the US current account deficit increases during economic expansions, leading to greater oil imports from oil-exporting countries. Interestingly, Oman has the highest correlation followed by Bahrain. This result implies that in the short-run an increase in the US current account deficit is associated with an increase in the financial accounts of most GCC countries and vice versa. This paves the way to test the causal relationships between these accounts.

We will use the modified Wald test to discern the significance of the causal relationships in the systems presented above.

The model employed is a bivariate VAR that includes only the GCC individual country's financial account (FA^{GCC}) and the US current account (CA^{US}). The estimates of the model suggest that there are uni-directional causalities from the individual financial accounts of Kuwait, Qatar, and Saudi Arabia to the US current account deficit (see **Table 2**).[12] There are however no causal relationships from any direction in the case of Bahrain, Oman and UAE. The non- causality is understandable for Oman which is a minor oil producer and exporter, and thus is not a member of OPEC. The Institute of International Finance (IIF) estimates Oman's accumulated foreign assets up to 2006 to be a meager $10 billion (Handy and Reeve, 2007). It is also understandable for the small three-island kingdom of Bahrain, which is a refining center and is not a real oil producer and does not have any significant petrodollar surpluses of its own. The IIF estimates Bahrain's foreign assets since its independence in 1971 to be $20 billion (Handy and Reeve, 2007). Bahrain however receives capital inflows from its GCC neighbours, particularly, Saudi Arabia, and serves as an international offshore financial hub.

---

[12] The Institute of International Finance (IIF) estimates that nearly 98% of GCC's $1,550 combined foreign assets in 2006 belongs to four important countries: United Arab Emirates, Saudi Arabia, Kuwait and Qatar (Handy and Reeve, 2007).

Surprisingly, causal relationships do not also exist in the case of the United Arab Emirates which has accumulated foreign assets of about $600 billion in 2006. Only one of the seven-emirate confederation is a major oil producer and this emirate, Abu Dhabi, invests some within and more in large countries in South East Asia and Europe (Fasano, 2002).[13] The second largest UAE emirate, Dubai, serves as world tourist attraction center and tourism makes 70% of its income. This investment pattern for UAE emirates has started to change since 2007 as the government-owned wealth funds of Dubai and Abu Dhabi have opted to invest more in companies in the United States. However, UAE is still sensitive to political backlash after the Dubai's World Ports failed to invest in US ports.

Overall, in the model we can say that most of the highly petrodollar endowed GCC countries Granger-causes the US current account. These direct causality results imply that the GCC petrodollars savings glut causes the US current account deficit. The test shows no reverse causality is coming from the US current account to any of the GCC financial accounts, demonstrating that the US current account is not homegrown. Thus, we can conclude from the model that when it comes to the petrodollar surpluses, the US current account is Granger-caused or predicted by an external source.

5. Impulse Response Function Analysis

Figures 1 and 2 provide the results of the generalized impulse response function analysis for Qatar and Saudi Arabia whose external balances as a percentage of GDP are found to be I(1). We are interested in the direct response of US current account deficit to these countries' financial account surpluses and the reverse response. The sign of the impact is also important. At points where IRF confidence bands do *not* straddle the zero line of the horizontal axis, the impulse response is considered statistically different from zero between the upper 5% and lower 5% limits of the band.

The shocks to the Saudi financial account defined as a share of GDP initially and briefly reduce the US current account deficit and then after three years they increase it. However, this impact is significant and different from zero only in the second year where it is negative. For example, a positive shock to the oil price that leads to an increase in the Saudi financial account significantly impacts the US current account in the second year. The relative speed at which the impact hits the

---

[13] The UAE's growing preference for investing in emerging markets was revealed by Abu Dhabi Investment Authority (ADIA) in April 2006. See Euromoney "Money and Mystery: ADIA Reveals its Secrets." http://www.euromoney.com/article.asp?PositionID=2195&ArticleID=1018077

US current account can be interpreted as the Saudi surpluses are directly placed in portfolio and other investments and not as direct foreign investment. This result shores up the petrodollar savings glut hypothesis which implies that the US current account deficit is caused by external sources. This finding is also supported by the reverse GIRF result purporting that the shocks to US current account do not impact the Saudi financial account surpluses. This can be seen in the graph that shows the response of financial account (DFAGDP) to the US current account (DUSCAGDP), implying that the US current account deficit is not homegrown.

