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Macroeconomics Interdependence between Saudi Arabia and the UAE

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MACROECONOMIC INTERDEPENDENCE BETWEEN SAUDI ARABIA AND THE UAE

by

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TITLE: MACROECONOMIC INTERDEPENDENCE BETWEEN SAUDI ARABIA AND THE UAE

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Kingdom of Saudi Arabia (KSA) and the United Arab Emirates (UAE) have a strong economic, social and cultural relationship for generations. However, the KSA's economy is the largest economy in the Gulf Cooperation Council area. This research paper is an attempt to understand the effects of the KSA's economy on the UAE's economy. Using cointegration and Vector Error Correction Methods (VECM), we examine the long-run relationship among macroeconomic variables of the KSA and the UAE and also explore the short-run relationships. We find that there exists a stable long run relationship between the KSA's macro variables with the UAE's output, money supply, and inflation. We also find that the shocks in the KSA's real GDP, money supply and inflation rate have significant impact on the UAE's economy. Consequently, the policy makers of the UAE should pay close attention to what is happening in the economy of the KSA.

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CHAPTER 1

INTRODUCTION

Our world is becoming more integrated. We observe increasing movements of good and services, capital, labor and other factors of productions as well as increased social and cultural interactions. Currently, the financial crisis in USA and Europe are affecting entire the world. People lost their jobs, companies become bankrupt, householders lose their homes, and this adds to more social problems. Traditionally, the importance of a dominant country in any region was mostly about political power. However, economic issues become more prominent recently[1]. The Gulf Cooperation Council (GCC) is a major organization in the Middle East, comprising of Kingdom of Saudi Arabia (KSA), United Arab Emirates (UAE), Qatar, Oman, Kuwait and Bahrain. Although it is a political organization, most of the economic benefits of GCC are not yet harnessed (Abu-Qarn and Abu-Bader, 2008). In GCC countries, Saudi Arabia is the largest country in terms of GDP. All these GCC countries produce oil and thus their economic well being depends on the price of oil. The trade among these countries are not very small and UAE and Saudi Arabia share border[2]. This geographic proximity of UAE and Saudi Arabia along with increased trade between them deserves a closer look at their economic interdependence between UAE and Saudi Arabia. This paper is an attempt in this direction.

[1] Even the United Nations starts to use economics tools when it wants to force country to do certain things. For example, the UN is trying to stop Syrian army from using excessive force against the political opponent. The tools chosen are freezing some officials and government banks' accounts. Then, it started stopping trade with some of the governmental sectors

[2] We will use KSA and Saudi Arabia interchangeably. The map of the region is given in figure 4.

In this paper, I will try to understand the impact of the Saudi economy on the economy of the UAE. Saudi Arabia in the biggest country among the GCC countries, and it has the highest population and GDP. However, the United Arab Emirates have known for their role as an attractive place for foreign direct investment. Many companies consider UAE as a good place to establish a business or to enhance their business in the GCC region by opening offices inside the UAE. So, we can observe that UAE has more capital coming to the country. The GCC customs union was established 2003, and that increased the trade between the GCC countries.

These two countries chosen here share many things such as religion, language, traditions, economic structure and consumption behavior which lead to increasing integration of these two economics over time. Information about nature and extent of this interconnection would allow the UAE policy makers and businesses to devise better plans cope with both positive and negative shocks originating in Saudi Arabia. Moreover, UAE's government can use appropriate fiscal policies that can reduce the negative effects.

I have chosen time series techniques of cointegration and Vector Error Correction Methods (VECM) using annual data for about 20 years to examine both long-run and short-run relationships of macro variables of Saudi Arabia and the UAE. These methods are widely used in understanding macroeconomic interdependence and so we also follow the suggestions from the extant literature.

This paper is structured in the following way. In chapter 2, I briefly discus the main features of Saudi and UAE economy. A concise literature review is

given in chapter 3 while I discus data and methodology in chapter 4. Results of my econometric exercise are given in chapter 5. At the end some concluding remarks are made.

CHAPTER 2

RECENT TRADES IN THE ECONOMIES OF UAE AND KSA

Both Saudi Arabia and United Arab Emirates share many features such as language, religion and tradition. Also, they have a common element in their economies. Both of them depend heavily on oil. Oil price is an important issue for each country. Each one of them hopes to keep oil price at a specific level in order to keep their GDP high. These two countries suffered from fluctuation in oil prices all the time, and they are trying to reduce the importance of oil in their GDP.

This variation in oil price has a consequence on both countries' GDP, and it is clear from Figure 1.

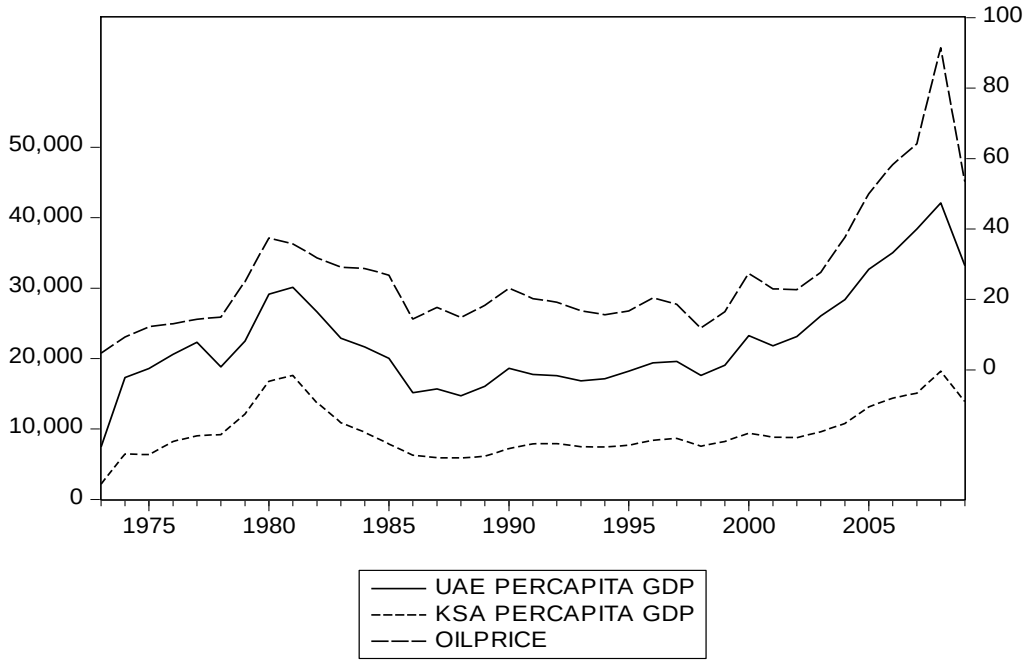


Figure 1: Oil Price and Per Capita GDP of UAE and KSA

Note: GDP Per capita on the left scale and oil price on the right scale

Source: World Bank and IMF.

When oil prices are high, GDP of these two countries are high, and also when oil prices are low, the GDPs are low too. Moreover, we also notice from Figure 1 that the recent financial crisis has an effect on them. Financial crisis resulted in weak economic activities in large economics and then the need for oil declines which eventually reduces these countries' GDP.

The political and economic relationship between the two countries is excellent, and the trade between them is very significant. The percentage of exports and imports of overall export and import to Middle-Eastern countries between the two countries are shown in Figure 2. We can see from the Table 1

and Figure 2 that the export from the UAE to Saudi Arabia is more than 10 percent of the total export to Middle-East from the UAE while out of total import from Middle-Eastern countries to the UAE Saudi Arabia's contribution is more than 30 percent on an average.

Table 1: Exports and imports between the two countries

(in millions)						
Year	total export to Middle East $	export to Saudi $	Percentage of export to KSA	total imports from Middle East $	imports from Saudi $	Percentage of imports from KSA
1996	2807	367	13	2618	1545	59
1997	2366	388	16	1652	788	48
1998	2448	381	16	2176	772	35
1999	3072	537	17	2589	918	35
2000	3901	697	18	5513	1191	22
2001	3956	520	13	5578	1155	21
2002	4848	490	10	2651	1047	39
2003	5634	546	10	4078	1163	29
2004	7609	1079	14	4267	1564	37
2005	10108	1422	14	5682	2076	37
2006	12248	1703	14	6864	2485	36
2007	14915	2008	13	8946	2932	33
2008	26877	2630	10	15648	3839	25

Source: Direction of Trade Statistics, IMF.

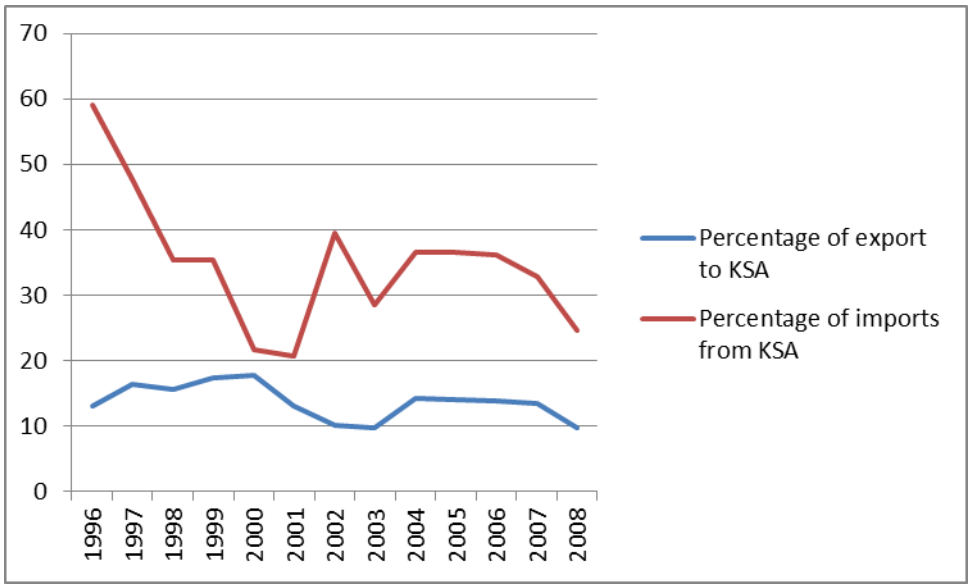


Figure 2: percentage of exports and imports between the two countries

CHAPTER 3

LITERATURE REVIEW

There exists a sizeable literature that tries to study the transmission of shocks between countries. Dees and Vansteenkiste (2007) examine the transmission of the US cyclical developments to the rest of the world. They mentioned that the United States economy plays a vital role in the world's economy. Also, even with decrease of the US GDP as a percentage of the world GDP, the United States GDP still has a large effect on other countries GDP. The authors focus on three issues mainly. They are magnitude, speed of the shocks movement to the rest of the world and underlying reasons of the co-movements between the US and other countries. They used trade effect and other effects in order to measure the importance of these aspects. This study focuses on 5 regions and countries which are euro area, United Kingdom, Latin America, emerging Asia, Japan and the rest of Europe. The results demonstrated that countries that have a higher proportion of trade with United States have more consequence from the US shocks. For the Euro area and Latin America, the cause is 2.5 based on 1 trade effect. For Japan and other developed market the result is 1.5, and it is 5 for rest of Europe. We can observe that the US shocks have a huge effect on Europe since it is 5. For emerging Asia, the is small

Yan Sun (2011) explained the nature of the external shocks in Australia and New Zealand. The focus of this paper is on the effect of emerging Asia countries on Australia and New Zealand. However, we cannot ignore emerging Asian countries including China which are becoming large enough economics

together that really can affect other countries. The author used standard VAR framework with data from New Zealand, Australia, United States and emerging Asia including: China, India, Indonesia, Malaysia, Philippines, Thailand, Hong Kong SAR, Korea, Singapore, and Taiwan Province of China,) and finally the rest of the world including: the Euro area, Japan, U.K and all other economies in the IMF's Global Projection Model. The author found that the role of United States GDP has been decreasing recently on these two countries. Previously, the United States GDP had a large impact on Australia, but now the emerging Asia countries plying the dominate role. Strong correlation of emerging Asian countries GDP and GDP of Australia is observed. Also, the author found that emerging countries do not affect New Zealand GDP that much. However, New Zealand GDP is affected by the Australian GDP. Yan Sun (2011) observed that these shocks are shocks in commodities prices of the emerging countries in Asia. The financial market shocks which are originating from the United States have a large effect on Australia. The financial shocks which have a fundamental effect on Australia transmit from Australia to New Zealand. On the other hand, emerging countries in Asia do not have large impact on New Zealand's economy. The emerging Asian countries become more important for Australia. However, we could not see this large role on New Zealand economy.

