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On An Optimum Currency Area for the GCC Countries: An Analysis of the Economic Impact on the Kuwait Economy.

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This paper addresses the emerging issues in the proposed monetary union among members of the Gulf Cooperation Council (GCC) [1]. In this process, the six members of the GCC were expected to complete the move towards a single currency in 2010 and attain the most significant steps so far towards greater economic integration. The push towards a GCC currency union seems appropriate over the medium to long term, but with profound implications for a sustainable economic growth and development in the various countries considering the differing levels of future hydrocarbon wealth or resources and lack of economic diversification. This paper addresses, therefore, evolving issues within the dynamics in fulfilling the necessary pre-conditions for the establishment of Currency Union (CU) by GCC countries based on several benchmarks established by the theory of Optimum Currency Areas (OCA). In this context, I used both a formal test based on the Generalized Purchasing Power Parity Theory (G-PPP) and informal criteria to explore the Optimality of a CU in the Kuwait economy. Using the informal criteria, based on the traditional OCA criteria, I find some supportive evidence for the feasibility of an optimal CU in the Kuwait economy. Formal tests conducted based on G-PPP using estimated unit value of the proposed GCC common currency in a Multivariate framework, shows that the real exchange rates for Kuwait share common stochastic trends with other GCC countries in the long-run. More importantly, results from the tests also indicate some asymmetries in the tendency for exchange rates in the various GCC countries to adjust towards equilibrium in the long-run.

Field of research: Financial Economics

1. Introduction

The emerging issues in the process by the six members of GCC to complete the move towards a single currency in 2010, are recently not only focused on further reforms needed by some of the members in fulfilling the necessary pre-conditions for the establishment of CU based on several benchmarks established by the theory of OCA and developed by (Mundell (1961), McKinnon (1963) and Kenen (1969)), but also on the value, feasibility and sustainability of a CU. Since the leaders of Bahrain, Kuwait, Oman, Qatar, Saudi Arabia and United Arab Emirates ratified the charter of the GCC in 1981 that set out the broad plans for full economic integration, several policy measures and common economic agreement have been adopted. Accordingly, the adopted measures were expected to enhance cooperation and ensure real progress in integrating the economies of the GCC in different aspects of economic affairs towards the establishment of a single currency by 2010. Accurate perspectives on the various steps to achieve the broader economic goal of full economic integration indicates that the six GCC countries agreed to establish the free trade area in 1983, a customs union by the year 2005 and a common market at

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Doha summit in 2008. There has been remarkable level of progress, since its formation in 1981, towards the realization of the different stages of a full economic integration. Suffice it to say, there is a vast number of recent and past literatures dealing with these issues (e.g. Laabas and Limam (2002); Hanna, D (2002); Abu-Bader and Abu-Qarn (2006); Merza, E and Cader, H (2009)). Clearly, the push towards a GCC currency union seems appropriate over the medium to long term, but with profound implications for a sustainable economic growth and development in the various countries considering the differing levels of future hydrocarbon wealth or resources, lack of economic diversification and non-existing supranational institutions.

The six member countries of the GCC accounts for almost 45 percent of the world' strategic oil reserves, which give this region an obvious global significance and a new currency, could potentially hold the balance of power in world money. Given the common historical, cultural, political, business and economic structural similarities among the member states, there is consensus across the region on the benefits of economic integration and the establishment of a single currency. In addition, other positive factors that make the move towards adopting a single currency appropriate are the common development goals and homogeneity in terms of official language and religion of all the members, and monetary and fiscal convergence. Potentially, adopting a CU by the GCC will create a number of economic benefits among member states. Basically, several contributors to the theory of OCA and the adoption of a CU by GCC countries reasonably expect that a CU will reduce the risks of asymmetric shocks and strengthen the union's ability to deal with those shocks. Again, CU among GCC countries, once established, is further expected to enhance bilateral trade within the territory of the monetary union, results in strong sustained economic growth, ensure a stable exchange rate, eliminate currency transaction costs (these include cost of currency conversion in intraregional trade, monitoring the changes in the relative prices arising from nominal exchange rate fluctuations etc), deepening of GCC financial markets and more importantly, further strengthen the region's financial position and international competitiveness in goods and services produced in the region.