The same analysis applies to Qatar's GIRF. The impact is significant and different from zero only in the second year after the shock originates from Qatar's financial account. The impact in this case is slightly less potent than in the case of Saudi Arabia. This may be due to the fact that Qatar is a much smaller oil exporter with significantly less financial account surpluses.

6. Conclusions

Because of lack of data on the patterns of investments of the GCC countries' petrodollar surpluses in other countries, particularly, the United States, this study employs a VAR model to detect whether the petrodollar savings glut of the oil exporters has contributed to the US chronic current account deficit. In reverse, it investigates whether the US deficit is homegrown and is not caused by external factors.

The results at the aggregate balance level demonstrate that most of the GCC's hefty financial accounts Granger-cause or predict the US current account deficit, giving credence to the global savings glut hypothesis; the exceptions are those for Bahrain, Oman and UAE. As demonstrated above, Bahrain is not an oil-exporter and has the second lowest foreign assets ($25 billion in 2006), while UAE diversifies the geographical patterns and venues of its investments more than the others. Oman is a minor oil exporter and possesses the lowest foreign assets ($10 billion in 2006) among all the GCC countries, amounting to less than 1%. Regarding the reverse causality, the results underscore the importance of oil imports in supporting the homegrown deficit hypothesis. In the case of Saudi Arabia, in particular, the largest oil exporter, and the United States the largest oil importer, the homegrown hypothesis holds for them. The implication of this finding is that improvement in the US deficit has some bearing with development of alternative sources of energy and energy independence.

The GCC countries still have more work to do on their own to alleviate the pressure exerted on them to spend more in order to help correct the current and

future global external imbalances. They could help reduce their petrodollar overhang, which is part of the global savings glut, by developing their own institutions in terms of upgrading their financial markets, increasing their integration with the world markets, and building up their legal systems. Increasing investment domestically and in their region at large should also contribute to the adjustment of global trade imbalances. This was one of the several conditions for the world economy to survive $100 a barrel of crude oil (Fritsch and Evans, 2007). However, some economists believe that the GCC economies are maxed up for the near term and that other alternatives should be sought out.

REFERENCES

Bems, R., Dedola, L. and Smets, F. (2007), "US imbalances: The role of technology and policy", *Journal of International Money and Finance*, 26, 523-545.

Blustein P. (2006), "Middle East investment up in the U.S.", *Washington Post*, March 7.

Chinn, M. and Ito, (2007), "Current account balances, financial development and institutions: Assaying the world saving glut", *Journal of International Money and Finance*, 26, 546-569.

Cooper, R. (2001), "Is the U.S. current account deficit sustainable? Will it be sustained?" *Brooking Papers on Economic Activity*, 217-226.

Devereux, M. and Genberg, H. (2007), "Currency appreciation and current account adjustment", *Journal of International Money and Finance*, 26, 570-586.

Dickey, D. A., and W. A. Fuller, (1979), "Distribution of the estimators for autoregressive time series with a unit root", *Journal of the American Statistical Society*, 75, 427-431.

Eleisa, E. and Hammoudeh, S. (2007), "Monetary union in the GCC area: Assessment of sources of macroeconomic fluctuations", *working paper*.

Fasano, U. (2002), "With open economy and sound policies, the UAE has turned oil 'curse' into a blessing", *IMF Survey (October)*, 330-332.

Fritsch, P. and Evans, K. (2007), "How economy could survive oil At $100 a barrel", *Wall Street Journal*, September 22.

Gruber, J. W. and Kamin, S. B. (2007), "Explaining the global pattern of current account imbalances", *Journal of International Money and Finance*, 26, 500-522

Handy, H. and Reeve, J. (2007), "Tracking GCC petrodollars: How and where they are being invested around the world," *Institute of International Finance*, Washington, D.C.