Arin and Koray (2009) clarify the transmission of fiscal shocks from the US to Canada. This relationship is enhanced by three factors which are international trades, capital movements and shocks. The authors clarify that there are many papers which try to explain the transmission of fiscal shocks. There is no doubt

that exchange rate plays an important factor in this transmission in Mundell-Fleming's model. Usually, an expansion in fiscal policy will lead to higher exchange rate which will lead to improve to the current account of the foreign country and reduce it to the home country. However, output will be higher in both countries. The authors have chosen Canada and United States in this paper, and they have chosen Canada because of the long economic relationship between the two countries. The result indicates that government's expenditure increase in United States immediately have positive impact on output. The interest rate falls at the beginning then it goes up. The Canadian output decreases after the fourth quarter. The interest rate goes up immediately, and the exchange rate falls after the eighth quarter. So, we notice that the Canadian and American GDP respond differently when there is an increase in government's expenditure in USA. the results suggest that the unexpected shocks to the United States government expenditures has "beggar thy neighbor effects" on Canada.

Abu-Qarn and Abu-Bader (2008) discussed economic interdependence in Gulf Corporation Council countries. These countries are trying to accomplish an economic union. One of the steps was reducing the barriers between them about movements in labor, services, capital and goods. Whether it is better to take quick steps towards monetary union or not require better evaluations of benefits and cost of this monetary union. One of the costs that these countries will lose is the control of each country on currency, interest rate and exchange rate. They examine whether these countries meet theoretical criteria for an optimal monetary union. Most previous studies that tried to examine feasibility of a

currency union tried to inspect similarities of the economies, and the level of the monetary and fiscal convergence. Previous empirical evidence showed that these countries share important factors: language, religion, culture, tradition and at the same political regime which is monarchy. The economics of GCC countries mostly depend on oil, and they also suffer from the low scale of commodity diversification. In addition, GDP growth rats are different in GCC countries. The correlation for inflation between these countries and sources of supply shocks requires careful analysis. Abu-Qarn and Abu- Bader (2008) show while supply shocks are asymmetric but demand shocks are symmetric. From these results the authors conclude that the GCC countries are not yet ready for the currency union.

In order to understand the economic interdependence in the GCC countries, we have chosen two geographically very close and economically, culturally and politically almost identical countries. UAE and Saudi Arabia, two members of the GCC, and we examine the impacts of shocks in Saudi Arabia on the economy of UAE. The results of this analysis will shed light on the border research agenda related to the monetary union of the GCC countries.

CHAPTER 4

DATA DESCRIPTION AND METHODOLOGY

I. Data

I use yearly data from 1992 to 2010 in my analysis, and all of the data are in US dollar. I gathered the data from different resources. I retrieved the world commodity price (WCP) data from the International Money Fund (IMF). For the interest rate, I do not find data for UAE and KSA. So, I took the inflation rate as a proxy for interest rate. The money supply and real GDP data for both countries are collected from international financial statistics of the IMF and world's bank world development indicators.

II. Methodology

In this paper, I will use time series model in order to measure the impact of the Saudi Arabia economy on the economy of the United Arab Emirates. I will examine whether the macro variables of Saudi Arabia and the UAE are cointegrated or not to examine the long run relationship and then I will use Vector Error Correction Model (VECM) to examine the short-run relationships.

In order to examine the transmission of monetary and real shocks originate in the Saudi Arabia to UAE, we include the following variables in the vector Y_{t}, money supply of KSA and real GDP of KSA. We examine the transmission of monetary and real shocks and affect on money supply, interest rate and real GDP of UAE. We also include world commodity price (WCP) as a common factor. We also investigate the transmission of monetary shocks by replacing money supply by another policy measure: interest rate

The models are:

Model 1: $Y_t = [\, m^{KSA}, WCP, m^{UAE}, i^{UAE}, Y^{UAE} \,]$

Model 2: $Y_t = [\, Y^{KSA}, WCP, m^{UAE}, i^{UAE}, Y^{UAE} \,]$

Model 3: $Y_t = [\, i^{KSA}, WCP, m^{UAE}, i^{UAE}, Y^{UAE} \,]$

However, due to the lack of the data of the interest rate in UAE and KSA, I used the inflation rate as a proxy for interest tare. Since $i = \pi + r$

r= real interest rate, π= rate of inflation i= nominal interest rate

Assuming that real interest rate is fixed, nominal interest rate will be equal to the inflation rate.

I start the empirical work by testing each variable series for unit-root. The importance of this test is to know if our data are stationary or not. Our data have to be stationary in order to complete our empirical work. I used two tests which are augmented Dickey-Fuller and Dickey-Fuller-GLS test.

I use Johansen's (1988, 1991) test for cointegration. We do unrestricted VAR model in the following way[1]:

$$y_t = \pi_o + \pi_1 y_{t-1} + \pi_2 y_{t-2} \ldots + \pi_p y_{t-p} + e_t \qquad (1)$$

Where y_t is a (n x1) vector of time series, π_o is a (n x1) deterministic vector, π_i is a (n x n) matrix of coefficients to be estimated, p is the selected lag length, and e_t the vector of error term which is expected to be serially uncorrelated with zero mean. The equation (1) can be reparametrized in the Vector Error Correction (VEC) form:

[1] The remaining portion of methodology is largely drawn from Basnet (2011) and Basnet and Sharma (2011).

$$\Delta y_t = \pi_0 + \Gamma_1 \Delta y_{t-1} + \Gamma_2 \Delta y_{t-2} + ... + \Gamma_{p-1} \Delta y_{t-P+1} + \Pi y_{t-P} + \varepsilon_t \qquad (2)$$

Where Δy_t = y_t - y_{t-1}

$$\Gamma_i = -\left[I - \sum_{i=1}^{p-1} \pi_i \right], \ \Pi = -\left[I - \sum_{i=1}^{p} \pi_i \right]$$

Where I is a (n x n) identity matrix and the term Πy_{t-p} contains information about the long run relationship between the variables. The numbers of cointegrating vectors are determined by the rank of matrix Π. If rank (Π) = 0, the matrix is null and no linear combination of y_t is stationary and the VAR model can be estimated in first difference. If rank (Π) = n (full rank) the vector process is stationary in levels. In intermediate case i.e. 0 < rank (Π) < n, there exists multiple cointegrating vectors. The matrix Π can be decomposed as $\Pi = \alpha\beta'$ where β and α are the (n x r) matrices of long-run and the speed adjustment coefficients respectively. From here, the following two test statistics are used to determine the number of cointegrating vectors:

$$\lambda_{trace} = -T \sum_{i=r+1}^{n} \ln(1 - \lambda_i) \qquad (3)$$

$$\lambda_{\max} = -T \ln(1 - \lambda_{r+1}) \qquad (4)$$

Where λ_i is the estimated values of the characteristic roots (also called eigenvalues) obtained from the estimated Π matrix and T is the number of usable observations. The first statistics test the null hypothesis that there are at most r cointegrating vectors against a general alternative. The second statistics,

however, test the null hypothesis of r cointegrationg vectors against the alternative hypothesis of r +1 cointegrating vectors.

CHAPTER 5

EMPIRICAL RESULTS

In order to find the appropriate order of integration of these series, we employ augmented Dickey Fuller (ADF) and Dickey Fuller- GLS (DF-GLS) tests to check for unit root. The results are shown in Table 2 and 3. The results indicate that the series are non- stationary in log level and stationary in first difference.

Table 2: Unit Roots Test (Level)

Country	Variable	ADF Test		DF-GLS Test	
		Calculated t	Critical value 5%	Calculated t	Critical value 5%
KSA	LGDP	-3.961	-2.935	.651	-1.949
	LMoney	-1.735	-2.922	-.425	-1.948
UAE	LGDP	-0.836	-2.937	0.319	-1.949
	LMoney	-2.705	-2.943	0.925	-1.950
WCP	LWCP	-0.091	-3.040	-0.189	-1.961

Table 3: Unit Roots Test (First Difference)

Country	Variable	ADF Test		DF-GLS Test	
		Calculated t	Critical value 5%	Calculated t	Critical value 5%
KSA	LGDP	-3.956	-2.937	-2.167	-1.950
	LMoney	-2.237	-2.922	-2.208	-1.948
UAE	LGDP	-4.684	-2.937	-4.656	-1.949
	LMoney	-6.804	-2.946	-0.452	-1.952
WCP	LWCP	-4.405	-3.052	-4.549	-1.963

Long- run Relationship

We report normalized cointegrating vectors in Table 4. The existence of at least one cointegrating vector suggests that the variables considered move towards an equilibrium in the long-run. The λ-trace and λ-max statistics from Johansen's Cointegration test are given in Table 5.

Table 4: Normalized Cointegrating Vectors

LRGDP SA	Inflation UAE	LM2UAE	LRGDP UAE	LWCP
1	0.0149 (0.00192)	-0.0553 (0.0254)	-0.125 (0.05297)	-0.281 (0.01741)
LM2 SA	Inflation UAE	LM2UAE	LRGDP UAE	LWCP
1	-0.0124 (0.0012)	-0.0936 (0.0142)	-1.1314 (0.03172)	-0.3968 (0.0103)
INFLATION SA	Inflation UAE	LM2UAE	LRGDP UAE	LWCP
1	0.4821 (0.125)	14.4350 (1.398)	-20.958 (2.875)	-20.418 (1.1656)

Standard errors are in the parenthesis.

Table 5: The Johansen Cointegration Test

M2 model

Country	Test Statistics	None	At most 1	At most 2	At most 3	At most 4
UAE	λ- Trace	181.463	66.1778	30.268	6.940	0.0144
	λ-Max	115.286	35.910	23.328	6.925	0.014

Real GDP model

Country	Test Statistics	None	At most 1	At most 2	At most 3	At most 4
UAE	λ- Trace	154.717	95.540	51.218	11.030	0.007
	λ-Max	59.177	44.321	40.188	11.023	0.007

Inflation model

Country	Test Statistics	None	At most 1	At most 2	At most 3	At most 4
UAE	λ- Trace	161.726	92.178	49.748	16.476	0.260
	λ-Max	69.549	42.430	33.271	16.216	0.260

Short -run Relationship

We investigate the short-run dynamics by estimating the vector error model (VECM) and corresponding impulse response function and variance decomposition. The variance decomposition allows us to determine implications of each variable in KSA on the fluctuations in output, money supply, and interest rates. The impulse response function show dynamic response of the variables a one standard deviation shock in endogenous variables in the model. The VECM

model includes a constant lagged error correction term and the log of first different of all variables except the interest rate.

Variance Decomposition

The variance decomposition (VDC) of KSA's money supply, inflation rate and real GDP explains the effect on the UAE's economy shown in Table 6. We can notice this effect in short run which is one year, and long run in 4, 8 and 10 years. From the inflation VDC, we can see that the Saudi's inflation has no affect on the UAE's real GDP, but a significant impact on UAE inflation and M2 in the short run. However, in the long run the KSA' inflation has an effect on the UAE's economy. This affect is different between years, and the KSA's inflation has a huge impact on the UAE's inflation. In 4 years period we can notice that the KSA's inflation effect the UAE's real GDP by almost 2.6 %, inflation by 59% and M2 by 1.4%. In 8 years period this force increase for M2 and inflation by 4% and 86%, but the real GDP is becoming lower by 1.5%.

The KSA's M2 shocks has no impact on the UAE's economy in the short run. In the long run there is an impact, and this can be noticed in 4 years period and above. The KSA's shocks impact the UAE's M2 by 12%, inflation 8.5% and real GDP by 3% in 4 years period.

The KSA's real GDP has also no force on UAE in the short run. However, in the long run there is an impact. This impact is higher in inflation which is almost 35% in 4 years and 33% in 8 years. The affect on UAE's real GDP is almost 1.2% in 4 years and 4.8 in 8 years. The impact on M2 is below 1% for all the periods between 4 and 10 years.