Essentially, assessing the feasibility of a potential monetary union for member countries and possible implications for sustainable economic growth and development in the various countries depends on the costs and benefits of adopting a common currency and if the common currency area is optimal based on several benchmarks established by the theory of OCA. Ultimately, highly integrated economies with similar economic structure such as the GCC countries, generally meets the criteria for OCA due to the relatively high level of homogeneity in terms of common culture, language and political history, free movement of labor and trade, a synchronized business cycles, monetary and fiscal convergence and the reduced trisk of asymmetric shocks (Hanna, D (2002). This paper will, therefore, explore the optimality of a CU in the Kuwait economy by both a formal test based on the Generalized Purchasing Power Parity Theory (G-PPP) and informal criteria. In this regard, this study will examine the viability of a CU in the case of all six GCC countries using the G-PPP framework. Using the Johansen multivariate cointegration method with the US dollar as the base currency, this paper tested empirically the validity of the G-PPP hypothesis introduced by Enders and Hurn (1994) for the six GCC countries. The G-PPP hypothesizes that real exchange rates will share

common stochastic trends if the long-run macroeconomic determinants or 'forcing variables' are highly associated (Enders and Hurn, 1994). Suffice it to say that the concept of G-PPP has important implication for sustainable economic growth and development in the Kuwait economy and this paper will provide some further evidence on the feasibility of forming a CU by including the estimated unit value of the proposed GCC common currency of 0.293 by Merza, E and Cader, H (2009).

The rest of this paper is organized as follows: Section 2 presents the review of literature. Essentially, it addresses the concept of OCA and its possible implications for the GCC countries towards forming a CU. While section 3 discusses the methodologies used in the paper, section 4 addresses the empirical results of the findings. Finally, section 5 concludes the paper with a summary and views on the significant of the paper.

2. Literature Review

There have often been several approaches to the issue of an OCA. At the same time, all the varied approaches do appear to indicate an increasing recognition that all potential regional currency areas reflect a common social and political history, similar economic structure and common geographical area and regional boundaries. The development of the OCA theory began with the pioneer work of Mundell (1961), with early discussions concentrated mostly on the choice of exchange rate regime.

Mundell (1961) pioneering analysis stressed that having a high degree of factor mobility within each single currency area is the basis for a CU. While Mundell focuses on factor mobility as the key criterion in the choice for or against a CU, McKinnon (1963) suggested that openness to external trade should be another important prerequisite for a single currency area. Essentially, scholarly efforts to answer the question of an OCA have focused on both the traditional and alternative approaches. According to Ishiyama, Y (1975), the traditional approach tries to single out success in crucial economic characteristics consisting of full employment, price stability, and balance of payments equilibrium as the bases for OCA (Mundell (1961), McKinnon (1963a), and Kenen (1969)).

While the alternative approach starts by examining the national economies, thus, taking each nation and national currency as an indivisible unit to constitute a currency area. He further stressed that the alternative approach, nevertheless, appears to recognize the shortcoming of the traditional approach and tries to evaluate costs and benefits of participating in a CU from the point of view of the self-interest of a particular region or country.

Within the frame of reference provided by the theory of OCA, the nature of an optimal exchange rate regime within a CU had previously received the attention of several authors. Accordingly, several of the literatures on OCA were very much focused on the fact that countries participating in a CU vary in size, openness to foreign trade, mobility of factors of production, policy approach and exposure to both asymmetric and symmetric shocks. And as such, determining a suitable type of exchange rate regime in terms of fixed or flexible exchange can have varying degree of profound implications on economic and financial positions of the countries. Against this background, the choice of an appropriate exchange rate should be

consistent with the attainment of macroeconomic stability, reduce balance sheet risks and transaction costs, reduce asymmetric risks and ensure price and exchange rate stability (IMF, 2008). There are, however, varied arguments by various studies on the benefits and costs of fixed or flexible exchange. Friedman (1953) and Sohmen (1969) argued that due to the asymmetry among countries in the real world, a flexible exchange rate will be more beneficial. Kenen, P. (1969.p 41), however, suggested that to reduce the imbalances on an existing exchange rate, exchange rate should be pegged immutably within the OCA. Clearly, none of the single criteria of the OCA or the arguments for or against fixed or flexible exchange would be better able to maintain a CU.

