



Munich Personal RePEc Archive

## **A Common Currency Area for MENA Countries? A VAR Analysis of viability**

Bacha, Obiyathulla I.

INCEIF the Global University in Islamic Finance

2008

Online at <https://mpra.ub.uni-muenchen.de/12733/>

MPRA Paper No. 12733, posted 14 Jan 2009 10:30 UTC

# **A Common Currency Area for MENA Countries? A VAR Analysis of viability.**

Obiyathulla Ismath Bacha  
(Sept. 2005)

*Management Centre  
Kulliyah of Economics & Management Sciences  
International Islamic University Malaysia  
Jalan Gombak, 53100 Kuala Lumpur  
Malaysia  
E-Mail : [obiya@iiu.edu.my](mailto:obiya@iiu.edu.my)*

*Tel : (603) 6196 4188 / 4198  
Fax : (603) 6196 4856*

---

*The author acknowledges Ahmed Kemo Touray for research assistance, and the Research Centre, IIUM for financial assistance*

## Structured Abstract

### **Purpose**

*This paper examines the feasibility of a Common Currency Area (CCA) among 10 (Middle East and North Africa) MENA Countries. The 10 sample countries constitute the six GCC Countries and the four Agadir nations.*

### **Methodology Approach**

*Macroeconomic data for the 34 year period 1970 to 2003 is used. Feasibility is examined by analyzing the symmetry of response of countries within each group to a common external shock. The impulse response functions (IRF) from a Vector Autoregression Model is used. The strength of linkages within each economic bloc was examined using Pearson pairwise correlation and variance decomposition.*

### **Findings**

*Among GCC countries, the results show the existence of strong linkages among the monetary variables, signifying strong monetary sector integration. Such integration however is lacking where the real sector is concerned. Despite the symmetry seen in the impulse response functions, variance decomposition showed the absence of any meaningful influence of countries on each other within the bloc. Amongst the Agadir nations, the results show no correlation in real output growth, some correlation among monetary variables but no symmetry whatsoever in response to external shocks. The variance decomposition too did not show mutual influence intra group.*

### **Implications**

*The lack of real sector integration will present a challenge to GCC's desired goal of a CCA by 2010. The Agadir nations appear to be simply a loosely knit economic grouping with little integration of any kind. Thus, hopes of a CCA among Agadir nations is far too premature.*

## **Introduction**

As early as 1945, twenty two Arab nations had planned a common currency to be called the 'Arab Dinar'.<sup>1</sup> That idea however, did not take root. For several countries within MENA, exchange rate management has largely been a difficult experience. Their experience has generally been one of a fixed peg but incompatible macroeconomic policies causing exchange rate misalignment, serious overvaluation, capital flight, balance of payments problems and currency crises. More recently, most MENA countries have made considerable progress in liberalization of trade/financial systems and the adoption of pro market monetary policies. These have ameliorated to some extent their perennial problems with exchange rates. Since the introduction of a single European currency, the Euro, in January 1999, there has been much interest in the area of Optimal and Common Currency areas. That it has worked relatively well over its first five years and is being well accepted has served to further this interest. The Euro's success aside, a number of external factors have led to renewed interest in Common Currency Areas (CCA). Globalization is one. As countries and governments grapple with the challenges of globalization, the idea of a common currency becomes more palatable. Additionally, the frequency and the depth of recent currency crises have raised the question of whether maintaining individual national currencies and the attendant independent policies are worth the cost.

An Optimum Currency Area (OCA) and Common Currency Area (CCA) fall within the ambit of currency unions. An Optimum Currency Area (OCA), using Mundell's (1961)

---

<sup>1</sup> See; *Bassem Kamar (2004)*

definition is “*a domain within which exchange rates are fixed.*” By this definition, a CCA would be a step further with the adoption of a single common currency among members of the currency union. Several structural preconditions have been cited as being necessary for an OCA. Mundell (1961) argues that a high degree of factor mobility is an essential ingredient. McKinnon (1963), cites trade intensity or integration as a precondition. Kennen (1969) would examine regional production patterns for product diversification to determine if a region would be well suited for an OCA. Yet other literature on the configuration needed for a country to be a candidate of a currency union identify factors such as, similar levels of inflation, extensive trade relationships, similar or synchronous business cycles and a certain extent of policy congruence.

The processes that have to be in place and the convergence needed prior to launch of a CCA can be a long process. For Europe, the Euro’s introduction was the culmination of a long evolutionary process towards single currency. The process itself is more than 50 years old and has its origins in the 1957 Treaty of Rome. The main markers of this evolution would be the establishment of the EMS in 1979, The Single European Act of 1986, the Maastricht treaty, 1991 and establishment of the European Central Bank (ECB) in 1998. That the movement towards a single European currency has been a long and arduous process should not be lost to aspirants of a CCA.

This paper explores the possibility of a currency union/CCA among two groups of MENA countries. The six GCC countries being the first group and the four Agadir countries, the second. The study is designed to address the following questions; (i) Is a currency union a feasible option for these two groups? (ii) What would the costs and benefits of such an

arrangement be? and (iii) How would existing currency agreements / economic grouping fit into this? The paper is divided into five sections. Section two below lays out the contending issues with regards to implementing a CCA. Section three describes the data and methodology. The subsequent Section, discusses the findings and its implications. The final section, Section 5 concludes with recommendations for policy.

## **Section 2: CCA – The Key Contending Issues**

Much has been researched and written on the impact and efficacy of a CCA arrangement on member countries. Broadly speaking, empirical evidence appears to show three key findings. First, there appears to be a large positive effect of currency unions on trade. Rose (2000), using a *gravity model* which uses a dummy coefficient to indicate whether countries are using the same currency, shows that “bilateral trade between two countries that use the same currency is, controlling for other effects, 200% larger than bilateral trade between countries that use different currencies.”<sup>2</sup> Other studies of the impact on trade produce similar results. Flandream and Maurel (2001), Lopez Cordova and Meissner (2001) and Frankel and Rose (2002)<sup>3</sup> all show increased trade of 220%, 100% and 290% respectively as a result of currency union.<sup>4</sup>

The second set of findings come from studies that examine the effect of reduced exchange rate volatility on trade. In contrast to what one would expect, Degrauwe and Skudelny (2000), Frankel and Wei (1992) and Eichengren and Irwin (1995)<sup>5</sup> all find the effect

---

<sup>2</sup> See Alesina et al (2002)

<sup>3</sup> See Alesina et al (2002), Table 15, pg. 336

<sup>4</sup> See: Bergsten and Park (2002)

<sup>5</sup> See: Alesina et al (2002), pg. 335

of reduced exchange rate volatility on trade to be small. Finally, the third set of findings is that the border effects on trade are large. It appears that the necessity to use different currencies on both sides of a border and the transaction costs incurred as a result, acts to dampen trade.