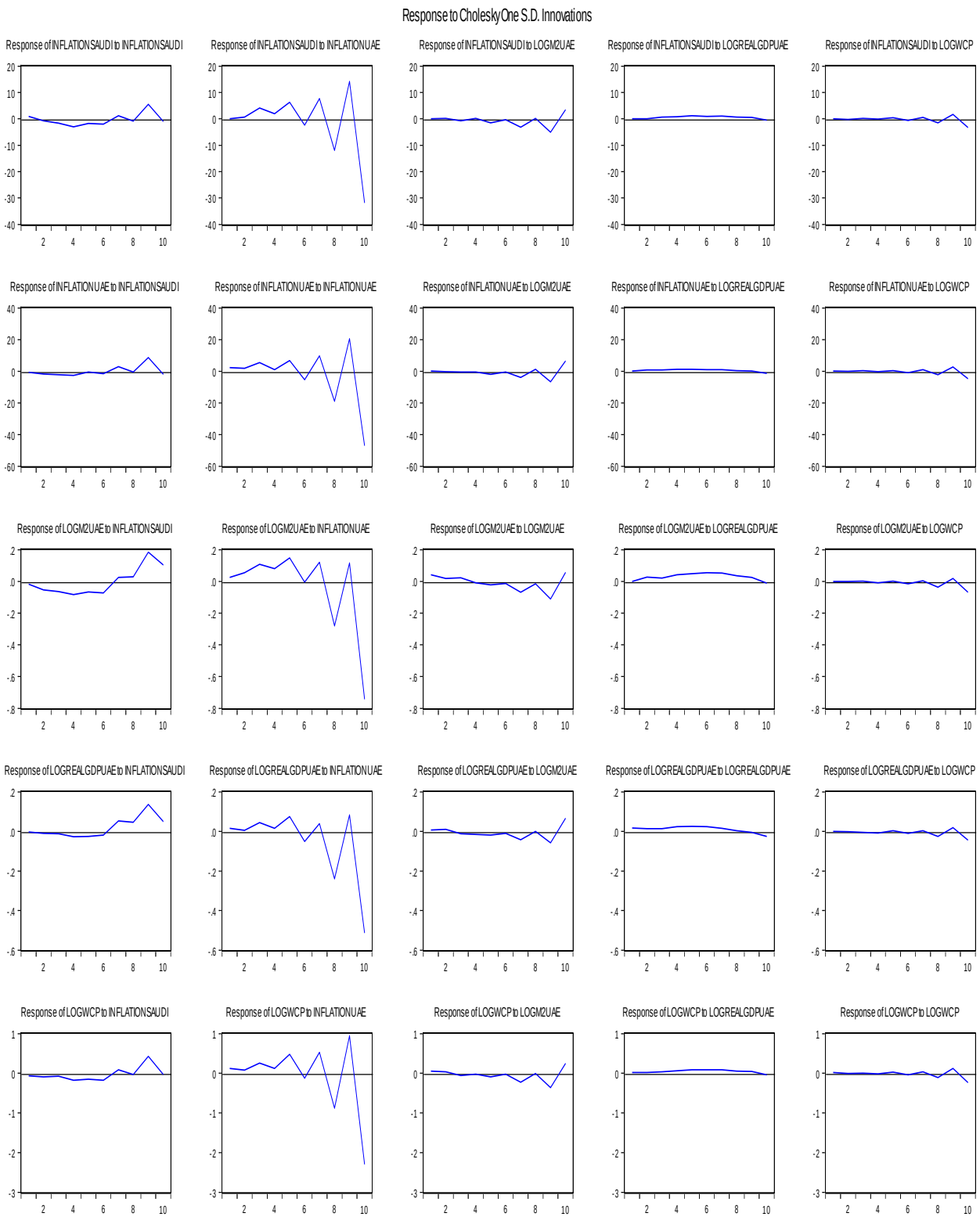
In brief, the Saudi's economy has no affect on the UAE's economy in the short run. However, this affect is clearly obvious in the long run. This affect vary between years. Most of the effects influence the UAE's inflation during time. The UAE's real GDP and M2 affected also by the KSA's economy, but they are not big as the affect on inflation.

Table 6: Variance Decomposition of Inflation, M2 and real GDP due to the KSA shocks

Due to KSA inflation shocks			
Period	Money Supply	Inflation Rate	Real GDP
	UAE	UAE	UAE
1	0	0	0
4	1.434	59.345	2.606
8	4.047	86.333	1.497
10	3.145	92.144	.324
Due to KSA M2 shocks			
1	0	0	0
4	12.077	8.637	3.014
8	15.099	7.185	5.107
10	19.191	7.159	6.306
Due to KSA real GDP shocks			
1	0	0	0
4	.448	35.332	1.251
8	.995	33.883	4.812
10	.661	20.411	3.794

Impulse Response Functions

Impulse response function for one standard deviation of the shock is shown in Figure 3. The results show that Saudi inflation shock transmits really fast to the UAE. However, other shocks have somewhat limited impact on macro variables in the UAE.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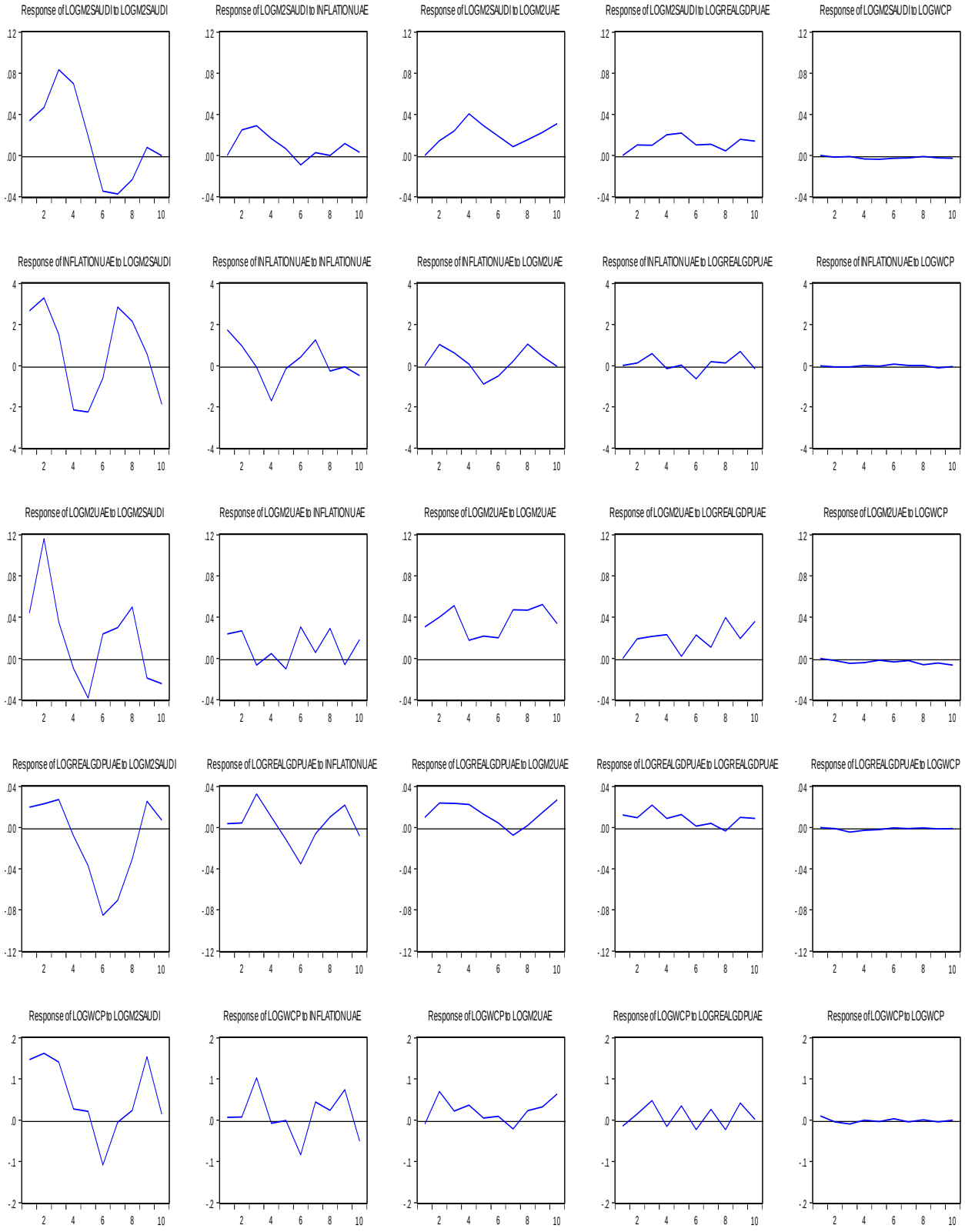

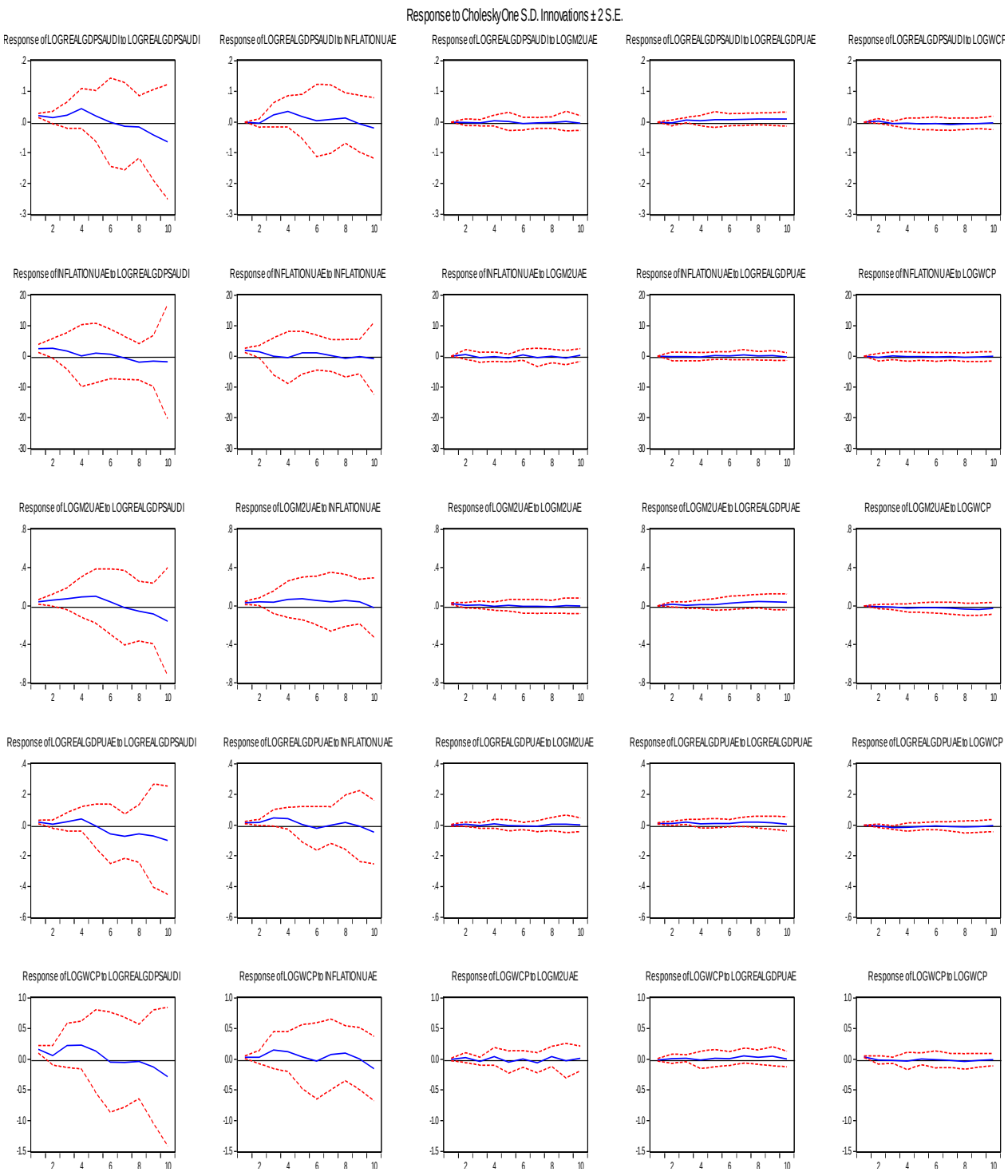

Figure 3: Impulse Response Graphs

Figure 4: Map of GCC countries

CHAPTER 6

CONCLUSION

Kingdom of Saudi Arabia (KSA) and the United Arab Emirates (UAE) have a strong economic, social and cultural relationship for generations. Anyone can think that oil price is the dominate factors that could affect the relationship between these two countries. However, in this paper we discussed the relationship from another prospective. We wanted to know if the large size of the Saudi's economy could have an effect on UAE's economy. Using cointegration and Vector Error Correction Methods (VECM), we examine the long-run relationship among macroeconomic variables of the KSA and the UAE and also explore the short-run relationships. We notice that the Saudi's inflation has a huge impact on UAE. Real GDP and M2 have an effect in the long-run, but it is considered low comparing to the inflation rate. The shocks of the Saudi's economy take time till they impact the UAE. We find that there exists a stable long run relationship between the KSA's macro variables with the UAE's output, money supply, and inflation. We also find that the shocks in the KSA's real GDP, money supply and inflation rate have significant impact on the UAE's economy. Consequently, the policy makers of the UAE should pay close attention to what is happening in the economy of the KSA. So, businesses and UAE's government should be aware of these shocks because it could affect them. Also, they can make their plans in order to reduce the affect of the negative shocks.

