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The GCC Monetary Union:
Some Considerations for the Exchange
Rate Regime

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Middle Eastern Department

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Abstract

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We compare the dollar peg to a dollar-euro basket peg as alternative exchange rate regimes for the incipient Gulf Cooperation Council (GCC) currency union. Quantitative evidence suggests basket peg does not dominate dollar peg for improving external stability. However, as GCC exports and external financial assets become more diversified, a more flexible exchange policy may be necessary for competitiveness and stability. Pegging the prospective common GCC currency to a basket, like the dollar-euro basket, may provide a conservative transitional strategy toward a more flexible exchange rate policy.

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I. INTRODUCTION

Similarities between the Gulf Cooperation Council (GCC) economies—large share of oil production in total, dependency on oil exports, stable currencies and price levels—by far outweigh the dissimilarities.[2] A contiguous geography, longstanding cultural and political ties, a common language, high living standards, and coordinated policy efforts are the naturally existing building blocks of a successful economic union.

As of January 1, 2003, the GCC countries formally started pegging their currencies to the dollar as a first step towards a monetary union, scheduled to come into existence by 2010. On the same date, the GCC-wide customs union also went into effect. The GCC countries' currencies were already effectively pegged to the U.S. dollar.[3] The prevailing dollar peg and the absence of any significant current and capital account restrictions have ensured spontaneously coordinated monetary policies, or, at least, have set common narrow limits for the scope of monetary interventions, as well as for the interest and reserve policies. Although fiscal priorities and policies have exhibited greater variance among the GCC countries, the broad fiscal priority has been transferring oil wealth to the public through the budget (with public investments, wages, salaries, subsidies, and transfers), and, fiscal policies mirrored fluctuations in largely oil-based revenues.

On the other hand, some crucial policies and measures to ensure the success of the GCC monetary union remain to be implemented prior to 2010. Fasano and Schaechter (2003) compare conditions for creating a successful GCC monetary union to other monetary unions already in existence (for example, the euro zone, CFA franc zone). Those authors emphasize the need to develop an institutional framework and some basic quantitative benchmarks like the European Union's Maastricht Agreement for the GCC.[4]

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[2] The GCC countries are Bahrain, Kuwait, Oman, Qatar, Saudi Arabia and the United Arab Emirates (UAE.).

[3] Until January 1, 2003, the exception was Kuwait, whose currency was pegged to a basket of major currencies. However, in view of the larges share of the dollar in that basket, the Kuwaiti dinar was also effectively pegged to the dollar. In addition, only the rial Omani was officially pegged to the dollar. While the Bahrain dinar, the Saudi riyal, the Qatar riyal, and the UAE dirham were officially pegged to the SDR, in practice, those currencies were pegged to the dollar at fixed rates.

[4] Those authors recommend implementation of the following policies: (a) creation of a decentralized GCC central bank in charge of conducting monetary policy in coordination with the Central Banks of GCC countries; (b) developing appropriate common monetary instruments in tandem with developing bond and equity markets; (c) creating a financial crisis management system; (d) ensuring fiscal sustainability through structural reforms and setting ceilings on non-oil budget deficits and government debt; (e) strengthening market competition with appropriate business laws, codes, and regulations; (f) ensuring free mobility of labor with the GCC and addressing the growing unemployment pressures through

In addition to creating the required institutional framework, a crucial step in the formation of a currency union is choosing an appropriate exchange rate regime. This paper's focus is on examining alternative exchange rate pegs for the GCC monetary union with a view to ensuring external stability and competitiveness. We compare the prevailing dollar peg and the dollar-euro basket peg.

In view of the fact that international oil trade is largely dollar-denominated, the dollar peg has served the GCC countries well. It has proven stable in the face of large volatility in oil prices. It has at least eliminated exchange risks and served to stabilize fluctuations in financial wealth, which also has been largely dollar-denominated. Since the bulk of the GCC exports are oil exports and the share of nonoil exports in total is small, external stability and the credibility of the monetary stance have been the overriding concerns relative to competitiveness in the present GCC consensus on staying with the dollar peg.

However, a more flexible exchange rate policy may become desirable in order to ensure competitiveness of nonoil exports as the GCC economies become more diversified over time. Some GCC countries (Bahrain and Oman) face depletion of their oil reserves in the near future and, therefore, they need to adopt policies to promote nonoil sector growth. Even in the GCC countries that do not face exhaustion of oil reserves in the near future, there is a growing need to expand the nonoil sector and increase the share of nonoil exports. This reflects the demographic pressures that are common to all GCC countries, namely, young populations and rapidly growing labor forces. The bulk of the indigenous labor force in the GCC countries is employed in the public sector, in some countries reaching 95 percent of the labor force. Creating gainful employment opportunities for a large number of new entrants into the labor force will remain a GCC-wide challenge in the years ahead. This calls for policies to promote economic diversification through nonoil sector growth.

The GCC is also becoming increasingly more integrated in international markets. A *Free Trade Arrangement* with the European Union is under negotiation and the GCC is a part of the *Greater Arab Free Trade Area*. These developments further underline the need for maintaining international competitiveness in the nonoil sector. In this regard, the prevailing dollar peg could, under certain conditions, be viewed as undermining international competitiveness, especially the competitiveness of nonoil exports. In the next decade, generating export driven growth in the nonoil sector may call for a more flexible exchange rate regime than the prevailing dollar peg to ensure that nonoil exports are competitive in international markets.

In addition to competitiveness, another fundamental concern in the process of deciding on an appropriate exchange rate regime is ensuring external stability. The dollar peg might have adverse effects on the stability of the GCC imports and exports *vis*. the fluctuations in the cross exchange rates between the GCC currencies and the major

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appropriate wage and employment policies; and, (g) improving policy transparency (especially, budgetary transparency) and timeliness and coverage of macroeconomic data.

currencies other than the dollar. Therefore, there may be merit in pegging to a basket of currencies (for example, the SDR) instead of pegging to a single currency.