Trade aside, there are other benefits. One would be the complementary effect of increased trade, greater financial integration. A second, would be what Eichengreen and Hausmann (1999)<sup>6</sup>, have dubbed as “*the original sin*”, the inability of a country or its corporations to issue or raise debt denominated in its own currency. This inability has meant serious maturity mismatches and extensive exchange rate exposure. A regional common currency would substantially reduce if not eliminate such inadequacies. The fact that the GCC and Agadir nation’s Central bankers have always been reluctant floaters makes a CCA arrangement more amenable. Yet, the loss of monetary policy independence especially for Agadir nations, would offset some of the attraction.

## **2.1: Costs and Benefits of a CCA**

It is obvious that the immense undertaking that a CCA arrangement is, would involve numerous benefits and costs. Many of these would be direct and easily observable while others, less so. Some of the direct benefits would be (i) the elimination of exchange rate risk and greater predictability of relative prices for companies doing business within the CCA (ii) reduced transaction costs due to the elimination of bid-ask spreads on currency conversion and the hedging costs that would normally be incurred. (iii) the trade benefits of faster growth,

---

<sup>6</sup> See: Bergsten and Park (2002)

enhanced competitiveness and efficiency (iv) enhanced cross-border investments and factor reallocation and (v) a final direct benefit comes from the 'enforced' policy commitment.

Though many of the benefits of a CCA could also accrue to normal fixed exchange rate / pegged systems, history has shown that fixed exchange rates are not irrevocably fixed. Since a CCA arrangement is much more encompassing in terms of policy commitment and has deeper roots, the cost of breaking it is much higher than breaking a fixed exchange rate. This gives the CCA the credibility that a pegged system lacks. The result would be that a common currency would be less susceptible to monetary disturbance and speculative bubbles. Finally, since policy making, especially those of a monetary nature are detached and independent of individual governments, central banks and monetary authorities would be subject to less political pressure thereby leading to money supply and price stability. The fact that Europe has had less than 2% inflation over the last 10 years is no accident.

The costs of a CCA are as varied as its benefits. The most obvious cost is the loss of domestic monetary policy flexibility. In many developing economies, monetary policy is heavily relied upon as an instrument for stabilization of the domestic economy. Having a common, region wide monetary policy would mean that an individual country faced with an asymmetric shock cannot respond on its own. Membership in a CCA would often mean that complying with the requirements of the currency agreement would take precedence over domestic needs. Thus, external compliance dictates domestic policy. Finally, for any currency arrangement to work, extensive policy coordination and significant commitment is needed to ensure compliance. This can be a costly requirement since getting cooperation on a number of



usually conflicting issues is inherently difficult. For example, getting a consensus on how to divide seignorage revenues among members would be one such issue. Opening up borders to comply with labor mobility is another very sensitive issue.

## **2.2: Existing Currency/Economic Arrangements**

In this section we examine the existing currency arrangements among our sample MENA Countries. Going by formal arrangements, there are really two subsets within our 10 sample countries. The four Agadir countries – Egypt, Tunisia, Morocco and Jordan and the six GCC countries, Saudi Arabia, Kuwait, Qatar, Oman, Bahrain and the UAE.

As early as 1945 while the US, Britain and the allied Nations were working out the Bretton Woods System, twenty two Arab nations got together to initiate a “Common Currency” called “Arab Dinar”.<sup>7</sup> Despite the early start, there appears to have been little progress until about 50+ years later when the GCC heads of state pushed for a fixed timetable for currency union among their six countries. Based on this plan, a common currency area could be in place among the six GCC nations by 2010 – i.e. some 65 years after the idea of an Arab common currency was first mooted. That a more broad based arrangement involving more than the six GCC countries has proved elusive, is testimony to the difficulties involved in managing the tradeoffs and the reality of economic disparities among the MENA countries. The fact that the MENA region has witnessed a series of wars since 1945 and is generally seen as one that is highly unstable has not helped. In such an environment, it is obvious that pushing for regional

---

<sup>7</sup> See – Bassem Kamar, (2004)

economic cooperation may have to be relegated to meet more pressing political crises. Yet, even here, a CCA arrangement could be a source of economic stability by ensuring policy credibility and cohesion.

Comparing the two subsets, the Agadir and GCC countries, one is quickly convinced of the stark contrast between these two groupings. The older of the two, the GCC was formally established in 1981, largely on the initiative of Saudi Arabia, the groups largest member both by population and economic size. The exchange rate arrangement for the block is outlined within Article 22 of the Council's Unified Economic Agreement of June 1982.<sup>8</sup> Article 22, clearly states the objective of creating a common currency among the six member states by 2010. The one common economic feature that no links all 6 countries, is the fact that everyone of these countries is oil rich and heavily dependent on oil exports. In terms of economic wealth and per capita GDP, these six nations are clearly apart from the other Arab / MENA nations.

The four Agadir nations on the other hand cannot be more different. Whereas average per capita GDP for the six GCC countries was US\$16,203 in 2004, that of the Agadir nations was US\$1,849. Aside from difference in per capita income and wealth, none of the Agadir nations have meaningful reserves of oil. They rely heavily on tourism and remittances from their citizens abroad as the main source of foreign exchange earnings. Thus, while oil price change alone dictates economic performance within GCC, the Agadir nations like most non-OPEC nations are reliant on global economic conditions. However, unlike other countries, given their reliance on tourism, these four countries have taken the brunt of the surge in

---

<sup>8</sup> See Jasser and Hamidy; (*BIS papers*, 2005)

international terrorist activities. Economic differences aside, Agadir itself is a much newer grouping relative to the GCC. The Agadir Agreement, which formally established the group took place as recently as February 2004. The immediate aim of the grouping is the creation of a free-trade area (FTA) among the four countries by 2005.