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APPENDIX

APPENDIX

Unit root tests:

Null Hypothesis: INFLATIONSAUDI has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic based on SIC, MAXLAG=7)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-2.343744	0.1657
Test critical values:	1% level	-3.670170	
	5% level	-2.963972	
	10% level	-2.621007	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(INFLATIONSAUDI)
Method: Least Squares
Date: 11/10/11 Time: 06:59
Sample (adjusted): 1981 2010
Included observations: 30 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
INFLATIONSAUDI(-1)	-0.343477	0.146551	-2.343744	0.0264
C	0.415856	0.429481	0.968274	0.3412

R-squared	0.164008	Mean dependent var	0.031733
Adjusted R-squared	0.134151	S.D. dependent var	2.336730
S.E. of regression	2.174350	Akaike info criterion	4.455678
Sum squared resid	132.3784	Schwarz criterion	4.549091
Log likelihood	-64.83516	F-statistic	5.493134
Durbin-Watson stat	2.018291	Prob(F-statistic)	0.026419

Null Hypothesis: D(INFLATIONSAUDI) has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic based on SIC, MAXLAG=7)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-6.472654	0.0000
Test critical values:	1% level	-3.679322	
	5% level	-2.967767	
	10% level	-2.622989	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(INFLATIONSAUDI,2)
Method: Least Squares
Date: 11/10/11 Time: 07:01
Sample (adjusted): 1982 2010
Included observations: 29 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(INFLATIONSAUDI(-1))	-1.207767	0.186595	-6.472654	0.0000
C	0.092382	0.435943	0.211914	0.8338

R-squared	0.608101	Mean dependent var	0.065103
Adjusted R-squared	0.593586	S.D. dependent var	3.682342
S.E. of regression	2.347516	Akaike info criterion	4.611064
Sum squared resid	148.7924	Schwarz criterion	4.705361
Log likelihood	-64.86043	F-statistic	41.89525
Durbin-Watson stat	2.008024	Prob(F-statistic)	0.000001

Null Hypothesis: INFLATIONSAUDI has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic based on SIC, MAXLAG=7)

		t-Statistic
Elliott-Rothenberg-Stock DF-GLS test statistic		-2.124153
Test critical values:	1% level	-2.644302
	5% level	-1.952473
	10% level	-1.610211

*MacKinnon (1996)

DF-GLS Test Equation on GLS Detrended Residuals
Dependent Variable: D(GLSRESID)
Method: Least Squares
Date: 11/10/11 Time: 07:02
Sample (adjusted): 1981 2010
Included observations: 30 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GLSRESID(-1)	-0.277198	0.130498	-2.124153	0.0423

R-squared	0.134474	Mean dependent var	0.031733
Adjusted R-squared	0.134474	S.D. dependent var	2.336730
S.E. of regression	2.173945	Akaike info criterion	4.423729
Sum squared resid	137.0550	Schwarz criterion	4.470436
Log likelihood	-65.35594	Durbin-Watson stat	2.086758

Null Hypothesis: D(INFLATIONSAUDI) has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic based on SIC, MAXLAG=7)

		t-Statistic
Elliott-Rothenberg-Stock DF-GLS test statistic		-6.223992
Test critical values:	1% level	-2.647120
	5% level	-1.952910
	10% level	-1.610011

*MacKinnon (1996)

DF-GLS Test Equation on GLS Detrended Residuals
Dependent Variable: D(GLSRESID)
Method: Least Squares
Date: 11/10/11 Time: 07:02
Sample (adjusted): 1982 2010
Included observations: 29 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GLSRESID(-1)	-1.158426	0.186123	-6.223992	0.0000

R-squared	0.580314	Mean dependent var	0.065103
Adjusted R-squared	0.580314	S.D. dependent var	3.682342
S.E. of regression	2.385540	Akaike info criterion	4.610602
Sum squared resid	159.3424	Schwarz criterion	4.657750
Log likelihood	-65.85373	Durbin-Watson stat	1.978356

Null Hypothesis: INFLATIONUAE has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic based on SIC, MAXLAG=7)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-3.010238	0.0453
Test critical values:	1% level	-3.670170	
	5% level	-2.963972	
	10% level	-2.621007	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(INFLATIONUAE)
Method: Least Squares
Date: 11/10/11 Time: 07:03
Sample (adjusted): 1981 2010
Included observations: 30 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
INFLATIONUAE(-1)	-0.455575	0.151342	-3.010238	0.0055
C	1.856152	0.844956	2.196744	0.0365

R-squared	0.244500	Mean dependent var	-0.306267
Adjusted R-squared	0.217518	S.D. dependent var	2.754641
S.E. of regression	2.436701	Akaike info criterion	4.683508
Sum squared resid	166.2504	Schwarz criterion	4.776921
Log likelihood	-68.25262	F-statistic	9.061533
Durbin-Watson stat	1.700825	Prob(F-statistic)	0.005477

Null Hypothesis: D(INFLATIONUAE) has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic based on SIC, MAXLAG=7)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-5.250998	0.0002
Test critical values:	1% level	-3.679322	
	5% level	-2.967767	
	10% level	-2.622989	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(INFLATIONUAE,2)
Method: Least Squares
Date: 11/10/11 Time: 07:04
Sample (adjusted): 1982 2010
Included observations: 29 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(INFLATIONUAE(-1))	-1.003039	0.191019	-5.250998	0.0000
C	-0.244615	0.528989	-0.462421	0.6475

R-squared	0.505250	Mean dependent var	0.049586
Adjusted R-squared	0.486926	S.D. dependent var	3.954627
S.E. of regression	2.832668	Akaike info criterion	4.986787
Sum squared resid	216.6482	Schwarz criterion	5.081083
Log likelihood	-70.30841	F-statistic	27.57298
Durbin-Watson stat	2.008103	Prob(F-statistic)	0.000016

Null Hypothesis: INFLATIONUAE has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic based on SIC, MAXLAG=7)

		t-Statistic
Elliott-Rothenberg-Stock DF-GLS test statistic		-2.388152
Test critical values:	1% level	-2.644302
	5% level	-1.952473
	10% level	-1.610211

*MacKinnon (1996)

DF-GLS Test Equation on GLS Detrended Residuals
Dependent Variable: D(GLSRESID)
Method: Least Squares
Date: 11/10/11 Time: 07:04
Sample (adjusted): 1981 2010
Included observations: 30 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GLSRESID(-1)	-0.344517	0.144261	-2.388152	0.0237

R-squared	0.153658	Mean dependent var	-0.306267
Adjusted R-squared	0.153658	S.D. dependent var	2.754641
S.E. of regression	2.534183	Akaike info criterion	4.730385
Sum squared resid	186.2404	Schwarz criterion	4.777091
Log likelihood	-69.95577	Durbin-Watson stat	1.675727

Null Hypothesis: D(INFLATIONUAE) has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic based on SIC, MAXLAG=7)

		t-Statistic
Elliott-Rothenberg-Stock DF-GLS test statistic		-5.085891
Test critical values:	1% level	-2.647120
	5% level	-1.952910
	10% level	-1.610011

*MacKinnon (1996)

DF-GLS Test Equation on GLS Detrended Residuals
Dependent Variable: D(GLSRESID)
Method: Least Squares
Date: 11/10/11 Time: 07:05
Sample (adjusted): 1982 2010
Included observations: 29 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GLSRESID(-1)	-0.957061	0.188180	-5.085891	0.0000

R-squared	0.480110	Mean dependent var	0.049586
Adjusted R-squared	0.480110	S.D. dependent var	3.954627
S.E. of regression	2.851421	Akaike info criterion	4.967386
Sum squared resid	227.6569	Schwarz criterion	5.014534
Log likelihood	-71.02710	Durbin-Watson stat	2.002541

Null Hypothesis: LOGM2SAUDI has a unit root
Exogenous: Constant
Lag Length: 1 (Automatic based on SIC, MAXLAG=10)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-1.735348	0.4076
Test critical values:	1% level	-3.571310	
	5% level	-2.922449	
	10% level	-2.599224	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(LOGM2SAUDI)
Method: Least Squares
Date: 11/10/11 Time: 07:06
Sample (adjusted): 1962 2010
Included observations: 49 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LOGM2SAUDI(-1)	-0.009127	0.005259	-1.735348	0.0894
D(LOGM2SAUDI(-1))	0.766937	0.088347	8.680996	0.0000
C	0.132410	0.062891	2.105390	0.0407

R-squared	0.664465	Mean dependent var	0.140840
Adjusted R-squared	0.649877	S.D. dependent var	0.128011
S.E. of regression	0.075746	Akaike info criterion	-2.263597
Sum squared resid	0.263922	Schwarz criterion	-2.147771
Log likelihood	58.45813	F-statistic	45.54728
Durbin-Watson stat	1.853736	Prob(F-statistic)	0.000000

Null Hypothesis: D(LOGM2SAUDI) has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic based on SIC, MAXLAG=10)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-2.237108	0.1963
Test critical values:	1% level	-3.571310	
	5% level	-2.922449	
	10% level	-2.599224	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(LOGM2SAUDI,2)
Method: Least Squares
Date: 11/10/11 Time: 07:06
Sample (adjusted): 1962 2010
Included observations: 49 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LOGM2SAUDI(-1))	-0.195761	0.087506	-2.237108	0.0301
C	0.026981	0.016600	1.625334	0.1108

R-squared	0.096235	Mean dependent var	-0.000733
Adjusted R-squared	0.077006	S.D. dependent var	0.080512
S.E. of regression	0.077350	Akaike info criterion	-2.241001
Sum squared resid	0.281200	Schwarz criterion	-2.163784
Log likelihood	56.90453	F-statistic	5.004653
Durbin-Watson stat	1.822070	Prob(F-statistic)	0.030061

Null Hypothesis: LOGM2SAUDI has a unit root
Exogenous: Constant
Lag Length: 1 (Automatic based on SIC, MAXLAG=10)

		t-Statistic
Elliott-Rothenberg-Stock DF-GLS test statistic		-0.424740
Test critical values:	1% level	-2.613010
	5% level	-1.947665
	10% level	-1.612573

*MacKinnon (1996)

DF-GLS Test Equation on GLS Detrended Residuals
Dependent Variable: D(GLSRESID)
Method: Least Squares
Date: 11/10/11 Time: 07:06
Sample (adjusted): 1962 2010
Included observations: 49 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GLSRESID(-1)	-0.001903	0.004480	-0.424740	0.6730
D(GLSRESID(-1))	0.919164	0.063227	14.53763	0.0000

R-squared	0.623849	Mean dependent var	0.140840
Adjusted R-squared	0.615846	S.D. dependent var	0.128011
S.E. of regression	0.079342	Akaike info criterion	-2.190148
Sum squared resid	0.295869	Schwarz criterion	-2.112931
Log likelihood	55.65864	Durbin-Watson stat	1.935340

Null Hypothesis: D(LOGM2SAUDI) has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic based on SIC, MAXLAG=10)

		t-Statistic
Elliott-Rothenberg-Stock DF-GLS test statistic		-2.207447
Test critical values:	1% level	-2.613010
	5% level	-1.947665
	10% level	-1.612573

*MacKinnon (1996)

DF-GLS Test Equation on GLS Detrended Residuals
Dependent Variable: D(GLSRESID)
Method: Least Squares
Date: 11/10/11 Time: 07:07
Sample (adjusted): 1962 2010
Included observations: 49 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GLSRESID(-1)	-0.186147	0.084327	-2.207447	0.0321

R-squared	0.092084	Mean dependent var	-0.000733
Adjusted R-squared	0.092084	S.D. dependent var	0.080512
S.E. of regression	0.076715	Akaike info criterion	-2.277236
Sum squared resid	0.282491	Schwarz criterion	-2.238627
Log likelihood	56.79228	Durbin-Watson stat	1.830814