Erbaş, Iqbal, and Sayers (2001) (EIS) examined whether pegging the individual GCC currencies to the SDR instead of pegging only to the dollar would improve external stability. The SDR, composed of five major currencies[5], is far more stable than its components. An intuitively appealing argument is that a nominal peg against the SDR might produce a more stable exchange rate and stability of external trade might improve. However, EIS show that, at least in the case of the GCC countries, external stability may not necessarily improve by pegging to the SDR. While the SDR peg improves the stability of exchange rates between the GCC currencies and the SDR currencies other than the U.S. dollar, it increases the volatility of the exchange rates between the GCC currencies and the dollar. Whether one peg dominates the other depends critically on the elasticities of exports and imports to and from the United States, to the other SDR countries, and to the rest of the world. EIS find that in most GCC countries and for most of the components of the trade account (imports, exports, non-oil exports, and trade balance), the stability gains from continuing with the dollar peg outweigh the stability gains from switching to the SDR peg. This result, largely, reflects the fact that, for the GCC countries, almost all of the oil exports, a large share of imports, and external financial assets and liabilities are dollar denominated. Therefore, a switch from the dollar to the SDR peg is not warranted.

There are, of course, other important policy considerations in choosing a currency peg in addition to competitiveness and external stability. In the GCC countries, those considerations include credibility of the exchange and monetary policy stance, the effects of exchange rate volatility on financial markets and financial wealth, and transactions costs arising from exchange rate volatility. If no substantial gain is to be achieved by switching from the dollar peg to another peg, such considerations might well dominate and favor the decision to continue with the dollar peg.[6] Can those considerations be adequately addressed with a peg simpler than the SDR peg and large stability gains are achieved at the same time?

A powerful currency union has emerged in Europe, moving rapidly toward a fully-fledged economic and political union. The euro, the currency unit of the European Union, qualifies as an international currency because of both its stability and the size and the depth of the markets in which it plays a role. Increasingly, the euro might rival the U.S. dollar in fulfilling the functions of an international reserve and intervention currency, and may capture a large share of international trade transactions and asset accumulation both as a unit of account and as a means of payment. With the emergence of the euro, pegging the common GCC currency of the future to a basket made of the dollar and the euro seems simpler to manage than the SDR peg. Those two currencies are likely to account for a large portion of international trade and non-trade financial transactions.

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[5] The Deutsche mark, the French franc (both now replaced by the euro), the pound sterling, the Japanese yen, and the U.S. dollar.

[6] More recently, Jadresic (2002) made similar arguments.

This paper first attempts to answer the following question: Can the GCC monetary union achieve large enough gains in terms of external stability so as to warrant switching from the prevailing dollar peg to a peg to a two-currency basket made of the euro and the dollar? We present a simple estimable model of external stability, which is based on EIS. We provide elasticity estimates for the various components of the trade account and examine if their stability may be improved by switching to a dollar-euro basket peg. The model is aggregative and does not distinguish among the individual GCC countries. Rather, the model is applied to the aggregated accounts of all GCC countries, anticipating the creation of the GCC-wide currency union.

The main conclusion is that, on the basis of current conditions in exchange and trade relations, external stability of the GCC currency union might be served just as well under the prevailing dollar peg. In other words, a peg to a dollar-euro basket does not necessarily dominate the existing peg only to the dollar in terms of improving external stability. Furthermore, under the dollar peg, policy management would continue to remain on already familiar grounds, addressing policy considerations other than stability.

However, the external stability criterion that drives this conclusion is rather narrow. It does not take into account the balance sheet considerations that arise from the diversification in GCC countries' external financial assets and income derived thereof. As those considerations gain in importance over time, the measure of stability will need to take them into account. More importantly, the stability criterion used in this analysis does not address the important issue of improving competitiveness of nonoil exports. We extend the model used under the stability criterion to make some qualitative observations on competitiveness. We argue that there may be a trade-off between stability and competitiveness. Although the dollar peg may ensure greater stability, this may come at the cost of deterioration in competitiveness, reflecting appreciation and depreciation of the dollar relative to the euro (and relative to other major currencies). Consequently, as the share of nonoil exports and diversification into non-dollar assets increase over time, it may be desirable for the GCC currency union to move to a more flexible exchange rate regime. Pegging to a dollar-euro basket may serve as an interim arrangement toward a more flexible exchange rate policy in the future.

The implication of our analysis is that ensuring external stability as well as external competitiveness cannot be achieved with a single instrument, namely, the choice of the exchange rate regime. Achieving those policy objectives require the use of additional policy instruments. Importantly, wage and price policies will play an important role in achieving competitiveness in international markets. The need to employ indigenous labor force in increasing numbers in the nonoil sector may also require implementation of policies to ensure that indigenous labor is competitive with foreign labor. This may call for an important degree of wage flexibility, combined with a productivity-enhancing investment strategy, to ensure competitiveness of nonoil exports in international markets.

The paper is planned as follows. Following this introduction, the basic intuition and arguments of the model are explained in Section II. Regression specification and regression

results are presented in Section III. The trade-off between stability and competitiveness in the context of the dollar peg and a dollar-euro basket peg is examined in Section IV. Section V concludes. Data set and specifications are explained in Appendix I. A formalization of the model is presented in Appendix II. Finally, we examine the policy parameters available to the policy maker under a two-currency peg in Appendix III.