### **2.3: Exchange Rate Regimes**

As with many MENA countries, exchange rate evolution in the Agadir countries have been one of fixed/managed systems, followed by serious overvaluation which in turn leads to crisis and devaluation followed by some liberalization. Egypt is a case in point. Though in 1991 as part of an IMF initiated reform program, Egypt had announced the adoption of a “managed float” for the Egyptian pound, the pound was essentially on a “conventional fixed peg” to the US\$.<sup>9</sup> Following an overvaluation, serious current account deficit and balance of payments problems, and the attendant capital flight, the Egyptian government in January 2001, announced a devaluation of the pound and the adoption of a crawling peg against the US\$. Deteriorating economic conditions following the September 11, terrorist attacks, placed additional pressure. In January 2003, the government announced a “free float” of the pound. Over the next few months, the pound depreciated sharply by about 33% against the US\$.

The Jordanian Dinar appears to have gone through a similar pattern. Following a series of shocks due to overvaluation, the dinar was devalued 12% against the US\$ and put on a

---

<sup>9</sup> See – *Bassem Kamar, (2004)*

“managed float”. However, the dinar was subject to further deterioration and depreciation. This led to a formal fixed peg of the dinar to the US\$ in October 1995. The Moroccan dirham, previously on a fixed peg to the French franc was delinked in 1973. The following period witnessed Morocco’s experimentation with managed floats. The dirham’s exchange rate being managed based on a basket of currencies. As has been the case of its neighbours, the Moroccan dirham witnessed significant deviations in the RER leading to Balance of Payments (BOP) problems. Recent years have seen sharp increases in the country’s trade deficit, implying overvaluation and increasing the dirham’s vulnerability.

The Tunisian dinar, like the Moroccan dirham, had its links to the French franc eliminated in the mid 1970s. In 1978, the dinar was linked to a basket of currencies which included the US\$. Balance of Payments problems in subsequent years forced the Central Bank to begin depreciating the dinar – something that went on until 1989. Reforms and liberalization were undertaken in 1992 and extended further in 1994. Though Tunisia has had its share of BOP problems, it appears to have avoided much of the exchange rate shocks.

Unlike the Agadir nations, the GCC countries as mentioned earlier have been working towards a common currency by 2010. This goal is to be reached by having a customs union and an integration of exchange rates by 2003 and an agreement on ‘convergence criteria’ by 2005<sup>10</sup>. In order to ensure stable cross rates, the exchange rate integration required member currencies to be officially pegged to the US\$. That the US\$ was chosen as the “anchor” currency is not surprising given the fact that GCC currencies have been on a fixed peg to the

---

<sup>10</sup> See – Jasser and Hamidy; *BIS Papers 2004*.

US\$ for a long time. Five of the six GCC currencies have been pegged to the US\$. The exception being the Kuwaiti dinar, which was linked to a basket of currencies. Still, the US\$ was prominently weighted within that basket. While the Omani and Saudi riyals have been pegged to the dollar since the 1970s and mid 1980s respectively, the Qatari, Bahraini and UAE currencies have been formally pegged to the US\$. The idea of ensuring regional exchange rate stability by fixing regional currencies to a common anchor currency is built on the template of the European Monetary System (EMS), where a central grid was established by fixing member currencies to the ECU (European Currency Unit). As part of the move towards a Common Currency Area, the GCC countries have agreed on commitments prohibiting any unilateral changes to the pegged rate between their individual currencies and the US\$. Attempts are currently under way on convergence by harmonizing growth rates, inflation / interest rates, and monetary and fiscal policies

### **Section 3: Data and Methodology**

Since symmetry of economic activity has been identified as a key criterion in determining the feasibility of a CCA, our analysis is built on identifying “compatibility” among our two sample groups of countries. Since compatibility would imply some degree of synchronicity among key macroeconomic variables, we examine macroeconomic data. Specifically, we examine annual data on real GDP growth, inflation<sup>11</sup>, money growth and short-term interest rates<sup>12</sup> across the 10 countries over the 34 year period 1970– 2003. Our choice of

---

<sup>11</sup> The inflation rate has been computed as:  $\left( \frac{(1 + \text{nominal GDP growth \%})}{(1 + \text{real GDP growth \%})} - 1 \right) \times 100$

<sup>12</sup> The 3 month deposit rate or money market rate is used.

these variables, has to do with the fact that aside from synchronous business cycles, similar levels of inflation and a degree of policy congruence have been cited as necessary preconditions in previous literature. The data has been sourced largely from the United Nations Statistics division database<sup>13</sup> and IFS (International Financial Statistics)<sup>14</sup>. The 10 countries examined are the six GCC countries and the four Agadir nations.

In identifying compatibility, we use three analytical techniques. First, we carry out a series of correlation analysis for each variable across the sample countries. The Pearson Pairwise correlation statistic is used to check for statistical significance. The second analytical technique used is Vector Autoregression or VAR analysis. Both impulse response and variance decomposition is used to examine interrelationships amongst real GDP growth rates<sup>15</sup> of the sample countries.

### **3.1 : The Vector Autoregression Model**

The correlation analysis helps identify links among macroeconomic variables across countries. While such correlation does point out links among variables, they do not show important interrelationships among the variables. Neither does correlation imply similarity in response to external shocks.

---

<sup>13</sup> [www.unstats.un.org/unsd](http://www.unstats.un.org/unsd)

<sup>14</sup> [www.imfstatistics.org](http://www.imfstatistics.org)

<sup>15</sup> Real GDP growth is determined using natural log of GDP in US\$.

Since a CCA arrangement implies common policies, potential candidates would be countries that respond in a similar way to external shocks. Such logic to identify countries for a currency union was first used by Bayoumi and Eichengreen (1993)<sup>16</sup>. They use a variant of the VAR (Vector Autoregression) methodology proposed by Blanchard and Quah (1989). Since then, the technique has been used extensively in OCA/CCA related research.