Null Hypothesis: LOGM2UAE has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic based on SIC, MAXLAG=9)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-2.704494	0.0828
Test critical values:	1% level	-3.621023	
	5% level	-2.943427	
	10% level	-2.610263	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(LOGM2UAE)
Method: Least Squares
Date: 11/10/11 Time: 07:08
Sample (adjusted): 1974 2010
Included observations: 37 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LOGM2UAE(-1)	-0.062489	0.023106	-2.704494	0.0105
C	0.850824	0.257753	3.300929	0.0022

R-squared	0.172856	Mean dependent var	0.158200
Adjusted R-squared	0.149224	S.D. dependent var	0.192138
S.E. of regression	0.177224	Akaike info criterion	-0.570270
Sum squared resid	1.099288	Schwarz criterion	-0.483193
Log likelihood	12.54999	F-statistic	7.314290
Durbin-Watson stat	1.075343	Prob(F-statistic)	0.010491

Null Hypothesis: D(LOGM2UAE) has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic based on SIC, MAXLAG=9)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-6.803599	0.0000
Test critical values:	1% level	-3.626784	
	5% level	-2.945842	
	10% level	-2.611531	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(LOGM2UAE,2)
Method: Least Squares
Date: 11/10/11 Time: 07:08
Sample (adjusted): 1975 2010
Included observations: 36 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LOGM2UAE(-1))	-0.751480	0.110453	-6.803599	0.0000
C	0.095276	0.027622	3.449250	0.0015

R-squared	0.576530	Mean dependent var	-0.025659
Adjusted R-squared	0.564075	S.D. dependent var	0.192137
S.E. of regression	0.126858	Akaike info criterion	-1.237546
Sum squared resid	0.547160	Schwarz criterion	-1.149572
Log likelihood	24.27582	F-statistic	46.28897
Durbin-Watson stat	2.478738	Prob(F-statistic)	0.000000

Null Hypothesis: LOGM2UAE has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic based on SIC, MAXLAG=9)

		t-Statistic
Elliott-Rothenberg-Stock DF-GLS test statistic		0.924955
Test critical values:	1% level	-2.628961
	5% level	-1.950117
	10% level	-1.611339

*MacKinnon (1996)

DF-GLS Test Equation on GLS Detrended Residuals
Dependent Variable: D(GLSRESID)
Method: Least Squares
Date: 11/10/11 Time: 07:09
Sample (adjusted): 1974 2010
Included observations: 37 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GLSRESID(-1)	0.023258	0.025146	0.924955	0.3611

R-squared	-0.657377	Mean dependent var	0.158200
Adjusted R-squared	-0.657377	S.D. dependent var	0.192138
S.E. of regression	0.247357	Akaike info criterion	0.070689
Sum squared resid	2.202683	Schwarz criterion	0.114227
Log likelihood	-0.307750	Durbin-Watson stat	0.621983

Null Hypothesis: D(LOGM2UAE) has a unit root
Exogenous: Constant
Lag Length: 1 (Automatic based on SIC, MAXLAG=9)

		t-Statistic
Elliott-Rothenberg-Stock DF-GLS test statistic		-0.452199
Test critical values:	1% level	-2.632688
	5% level	-1.950687
	10% level	-1.611059

*MacKinnon (1996)

DF-GLS Test Equation on GLS Detrended Residuals
Dependent Variable: D(GLSRESID)
Method: Least Squares
Date: 11/10/11 Time: 07:09
Sample (adjusted): 1976 2010
Included observations: 35 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GLSRESID(-1)	-0.032435	0.071728	-0.452199	0.6541
D(GLSRESID(-1))	-0.482643	0.123769	-3.899566	0.0004

R-squared	0.343400	Mean dependent var	-0.009123
Adjusted R-squared	0.323503	S.D. dependent var	0.166940
S.E. of regression	0.137307	Akaike info criterion	-1.077746
Sum squared resid	0.622158	Schwarz criterion	-0.988869
Log likelihood	20.86056	Durbin-Watson stat	1.641163

Null Hypothesis: LOGREALGDPSAUDI has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic based on SIC, MAXLAG=9)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-3.961019	0.0038
Test critical values:	1% level	-3.600987	
	5% level	-2.935001	
	10% level	-2.605836	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(LOGREALGDPSAUDI)
Method: Least Squares
Date: 11/10/11 Time: 07:10
Sample (adjusted): 1970 2010
Included observations: 41 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LOGREALGDPSAUDI(-1)	-0.073737	0.018616	-3.961019	0.0003
C	0.938587	0.226248	4.148483	0.0002

R-squared	0.286885	Mean dependent var	0.042920
Adjusted R-squared	0.268600	S.D. dependent var	0.056943
S.E. of regression	0.048698	Akaike info criterion	-3.158791
Sum squared resid	0.092490	Schwarz criterion	-3.075203
Log likelihood	66.75523	F-statistic	15.68967
Durbin-Watson stat	1.339613	Prob(F-statistic)	0.000308

Null Hypothesis: D(LOGREALGDPSAUDI) has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic based on SIC, MAXLAG=9)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-3.956465	0.0039
Test critical values:	1% level	-3.605593	
	5% level	-2.936942	
	10% level	-2.606857	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(LOGREALGDPSAUDI,2)
Method: Least Squares
Date: 11/10/11 Time: 07:10
Sample (adjusted): 1971 2010
Included observations: 40 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LOGREALGDPSAUDI(-1))	-0.548602	0.138660	-3.956465	0.0003
C	0.021127	0.009907	2.132478	0.0395

R-squared	0.291753	Mean dependent var	-0.002570
Adjusted R-squared	0.273115	S.D. dependent var	0.058543
S.E. of regression	0.049912	Akaike info criterion	-3.108392
Sum squared resid	0.094667	Schwarz criterion	-3.023948
Log likelihood	64.16785	F-statistic	15.65361
Durbin-Watson stat	2.185947	Prob(F-statistic)	0.000321

Null Hypothesis: LOGREALGDPSAUDI has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic based on SIC, MAXLAG=9)

		t-Statistic
Elliott-Rothenberg-Stock DF-GLS test statistic		0.650977
Test critical values:	1% level	-2.622585
	5% level	-1.949097
	10% level	-1.611824

*MacKinnon (1996)

DF-GLS Test Equation on GLS Detrended Residuals
Dependent Variable: D(GLSRESID)
Method: Least Squares
Date: 11/10/11 Time: 07:11
Sample (adjusted): 1970 2010
Included observations: 41 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GLSRESID(-1)	0.012966	0.019918	0.650977	0.5188

R-squared	-0.565743	Mean dependent var	0.042920
Adjusted R-squared	-0.565743	S.D. dependent var	0.056943
S.E. of regression	0.071252	Akaike info criterion	-2.421098
Sum squared resid	0.203074	Schwarz criterion	-2.379304
Log likelihood	50.63251	Durbin-Watson stat	0.669317

Null Hypothesis: D(LOGREALGDPSAUDI) has a unit root
Exogenous: Constant
Lag Length: 1 (Automatic based on SIC, MAXLAG=9)

		t-Statistic
Elliott-Rothenberg-Stock DF-GLS test statistic		-2.166519
Test critical values:	1% level	-2.625606
	5% level	-1.949609
	10% level	-1.611593

*MacKinnon (1996)

DF-GLS Test Equation on GLS Detrended Residuals
Dependent Variable: D(GLSRESID)
Method: Least Squares
Date: 11/10/11 Time: 07:11
Sample (adjusted): 1972 2010
Included observations: 39 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GLSRESID(-1)	-0.304825	0.140698	-2.166519	0.0368
D(GLSRESID(-1))	-0.227244	0.160253	-1.418029	0.1646

R-squared	0.239503	Mean dependent var	-0.002846
Adjusted R-squared	0.218949	S.D. dependent var	0.059282
S.E. of regression	0.052392	Akaike info criterion	-3.010215
Sum squared resid	0.101561	Schwarz criterion	-2.924904
Log likelihood	60.69919	Durbin-Watson stat	2.111919

Null Hypothesis: LOGREALGDPUAE has a unit root
Exogenous: Constant
Lag Length: 1 (Automatic based on SIC, MAXLAG=9)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-0.836103	0.7977
Test critical values:	1% level	-3.605593	
	5% level	-2.936942	
	10% level	-2.606857	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(LOGREALGDPUAE)
Method: Least Squares
Date: 11/10/11 Time: 07:11
Sample (adjusted): 1971 2010
Included observations: 40 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LOGREALGDPUAE(-1)	-0.019512	0.023337	-0.836103	0.4085
D(LOGREALGDPUAE(-1))	0.276729	0.157281	1.759459	0.0868
C	0.250450	0.255652	0.979651	0.3336

R-squared	0.088980	Mean dependent var	0.050644
Adjusted R-squared	0.039736	S.D. dependent var	0.082647
S.E. of regression	0.080989	Akaike info criterion	-2.116977
Sum squared resid	0.242689	Schwarz criterion	-1.990311
Log likelihood	45.33953	F-statistic	1.806908
Durbin-Watson stat	1.970964	Prob(F-statistic)	0.178347

Null Hypothesis: D(LOGREALGDPUAE) has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic based on SIC, MAXLAG=9)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-4.683705	0.0005
Test critical values:	1% level	-3.605593	
	5% level	-2.936942	
	10% level	-2.606857	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(LOGREALGDPUAE,2)
Method: Least Squares
Date: 11/10/11 Time: 07:12
Sample (adjusted): 1971 2010
Included observations: 40 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LOGREALGDPUAE(-1))	-0.732084	0.156304	-4.683705	0.0000
C	0.037070	0.015013	2.469225	0.0181

R-squared	0.366002	Mean dependent var	-1.91E-05
Adjusted R-squared	0.349318	S.D. dependent var	0.100003
S.E. of regression	0.080667	Akaike info criterion	-2.148259
Sum squared resid	0.247274	Schwarz criterion	-2.063815
Log likelihood	44.96518	F-statistic	21.93709
Durbin-Watson stat	1.956790	Prob(F-statistic)	0.000035

Null Hypothesis: LOGREALGDPUAE has a unit root
Exogenous: Constant
Lag Length: 1 (Automatic based on SIC, MAXLAG=9)

		t-Statistic
Elliott-Rothenberg-Stock DF-GLS test statistic		0.318574
Test critical values:	1% level	-2.624057
	5% level	-1.949319
	10% level	-1.611711

*MacKinnon (1996)

DF-GLS Test Equation on GLS Detrended Residuals
Dependent Variable: D(GLSRESID)
Method: Least Squares
Date: 11/10/11 Time: 07:12
Sample (adjusted): 1971 2010
Included observations: 40 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GLSRESID(-1)	0.007140	0.022413	0.318574	0.7518
D(GLSRESID(-1))	0.455736	0.151178	3.014559	0.0046

R-squared	-0.074298	Mean dependent var	0.050644
Adjusted R-squared	-0.102569	S.D. dependent var	0.082647
S.E. of regression	0.086782	Akaike info criterion	-2.002119
Sum squared resid	0.286185	Schwarz criterion	-1.917675
Log likelihood	42.04238	Durbin-Watson stat	2.050624

Null Hypothesis: D(LOGREALGDPUAE) has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic based on SIC, MAXLAG=9)

		t-Statistic
Elliott-Rothenberg-Stock DF-GLS test statistic		-4.655680
Test critical values:	1% level	-2.624057
	5% level	-1.949319
	10% level	-1.611711

*MacKinnon (1996)

DF-GLS Test Equation on GLS Detrended Residuals
Dependent Variable: D(GLSRESID)
Method: Least Squares
Date: 11/10/11 Time: 07:13
Sample (adjusted): 1971 2010
Included observations: 40 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GLSRESID(-1)	-0.714512	0.153471	-4.655680	0.0000

R-squared	0.357235	Mean dependent var	-1.91E-05
Adjusted R-squared	0.357235	S.D. dependent var	0.100003
S.E. of regression	0.080175	Akaike info criterion	-2.184526
Sum squared resid	0.250694	Schwarz criterion	-2.142304
Log likelihood	44.69052	Durbin-Watson stat	1.962399

Null Hypothesis: LOGWCP has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic based on SIC, MAXLAG=3)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-0.091203	0.9365
Test critical values:	1% level	-3.857386	
	5% level	-3.040391	
	10% level	-2.660551	