II. BASIC ARGUMENTS

Let R stand for the common GCC currency. An alternative to pegging to a single currency, the dollar, is pegging to a two-currency basket, which consists of the dollar and the euro. Pegging R to the two-currency basket at a fixed rate implies

$$\sigma(R) = \alpha(\$) + (1-\alpha)(\unicode{x20AC}) \qquad (1)$$

where σ and α are constants that determine nominal exchange rate between R and the basket. In other words, the basket peg rule fixes the values of σ and α.[7]

Pegging only to the dollar indicates that $\alpha = 1$ and the $\$-R$ exchange rate, $E = \$/R$, is equal to σ, a constant. However, pegging to the dollar-euro basket indicates that, given the value of σ, α is chosen such that, $0 < \alpha < 1$. Then, according to the rule in (1), the $\$-R$ exchange rate, E, and the $\unicode{x20AC}-R$ exchange rate, $V = \unicode{x20AC}/R$, are not constant. Let $Z = \$/\unicode{x20AC}$ be the nominal $\$-\unicode{x20AC}$ exchange rate. Under the basket peg rule in (1), E and V can be expressed as

$$Z = \frac{\$}{\unicode{x20AC}} \, ; E = \frac{\$}{R} \, ; V = \frac{\unicode{x20AC}}{R} = \frac{\unicode{x20AC}}{\$} \frac{\$}{R} = \frac{E}{Z}. \qquad (2)$$

Using the basket peg rule in (1), the expression in equation (2) can be interpreted as follows. If R is pegged only to the dollar, the dollar weight in the basket, α, is unity, and, the euro weight, $(1-\alpha)$, is zero. Then, (2) implies that $E = \$/R$ is constant (or E is perfectly stable) but $V = E/Z$ is less stable than it is under the euro-dollar basket peg reflecting the variations in Z. This is because under the basket peg E would also be variable and those variations would mitigate the effect of variations in Z on V. Therefore, moving from the dollar peg to the dollar-euro basket peg has a destabilizing effect on the $\$-R$ exchange rate but it has a

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[7] As it will become clear, the crucial policy variable in this model is α (Appendixes II, III). As the GCC currency union comes into existence, the values of σ and α are likely to emerge as a consensus. Each country's terms of trade, trade weight, GDP weight and so on will play an important role in the determination of the common GCC exchange rate with respect to major currencies.

stabilizing effect on the €-R exchange rate, reflecting the impact of the fluctuations in the $-€ exchange rate, Z.

Which exchange rate peg results in greater external stability? As EIS argue, *elasticities* of external aggregates (imports, exports, trade balance) with respect to the real effective $-R and €-R exchange rates (REERs) will determine whether external aggregates are more stable under the dollar peg or under the basket peg.

We can express an external account aggregate (for example, imports) as in the following function:

$$M = f(e, v, Y), \tag{3}$$

where e and v are, respectively, the REERs that apply to the $-R exchange rate and the €-R exchange rate, Y is the GCC aggregate real income, and M is real imports. We can define e and v as

$$e = E\left(\frac{P}{P^\$}\right); v = V\left(\frac{P}{P^€}\right); \tag{4}$$

where, P is the GCC price level, $P^\$$ is the U.S. price level and $P^€$ is the euro zone price level.

How and to what extent can the policy maker minimize the variability of e and v, if the home currency is pegged to the dollar-euro basket? In general, the import function in (4) indicates that the variations in the REERs are the determining factor for the stability of imports. In the basket peg rule shown in (1), the policy maker can control the variations in E and V through choosing the appropriate value for α. As we can observe from (1), if $\alpha = 1$, then the currency is pegged only to the dollar and variability of E is reduced to zero but variability of V is increased. If $\alpha = 0$, then the currency is pegged only to the euro, then variability of V is zero but variability of E is increased. Choosing an intermediate value for α, $0 < \alpha < 1$, indicates that there is a trade-off between stabilizing E and stabilizing V.[8]

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[8] The optimal value for α is the value at which the combined effect of the variations in both e and v is minimized. We explain how this value is determined in Appendix II. We focus on the instrument that the policymaker can control and that instrument is the value of α, which determines the weight of the dollar and the euro in the currency basket. In Appendix III, we justify this focus in the case of the GCC countries.

Now, the relevant question is, which REER, e or v, is the main source of instability for imports? The answer depends on the elasticity of imports with respect to e and v.[9]

Import elasticities with respect to e and v can be estimated (Section III). Suppose that estimation results show that import elasticity with respect to e is significant but elasticity with respect to v is insignificant. In this case (after substitution for e from (4)), the import function in (3) effectively reduces to

$$M = f(E\left(\frac{P}{P^\$}\right), Y).$$ (5)

Therefore, the impact of fluctuations in v on imports is insignificant and the main source of instability for imports is fluctuations in e. However, e is most stable when E is most stable. Therefore, the appropriate policy is pegging R only to the dollar. That is, the policy maker should choose $\alpha = 1$ so that fluctuations in E are reduced to zero and, thus, fluctuations in imports are minimized.

On the other hand, estimation results might indicate that the elasticity of imports with respect to v is significant but the elasticity with respect to e is insignificant. Then following substitution for v from (4), the import function in (3) effectively reduces to

$$M = f(V\left(\frac{P}{P^\epsilon}\right), Y).$$ (6)

In this case, the impact of fluctuations in e on imports is insignificant and the main source of instability for imports is fluctuations in v. But v is most stable, when V is most stable. Thus, the appropriate policy is pegging R only to the euro. The policy maker should choose $\alpha = 0$ so that fluctuations in V are reduced to zero and fluctuations in imports are minimized.

The upshot of the foregoing arguments is that, in some cases, pegging to a currency basket may be redundant. A peg to a single currency (the dollar) may do just as well in order to achieve greater external stability. This may be the case if the $\$-R$ exchange rate is the significant source of instability but the ϵ-R exchange rate is not.

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[9] Those elasticities are $\dfrac{dM}{M} \bigg/ \dfrac{de}{e}$ and $\dfrac{dM}{M} \bigg/ \dfrac{dv}{v}$. Derivation of elasticities with respect to e and v is explained in Appendix II.

What if we find that both elasticities with respect to e and v are statistically significant? Then, as shown in Appendix II, the weight of the dollar and the euro in the currency basket should be chosen such that the combined impact of fluctuations in the nominal exchange rates, E and V, is minimized, so fluctuations in imports are minimized.

In order to see what is the case for the GCC external aggregates, we proceed with estimation of the relevant elasticities for the aggregated trade account of the GCC countries in the next section.