In identifying potential candidates among our sample countries we examine the interrelationship among their real GDP growth rates. In particular, we examine the symmetry in each countries response to external shocks. The impulse (shock) variable is the World Real GDP. Countries that respond in a similar fashion to shocks in World GDP would be potential candidates<sup>17</sup>. A multivariate, Unrestricted Vector Autoregression Model is used on annual real GDP of our sample countries. In its standardized form, a VAR model is:

$$y_t = a_{10} + a_{11}y_{t-1} + a_{12}z_{t-1} + e_{1t} \dots\dots\dots(1)$$

$$z_t = a_{20} + a_{21} y_{t-1} + a_{22} z_{t-1} + e_{2t} \dots\dots\dots(2)$$

where  $e_{1t}$  and  $e_{2t}$  are stochastic error terms called impulses or shocks in the language of VAR. Both error terms have zero means, constant variances and are individually serially uncorrelated. The structure of the system incorporates feedback because  $y_t$  and  $Z_t$  are allowed to affect each other. In Eq. (1), current and past values of (y), affect the time path of (z). Eq. (2) allows for feedback between current and past values of (z) and (y). VAR essentially allows all variables to interact linearly with their own and each others current and past values. Thus,

---

<sup>16</sup> See Hazel (2001)

<sup>17</sup> World Real GDP is provided on an annual basis in the UN database.

using historical data, one can determine the quantitative impact that each variable has on its own future value and the future values of the other variable(s).

Equations (1) and (2) above outlined a bivariate VAR model. A Multivariate generalization of VAR can be shown as follows:

$$x_t = A_0 + A_1 x_{t-1} + A_2 x_{t-2} + \dots + A_p x_{t-p} + e_t \dots\dots\dots(3)$$

where:

- $x_t$  = an (n . 1) vector containing each of the n variables included in the VAR
- $A_0$  = an (n . 1) vector of intercept items
- $A_t$  = (n .n) matrices of coefficients
- $e_t$  = an (n . 1) vector or error terms

It is useful to keep in mind that the objective here, and that of VAR analysis in general is to determine the interrelationships among the variables and not, forecasting nor parameter estimates. Thus, one could construct an n-equation VAR with each equation containing a fixed number of lags<sup>18</sup> of all n variables in the system. An n-equation VAR is typically;

$$\begin{bmatrix} x_{1t} \\ x_{2t} \\ \cdot \\ x_{nt} \end{bmatrix} = \begin{bmatrix} A_{10} \\ A_{20} \\ \cdot \\ A_{n0} \end{bmatrix} + \begin{bmatrix} A_{11}(L) & A_{12}(L) & \dots & A_{1n}(L) \\ A_{21}(L) & A_{22}(L) & \dots & A_{2n}(L) \\ \cdot & \cdot & \cdot & \cdot \\ A_{n1}(L) & A_{n2}(L) & \dots & A_{nn}(L) \end{bmatrix} \begin{bmatrix} x_{1t-1} \\ x_{2t-1} \\ \cdot \\ x_{nt-1} \end{bmatrix} + \begin{bmatrix} e_{1t} \\ e_{2t} \\ \cdot \\ e_{nt} \end{bmatrix} \dots\dots\dots(4)$$

where:

- $x_{1t}$  = % Real GDP growth for country 1, in period t
- $A_{i0}$  = the parameters representing intercept terms
- $A_{ij}(L)$  = the polynomials in the lag operator L

---

<sup>18</sup> The appropriate number of lags could be determined based on the Akaike Information criterion or Schwarz.



The individual coefficients of  $A_{ij}(L)$  are denoted by  $a_{ij}(1), a_{ij}(2), \dots, a_{ij}(n)$ . The variables being quarterly real GDP growth % for each small country.

Note: Since all equations have the same lag, the polynomials  $A_{ij}(L)$  are all of the same degree. The terms,  $e_{1t}$  are white-noise disturbances.

#### **Section 4: Results and Analysis**

Recall that our analysis involved three analytical techniques, Pearson Pairwise Correlation, Impulse response and Variance decomposition. We begin our analysis with results of the Pearson pairwise correlation. Tables 1 thru 4 in appendix show the results of the correlation analysis. Table 1 shows the correlation in the real GDP growth rate of the GCC and Agadir nations. The later three tables show the correlation in annual inflation rates, Money Growth and 3 month Deposit rates for the 34 year period 1970 – 2003. While the correlation in real GDP would indicate the strength of the linkage among these countries in the real sector, the latter three tables capture the linkage in the financial sector.

For countries with clear aspiration to forming regional economic blocs, as Table 1 shows, there appears to be little correlation in growth rates. Among the GCC countries, we see only two meaningful linkages, between UAE and Bahrain and Saudi/Qatar. Among the Agadir countries there is not a single significant correlation in real output growth. If there is little linkage amongst the countries where real output is concerned, the picture is very different, especially for the GCC countries, where financial sector variables are concerned. Table 2 shows the correlation in inflation rates. Notice the numerous significant relationships. Even among the Agadir countries we see a few significant correlations, particularly in the case of

Tunisia. The correlation in Money Growth shown in Table 3, is even stronger. Among the GCC countries, just about every correlation in Money growth is significant. Money growth amongst the GCC countries obviously appears to be moving together. For the Agadir countries we again see some sporadic links but for different pairs. Jordan / Egypt appears to be the one common pair with significant links in both Tables 2 and 3. The final table shows the correlation in nominal interest rates. The annualized 3 month deposit rate, which had the best reporting frequency was taken as representative of nominal interest rates.<sup>19</sup> As with the earlier monetary variables, we see generally strong correlation among the GCC countries. For the Agadir nations, correlation in deposit rates shows the most number of significant relationships.

So, what can we conclude from these? For the GCC countries, there obviously are much stronger links where monetary variables are concerned. The monetary sectors are well integrated – obviously the result of the monetary coordination and convergence criteria. These strong link however still appears to be missing where the real sector is concerned. While monetary integration is strong, trade integration still appears minimal. Thus, the link in real output growth is tenuous at best. The Agadir countries too show the same lack of trade integration and links in real output growth. While we see better linkage in the monetary variables, they are not consistent. A different set of paired countries show significance for different variables.

---

<sup>19</sup> They were only available from 1990 onwards and even so, the rates for UAE were not available.

#### **4.1: VAR Analysis; Impulse Response Functions**

The Vector Autoregression Model shown as Eq. (4) was estimated for the two sets of countries. Using the estimated model, the impulse response functions and variance decomposition is examined using the natural log of Real GDP for WORLD and the 10 sample countries. Thus, two sets of VAR Analysis was carried out. The first with WORLD real GDP growth and GCC countries followed by another with WORLD Real GDP with that of the Agadir countries. The number of lags in the VAR is set to two lags. Since the ordering of variables is important, the ordering is done by ranking the countries by their GDP size. For both sets of analysis, the impulse response of individual countries is examined by “shocking” the WORLD Real GDP variable. As mentioned earlier, the objective is to examine how each country’s real output responds to the same external shock. Symmetry, or countries with a similar response would suitable candidates for a common currency area.