There have been, nevertheless, several later literatures on the criteria for an OCA. These include Eichengreen (1992) and Bean (1992) work on the nature of the underlying shocks, factor mobility, and other mechanisms to alleviate asymmetric shocks such as federal fiscal policy; Tavlas (1993, 1994) survey on effectiveness of monetary policy; the roles of political preferences, time inconsistency, the speed with which external adjustment affects the domestic economy and the relationship between the regime and the speed of adjustment. Other studies include Bofinger (1994) illustration of the impact of a negative demand shock in segment of a country's production output and Corsetti and Pesenti, (2002) recent studies on endogeneity issues.

Evidently, the mechanisms suggested by the theory of OCA provided the framework for discussion about monetary integration and also offers important considerations on the preconditions for the formation of a CU. In other words, the OCA theory clearly identified important approach and explanation for the monetary integration processes for new CU. Unsurprisingly, recent survey on monetary integration processes in Europe indicates that the OCA theory provides relevant considerations for the formal adoption of the European Union (EMU) CU that came into effect in 1979 through an Exchange Rate Mechanism (ERM) system (Horvath, R and Lubos, K (2002). The European Economic and Monetary Union (EMU) is the most commonly identified relatively successful regional monetary union. To achieve intra-European exchange rate stability, it created the ERM that provided for a fixed exchange rate for European Currency Units (ECU) based on a basket of currencies of the member states with narrow fluctuations margins. It is therefore expected that GCC countries, currently without preexisting comparable ERM system, will seek as well to promote exchange rate stability both intraregional and internationally by pegging their currency to a single currency, basket of two-currencies or basket of multi-currencies. Normally, countries with similar production structures will respond symmetrically to structural shocks, leaving nominal exchange rate unchanged, however, economic theory is ambiguous concerning the question of whether fixed, pegged or flexible exchange rates are optimal in the presence of (symmetrical) permanent shocks Bergman, M, (1999). As mentioned earlier, all the GCC countries have their currencies currently pegged to the US dollar in preparation for the monetary union in 2010 except Kuwait that decided to link its currency in 2008 to a basket of currencies.

Sharing a CU will potentially strengthen the union's ability to deal with exchange rate volatility, adjust itself to asymmetric shocks and ensure sustainable growth through diversification and export competitiveness for all the participating countries.

Ultimately, the establishment of a common GCC currency will be expected to have some profound implications for a sustainable economic growth and development for member countries considering the differing degrees of future hydrocarbon wealth or resources, policies and regulations, macroeconomic instability and lack of economic diversification. In this context, Laabas B and Limam (2002) developed a general framework to assess the preparedness of the GCC countries for CU and found that member's countries do not fulfill the preconditions to ensure a stable exchange rate and a sustainable CU. However, Frankel and Rose (1997) and Bergman and Hutchison (1999) noted that the criteria of an OCA may be endogenous, such that with increased trade among members, member's countries that fails to satisfy the criteria ex ante may fulfills them ex post. Again, cost-benefit framework for relating trade integration to currency area membership as developed by Krugman, P (1990) and further explored by Artis, M. (2002), shows that for small economies such as Kuwait, whose experience of shocks is very different from that of its partners (the case of asymmetric shocks), joining a CU and adopting a common monetary policy will be quite favorable for the country.