III. REGRESSIONS

A. Regression Specification

We estimate the model by using the first-difference regression equation below:

$$ln(dependent\ variable)_t - ln(dependent\ variable)_{t-1} =$$
$$c_0 + c_1\ (ln\ e_t - ln\ e_{t-1}) + c_2(ln\ v_t - ln\ v_{t-1}) + c_3(ln\ Y_t - ln\ Y_{t-1}). \tag{7}$$

In the foregoing equation, t refers to time subscript, and, as shown in Appendix I, c_1, c_2, and c_3 refer to elasticities with respect to e, v, and Y, respectively. The dependent variable is the selected component of trade and Y stands, as appropriate, for the GCC aggregative GDP, the U.S. GDP, the euro zone GDP, or the world GDP. The regressions are run for the period 1987-2001, based on annual data. That regression period is chosen on the basis of the arguments and observations presented in Appendix I. The methodology used to derive the necessary aggregative data and the data sources are also explained in Appendix I.

B. Regression Results

The main regression results, selected on the basis of their statistical robustness, are presented in Table 1. We present the most robust results where the value of α is in the feasible range (between zero and one, $0 \leq \alpha \leq 1$).

The results in Table 1 clearly indicate a dollar bias to minimize instability of trade aggregates.[10] The nagging question persists about the nonoil exports; although the regression results are insignificant, stability of that trade aggregate might be improved under a basket peg with nearly equal weights for the dollar and the euro ($\alpha = 0.47$).

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[10] Kuwaiti dinar's exchange rate with the dollar varied during 1987-2001 and this somewhat reduces the robustness of the regression results for that period. Nevertheless, following the war, Kuwait followed a very narrowly flexible peg to the dollar. The average dollar-to-Kuwaiti dinar rate during 1992-2001 was about 3.32 and the variability around that average was 1.2 percent. It is interesting to note that, in a recent study by Erbaş (2002), similar regression results have shown that Kuwait's external trade aggregates might be more stable under a constant dollar peg also.

Table 1. The GCC Aggregative Elasticity Estimates (c_1, c_2, c_3)
and the Implied Value of $\alpha*$ 1/

1987–2001	c_0	c_1	c_2	c_3	$\alpha* = c_1/(c_1+c_2)$	Implied Peg
Imports from U.S. (Y = GCC GDP)						
Coefficient estimate	-0.02	-1.09	-0.04	1.21	0.96	$ (?)
t-statistic	-0.53	-0.61	-0.15	3.50		
Imports from the world (Y = GCC GDP)						
Coefficient estimate	0.04	-0.45	-0.10	0.11	0.81	$ (?)
t-statistic	1.23	-0.29	-0.43	0.36		
Oil exports to the world (Y = World GDP)						
Coefficient estimate	-0.13	-8.36	0.92	2.51	1.00	$
t-statistic	-1.30	-2.21	1.00	1.33		
Exports to U.S. (Y = U.S. GDP)						
Coefficient estimate	-0.11	-8.53	0.19	1.05	1.00	$
t-statistic	-0.81	-2.36	0.29	0.26		
Exports to the world (Y = World GDP)						
Coefficient estimate	-0.08	-6.22	0.90	2.16	1.00	$
t-statistic	-1.10	-2.25	1.33	1.57		
Non-oil exports to the world (Y + World GDP)						
Coefficient estimate	0.08	0.28	0.32	1.29	0.47	Basket (?)
t-statistic	2.34	0.22	1.04	2.05		
Trade balance with the world (Y = World GDP)						
Coefficient estimate	-0.38	-18.28	3.78	9.21	1.00	$
t-statistic	-1.66	-2.14	1.82	2.16		
Trade balance with the world (Y = GCC GDP)						
Coefficient estimate	-0.17	1.30	0.09	5.86	0.93	$ (?)
t-statistic	-1.23	0.21	0.09	4.85		

Source: IMF staff estimates.

1/ (?) Means that the regression results are inconclusive (both c_1, c_2 estimates are statistically insignificant).

The broad conclusion from the estimation results is that, under the external stability criterion, the prevailing dollar peg may have performed just as well as a dollar-euro basket peg as far as the GCC trade account is concerned. If that criterion is the overriding one, at present, the GCC decision to formally peg the individual GCC currencies to the dollar has merit.

In the next section, we examine the impact of the dollar peg and the dollar-euro basket peg on competitiveness of nonoil exports.

IV. STABILITY AND COMPETITIVENESS

In the foregoing sections, we have used the stability criterion to make a judgment on the choice of the exchange rate regime for the incipient GCC monetary union. This criterion is rather narrow. Nevertheless, it is justified in the case of the GCC because GCC exports are not diversified and are largely made up of dollar-denominated oil exports. Furthermore, a large portion of financial wealth has been held in dollars during the estimation period. Consequently, in the GCC countries, the overriding concern in choosing the dollar peg has been external stability, in tandem with the credibility of the exchange rate stance. However, in more diversified economies, in addition to stability, competitiveness of exports in international markets is a crucial issue in deciding on the appropriate exchange rate regime.

In this section, we extend the present model and argue that a trade-off might exist between stability and competitiveness. In the case of the GCC, our focus on the competitiveness of exports is forward-looking, with a view to increasing nonoil exports through nonoil sector growth and economic diversification.