Figure 1, shows the response of each of the six GCC countries real GDP growth over 10 periods to innovations (shocks) in WORLD real GDP growth. Four of the six countries, Saudi, Kuwait, Qatar and Oman have similar / symmetrical initial response. All four react negatively over the first period. Output growth then stabilizes for the first three countries, while Oman shows a slight increase from period 2 before converging back to the original level. Bahrain shows a response similar to that of Oman, though the initial negative impact is hardly visible. The one non-symmetric response is that of UAE. The initial period response to the shock is positive. UAE’s non symmetry is perhaps a reflection of its greater dependence on services and relatively lower reliance on oil exports alone. Thus, with the exception of the UAE, one

could make the case that the first year (first period) impulse response are largely symmetric for the 5 GCC countries.

Figure 2 shows the impulse response functions for the four Agadir countries. What is obvious is that unlike the case of the GCC countries, there is no symmetry whatsoever in this case. While there appears to be some resemblance in the response of Egypt and Jordan, they are really quite different in magnitude and duration. Thus, it appears that none of the Agadir countries respond similarly / symmetrically to the same external shock.

#### **4.2: Variance Decomposition**

Summary results of the variance decomposition for the two sets of countries, for four variance periods are shown in Tables 5 and 6. In the context of our analysis, variance decomposition tells us the extent to which variance in the real output growth of each country is influenced by shocks to the common factor, WORLD GDP and by each of the other countries' real output. Examining the variance decomposition of the GCC countries in Table 6, it is clear that none of the countries within the GCC have substantive influence on each other. The only case where we see some influence is in the case of Bahrain, both Saudi and the UAE appear to have some influence. In all other cases, no GCC member countries appears to have influence on real output growth in another. Not surprisingly, we see similar results for Agadir countries in Table 5. The exception appears to be Jordan, where Tunisia has quite a substantive influence.

## Section 5: Conclusion

This paper examined the feasibility of a CCA within two subsets of MENA countries, the GCC and Agadir group of countries. Feasibility is examined by analyzing the symmetry of response of countries within each group to a common external shock. In addition, the strength of linkages within each economic bloc was examined using Pearson pairwise correlation and variance decomposition.

Among the GCC countries, the results show the existence of strong linkages among the monetary variables, signifying strong monetary sector integration. Such integration however is lacking where the real sectors are concerned. Real sector integration is tenuous at best. With the exception of UAE, the GCC countries have broadly symmetrical response to a common external shock. Despite the symmetry seen in the impulse response functions (IRF), Variance decomposition (VD), showed the absence of any meaningful influence of countries on each other within the bloc. At first glance these results may seem contradictory. In reality, the results are congruent and interesting. The broad symmetry seen in the IRF results tells us that these countries have a common reaction to an external shock but the variance decomposition shows little integration amongst themselves.<sup>20</sup> In other words, from a real GDP growth viewpoint, they are “independent” of each other but are connected / plugged in a similar way to global economic conditions. The fact that the GCC countries are all uniformly oil exporters to the rest of the world, but produce little non-oil products that are differentiated from each others,

---

<sup>20</sup> Since the variance decomposition is based on Real GDP growth, the lack of influence here implies lack of integration in the real sector.

explains the results. Being producers of similar non-oil products, there simply isn't much avenue for intra-regional trade. Thus, the lack of influence of each country's shocks on other members. In a sense, the variance decomposition results reinforce our findings from the correlation analysis, which showed minimal linkage in the real sector. The lack of trade intensity or integration amongst GCC countries will represent a challenge to the desired implementation of a CCA by 2010.

Amongst the Agadir countries, we see no correlation in real output growth, some correlation where monetary variables are concerned, but no symmetry whatsoever in response to external shocks. The variance decomposition too did not show much mutual influence amongst countries within the group, where real GDP growth was concerned.

## **5.1: Implications**

So what do these results imply about the potential for a CCA within the two groups of countries? The first implication of the results is that Monetary integration is much easier to achieve than trade / real sector integration. Yet, if the ultimate objective of a CCA is enhanced economic prosperity over the long term, then much needs to be done, even for the GCC which is now well advanced into a customs union. Where effort needs to be focused is on increasing intra regional trade. Intra-regional trade within GCC was a mere 3.5% in 1996.<sup>21</sup> The similarity in output appears to be the key deterrent. Thus, product diversification is necessary. The reason increased regional trade is so critical to the long term success of a CCA is the fact

---

<sup>21</sup> See Jasser & Hamidy – *BIS Papers 2004. Table 3 pp 120*

that trade serves to synchronize business cycles; which in turn makes it possible for the use of common policies. In the absence of trade integration, the formation of a CCA would not only be hollow but also problematic. That a CCA will enable the use of common intra bloc policies independent of extra-regional influences will be meaningless and ineffectual if oil prices alone continue to dictate growth.

So, based on the results, one can only conclude that the GCC as it now stands is at best a quasi-monetary bloc with little real sector integration. The Agadir nations on the other hand appear to be simply a loosely knit economic grouping with little integration of any kind. For the Agadir nations, a CCA is neither a feasible nor a sensible aspiration for now. Their more urgent need aside from enhancing intra-regional trading would be to break away from the vicious cycle of exchange rate deviation, BOP problems and devaluations. Linking their currencies to a trade-weighted basket of currencies and adopting managed floats with broader bands would be sensible. The key to success would still be policy consistency. Domestic policies, especially monetary ones must be congruent with exchange rate policies if further crises are to be avoided.

While a CCA is certainly feasible for the GCC, a number of initiatives will have to be undertaken prior to the intended implementation in 2010. For starters, the adoption of a well coordinated industrial policy within the group would be needed. The template used among ASEAN countries or the Korean experience in this regards, would be useful. Such an industrial policy could enable specialization within individual countries enabling them to reap economies of scale, have a diversified industrial structure within the group and enhanced regional trade

and competitiveness. Additionally, as the Asian currency crisis of 1997 / 98 showed, even a strong industrial structure is no guarantee against a currency crisis if domestic financial institutions are weak and vulnerable. Thus, strengthening the financial sector within the GCC would certainly be a required initiative. Finally the need for a Common Central bank and coordinating institution will need to be worked out. In this regard, experience in Europe has shown that a key sticking point will be the issue of how seigniorage which is lost by the individual country central banks, will be shared.