Kuwait is a dual economy with the dominating influence of oil and gas representing the bulk of the gross domestic product (GDP) of the country, exports, and government revenue. Currently, the population of the country is about 4 million people.

3. Methodology and Research Design

This research study will aim to explore the optimality of a CU in the Kuwait economy by the informal criteria based on several benchmarks established by the theory of OCA and developed by (Mundell (1961), McKinnon (1963) and Kenen (1969)), and employed by Laabas B and Limam (2002). Using the Johansen multivariate cointegration method with the US dollar as the base currency, further test was conducted empirically to verify the validity of the G-PPP hypothesis for the six GCC countries. In this regard, to provide some further evidence on the feasibility of a favorable macroeconomic condition for forming a CU, the estimated unit value of the proposed GCC common currency of 0.293 was included as the nominal exchange rate to the dollar for the year 2008 and 2009 for all the countries.

For the purpose of this study, several eligibility criteria for CU that include openness and size of the economy involved to trade, factor mobility, commodity diversification, production structure, price and wage flexibility, similarity of inflation rates, degree of policy integration, and political factors were examined. Specifically, these factors have been identified in the OCA literature to determine a priori likely success of an OCA and would ensure a desirable stable exchange rate and CU.

Further, the concept of G-PPP as developed by Enders and Hurn (1994) presents an effective approach to study the real exchange behavior across countries and it has been proved to be useful in assessing the viability of an OCA. The basic idea of the approach is based on the fact that real exchange rates (RERs) of a group of potential countries for a CU may be individually non-stationary, but if the fundamental macroeconomic factors that drive exchange rate are sufficiently integrated across countries, a linear combination of these non-stationary RERs will

be stationary and they will share common trends in the long-run Mishra, R. K and Sharma, C (2010). The theory suggests, therefore, even though bilateral RERs of the countries of the currency area are normally non-stationary, they may be cointegrated in the long-run if the macroeconomic variables are interrelated.

The G-PPP can be expressed in the following form below:

$$\rho_{12t} = \alpha_{13}\rho_{13t} + \alpha_{14}\rho_{14t} + \ldots\ldots\ldots\ldots + \alpha_{1m}\rho_{1mt} + \varepsilon_t \qquad (1)$$

Where ρ_{1it} is the log of bilateral RERs at period t between country I and country i, and α_{1t} are the parameters of the cointegrating vectors while ε_t is a stationary stochastic disturbance term. From equation (1), one should be able to test if there exist is a long-run equilibrium relationship between the different bilateral real rates. To test for cointegration among the RERs, the procedure developed by Johansen (1988) Johansen and Juselius (1990) was applied. Johansen cointegration technique applies the likelihood to determine the existence of cointegrating vectors in non-stationary time series. This technique enables one to identify the number of cointegration vectors and according to (Gonzalo, 1994), provides more robust results than other cointegration methods, especially when more than two variables are involved.