Accordingly, let us consider the export function below:

$$X = h(e, v, Y^f), \qquad (8)$$

where X is exports and Y^f is foreign GDP, and e and v are as defined in (4) above. This export function is very similar to the import function in (4). All the arguments that follow from (3) and (4) apply to the case of exports also. As before, we base our examination of competitiveness under the dollar peg and the dollar-euro basket peg on the nominal exchange rates, E and V (Appendix III).
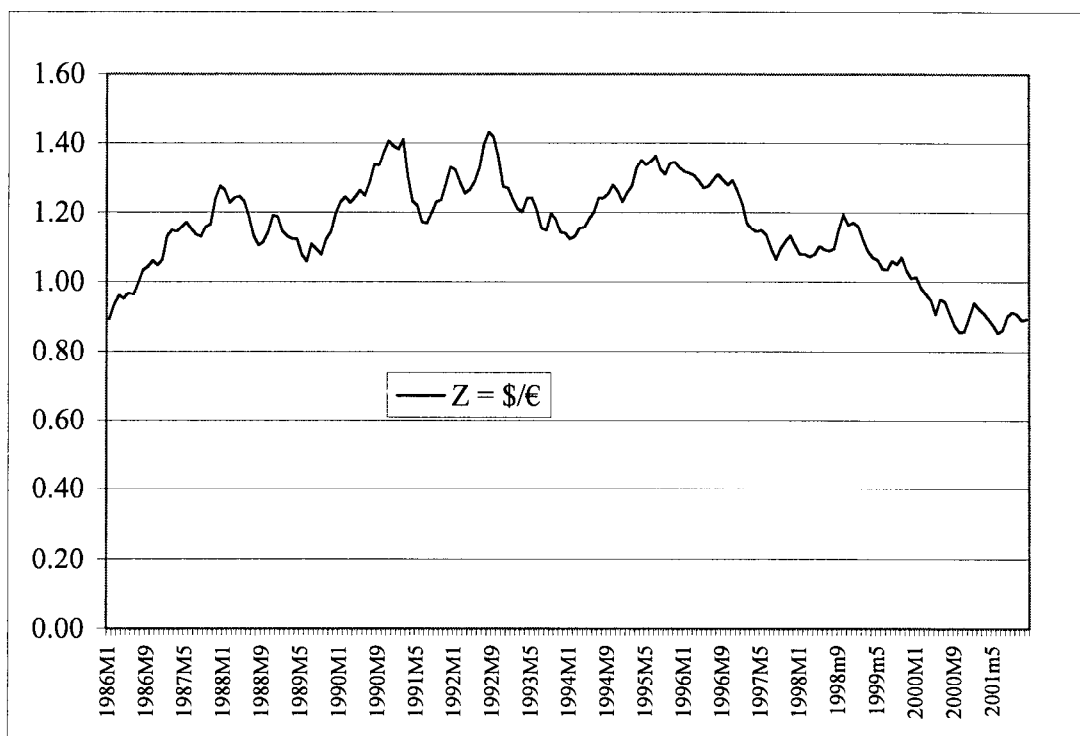
Let us first look at what the dollar-euro basket peg implies for competitiveness. Recall that in (1), we defined the basket peg rule as

$$\sigma(R) = \alpha(\$) + (1-\alpha)(\text{€}).$$

In view of the discussion that will follow, it is also important to recall that, under the basket peg rule, $E = \$/R$ and $V = €/R$ are both *variable*, because the $\$-€$ exchange rate, Z, is variable; as Z varies, so do E and V.[11]

Figure 1 depicts the behavior of $Z = \$/€$ on a monthly basis during the period 1986-2001. The dollar remained appreciated or depreciated relative to the euro for extended periods. Of course, during those periods, Z continued to fluctuate on a short-term basis, as shown in that figure. The behavior of Z over the last twenty years reveals the two considerations relevant for choosing the dollar peg or the dollar-euro basket peg.

Figure 1. Monthly Nominal Dollar-to-Euro Exchange Rate (Z), 1986–2001

The first consideration is *stability*, as discussed in the previous sections. The second consideration is *competitiveness*, which is the focus of this section. The dollar remained appreciated or depreciated relative to the euro for extended periods (Figure 1). Since the GCC currencies were pegged to the dollar, those countries lost competitiveness in the euro zone markets during the periods in which the dollar was appreciated relative to the euro, and, gained competitiveness in the euro zone markets when the dollar was depreciated relative to the euro.

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[11] See the arguments following (3) above.

As an illustration, let us consider the following numerical example. Assume that, initially, the $-€ exchange rate, Z, is unity, $\sigma = 0.25$. Under the dollar peg ($\alpha = 1$), using (1), the initial values of E and V can be calculated as shown in the first column of Table 2.

Table 2. Example on Competitiveness under the Dollar Peg

	$\alpha = 1$		
	Initial Position	Dollar Appreciates	Dollar Depreciates
$Z = \$/€$	1.00	0.90	1.10
$E = \$/R$	0.25	0.25	0.25
$V = €/R$	0.25	0.28	0.23

Source: Staff calculations.

Suppose that the dollar appreciates relative to the euro ($Z < 1$) for an extended period, as shown in the second column of Table 2. This implies a loss in competitiveness in the euro zone markets, while competitiveness in the U.S. market remains unaffected. On the other hand, if the dollar depreciates ($Z > 1$) as shown in the third column of Table 2, this implies an improvement in competitiveness in the euro zone, while competitiveness in the U.S. remains unaffected.

Now assume that the GCC currency is pegged to the dollar-euro basket and the optimal value of α is 0.5, as shown in Table 3. Under the basket peg, if the dollar appreciates with respect to the euro, then the dollar appreciates with respect to R but the euro depreciates with respect to R (Column 2), therefore, there is a gain in competitiveness in the dollar zone but a loss in competitiveness in the euro zone. If the dollar depreciates relative to the euro (Column 3), then the dollar depreciates but the euro appreciates with respect to R, therefore, there is a loss of competitiveness in the dollar zone but a gain in competitiveness in the euro zone. If such exchange movements persist for extended periods, then whether total exports rise or fall during such periods depends on the relative significance of the U.S. and euro zone markets for GCC exports. If the dollar appreciates but the U.S. market dominates the euro zone market for GCC exports, even though exports to the euro zone decline, increase in exports to the U.S. might more than compensate the loss in the euro zone markets, and, as a result, total exports might increase. The arguments are reversed when the dollar depreciates relative to the euro. Therefore, under the basket peg, it is not possible to tell *a priori* that total exports will rise or fall relative to the initial position as the dollar remains appreciated or depreciated for an extended period.