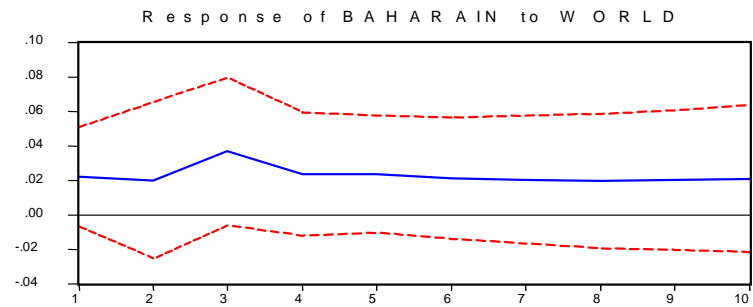
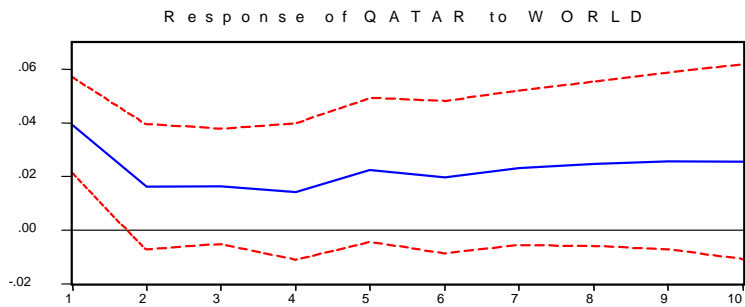
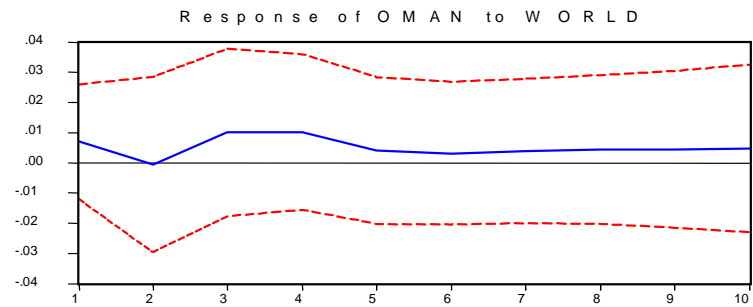
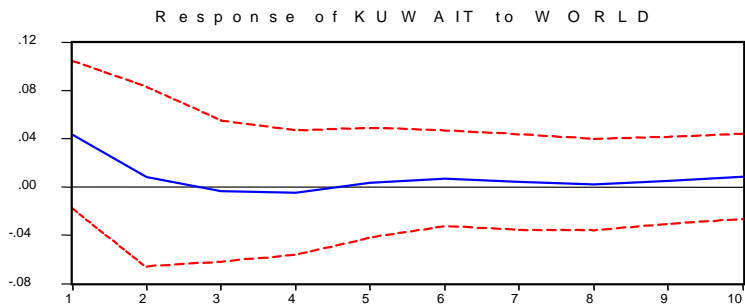
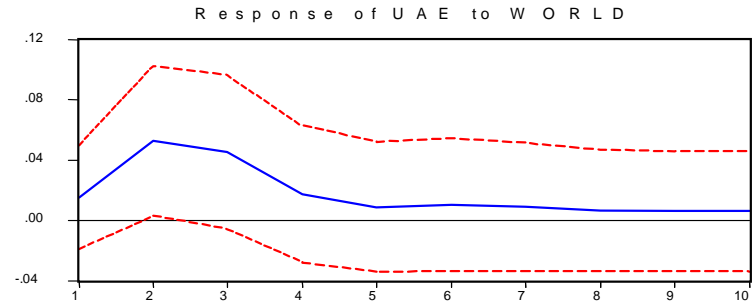
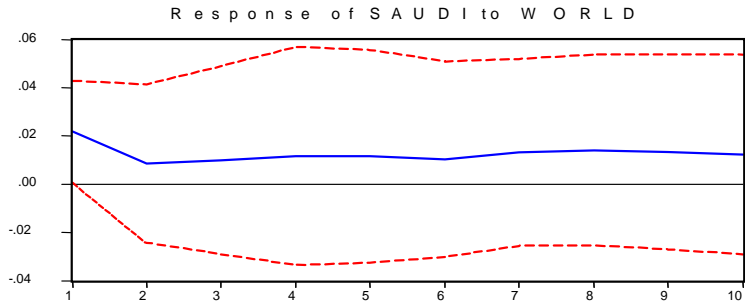
Much of the issues surrounding a CCA have serious economic implications. Since they typically also involve sovereignty and autonomy, many of the needed decisions are political in nature. Thus, political will and commitment will dictate the progress made towards a CCA.



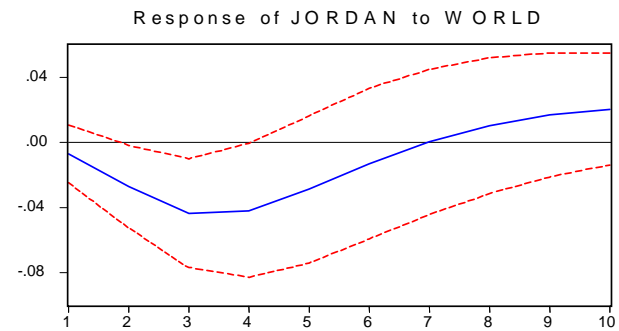
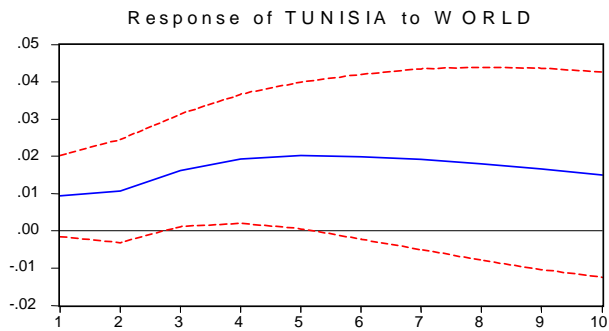
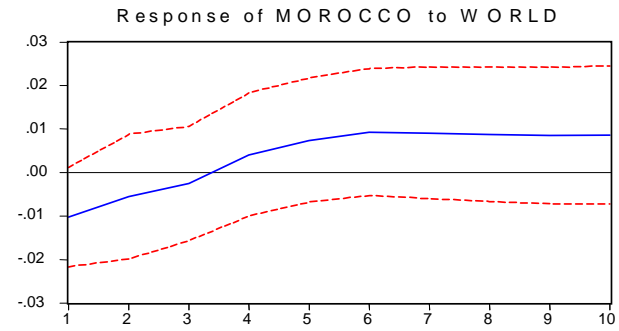
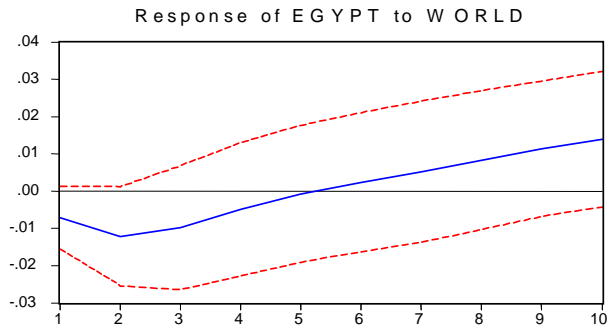
## Reference :