Lane, P and G.M. Milesi-Ferretti, G. M (2006), "The External wealth of nations mark II: Revised and extended estimates of foreign assets and liabilities, 1970-2004", *IMF Working Paper #WP/06/69*, Washington D.C., IMF.

Obstfeld, M., and Rogoff, K. (2004), "The unsustainable US current position revisited", *NBER Working Paper # 10869*.

Phillips, P.C.B. and Perron, P. (1988), "Testing for a unit root in time series regressions", *Biometrica*, 75, 335-346.

Poole, W. (2001), "Does the United States have a current account deficit disorder?", Remarks before the Business and Community Leaders Luncheon, *Federal Reserve Bank of St. Louis*.

Romero, S. (2006), "International investors largely avoid U.S. International Herald Tribune", February 26.

Roubini, N., and Setser, B. (2004), "The US as a net debtor: The sustainability of the US external imbalances", *RGE Monitor*.

Setser, B. and Ziemba, R. (2007), "What do we know about the size and composition of oil investment funds?", *RGE Monitor* (April)

Stern, D. I. (2004), "The rise and fall of the environmental Kuznets curve", *World Development*, 32, 1419-1439.

Toda, H. Y. and Yamamoto, T. (1995), "Statistical inference in vector autoregressive with possibly integrated processes", *Journal of Econometrics*, 66, 225-250.

Toloui, R. (2007), "Petrodollars, asset prices, and the global financial system", *Capital Perspectives,* PIMCO. http://www.pimco.com/LeftNav/ Global+Markets/Capital+Perspectives/2007/Capital+Perspectives- +January+2007.htm

Yan, H. (2007), "Does capital mobility finance or cause a current account imbalance?", *Quarterly Review of Economics and Finance*, 47, 1-25.

Table 1: Contemporaneous Correlations between GCC FAs and US CA as Shares of GDP

|	*USCAGDP*	*Bahrain*	*Kuwait*	*Oman*	*Qatar*	*S. Arabia*	*UAE*
USCAGDP	1						
Bahrain	0.222122	1					
Kuwait	0.140552	0.273855	1				
Oman	**0.316928**	0.463884	-0.02264	1			
Qatar	-0.20953	0.231746	0.401497	0.392822	1		
S. Arabia	0.135521	0.471685	0.465225	0.200594	0.252991769	1	
UAE	0.19163	0.396843	0.11506	0.653176	0.487198042	0.110008754	1

Notes: USCAGDP is the share of the United States' current account in its GDP. The GCC countries represent their financial accounts as shares in their respective GDPs.

Table 2: Model 1's US CA - GCC FA Granger Causality Tests

|	Dependent Variables	Lagged Variables	
		CA^{US}	FA^{GCC}
Bahrain[1+1](ALL)	CA^{US}		0.198098
	FA^{GCC}	0.066346	
Kuwait[1+1] (ALL)	CA^{US}		2.784498 (0.09)[c]
	FA^{GCC}	0.147585	
Oman[2+1] (FPE,AIC,HQ)	CA^{US}		3.446281
	FA^{GCC}	0.081605	
Qatar[2+1] (LR,FPE,AIC,HQ)	CA^{US}		4.41136 (0.02)[b]
	FA^{GCC}	0.503457	
Saudi Arabia[2+1] (ALL)	CA^{US}		7.309215(0.02)[b]
	FA^{GCC}	1.606595	
UAE[1+1] (ALL)	CA^{US}		0.179455
	FA^{GCC}	0.640332	

Notes: These estimated bivariate models are defined in Eqs. (1) (where max lag = 3). *CA* stands for the US current account and *FA* for the financial account of a GCC country. The values in brackets after the country names *are k +d$_{max}$*, where *k* is the extra lag selected by LR, FPE, AIC, HQ, and/or SC, and *d$_{max}$* represents the order of integration as shown in parentheses after the country names. "All" refers to all those criteria. The values are Chi-squares from the modified Wald test. The figures in the parentheses after the Chi-squares are the p-values. [a] , [b] , and [c] stand for the 1%, 5%, and 10% significance levels, respectively. We chose the relationships that satisfy the greatest number of criteria. This rules out the additional relationships for Oman and Qatar.