Table 3. Example on Competitiveness under the Dollar-Euro Basket Peg

	$\alpha = 0.5$		
	Initial Position	Dollar Appreciates	Dollar Depreciates
$Z = \$/€$	1.00	0.90	1.10
$E = \$/R$	0.25	0.24	0.26
$V = €/R$	0.25	0.26	0.24

Source: Staff calculations.

If the GCC currency could be pegged only to the euro during the periods in which dollar was appreciated relative to the euro, and, pegged only to the dollar during the periods in which the dollar was depreciated relative to the euro, then, competitiveness in either the euro zone or the U.S. markets would be enhanced. This requires a switch in the peg of the home currency from the dollar to the euro (or the other way around)—or, at least adjustments in the value of α—as the dollar remains appreciated or depreciated for extended periods. Such peg switches on a discretionary basis can pose a difficult currency management problem and, worse, they may undermine the credibility of the GCC exchange policy stance.[12] Therefore, a peg to a two-currency basket—the rule in (1)—may be a reasonable compromise between the policy objectives of stability and competitiveness. A peg to the dollar-euro baskets—with the appropriate choice of the value of α—may not only enhance competitiveness of exports but also in higher short run stability.

The foregoing observations indicate that a more flexible exchange peg arrangement like the peg to the dollar-euro basket than the peg only to the dollar may have a positive impact on maintaining competitiveness of exports. The estimation results in Table 1 are backward looking to a period during which the GCC exports were not diversified and consisted mostly of oil exports for which stability was the overriding concern. Therefore, in the case of the GCC, it is likely that the dollar peg has resulted in greater external stability without a significant sacrifice in competitiveness.

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[12] Is it possible to devise an exchange regime that might enable such peg switches through a market process without intervention by the policymaker? Oppers (2000) argues that under a *dual currency peg regime* such peg switches would occur through the market based arbitrage process. Under a dual currency peg, the home currency would be pegged both the dollar and the euro at fixed rates.

In the long run, however, as the GCC exports and external financial portfolios become more diversified (with an increased share of non-dollar denominated assets), the need to be competitive in the world markets can become more compelling. Then, more flexible exchange rate policies than the dollar peg might become desirable. A conservative transitional strategy may be to start with a conventional peg to a two-or a multi-currency basket depending on the GCC trade shares and foreign asset composition. Beyond that, even more flexible exchange rate arrangements might be pursued to maintain greater competitiveness in international markets.

V. CONCLUSIONS

Choice of exchange rate regime for the incipient GCC monetary union is perhaps the most fundamental component of trade policy. Under the stability criterion, our estimates indicate that the prevailing dollar peg dominates the dollar-euro basket pegs. The dollar peg will do just as well as the dollar-euro basket peg. This conclusion reflects the fact that, for most of the major components of the GCC trade account aggregates, our elasticity estimates for the $-R$ REER (e) are statistically significant but the elasticity estimates for the $€-R$ REER (v) are insignificant. This means that the main source of instability for the trade account during the estimation period has been the exchange rate with the dollar. If pegging to the dollar already minimizes this instability, then there are no significant gains that can be achieved by adopting the dollar-euro basket peg. Furthermore, maintaining the single currency peg to the dollar leaves the public and the policy maker on already familiar grounds, addressing other policy considerations in choosing an appropriate peg in addition to stability. Also, during the estimation period, GCC exports were not diversified and the share of nonoil exports in total was small. Therefore, so far, the dollar peg may have achieved the primary objective of external stability without a great sacrifice from the competitiveness of nonoil exports. Our estimation results under the stability criterion support the present GCC consensus on staying with the dollar peg for the time being.

However, it is noteworthy that the present GCC consensus is in contrast to the recent trend of moving from fixed exchange pegs to floating regimes, observed in many countries around the world (including the oil exporters Iran, Venezuela, and Nigeria) (IMF 2002). Those countries, however, have more diversified economies, with sizeable nonoil sectors and exports. In time, as the GCC economies become more diversified and the shares of nonoil exports and non-dollar external assets rise, a more flexible exchange rate regime than the single currency peg might be desirable for the GCC monetary union in order to ensure greater stability of financial assets and competitiveness of non-oil exports. A basket peg, including but not limited to a dollar-euro basket, might serve as a cautious transitional strategy toward an even more flexible exchange rate policy, as warranted by the speed and degree of diversification within the GCC zone.[13]

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[13] In order to make a judgment on the appropriateness of a dollar-euro basket peg for the GCC, we think more time is needed for the euro to prove itself on the ground as a competitive international currency of intervention and reserves.

A basket peg with a large dollar weight may serve two purposes: first, continuing maintaining a strong correlation between the GCC currency and the U.S. dollar, to the extent international oil trade continues to be denominated in dollars and financial wealth is held in dollars; secondly, achieving a degree of exchange rate flexibility that may be desirable to maintain international competitiveness of nonoil exports.

In this paper, we have considered the impact on external stability competitiveness of a single policy instrument, namely, the choice of the exchange rate peg. Achieving many external policy objectives (credibility of the exchange rate stance, stability, competitiveness) with a single instrument is not feasible. Exchange rate flexibility needs to be supported by the appropriate policies to ensure cost competitiveness, which requires wage flexibility. Therefore, labor market reforms that aim at absorbing the rapidly growing indigenous labor force into the nonoil sector need to be guided by the goal of economic diversification through increasing competitiveness of nonoil exports in the future.

An alternative exchange rate arrangement that might emerge in the context of the GCC monetary union should be guided by these considerations.

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APPENDIX I

DATA SET AND PARAMETER SPECIFICATIONS

With the exception of Kuwait, all GCC currencies were pegged to the dollar at a constant rate throughout 1987–2001, so the cross exchange rates between the GCC currencies were constant.[14] Consequently, during 1987–2001, it is possible to take a given GCC country's currency and assume that the dollar-to-GCC currency rate, E, is the rate that prevailed for that given GCC country's rate. Then, aggregation for the GCC for the trade aggregates and GDP can be carried out at that rate. We chose that rate as the dollar-to-UAE dirham rate (0.272). Then, all nominal GCC trade aggregates and nominal aggregative GCC GDP are calculated by using the aggregative dollar values converted at $E = 0.272$. Given E, the euro-to-GCC currency rate is calculated as $V = €/R = (€/\$)(\$/R) = E/Z, Z = €/\$$.