- Alesina, A., Barro, RJ and Tenreyro, S. (2002); Optimal Currency Areas. *NBER Working Paper No. W9072*, July, 2002.
- Al-Jasser, M and Al Hamidy, A (2004); A Common Currency Area for the Gulf Region, in *BIS Papers No. 17, 2004*. Pp 116 – 120. [http: www.bis.org/pub/bppdf/bispap17K.pdf](http://www.bis.org/pub/bppdf/bispap17K.pdf)
- Bassem Kamar, (2004); De Facto Exchange Rate Policies in the MENA Region: Toward Deeper Cooperation. Paper presented at the 11<sup>th</sup> Annual Conference of *The Economic Research Forum for the Arab Countries, Iran and Turkey*. December 2004, Beirut, Lebanon.
- Bergsten, C.F. and Park, YC. (2002); Toward Creating A Regional Monetary Arrangement in East Asia. *ADB Institute Research Paper No. 50*, Dec. 2002.
- Enders, W. (2004); Applied Econometric Time Series, 2<sup>nd</sup> Edition. *John Wiley & Sons Inc.* 2004.
- Faruquee, H. (2004); Euro Turns Five. *Finance & Development, IMF Publications*, June 2004.
- Hallett, A.H and Piscitelli, L. (2002); Does One Size Fit All? A Currency Union with Assymmetric Transmissions and a Stability Pact. *International Review of Applied Economics*, Vol. 16, No. 1, 2002
- Hazel, Y.P.L. (2001); Optimum Currency Areas in East Asia. *ASEAN Economic Bulletin* Aug. 2004, pp. 206 – 217.
- Jbili, A and Kramarenko, V (2003); *Should MENA Countries Float or Peg?* *Finance & Development*, IMF Publications, March 2003. Vol. 40, No. 1.
- Kiss, E.F. (2004); Optimum Currency Area: Euro as a Practical Paradigm? *Global Financial Markets – Issues and Strategies. Praeger Publishers, London (2004)* pp. 205 – 225.
- Kouparitsas, M.A. (2002); Is the EMU a viable common currency area? A Var Analysis of regional business cycles. *Economic Perspectives*, Federal Reserve Bank of Chicago 2002.
- Nabli, M.K and Varoudakis, M.A.V (2004); How Does Exchange Rate Policy Affect Manufactured Exports in MENA Countries? *Applied Economics*, Oct. 2004, 36.19, p 2209.
- Obiyathulla, B. (2005); A Common Currency Area For ASEAN? Issues and Feasibility. Paper presented at The 3<sup>rd</sup> International Finance Conference, March 2005, Hammamet, Tunisia. Accepted for publication in *Applied Economics* (forthcoming).
- Park, YC (2002); Prospects for Financial Intergration and Exchange Rate Policy Cooperation in East Asia, *ADB Institute Research Paper No. 48*, Dec. 2002.
- Schadler, S (2004); Charting A Course Toward Successful Euro Adoption. *Finance & Development, IMF Publications*, June 2004.

**Fig. 1**  
**Impulse Response Functions (6 GCC countries)**  
**(Response to innovations in WORLD Real GDP growth)**



**Fig. 2**  
**Impulse Response Functions (Agadir Countries)**  
**(Responses to innovations in WORLD Real GDP growth)**



**TABLE 1: Pearson PAIRWISE Correlation of Annual Real GDP growth rate (1970 – 2003)**

	BAHRAIN	KUWAIT	OMAN	QATAR	SAUDI	UAE	EGYPT	JORDAN	MOROCCO	TUNISIA
BAHRAIN	1	.002	.157	-.252	.186	.754(**)				
KUWAIT		1	-.099	.207	-.062	-.172				
OMAN			1	-.387(*)	-.210	-.016				
QATAR				1	.407(*)	-.186				
SAUDI					1	.212				
UAE						1				
EGYPT							1	.190	.203	-.022
JORDAN								1	-.074	.212
MOROCCO									1	-.088
TUNISIA										1

**TABLE 2: Pearson PAIRWISE Correlation of ANNUAL INFLATION RATE (1970 – 2003)**

	BAHRAIN	KUWAIT	OMAN	QATAR	SAUDI	UAE	EGYPT	JORDAN	MOROCCO	TUNISIA
BAHRAIN	1	.444(**)	.893(**)	.814(**)	.296	.847(**)				
KUWAIT		1	.427(*)	.513(**)	.146	.441(*)				
OMAN			1	.822(**)	.237	.875(**)				
QATAR				1	.550(**)	.894(**)				
SAUDI					1	.593(**)				
UAE						1				
EGYPT							1	.347(*)	.003	-.136
JORDAN								1	.240	.364(*)
MOROCCO									1	.513(**)
TUNISIA										1

