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Towards Unifying Monetary policies in GCC Countries

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Towards Unifying Monetary Policies in GCC Countries

M. M. Metwally & Saif S. Alsowaidi

Members of the Gulf Cooperation Council (GCC) are trying to unify their economic policies to reach a higher stager of economic integration. It is acknowledged that both monetary and fiscal policies have an assertive role in these countries. Moreover, with the plan laid down for a single currency, stability in both policies, even at this stage, becomes very important. This paper tries to throw some light on potential problems that might face the harmonization of monetary policies in GCC countries. It examines trends in money supply, money demand and velocity. Statistical results seem to suggest that the growth of the organized money market differs between various members and there are wide differences in the money multipliers of the GCC members, requiring further attention if monetary policy is to be binding. Moreover, income velocity of money is found to be significantly different. The coefficients of variation of velocity, also, differ substantially between the members of the GCC. Regression results suggest that the magnitude of elasticity of demand for money with respect to income, domestic interest rate and international rate, are quite different amongst the member states.

INTRODUCTION

Members of the Gulf Cooperation Council (GCC), namely: Bahrain, Kuwait, Qatar, Oman, Saudi Arabia and the United Arab Emirates, are continuously moving towards achieving full benefit of economic integration (Peterson, 1988). They have endorsed a customs union in 2003 and plan to introduce a single currency by the year 2010. Recently, the member states raised the question of harmonizing their economic policies and in particular their monetary policy (Fasano et al., 2003 and Laabas and Limam, 2002). This would require an investigation to determine if there are wide differences in the scope of monetary policy that would make it difficult for GCC countries to pursue a unified policy.

The purpose of the paper is to examine and compare the performances of the monetary sector of the individual members of the GCC over the period 1982-2002. This period was chosen for two reasons: First, the GCC was established in 1982. Secondly the most recent data available, at the time of writing this paper, relate to 2002. The paper is divided into five sections. The relative importance of the monetised sector using various criteria, is discussed in section I. Section II examines money multipliers, whilst section III, considers the variation of velocity of

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circulation in the member states. Section IV, estimates demand for money and demand elasticity with respect to relevant independent variables are compared. Section V, concludes the paper and summarizes the main findings.

RELATIVE IMPORTANCE OF THE MONETIZED SECTOR IN GCC COUNTRIES

Central banks in the GCC member states lack autonomy. They do not enjoy independence in the sense of being immune from the interests and influence of governments (Chabot, 1999) and are not expected to conduct monetary policy in a manner so as to avoid uncertainties (Cecchetti and Krause, 2003). The objectives of central banks in the GCC region, as stated by laws in member states, give priority to maintaining the value of the domestic currency, and contributing to economic growth. However, there are differences amongst the member states regarding monetary instruments used. For example, Kuwait and Oman impose ceiling on interest rate. Also, government agencies or supported banks in all GCC states, except Kuwait, extend loans at subsidized interest rates. Moreover, reserve requirements seem to differ substantially between GCC members. The average ratio of reserve requirements is about 5% in Bahrain, Kuwait and Oman, while it is about 2.75% in Qatar, and ranges from 1-14% in Saudi Arabia and the UAE (Fasano et al., 2003). Furthermore, there is a major difference in public financial instruments. The UAE stands alone in not issuing government debt instrument in the domestic market. Central banks in all other member states sell T-bills and government bonds on behalf of governments. In addition, Private lenders seem to play a much more significant role in Saudi Arabia than in other GCC members (Abdeen and Shook, 1984). Since these private lenders are not subject to the direct control of the monetary authorities, the effect of the central bank's actions on the unorganised market would be marginal.

One of the common features of monetary policy in the GCC is the exchange rate and capital mobility. However, business cycles may have diverse implications of the economies of member states (Laabas and Limam, 2002).

Table (1) presents some financial indicators for member states of the GCC.