*MacKinnon (1996) one-sided p-values.
Warning: Probabilities and critical values calculated for 20 observations and may not be accurate for a sample size of 18

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(LOGWCP)
Method: Least Squares
Date: 11/10/11 Time: 07:14
Sample (adjusted): 1993 2010
Included observations: 18 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LOGWCP(-1)	-0.009648	0.105783	-0.091203	0.9285
C	0.098050	0.455037	0.215478	0.8321

R-squared	0.000520	Mean dependent var	0.056711
Adjusted R-squared	-0.061948	S.D. dependent var	0.164756
S.E. of regression	0.169783	Akaike info criterion	-0.604154
Sum squared resid	0.461219	Schwarz criterion	-0.505224
Log likelihood	7.437388	F-statistic	0.008318
Durbin-Watson stat	2.181350	Prob(F-statistic)	0.928464

Null Hypothesis: D(LOGWCP) has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic based on SIC, MAXLAG=3)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-4.404904	0.0036
Test critical values:	1% level	-3.886751	
	5% level	-3.052169	
	10% level	-2.666593	

*MacKinnon (1996) one-sided p-values.
Warning: Probabilities and critical values calculated for 20 observations and may not be accurate for a sample size of 17

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(LOGWCP,2)
Method: Least Squares
Date: 11/10/11 Time: 07:14
Sample (adjusted): 1994 2010
Included observations: 17 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LOGWCP(-1))	-1.152861	0.261722	-4.404904	0.0005
C	0.069716	0.043312	1.609629	0.1283

R-squared	0.563994	Mean dependent var	0.016218
Adjusted R-squared	0.534927	S.D. dependent var	0.251354
S.E. of regression	0.171414	Akaike info criterion	-0.579339
Sum squared resid	0.440742	Schwarz criterion	-0.481314
Log likelihood	6.924379	F-statistic	19.40318
Durbin-Watson stat	1.989223	Prob(F-statistic)	0.000512

Null Hypothesis: LOGWCP has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic based on SIC, MAXLAG=3)

		t-Statistic
Elliott-Rothenberg-Stock DF-GLS test statistic		-0.189442
Test critical values:	1% level	-2.699769
	5% level	-1.961409
	10% level	-1.606610

*MacKinnon (1996)
Warning: Test critical values calculated for 20 observations
and may not be accurate for a sample size of 18

DF-GLS Test Equation on GLS Detrended Residuals
Dependent Variable: D(GLSRESID)
Method: Least Squares
Date: 11/10/11 Time: 07:15
Sample (adjusted): 1993 2010
Included observations: 18 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GLSRESID(-1)	-0.020553	0.108492	-0.189442	0.8520

R-squared	-0.123078	Mean dependent var	0.056711
Adjusted R-squared	-0.123078	S.D. dependent var	0.164756
S.E. of regression	0.174601	Akaike info criterion	-0.598672
Sum squared resid	0.518255	Schwarz criterion	-0.549207
Log likelihood	6.388051	Durbin-Watson stat	1.921309

Null Hypothesis: D(LOGWCP) has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic based on SIC, MAXLAG=3)

		t-Statistic
Elliott-Rothenberg-Stock DF-GLS test statistic		-4.549341
Test critical values:	1% level	-2.708094
	5% level	-1.962813
	10% level	-1.606129

*MacKinnon (1996)
Warning: Test critical values calculated for 20 observations
and may not be accurate for a sample size of 17

DF-GLS Test Equation on GLS Detrended Residuals
Dependent Variable: D(GLSRESID)
Method: Least Squares
Date: 11/10/11 Time: 07:15
Sample (adjusted): 1994 2010
Included observations: 17 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GLSRESID(-1)	-1.154885	0.253858	-4.549341	0.0003

R-squared	0.562062	Mean dependent var	0.016218
Adjusted R-squared	0.562062	S.D. dependent var	0.251354
S.E. of regression	0.166338	Akaike info criterion	-0.692566
Sum squared resid	0.442694	Schwarz criterion	-0.643553
Log likelihood	6.886810	Durbin-Watson stat	1.976994

Vector Autoregression Estimates:

Vector Autoregression Estimates
Date: 11/01/11 Time: 17:09
Sample (adjusted): 1994 2010
Included observations: 17 after adjustments
Standard errors in ( ) & t-statistics in [ ]

	INFLATIONSAUDI	INFLATIONUAE	LOGM2UAE	LOGREALGDPUAE	LOGWCP
INFLATIONSAUDI(-1)	-0.781782	-1.794986	-0.040353	-0.011212	-0.071690
	(0.26274)	(0.65547)	(0.01422)	(0.00659)	(0.04142)
	[-2.97552]	[-2.73846]	[-2.83762]	[-1.70113]	[-1.73093]
INFLATIONSAUDI(-2)	-0.124143	-0.712695	-0.016871	-0.007742	0.008516
	(0.25184)	(0.62829)	(0.01363)	(0.00632)	(0.03970)
	[-0.49294]	[-1.13434]	[-1.23771]	[-1.22547]	[0.21450]
INFLATIONUAE(-1)	0.610243	0.835530	0.011939	-0.000957	0.029326
	(0.21517)	(0.53680)	(0.01165)	(0.00540)	(0.03392)
	[2.83612]	[1.55650]	[1.02514]	[-0.17731]	[0.86460]
INFLATIONUAE(-2)	1.735952	2.501031	0.047962	0.036389	0.135945
	(0.60881)	(1.51885)	(0.03295)	(0.01527)	(0.09597)
	[2.85139]	[1.64666]	[1.45551]	[2.38257]	[1.41654]
LOGM2UAE(-1)	13.34295	-8.106739	0.228041	0.196805	0.833249
	(8.30341)	(20.7152)	(0.44943)	(0.20830)	(1.30891)
	[1.60692]	[-0.39134]	[0.50741]	[0.94480]	[0.63660]
LOGM2UAE(-2)	-12.02297	-6.164449	0.546508	-0.177263	-0.634912
	(5.92898)	(14.7915)	(0.32091)	(0.14874)	(0.93462)
	[-2.02783]	[-0.41676]	[1.70300]	[-1.19179]	[-0.67933]
LOGREALGDPUAE(-1)	16.36279	50.76744	1.766387	1.025128	1.220734
	(15.3525)	(38.3010)	(0.83096)	(0.38514)	(2.42010)
	[1.06581]	[1.32548]	[2.12572]	[2.66171]	[0.50442]
LOGREALGDPUAE(-2)	-16.17805	-21.35834	-0.984717	0.102105	-0.586596
	(14.9295)	(37.2457)	(0.80806)	(0.37453)	(2.35342)
	[-1.08363]	[-0.57344]	[-1.21862]	[0.27262]	[-0.24925]
LOGWCP(-1)	-10.57299	-5.794516	-0.043418	-0.110490	-0.198403
	(4.42230)	(11.0327)	(0.23936)	(0.11094)	(0.69711)
	[-2.39083]	[-0.52521]	[-0.18139]	[-0.99594]	[-0.28461]
LOGWCP(-2)	1.951193	4.577684	-0.098271	-0.270066	-0.557285
	(3.89565)	(9.71880)	(0.21085)	(0.09773)	(0.61409)
	[0.50086]	[0.47101]	[-0.46606]	[-2.76344]	[-0.90749]
C	8.162694	-169.3409	-5.679565	-0.176843	-2.916010
	(69.7894)	(174.110)	(3.77738)	(1.75077)	(11.0013)
	[0.11696]	[-0.97261]	[-1.50357]	[-0.10101]	[-0.26506]

R-squared	0.963938	0.820620	0.998572	0.998082	0.952685
Adj. R-squared	0.903835	0.521654	0.996191	0.994886	0.873826
Sum sq. resids	5.396701	33.58876	0.015810	0.003396	0.134103
S.E. equation	0.948393	2.366036	0.051332	0.023792	0.149501
F-statistic	16.03803	2.744862	419.4929	312.2697	12.08092
Log likelihood	-14.36884	-29.91027	35.21084	48.28338	17.03811
Akaike AIC	2.984569	4.812973	-2.848334	-4.386280	-0.710366
Schwarz SC	3.523707	5.352111	-2.309196	-3.847142	-0.171228
Mean dependent	1.818588	4.505176	12.24771	11.52827	4.364073
S.D. dependent	3.058296	3.420979	0.831768	0.332698	0.420881

Determinant resid covariance (dof adj.)	8.55E-10
Determinant resid covariance	4.68E-12
Log likelihood	101.1295
Akaike information criterion	-5.426994
Schwarz criterion	-2.731304

Vector Autoregression Estimates
Date: 11/01/11 Time: 17:21
Sample (adjusted): 1994 2010
Included observations: 17 after adjustments
Standard errors in ( ) & t-statistics in [ ]

	LOGM2SAUDI	INFLATIONUAE	LOGM2UAE	LOGREALGDPUAE	LOGWCP
LOGM2SAUDI(-1)	0.649979	64.28077	2.322789	0.506064	5.180085
	(0.61407)	(57.7460)	(1.06108)	(0.46313)	(2.69081)
	[1.05848]	[1.11316]	[2.18908]	[1.09270]	[1.92510]
LOGM2SAUDI(-2)	0.049684	-45.29546	-0.733588	-0.497233	-2.723560
	(0.46072)	(43.3254)	(0.79610)	(0.34748)	(2.01884)
	[0.10784]	[-1.04547]	[-0.92148]	[-1.43098]	[-1.34907]
INFLATIONUAE(-1)	0.010694	0.142675	0.001932	-0.005785	-0.021858
	(0.00751)	(0.70647)	(0.01298)	(0.00567)	(0.03292)
	[1.42348]	[0.20195]	[0.14879]	[-1.02092]	[-0.66398]
INFLATIONUAE(-2)	-0.000784	-1.028119	-0.043931	0.010564	0.003091
	(0.01548)	(1.45595)	(0.02675)	(0.01168)	(0.06784)
	[-0.05061]	[-0.70615]	[-1.64209]	[0.90470]	[0.04556]
LOGM2UAE(-1)	0.213074	30.54723	0.832618	0.534917	1.912843
	(0.27951)	(26.2848)	(0.48298)	(0.21081)	(1.22480)
	[0.76231]	[1.16216]	[1.72391]	[2.53746]	[1.56176]
LOGM2UAE(-2)	-0.122366	-31.43846	-0.397820	-0.306765	-2.203371
	(0.25524)	(24.0025)	(0.44104)	(0.19250)	(1.11845)
	[-0.47941]	[-1.30980]	[-0.90200]	[-1.59355]	[-1.97002]
LOGREALGDPUAE(-1)	0.626955	5.189146	1.305831	0.668390	0.802847
	(0.51766)	(48.6797)	(0.89449)	(0.39042)	(2.26834)
	[1.21114]	[0.10660]	[1.45987]	[1.71198]	[0.35394]
LOGREALGDPUAE(-2)	-0.299838	-38.79298	-2.051258	-0.075036	-3.048108
	(0.67269)	(63.2587)	(1.16238)	(0.50735)	(2.94768)
	[-0.44573]	[-0.61324]	[-1.76471]	[-0.14790]	[-1.03407]
LOGWCP(-1)	-0.174049	-4.873271	-0.206698	-0.104783	-0.373099
	(0.17423)	(16.3846)	(0.30107)	(0.13141)	(0.76348)
	[-0.99895]	[-0.29743]	[-0.68656]	[-0.79740]	[-0.48868]
LOGWCP(-2)	0.127683	10.93910	0.184244	-0.234325	0.217179
	(0.15999)	(15.0449)	(0.27645)	(0.12066)	(0.70105)
	[0.79808]	[0.72709]	[0.66646]	[-1.94198]	[0.30979]
C	-0.754849	123.6849	-4.901062	3.178940	1.970240
	(3.74037)	(351.738)	(6.46316)	(2.82099)	(16.3900)
	[-0.20181]	[0.35164]	[-0.75831]	[1.12689]	[0.12021]

R-squared	0.998487	0.675497	0.998147	0.997793	0.953450
Adj. R-squared	0.995965	0.134660	0.995058	0.994115	0.875866
Sum sq. resids	0.006871	60.76297	0.020516	0.003908	0.131935
S.E. equation	0.033841	3.182320	0.058475	0.025523	0.148287
F-statistic	395.9598	1.248984	323.1317	271.2738	12.28930
Log likelihood	42.29396	-34.94898	32.99607	47.08957	17.17665
Akaike AIC	-3.681643	5.405762	-2.587773	-4.245831	-0.726665
Schwarz SC	-3.142505	5.944900	-2.048635	-3.706693	-0.187527
Mean dependent	12.99209	4.505176	12.24771	11.52827	4.364073
S.D. dependent	0.532762	3.420979	0.831768	0.332698	0.420881