**TABLE 3: Pearson PAIRWISE Correlation of MONEY GROWTH RATE (Annualised) (1970 – 2003)**

	BAHRAIN	KUWAIT	OMAN	QATAR	SAUDI	UAE	EGYPT	JORDAN	MOROCCO	TUNISIA
BAHRAIN	1	.646(**)	.316	.653(**)	.591(**)	.669(**)				
KUWAIT		1	.464(**)	.708(**)	.676(**)	.547(**)				
OMAN			1	.504(**)	.594(**)	.707(**)				
QATAR				1	.701(**)	.671(**)				
SAUDI					1	.786(**)				
UAE						1				
EGYPT							1	.534(**)	.129	.359(*)
JORDAN								1	.361(*)	.275
MOROCCO									1	.136
TUNISIA										1

\*\*Significant at 1%, \*Sign. At 5% (2 tail)

**TABLE 4: Pearson PAIRWISE Correlation of Annualised 3-Month Deposit Rate (1990 – 2003)**

	BAHRAIN	KUWAIT	OMAN	QATAR	SAUDI	UAE	EGYPT	JORDAN	MOROCCO	TUNISIA
BAHRAIN	1	.529	.841(**)	.654	.962(**)	na				
KUWAIT		1	.652(*)	-.591	.603(*)	na				
OMAN			1	.836(**)	.901(**)	na				
QATAR				1	.727(*)	na				
SAUDI					1	na				
UAE						na				
EGYPT							1	.444	.864(**)	.952(**)
JORDAN								1	.863(**)	.434
MOROCCO									1	.885(**)
TUNISIA										1

\*\*Significant at 1%, \*Sign. At 5% (2 tail)  
The deposit rate for UAE was not reported.

**Table 5 : Summary Variance Decomposition for Agadir Countries**  
**Variance Decomposition of EGYPT**

Period	WORLD	EGYPT	MOROCCO	TUNISIA	JORDAN
1	8.498585	91.50141	0	0	0
2	14.46368	84.92905	0.143796	0.224489	0.23899
3	16.81722	80.5944	0.113716	2.170081	0.304583
4	15.89762	73.08821	0.122264	9.706139	1.185763

**Variance Decomposition of MOROCCO**

Period	WORLD	EGYPT	MOROCCO	TUNISIA	JORDAN
1	9.680202	3.283813	87.03599	0	0
2	9.434794	17.52521	66.71992	4.273117	2.046953
3	8.332262	24.80771	59.74829	3.909723	3.202017
4	8.224674	30.43176	54.67659	3.548645	3.118334

**Variance Decomposition of TUNISIA**

Period	WORLD	EGYPT	MOROCCO	TUNISIA	JORDAN
1	8.653372	0.138922	6.360952	84.84675	0
2	14.36632	3.300116	5.7136	75.97643	0.64353
3	26.10375	3.839119	4.790295	64.74123	0.525601
4	36.44583	5.170968	4.031611	53.93412	0.417466

**Variance Decomposition of JORDAN**

Period	WORLD	EGYPT	MOROCCO	TUNISIA	JORDAN
1	2.009429	1.472138	0.224462	38.76739	57.52658
2	16.17593	1.306413	1.877081	42.1918	38.44878
3	31.29028	0.878467	4.750394	38.25216	24.8287
4	39.52426	1.228158	5.148682	34.33942	19.75948

Cholesky Ordering : WORLD EGYPT MOROCCO TUNISIA JORDAN

**Table 6: Summary Variance Decomposition for GCC Countries**

**Variance Decomposition of SAUDI**

Period	WORLD	SAUDI	UAE	KUWAIT	OMAN	QATAR	BAHRAIN
1	12.47979	87.52021	0	0	0	0	0
2	6.076307	84.53732	0.447243	2.989752	2.034974	2.015695	1.898709
3	3.725875	71.96816	1.213862	8.594707	7.866511	2.327589	4.303297
4	2.927661	66.88695	0.83747	10.79872	12.03264	2.156996	4.359569

**Variance Decomposition of UAE**

Period	WORLD	SAUDI	UAE	KUWAIT	OMAN	QATAR	BAHRAIN
1	2.429892	0.11306	97.45705	0	0	0	0
2	13.75928	7.480311	56.70856	0.475452	12.43952	1.780277	7.356602
3	15.36534	13.4367	38.70242	1.335296	15.85232	6.734094	8.573834
4	13.5585	15.60388	33.0318	6.270794	16.4297	7.784165	7.321147

**Variance Decomposition of KUWAIT**

Period	WORLD	SAUDI	UAE	KUWAIT	OMAN	QATAR	BAHRAIN
1	6.023569	0.005468	0.920022	93.05094	0	0	0
2	4.102145	10.79395	0.605569	80.50695	0.333982	1.034055	2.623347
3	3.315565	21.59206	0.917172	66.98772	2.360788	1.352064	3.474624
4	3.004656	23.26601	2.81302	60.07733	5.100481	2.269762	3.468744

**Variance Decomposition of OMAN**

Period	WORLD	SAUDI	UAE	KUWAIT	OMAN	QATAR	BAHRAIN
1	1.667385	9.541582	0.871252	0.091545	87.82824	0	0
2	0.699591	18.97315	12.04916	0.840893	64.92939	2.503292	0.004526
3	1.489683	21.44272	12.64169	4.582569	55.1932	2.17985	2.470294
4	2.044152	23.35084	10.32242	7.789834	50.80967	2.006895	3.676185

**Variance Decomposition of QATAR**

Period	WORLD	SAUDI	UAE	KUWAIT	OMAN	QATAR	BAHRAIN
1	45.7669	0.045977	7.636383	5.065843	0.171712	41.31319	0
2	37.03303	0.577504	22.06048	4.474731	1.480359	34.11913	0.254759
3	28.59413	0.399275	15.74838	12.45074	4.921254	26.32854	11.55769
4	23.31756	6.21931	11.76988	18.86973	3.7379	22.52817	13.55745

**Variance Decomposition of BAHRAIN**

Period	WORLD	SAUDI	UAE	KUWAIT	OMAN	QATAR	BAHRAIN
1	7.067959	19.77848	15.60517	8.917434	5.120488	3.763905	39.74657
2	5.067457	41.47293	14.24316	10.90454	10.31964	1.695561	16.29671
3	9.419977	46.40637	10.88246	11.12957	8.679723	1.266995	12.21491
4	10.15307	47.13252	9.406783	12.32143	9.046836	1.263565	10.67579

Cholesky Ordering: WORLD SAUDI UAE KUWAIT OMAN QATAR BAHRAIN