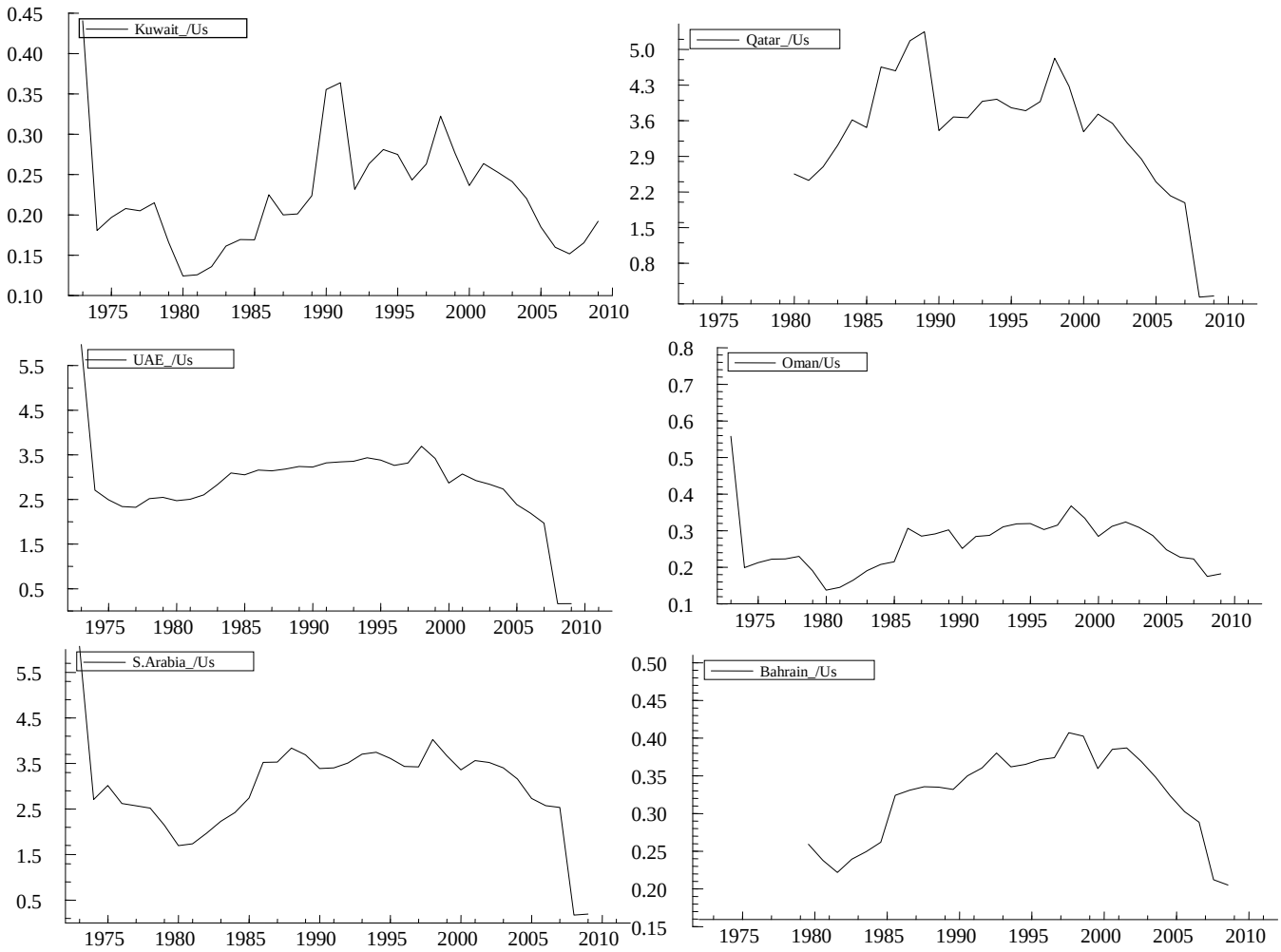
The RERs used in the paper was constructed using the United States (USA) as the base country. The choice of USA as the base country was based on the fact that GCC countries have their currencies currently pegged to the US dollar in preparation for the monetary union in 2010 except Kuwait that decided to link its currency in 2008 to a basket of currencies. The RERs (ρ_t) is further defined as in this form:

$$\rho_t = \frac{S_t D_t^*}{D_t} \qquad (2)$$

Where S_t is the nominal exchange rate defined in local currency units per foreign currency unit, and Dt* and D_t *are* the GDP deflator in the base and the home country, respectively. The GDP deflator was used here instead of the consumer price index (CPI) due to lack of CPI information for all the six countries. Figure 1 show the real rates based on the US dollar for all the countries during the total period (ranging from January 1973 to December 2009 for all countries except Qatar and Bahrain with the total period limited to 1979-2009 due to lack of data). A detailed annual nominal exchange rates data from 1973 to 2007 for the six countries (Bahrain, Kuwait, Oman, Qatar, Saudi-Arabia and UAE) was obtained from Penn World Table (PWT), while annual GDP deflators for the same total period obtained from Economic Statistics and Indicators Database was applied in the study.