Determinant resid covariance (dof adj.)	5.19E-14
Determinant resid covariance	2.84E-16
Log likelihood	183.6579
Akaike information criterion	-15.13622
Schwarz criterion	-12.44053

Vector Autoregression Estimates
Date: 11/01/11 Time: 17:24
Sample (adjusted): 1994 2010
Included observations: 17 after adjustments
Standard errors in ( ) & t-statistics in [ ]

	LOGREALGDPSAUDI	INFLATIONUAE	LOGM2UAE	LOGREALGDPUAE	LOGWCP
LOGREALGDPSAUDI(-1)	0.461209	65.94612	1.283499	-0.080957	2.476878
	(0.39124)	(59.6563)	(1.08006)	(0.50817)	(3.14550)
	[1.17884]	[1.10543]	[1.18836]	[-0.15931]	[0.78744]
LOGREALGDPSAUDI(-2)	0.073254	-20.99502	1.768335	0.698262	2.095611
	(0.55079)	(83.9837)	(1.52050)	(0.71540)	(4.42821)
	[0.13300]	[-0.24999]	[1.16299]	[0.97604]	[0.47324]
INFLATIONUAE(-1)	-0.001022	0.584229	0.007867	-0.000961	0.001978
	(0.00376)	(0.57260)	(0.01037)	(0.00488)	(0.03019)
	[-0.27211]	[1.02032]	[0.75892]	[-0.19703]	[0.06553]
INFLATIONUAE(-2)	0.013701	-0.237500	0.009647	0.022362	0.095466
	(0.01037)	(1.58116)	(0.02863)	(0.01347)	(0.08337)
	[1.32121]	[-0.15021]	[0.33698]	[1.66026]	[1.14509]
LOGM2UAE(-1)	-0.037914	23.90469	0.365291	0.248512	0.979580
	(0.20132)	(30.6969)	(0.55576)	(0.26149)	(1.61856)
	[-0.18833]	[0.77873]	[0.65728]	[0.95038]	[0.60522]
LOGM2UAE(-2)	-0.063319	-26.36876	0.002213	-0.317784	-1.539761
	(0.12129)	(18.4938)	(0.33482)	(0.15754)	(0.97512)
	[-0.52206]	[-1.42582]	[0.00661]	[-2.01721]	[-1.57904]
LOGREALGDPUAE(-1)	-0.203115	-9.897454	1.357413	0.909297	0.498426
	(0.35807)	(54.5980)	(0.98848)	(0.46508)	(2.87879)
	[-0.56725]	[-0.18128]	[1.37323]	[1.95512]	[0.17314]
LOGREALGDPUAE(-2)	0.683973	-4.775117	-0.872362	0.182065	-0.189021
	(0.33063)	(50.4146)	(0.91274)	(0.42945)	(2.65821)
	[2.06869]	[-0.09472]	[-0.95576]	[0.42395]	[-0.07111]
LOGWCP(-1)	0.077834	-6.995878	-0.179581	-0.113993	-0.291539
	(0.10566)	(16.1109)	(0.29168)	(0.13724)	(0.84948)
	[0.73665]	[-0.43423]	[-0.61567]	[-0.83062]	[-0.34320]
LOGWCP(-2)	-0.188042	3.655741	-0.174709	-0.312686	-0.511933
	(0.08537)	(13.0170)	(0.23567)	(0.11088)	(0.68635)
	[-2.20271]	[0.28084]	[-0.74133]	[-2.81996]	[-0.74588]
C	1.997275	-351.0205	-34.49550	-6.166555	-46.79162
	(6.12069)	(933.282)	(16.8968)	(7.95003)	(49.2092)
	[0.32632]	[-0.37611]	[-2.04154]	[-0.77566]	[-0.95087]

R-squared	0.993945	0.666106	0.998149	0.997438	0.938672
Adj. R-squared	0.983853	0.109617	0.995063	0.993169	0.836459
Sum sq. resids	0.002689	62.52145	0.020493	0.004537	0.173818
S.E. equation	0.021170	3.228040	0.058443	0.027498	0.170205
F-statistic	98.49223	1.196979	323.4887	233.6243	9.183484
Log likelihood	50.26807	-35.19147	33.00544	45.82257	14.83318
Akaike AIC	-4.619773	5.434291	-2.588876	-4.096773	-0.450963
Schwarz SC	-4.080635	5.973429	-2.049738	-3.557635	0.088175
Mean dependent	12.53155	4.505176	12.24771	11.52827	4.364073
S.D. dependent	0.166604	3.420979	0.831768	0.332698	0.420881

Determinant resid covariance (dof adj.)	1.79E-13
Determinant resid covariance	9.81E-16
Log likelihood	173.1335
Akaike information criterion	-13.89806
Schwarz criterion	-11.20237

Table 7:Johansen Cointegration Tests

Date: 11/10/11 Time: 09:35
Sample (adjusted): 1994 2010
Included observations: 17 after adjustments
Trend assumption: Linear deterministic trend
Series: LOGREALGDPSAUDI INFLATIONUAE LOGM2UAE LOGREALGDPUAE LOGWCP
Lags interval (in first differences): 1 to 1

Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.969223	154.7166	69.81889	0.0000
At most 1 *	0.926255	95.53978	47.85613	0.0000
At most 2 *	0.905958	51.21829	29.79707	0.0001
At most 3	0.477113	11.03003	15.49471	0.2097
At most 4	0.000435	0.007400	3.841466	0.9310

Trace test indicates 3 cointegrating eqn(s) at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None *	0.969223	59.17683	33.87687	0.0000
At most 1 *	0.926255	44.32149	27.58434	0.0002
At most 2 *	0.905958	40.18827	21.13162	0.0000
At most 3	0.477113	11.02263	14.26460	0.1531
At most 4	0.000435	0.007400	3.841466	0.9310

Max-eigenvalue test indicates 3 cointegrating eqn(s) at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

Unrestricted Cointegrating Coefficients (normalized by b'*S11*b=I):

LOGREALGDP SAUDI	INFLATIONUAE	LOGM2UAE	LOGREALGDP UAE	LOGWCP
-58.68449	-0.874417	3.242755	7.356553	16.50374
-23.23466	1.107800	-6.426303	30.58087	-10.32700
36.49145	0.144496	-10.84109	12.73480	1.160761
37.62927	-0.512599	-8.852699	3.797891	1.989973
-58.28952	-1.703379	35.20140	-49.11215	4.982803

Unrestricted Adjustment Coefficients (alpha):

D(LOGREALGDPSAUDI)	0.002759	0.015385	-0.002799	0.003787	-0.000231
D(INFLATIONUAE)	-0.403947	-0.180685	-0.993880	1.377437	-0.025454
D(LOGM2UAE)	-0.021960	0.006915	0.024751	0.026516	-0.000392
D(LOGREALGDPUAE)	-0.018140	0.012711	-0.017095	0.012320	-0.000143
D(LOGWCP)	-0.087555	0.037196	-0.032725	0.036729	-0.001899

1 Cointegrating Equation(s): Log likelihood 125.3636

Normalized cointegrating coefficients (standard error in parentheses)

LOGREALGDPSAUDI	INFLATIONUAE	LOGM2UAE	LOGREALGDPUAE	LOGWCP
1.000000	0.014900	-0.055257	-0.125358	-0.281228
	(0.00191)	(0.02542)	(0.05297)	(0.01741)

Adjustment coefficients (standard error in parentheses)

D(LOGREALGDPSAUDI)	-0.161908
	(0.37900)
D(INFLATIONUAE)	23.70545
	(47.6616)
D(LOGM2UAE)	1.288713
	(0.94063)
D(LOGREALGDPUAE)	1.064534
	(0.54815)
D(LOGWCP)	5.138128
	(2.19826)

2 Cointegrating Equation(s): Log likelihood 147.5243

Normalized cointegrating coefficients (standard error in parentheses)

LOGREALGDPSAUDI	INFLATIONUAE	LOGM2UAE	LOGREALGDPUAE	LOGWCP
1.000000	0.000000	0.023755	-0.408896	-0.108438
		(0.02261)	(0.04053)	(0.01513)
0.000000	1.000000	-5.302733	19.02900	-11.59643
		(1.22119)	(2.18931)	(0.81708)

Adjustment coefficients (standard error in parentheses)

D(LOGREALGDPSAUDI)	-0.519365	0.014631
	(0.26808)	(0.00599)
D(INFLATIONUAE)	27.90359	0.153056
	(51.1343)	(1.14339)
D(LOGM2UAE)	1.128045	0.026863
	(1.00221)	(0.02241)
D(LOGREALGDPUAE)	0.769206	0.029943
	(0.53217)	(0.01190)
D(LOGWCP)	4.273880	0.117766
	(2.24470)	(0.05019)

3 Cointegrating Equation(s): Log likelihood 167.6185

Normalized cointegrating coefficients (standard error in parentheses)

LOGREALGDPSAUDI	INFLATIONUAE	LOGM2UAE	LOGREALGDPUAE	LOGWCP
1.000000	0.000000	0.000000	-0.354823	-0.093689
			(0.00972)	(0.00711)
0.000000	1.000000	0.000000	6.958510	-14.88877
			(0.66216)	(0.48461)
0.000000	0.000000	1.000000	-2.276277	-0.620876
			(0.08676)	(0.06349)

Adjustment coefficients (standard error in parentheses)

D(LOGREALGDPSAUDI)	-0.621493	0.014226	-0.059579
	(0.30287)	(0.00589)	(0.05406)
D(INFLATIONUAE)	-8.364532	0.009445	10.62597
	(54.4397)	(1.05935)	(9.71701)
D(LOGM2UAE)	2.031235	0.030439	-0.383974
	(1.00725)	(0.01960)	(0.17979)
D(LOGREALGDPUAE)	0.145388	0.027473	0.044821
	(0.47174)	(0.00918)	(0.08420)
D(LOGWCP)	3.079706	0.113037	-0.168184
	(2.48067)	(0.04827)	(0.44278)

4 Cointegrating Equation(s): Log likelihood 173.1298

Normalized cointegrating coefficients (standard error in parentheses)

LOGREALGDP SAUDI	INFLATIONUAE	LOGM2UAE	LOGREALGDP UAE	LOGWCP
1.000000	0.000000	0.000000	0.000000	-4.871787
				(1.02011)
0.000000	1.000000	0.000000	0.000000	78.81556
				(19.9165)
0.000000	0.000000	1.000000	0.000000	-31.27356
				(6.56192)
0.000000	0.000000	0.000000	1.000000	-13.46615
				(2.87677)

Adjustment coefficients (standard error in parentheses)

D(LOGREALGDPSAUDI)	-0.479002	0.012285	-0.093102	0.469513
	(0.32636)	(0.00600)	(0.06261)	(0.13583)
D(INFLATIONUAE)	43.46742	-0.696628	-1.568062	-15.92266
	(49.7597)	(0.91488)	(9.54558)	(20.7091)
D(LOGM2UAE)	3.029007	0.016847	-0.618711	0.465818
	(0.90086)	(0.01656)	(0.17282)	(0.37492)
D(LOGREALGDPUAE)	0.608978	0.021157	-0.064243	0.084346
	(0.42385)	(0.00779)	(0.08131)	(0.17640)
D(LOGWCP)	4.461804	0.094210	-0.493337	0.216148
	(2.62391)	(0.04824)	(0.50335)	(1.09202)

Date: 11/10/11 Time: 09:37
Sample (adjusted): 1994 2010
Included observations: 17 after adjustments
Trend assumption: Linear deterministic trend
Series: LOGM2SAUDI INFLATIONUAE LOGM2UAE LOGREALGDPUAE LOGWCP
Lags interval (in first differences): 1 to 1

Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.998865	181.4635	69.81889	0.0000
At most 1 *	0.879046	66.17776	47.85613	0.0004
At most 2 *	0.746463	30.26790	29.79707	0.0441
At most 3	0.334604	6.939704	15.49471	0.5847
At most 4	0.000845	0.014363	3.841466	0.9044

Trace test indicates 3 cointegrating eqn(s) at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None *	0.998865	115.2857	33.87687	0.0000
At most 1 *	0.879046	35.90985	27.58434	0.0034
At most 2 *	0.746463	23.32820	21.13162	0.0241
At most 3	0.334604	6.925341	14.26460	0.4980
At most 4	0.000845	0.014363	3.841466	0.9044