We define the aggregative GCC price level as

$$P = \sum_{k=1}^{6} w_k P_k \; ; \; w_k = \frac{GDP(\$)_k}{\sum_{k=1}^{6} GDP(\$)_k} \; ; \tag{9}$$

where

$k = $ Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, UAE;
$GDP(\$)_k = $ GDP of country k measured in dollars;
$P_k = $ CPI of country k.

Then, the REER between the dollar and the GCC currency, R, is calculated as $e = EP/P^\$$, and, the REER between the euro and the GCU is calculated as $v = VP/P^€$; $P^\$$ is the U.S. CPI and $P^€$ is the euro zone CPI. Data series on $P^€$ for 1991–2001 is provided by *Eurostat* and for 1986–90 by *World Economic Outlook (WEO)*. The sources of data are the IMF, WEO, *Direction of Trade Statistics* (DOT), *International Financial Statistics* (IFS), and *Eurostat*. The dollar-to-euro exchange rates for 1986–98 are based on WEO calculations from IMF's Research Department, and, the 1999–2001 rates are the actual rates.

The real GCC aggregative magnitudes are obtained by dividing the nominal aggregative magnitudes by the aggregative GCC price level, P, as calculated in (9). The real magnitudes for the U.S. GDP and the euro zone GDP are the given WEO indexes for those zones. Finally, data for the world GDP is available in dollars. The real world GDP is calculated by dividing the nominal magnitude by the GDP weighted average of the dollar and euro zone price levels.

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[14] As noted earlier, Kuwait followed a narrowly flexible peg to the dollar during the estimation period.

APPENDIX II

A FORMALIZATION OF THE MODEL

Starting from the general import function shown in expression (3), let us assume a log-linear specification for that import function as below

$$\ln M_t = c_0 + c_1 \ln e_t + c_2 \ln v_t + c_3 \ln Y_t + u_t, \tag{10}$$

where u_t is a random error term. Then, the percentage change in M can be calculated as

$$\dot{M} = c_1 \dot{e} + c_2 \dot{v} + c_3 \dot{Y}$$
$$where \tag{11}$$
$$\dot{M} = \frac{dM}{M}; \dot{e} = \frac{de}{e}; \dot{v} = \frac{dv}{v}; \dot{Y} = \frac{dY}{Y}.$$

Notice that c_1, c_2 and c_3 are the elasticities of M with respect to e, v and Y. Using the definitions for e and v in expression (4), through the logarithmic differentiation of those terms, we can show that

$$\dot{e} = \dot{E} + \pi - \pi^{\$} \; ; \dot{v} = \dot{V} + \pi - \pi^{\epsilon} \; ;$$

$$\dot{E} = \frac{dE}{dt}\frac{1}{E}; \dot{V} = \frac{dV}{dt}\frac{1}{V}; \pi = \frac{dP}{dt}\frac{1}{P}; \pi^{\$} = \frac{dP^{\$}}{dt}\frac{1}{P^{\$}}; \pi^{\epsilon} = \frac{dP^{\epsilon}}{dt}\frac{1}{P^{\epsilon}}. \tag{12}$$

Using the definition for the basket peg rule in (1), we can derive E and V as

$$E = \sigma \frac{Z}{\alpha Z + (1-\alpha)}; V = \sigma \frac{1}{\alpha Z + (1-\alpha)}. \tag{13}$$

Under the simplifying assumption that the initial value of Z is indexed at unity, we can show through logarithmic differentiation of the terms in (13) that, for small variations in Z, the percentage change in E and V can be derived as

$$\dot{E} = (1-\alpha)\dot{Z} \; ; \dot{V} = -\alpha \dot{Z}. \qquad\qquad (14)$$

substitution of (12) and (14) into (11) yields

$$\dot{M} = [c_1 - (c_1 + c_2)\alpha]\dot{Z} + \rho \; ;$$

$$\qquad\qquad\qquad\qquad\qquad\qquad\qquad\qquad\qquad\qquad\qquad\qquad (15)$$

$$\rho = c_1(\pi - \pi^s) + c_2(\pi - \pi^\varepsilon) + c_3 \dot{Y}.$$

It is clear from (15) that the optimal value of α is[15]