Figure 1

Real Dollar Exchange Rates of GCC 1973-2009



A closer examination of figure 1 shows that the RERs are apparently non-stationary and the hypothesis of non-stationary was further confirmed by a formal test of Augmented Dickey-Fuller (ADF) test as shown in table 1. The results of the test in table 1 of nominal and RERs confirms the null hypothesis that all nominal and RERs are non-stationary in levels, but are stationary after first difference at 1% level of significance. In other words, all the series are integrated of order one.

Table 1
ADF Stationary Tests of GCC Exchange Rates

Base Country = USA					
Country	Nominal			Real Exchange rate	
	Level	I(1) Difference		Level	I(1) Difference
Bahrain (1978-2009)	-0.2736	-5.689**	Bahrain (1985-2009)	-0.2858	-3.723**
Kuwait (1978-2009)	-1.923	-4.908**	Kuwait (1985-2009)	-2.111	-4.684**
Oman (1978-2009)	-0.9237	-5.489**	Oman (1985-2009)	-1.277	-5.122**
Qatar (1978-2009)	-0.1728	-5.668**	Qatar (1985-2009)	+0.3123	-5.241**
S.Arabia (1978-2009)	-0.2280	-5.647**	S.Arabia (1985-2009)	-0.01258	-5.123**
UAE (1978-2009)	-0.1718	-5.665**	UAE (1985-2009)	+0.4977	-4.868**

Note: 5% significance is marked by * and 1% by **

The next step focused on conducting a co-integration test based on the assumption that all variables contain a unit root. Table 2 presents the result of testing for the number of cointegrating vectors for the total period January 1991 to December 2009. As can be seen from Table 2, both the maximum Eigenvalue test, and trace test indicate the existence of one significant vector at the one percent level. Based on these results, it was concluded that there is a long-run stationary equilibrium relationship between the RERs of the currencies vis-à-vis the US dollar during the period under consideration.

Table 2
Cointegration Test Results (total period from January 1991 to December 2009)

Rank: H_0	Trace test [Prob]	Max test [Prob]	Trace test (T-nm)	Max test (T-nm)
r = 0	314.76 [0.000]**	168.61 [0.000]**	115.96 [0.001]**	62.12 [0.000]**
r ≤ 1	146.15 [0.000]**	62.19 [0.000]**	53.84 [0.471]	22.91 [0.549]
r ≤ 2	83.95 [0.000]**	33.41 [0.006]**	30.93 [0.673]	12.31 [0.909]
r ≤ 3	50.54 [0.000]**	30.32 [0.001]**	18.62 [0.531]	11.17 [0.640]
r ≤ 4	20.23 [0.008]**	15.21 [0.033]*	7.45 [0.533]	5.60 [0.668]
r ≤ 5	5.01 [0.025]*	5.01 [0.025]*	1.85 [0.174]	1.85 [0.174]

Note: 5% significance is marked by * and 1% by **

This simple framework, was further, used to explore the optimality of a CU for a small economy such as Kuwait.

4. Findings

In this section, the paper explores the optimality and impact of CU in the Kuwait economy using the informal criteria based on several benchmarks established by the theory of OCA. The paper also focuses on the analysis of computed cointegration vectors and speed of adjustments parameters presented in tables 3 and 4. The various results from the model were computed using PcGive Professional 10.0 econometric software.