Max-eigenvalue test indicates 3 cointegrating eqn(s) at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

Unrestricted Cointegrating Coefficients (normalized by b'*S11*b=I):

LOGM2SAUDI	INFLATIONUAE	LOGM2UAE	LOGREALGDPUAE	LOGWCP
19.12048	-0.236671	-1.789416	-21.63471	-7.588627
55.75022	-1.035856	-25.14378	-16.96850	3.005491
-1.777807	-1.169142	-0.887493	-9.298696	14.82439
-14.60061	-0.238697	9.501449	4.648242	-1.987799
19.57464	1.552911	-33.87873	49.22015	-7.425338

Unrestricted Adjustment Coefficients (alpha):

D(LOGM2SAUDI)	-0.009042	-0.000971	-0.006435	0.006487	0.000509
D(INFLATIONUAE)	1.210479	0.153791	1.123538	0.789077	0.040100
D(LOGM2UAE)	0.015964	0.028412	0.003895	0.020677	0.000450
D(LOGREALGDPUAE)	0.029345	-0.007651	-0.004949	0.009445	0.000172
D(LOGWCP)	0.113960	0.009732	-0.017294	0.023407	0.002352

1 Cointegrating Equation(s): Log likelihood 150.5690

Normalized cointegrating coefficients (standard error in parentheses)

LOGM2SAUDI	INFLATIONUAE	LOGM2UAE	LOGREALGDPUAE	LOGWCP
1.000000	-0.012378	-0.093586	-1.131494	-0.396885
	(0.00122)	(0.01417)	(0.03172)	(0.01031)

Adjustment coefficients (standard error in parentheses)

D(LOGM2SAUDI)	-0.172878
	(0.13369)
D(INFLATIONUAE)	23.14494
	(14.1602)
D(LOGM2UAE)	0.305244
	(0.29971)
D(LOGREALGDPUAE)	0.561098
	(0.12126)
D(LOGWCP)	2.178969
	(0.56424)

2 Cointegrating Equation(s): Log likelihood 168.5239

Normalized cointegrating coefficients (standard error in parentheses)

LOGM2SAUDI	INFLATIONUAE	LOGM2UAE	LOGREALGDPUAE	LOGWCP
1.000000	0.000000	0.619700	-2.782146	-1.296511
		(0.07584)	(0.13510)	(0.05500)
0.000000	1.000000	57.62592	-133.3551	-72.68020
		(5.88992)	(10.4919)	(4.27103)

Adjustment coefficients (standard error in parentheses)

D(LOGM2SAUDI)	-0.227025	0.003146
	(0.41169)	(0.00742)
D(INFLATIONUAE)	31.71880	-0.445790
	(43.5538)	(0.78520)
D(LOGM2UAE)	1.889210	-0.033209
	(0.75701)	(0.01365)
D(LOGREALGDPUAE)	0.134557	0.000980
	(0.34550)	(0.00623)
D(LOGWCP)	2.721503	-0.037051
	(1.72974)	(0.03118)

3 Cointegrating Equation(s): Log likelihood 180.1880

Normalized cointegrating coefficients (standard error in parentheses)

LOGM2SAUDI	INFLATIONUAE	LOGM2UAE	LOGREALGDPUAE	LOGWCP
1.000000	0.000000	0.000000	-1.222003	-0.632187
			(0.01950)	(0.01196)
0.000000	1.000000	0.000000	11.72271	-10.90465
			(1.62518)	(0.99699)
0.000000	0.000000	1.000000	-2.517580	-1.072010
			(0.06990)	(0.04288)

Adjustment coefficients (standard error in parentheses)

D(LOGM2SAUDI)	-0.215585	0.010669	0.046310
	(0.39402)	(0.01056)	(0.16855)
D(INFLATIONUAE)	29.72137	-1.759366	-7.030059
	(38.2069)	(1.02368)	(16.3435)
D(LOGM2UAE)	1.882285	-0.037763	-0.746405
	(0.75387)	(0.02020)	(0.32248)
D(LOGREALGDPUAE)	0.143356	0.006766	0.144254
	(0.33311)	(0.00892)	(0.14249)
D(LOGWCP)	2.752250	-0.016832	-0.433260
	(1.70022)	(0.04555)	(0.72729)

4 Cointegrating Equation(s): Log likelihood 183.6507

Normalized cointegrating coefficients (standard error in parentheses)

LOGM2SAUDI	INFLATIONUAE	LOGM2UAE	LOGREALGDPUAE	LOGWCP
1.000000	0.000000	0.000000	0.000000	-0.960645
				(0.23452)
0.000000	1.000000	0.000000	0.000000	-7.753737
				(2.23508)
0.000000	0.000000	1.000000	0.000000	-1.748702
				(0.47431)
0.000000	0.000000	0.000000	1.000000	-0.268787
				(0.19052)

Adjustment coefficients (standard error in parentheses)

D(LOGM2SAUDI)	-0.310296	0.009120	0.107944	0.302076
	(0.38632)	(0.01016)	(0.17141)	(0.18694)
D(INFLATIONUAE)	18.20036	-1.947716	0.467317	-35.57758
	(36.3251)	(0.95545)	(16.1177)	(17.5778)
D(LOGM2UAE)	1.580384	-0.042699	-0.549941	-0.767599
	(0.66738)	(0.01755)	(0.29612)	(0.32295)
D(LOGREALGDPUAE)	0.005456	0.004512	0.233993	-0.415132
	(0.29129)	(0.00766)	(0.12925)	(0.14095)
D(LOGWCP)	2.410495	-0.022419	-0.210861	-2.361003
	(1.69287)	(0.04453)	(0.75114)	(0.81919)

Date: 11/10/11 Time: 09:38
Sample (adjusted): 1994 2010
Included observations: 17 after adjustments
Trend assumption: Linear deterministic trend
Series: LOGREALGDPSAUDI INFLATIONUAE LOGM2UAE LOGREALGDPUAE LOGWCP
Lags interval (in first differences): 1 to 1

Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.969223	154.7166	69.81889	0.0000
At most 1 *	0.926255	95.53978	47.85613	0.0000
At most 2 *	0.905958	51.21829	29.79707	0.0001
At most 3	0.477113	11.03003	15.49471	0.2097
At most 4	0.000435	0.007400	3.841466	0.9310

Trace test indicates 3 cointegrating eqn(s) at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None *	0.969223	59.17683	33.87687	0.0000
At most 1 *	0.926255	44.32149	27.58434	0.0002
At most 2 *	0.905958	40.18827	21.13162	0.0000
At most 3	0.477113	11.02263	14.26460	0.1531
At most 4	0.000435	0.007400	3.841466	0.9310

Max-eigenvalue test indicates 3 cointegrating eqn(s) at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

Unrestricted Cointegrating Coefficients (normalized by b'*S11*b=I):

LOGREALGDP SAUDI	INFLATIONUAE	LOGM2UAE	LOGREALGDP UAE	LOGWCP
-58.68449	-0.874417	3.242755	7.356553	16.50374
-23.23466	1.107800	-6.426303	30.58087	-10.32700
36.49145	0.144496	-10.84109	12.73480	1.160761
37.62927	-0.512599	-8.852699	3.797891	1.989973
-58.28952	-1.703379	35.20140	-49.11215	4.982803

Unrestricted Adjustment Coefficients (alpha):

D(LOGREALGDPSAUDI)	0.002759	0.015385	-0.002799	0.003787	-0.000231
D(INFLATIONUAE)	-0.403947	-0.180685	-0.993880	1.377437	-0.025454
D(LOGM2UAE)	-0.021960	0.006915	0.024751	0.026516	-0.000392
D(LOGREALGDPUAE)	-0.018140	0.012711	-0.017095	0.012320	-0.000143
D(LOGWCP)	-0.087555	0.037196	-0.032725	0.036729	-0.001899

1 Cointegrating Equation(s): Log likelihood 125.3636

Normalized cointegrating coefficients (standard error in parentheses)

LOGREALGDPSAUDI	INFLATIONUAE	LOGM2UAE	LOGREALGDPUAE	LOGWCP
1.000000	0.014900	-0.055257	-0.125358	-0.281228
	(0.00191)	(0.02542)	(0.05297)	(0.01741)

Adjustment coefficients (standard error in parentheses)

D(LOGREALGDPSAUDI)	-0.161908
	(0.37900)
D(INFLATIONUAE)	23.70545
	(47.6616)
D(LOGM2UAE)	1.288713
	(0.94063)
D(LOGREALGDPUAE)	1.064534
	(0.54815)
D(LOGWCP)	5.138128
	(2.19826)

2 Cointegrating Equation(s): Log likelihood 147.5243

Normalized cointegrating coefficients (standard error in parentheses)

LOGREALGDPSAUDI	INFLATIONUAE	LOGM2UAE	LOGREALGDPUAE	LOGWCP
1.000000	0.000000	0.023755	-0.408896	-0.108438
		(0.02261)	(0.04053)	(0.01513)
0.000000	1.000000	-5.302733	19.02900	-11.59643
		(1.22119)	(2.18931)	(0.81708)

Adjustment coefficients (standard error in parentheses)

D(LOGREALGDPSAUDI)	-0.519365	0.014631
	(0.26808)	(0.00599)
D(INFLATIONUAE)	27.90359	0.153056
	(51.1343)	(1.14339)
D(LOGM2UAE)	1.128045	0.026863
	(1.00221)	(0.02241)
D(LOGREALGDPUAE)	0.769206	0.029943
	(0.53217)	(0.01190)
D(LOGWCP)	4.273880	0.117766
	(2.24470)	(0.05019)

3 Cointegrating Equation(s): Log likelihood 167.6185

Normalized cointegrating coefficients (standard error in parentheses)

LOGREALGDPSAUDI	INFLATIONUAE	LOGM2UAE	LOGREALGDPUAE	LOGWCP
1.000000	0.000000	0.000000	-0.354823	-0.093689
			(0.00972)	(0.00711)
0.000000	1.000000	0.000000	6.958510	-14.88877
			(0.66216)	(0.48461)
0.000000	0.000000	1.000000	-2.276277	-0.620876
			(0.08676)	(0.06349)

Adjustment coefficients (standard error in parentheses)

D(LOGREALGDPSAUDI)	-0.621493	0.014226	-0.059579
	(0.30287)	(0.00589)	(0.05406)
D(INFLATIONUAE)	-8.364532	0.009445	10.62597
	(54.4397)	(1.05935)	(9.71701)
D(LOGM2UAE)	2.031235	0.030439	-0.383974
	(1.00725)	(0.01960)	(0.17979)
D(LOGREALGDPUAE)	0.145388	0.027473	0.044821
	(0.47174)	(0.00918)	(0.08420)
D(LOGWCP)	3.079706	0.113037	-0.168184
	(2.48067)	(0.04827)	(0.44278)

4 Cointegrating Equation(s): Log likelihood 173.1298

Normalized cointegrating coefficients (standard error in parentheses)

LOGREALGDP SAUDI	INFLATIONUAE	LOGM2UAE	LOGREALGDP UAE	LOGWCP
1.000000	0.000000	0.000000	0.000000	-4.871787
				(1.02011)
0.000000	1.000000	0.000000	0.000000	78.81556
				(19.9165)
0.000000	0.000000	1.000000	0.000000	-31.27356
				(6.56192)
0.000000	0.000000	0.000000	1.000000	-13.46615
				(2.87677)

Adjustment coefficients (standard error in parentheses)

D(LOGREALGDPSAUDI)	-0.479002	0.012285	-0.093102	0.469513
	(0.32636)	(0.00600)	(0.06261)	(0.13583)
D(INFLATIONUAE)	43.46742	-0.696628	-1.568062	-15.92266
	(49.7597)	(0.91488)	(9.54558)	(20.7091)
D(LOGM2UAE)	3.029007	0.016847	-0.618711	0.465818
	(0.90086)	(0.01656)	(0.17282)	(0.37492)
D(LOGREALGDPUAE)	0.608978	0.021157	-0.064243	0.084346
	(0.42385)	(0.00779)	(0.08131)	(0.17640)
D(LOGWCP)	4.461804	0.094210	-0.493337	0.216148
	(2.62391)	(0.04824)	(0.50335)	(1.09202)

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Research Paper Title:

Macroeconomic Interdependence between Saudi Arabia and the UAE

Major Professor: AKM Morshed