$$\alpha^* = \frac{c_1}{c_1 + c_2}. \qquad\qquad (16)$$

How are (15) and (16) to be interpreted? Suppose the values of c_1 and c_2 are estimated. If c_1 is statistically significant but c_2 is not, then the source of the disturbance on M is the $\$$-R REER, or, e. Then, according to the basket peg rule above, $\alpha^* = 1$, that is, R should be pegged only to the dollar. On the other hand, if c_2 is statistically significant and c_1 is not, the source of disturbances on M is the $€$-R REER, or, v. Therefore, $\alpha^* = 0$, that is, the GCU should only be pegged to the euro. Finally, if both c_1 and c_2 are statistically significant, then the value of α should be chosen as in (16).
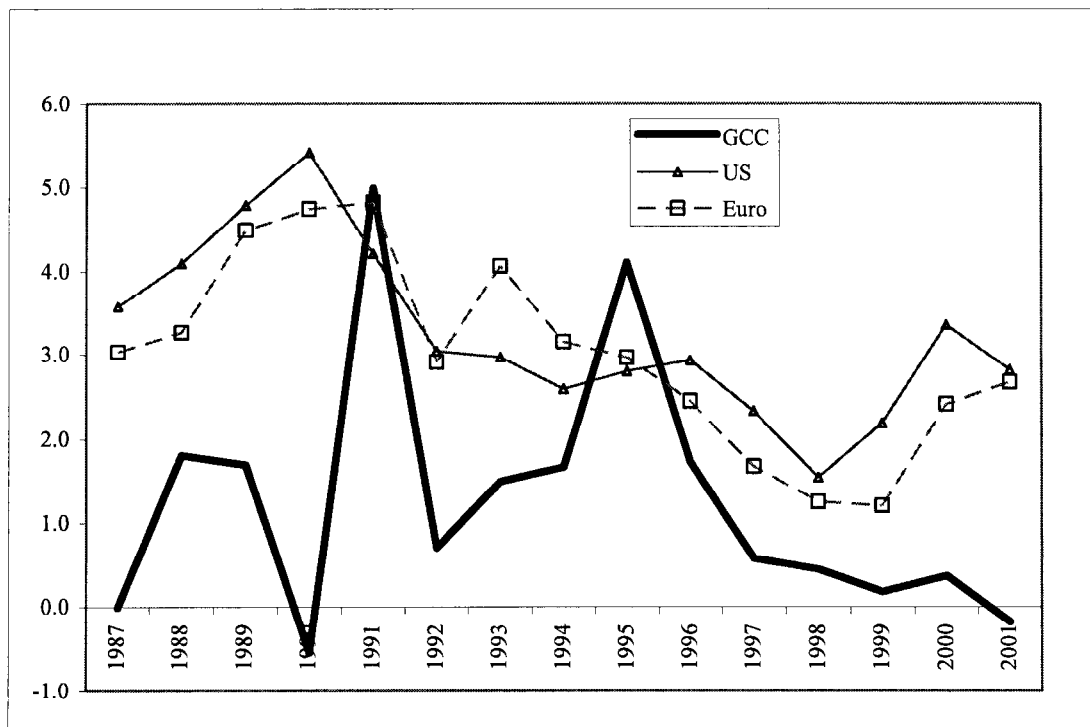
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[15] The value of α that would reduce the disturbance in imports to $\dot{M} = \rho$, that is, a random error term that is beyond the control of the policy maker.

APPENDIX III

PEG TO A TWO-CURRENCY BASKET: THE CONTROL PARAMETER

In Section II, we argued that, under a peg to the dollar-euro basket, the policy variable that can be controlled by the policy maker is α, that is, the weight of the dollar (hence, the weight of the euro, 1-α) in the currency basket. This argument implies that the policymaker does not control the other variables that determine the REERs, namely, domestic and foreign price movements. This argument has justification in the case of the GCC because the inflation patterns in the GCC, the U.S., and the euro zone were similar to each other during the estimation period, as assumed in this paper. Figure 2 shows the behavior of the inflation rates for the GCC, U.S., and the euro zone. Inflation rates in the three zones have followed

Figure 2. Yearly Inflation Rates in the GCC, U.S., and Euro Zone, 1987–2001

a similar pattern. It is not surprising that the inflation rate in the GCC reflects the U.S. inflation rate in view of the peg to the dollar. It is also not surprising that the U.S. and euro inflation rates behave very similarly, since both currencies went through similar episodes of price shocks and fiscal and monetary policies that aimed at price stability and low inflation. Figure 3 shows the percentage changes in estimated REER of the dollar and the euro with respect to R (e and v). As expected, that chart indicates that the fluctuations in $e = EP/P^\$$ were much less pronounced than the fluctuations in $v = VP/P^\epsilon$ during the estimation period, reflecting the peg to the dollar. Finally, Figure 4 shows the close correspondence between the

movements in the percentage change in v and percentage change in V. The fluctuations in v were largely attributable to the fluctuations in V, that is, the nominal $€$-R exchange rate.

Foregoing observations indicate that there is merit in focusing on α as the policy parameter under the control of the policymaker. With this empirically justified assumption, it is possible to discuss competitiveness of GCC in the international markets in terms of the nominal exchange rates, Z, E, and V.

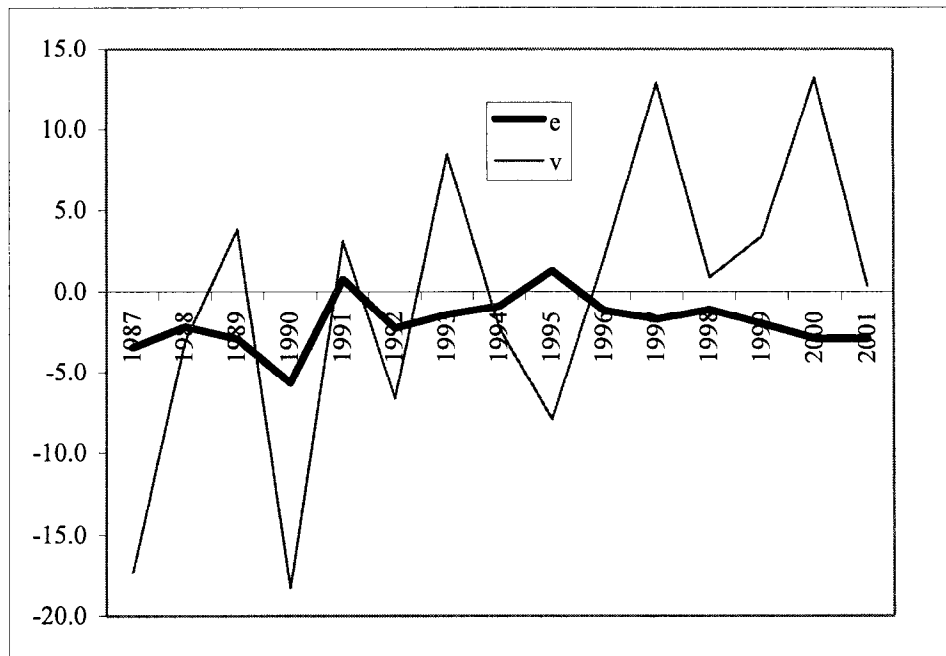Figure 3. Yearly Percentage Variation in e and v, 1987–2001

Figure 4. Yearly Percentage Variation in V (Real) and V (Nominal)
Euro-to-GCC Currency Rates, 1987–2001