Table 3: Normalized Equations and Coefficients

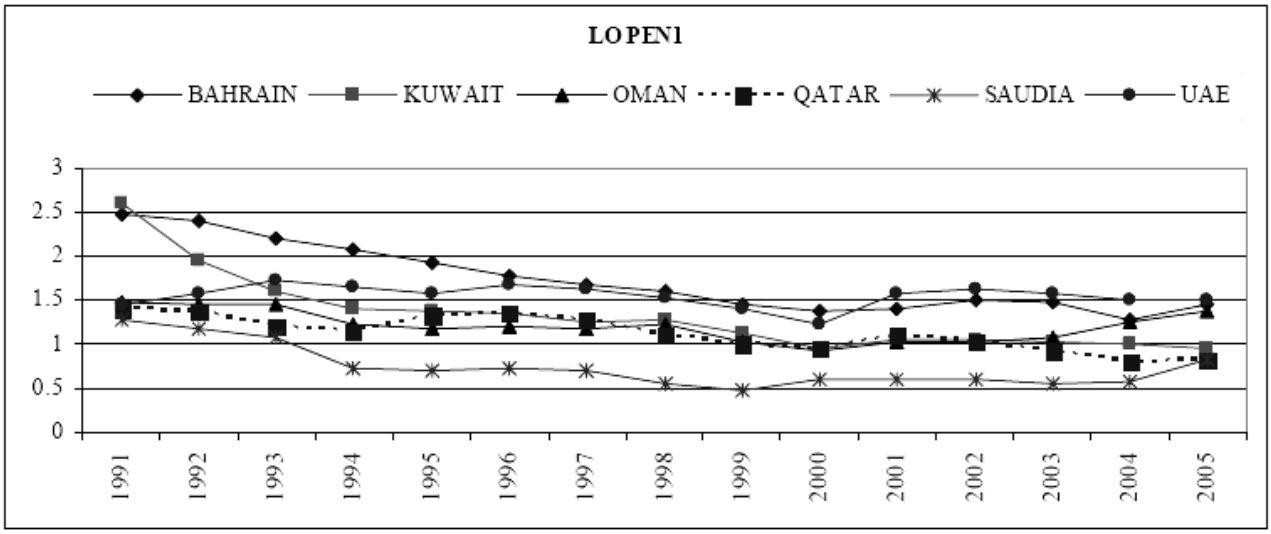
	Kuwait	Oman	Qatar	Saudi. Arabia	UAE	Bahrain
Total period (January 1991–December 2009) Exchange rates vis-à-vis the US dollar	1.000 (0.00)	-5.673 (0.00)	0.991 (0.625)	-0.970 (0.285)	-0.577 (0.668)	4.703 (0.714)
Notes: Standard errors are in parentheses						

Table 4: Speed of Adjustments

Total period (January 1991–December 2009)					
Kuwait_/Us	Oman/Us	Qatar_/Us	S.Arabia_/Us	UAE_/Us	Bahrain_/Us
-0.217 (0.177)	0.086 (0.122)	-0.363 (0.699)	-0.342 (0.689)	-0.384 (0.642)	-0.006 (0.103)
Notes: Standard errors are in parentheses					

Basically, openness is measured by the ratio of trade to GDP. Laabas B and Limam (2002) noted that a high ratio was observed for GCC countries reflecting in part the nature of their factor endowment, being primarily oil exporting countries, the heavy reliance of these countries on imported consumer and capital goods owing to the limited availability of domestic substitutes. Figure 2 below illustrates the level of trade openness in GCC countries.

Figure 2: Trade Openness



Source: *Kamar, B and Ben Naceur, S, 2007,* GCC Monetary Union and the Degree of Macroeconomic Policy Coordination, IMF Working Paper, WP/07/249.

However, for a small economy such as Kuwait, who's experience of shocks is very different from that of its partners (in the case of asymmetric shocks), joining a CU and adopting a common monetary policy will be quite favorable for the country (see Artis, M. (2002) for the illustrative approach).

Further analysis using the Optimality Criteria shows that factor mobility between Kuwait and other GCC countries is still very limited. Kuwait like other GCC still impose restrictions on ownership and type of activities GCC nationals can engage in within the country. Other eligibility test for OCA indicates that the necessary preconditions such as commodity diversification, production structure, price and wage flexibility, similarity of inflation rates, degree of policy integration, and political factors are not all favorable in a small economy like Kuwait for a sustainable CU^2. Suffice it to say that this has also some profound implications for a sustainable economic growth and development for the country considering the differing degrees of future hydrocarbon wealth or resources, and the above mentioned unfavorable eligibility criteria for OCA among the GCC countries. Nonetheless, despite some remarkable progress in recent times to address some of the unfavorable eligibility criteria for OCA, Kuwait still need to articulate policies and strategies to compete effectively for the potential gains from a common CU.