Figure 1: Current Account Deficit
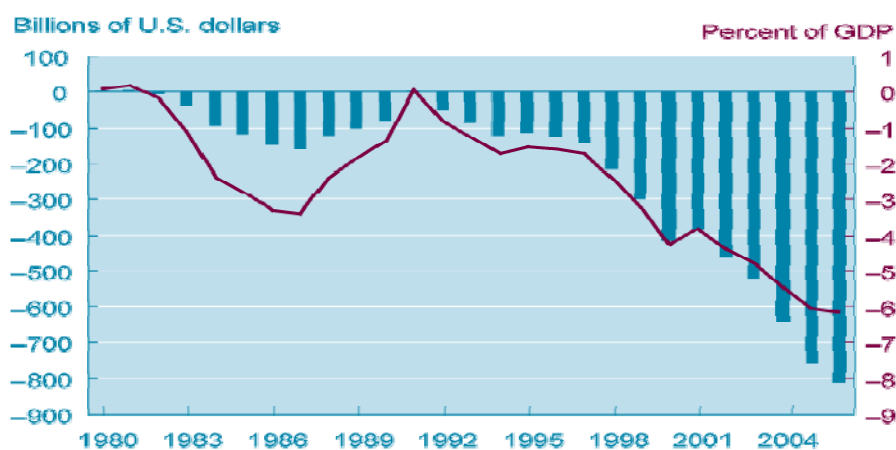
Sources: Bureau of Economic Analysis; Haver Analytics

Figure 2: Generalized Impulse Response function Analysis for Saudi Arabia
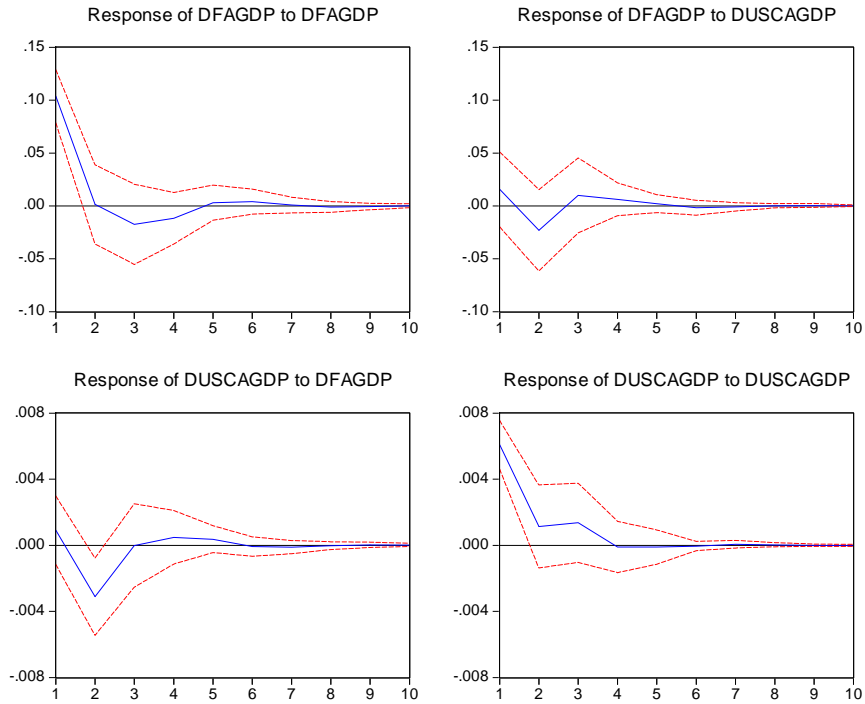
Notes: DUSCAPGDP is the first log difference of the share of US capital account in its GDP and DFAGDP is the first log difference of a GCC financial account as share of a GCC's GDP

Figure 3: Generalized Impulse Response function Analysis for Qatar