The results from the normalized equations of the cointegrating vectors and the speed of adjustment parameters for the system of RERs reported in table 3 and 4 above, indicates a cointegration relationship and asymmetries in the speed of adjustments to shocks among the GCC countries. Based on the cointegration relationship, which reflect the interrelationships among these RERs and can be interpreted as long-run elasticities, our findings provide evidence supportive of the G-PPP theory and that GCC meet the requirements of a CU. Again, it is clearly evident from the results that some of the RERs have the appropriate negative sign that reflects the asymmetries in the speed of adjustments to shocks among the countries.

The RERs based on the Kuwait_/Us expressed against the dollar was used to obtain the normalized equations in table 3 and any bilateral RERs could have been used to create the normalized equations. The result from the normalized equations indicates that a 1% rise in the RERs of Kuwait_/Us expressed against the dollar (real depreciation) will induce a 5% depreciation in the real value of RERs of Bahrain_/Us and a 1% depreciation of Qatar_/Us, but a 6% appreciation in the real value of RERs of Qatar_/Us.

Furthermore, from the computed results of speed of adjustment parameters in table 4, we find that the coefficient -0.217 in case of the RERs of Kuwait_/Us expressed against dollar adjusts at the rate of 21.7% per month towards the long-run equilibrium. The largest coefficient (-0.384) is found in the case of RERs of UAE_/Us expressed against the dollar, while the smallest coefficient (.0.006) in the case of Bahrain_/Us. An implication of this is that the differences in adjustment speed may also reflect differences in country circumstances that would call for different policy measures and strategies to address the disequilibrium in the system. Another important implication of our result is that the observed slow speed of adjustment for RERs of Kuwait_/Us would create possibly a recurrence of macroeconomic instability in the economy of Kuwait.

Given the data limitations, some seemingly minor evidence of high standard error and some normality test problems in some variables, these rather insightful results cannot be rationalized to be quite robust. But further diagnostic tests fail to show any significant problems regarding the ARCH and Vector Normality test of the overall variables. Again, even when the results indicate the presence of non-normal residuals, according to Gonzalo (1994), the performance of the Johansen method is

still robust. More importantly, all the eigenvalues in the tests are less than unity, implying that the system as a whole is stable.

Suffice it to say that the study provides an appropriate basis for further study to re-assess individually the potential of an OCA for all the GCC countries using the G-PPP concept along with the Structural Vector Autoregression (VAR) method.

5. Conclusion

In this paper, we explore the optimality of a CU in the Kuwait economy using the informal criteria based on several benchmarks established by the theory of OCA and the Johansen multivariate cointegration method with the US dollar as the base currency to conduct a formal test to verify the validity of the G-PPP hypothesis that RERs of GCC countries share common stochastic trends with other. Given the eligibility criteria for OCA in terms of openness of trade, commodity diversification, production structure, price and wage flexibility, similarity of inflation rates, degree of policy integration, and political factors, we found some factors favorable for a sustainable CU, but with profound implications for a sustainable economic growth and development for the economy of Kuwait considering the differing levels of future hydrocarbon endowments and asymmetric shocks among the GCC countries. Further formal tests conducted based on G-PPP using estimated unit value of the proposed GCC common currency of 0.293 included as the nominal exchange rate to the dollar for the year 2008 and 2009 for all the countries in a Multivariate framework, indicates a cointegration relationship and asymmetries in the speed of adjustments to shocks for Kuwait and other GCC countries.

Endnotes

1. The six GCC countries include Bahrain, Kuwait, Oman, Qatar, Saudi-Arabia and United Arab Emirates.
2. See Laabas B and Limam (2002) for an interesting detailed account of eligibility test for OCA for GCC countries

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