Table 1
Selected Financial Indicators for the GCC Countries, %

	Checking/M1			*Quasi money/M2*			*Reserve of banks/M2*		
	1982	*1989*	*2002*	*1982*	*1989*	*2002*	*1982*	*1989*	*2002*
Bahrain	68.37	60.0	78.0	25.40	80.0	77.6	6.91	5.07	8.34
Kuwait	73.30	65.6	78.6	78.13	92.81	78.57	17.8	1.04	1.5
Oman	47.83	46.87	62.46	56.42	67.59	72.07	25.33	10.39	5.94
Qatar	69.67	63.41	69.45	55.70	76.12	80.44	2.16	3.64	6.43
Saudi Arabia	58.9	62.93	74.17	32.32	48.87	46.9	8.73	6.52	11.5
UAE	69.3	67.33	74.63	71.05	75.02	72.9	9.04	9.43	14.8

Source: IFS, various issues.

The ratio of checking to M1 has increased in all member states of the GCC between 1989 and 2002; stressing the diminishing role of currency. The ratio of quasi money to M2 is much

lower in Saudi Arabia than in all other members. This may be due to the nature of return on quasi money. If one compares the ratio for 2002 with that for 1982, one would notice that the ratio did not change much in Kuwait and UAE while enjoyed a substantial increase in other states, particularly Bahrain. The behavior of the ratio of bank reserves to M2, differed substantially between GCC members over the period 1982-2002. The ratio declined substantially in Kuwait and Oman; increased steadily in Qatar and UAE and was subject to fluctuations in Bahrain and Saudi Arabia. Furthermore, the ratio of foreign deposits to M2 (not shown here) exhibited differentials. For example, in 2002, the ratio was about 25% for Bahrain and Kuwait, and about 18% in Oman and the UAE, while it was 11% in Saudi Arabia, and recorded the least in value Qatar where it was about 7.5%; however that was the most stable ratio, compared to the most volatile ratio which was in the UAE.

The data in Table (2) reveal that the ratio of claims on the private sector to GDP is much higher in Kuwait, Bahrain, and the UAE than in other members. If one were to use this indicator as a measure of the credit channel, then monetary policy would be more powerful in affecting economic activities in the high-ratio members. The evidence is complemented by the ratio of claims on the public sector to total credit. Bahrain, Oman and the UAE have relied less on domestic economic activities to contribute resources to finance their governments. On the other hand, Qatar shows a dominance of the public sector in the credit market, a feature shared by the public sector in Kuwait. Looking at this from a monetary union perspective, this observation would have different implications on financing government budget as well as on the size of the credit channel in transmitting monetary policy.

Table 2
Ratios of Domestic Claims

	claims on private/GDP			*claims on government/GDP*			*claims on govt. to total claims*		
	1982	*1989*	*2002*	*1982*	*1989*	*2002*	*1982*	*1989*	*2002*
Bahrain	33.36	47.51	55.61	1.91	9.48	10.79	5.42	16.64	16.25
Kuwait	72.17	73.7	65.04	5.13	31.86	38.52	6.63	30.18	37.2
Oman	14.43	22.86	38.58	0	0.65	4.57	0	2.78	10.6
Qatar	20.13	44.68	29.76	20.12	44.68	34.3	7.31	29.68	46.47
SA	31.95	56.55	29.11	0.3	1.42	21.32	1.07	3.93	24.78
UAE	28.2	45.62	49.67	4.05	7.95	7.77	12.56	14.85	13.53

Source: IFS, and central banks bulletins, various issues.

MONEY MULTIPLIER

Money supply multiplier determines stability of the relationship between the supply of money and the monetary base. Looking at this from the view of an economic region, even if one discounts the effectiveness of monetary policy in the long term, the economy would be moved as monetary policy funnels, through its transmission channels, into the economy. However, if each member state were affected in a significantly asymmetric way, the level of growth would differ, casting serious doubts on the benefits of each member from a common monetary policy.

The performance of the monetary sector in the GCC members may be assessed through the money multiplier. To examine this, define:

C = currency in circulation
D_1 = demand deposits
D_2 = time and saving deposits
R = banks reserve

Furthermore, define the following ratios for each GCC member over the period 1982-2002:

$$\alpha = C / D_1 \quad ...(1)$$
$$\beta = D_2 / D_1 \quad ...(2)$$
$$\gamma = R / (D_1 + D_2) \quad ...(3)$$

The money multiplier k is defined as:

$$k = M / B \quad ...(4)$$

Where

M = stock of money (M1 or M2)
B = monetary base or C + R

Substituting the above ratios in the definition of the multiplier, we obtain:

$$k = M/B = M / (C + R) = (C + D_1) / (C + R)$$
$$k = (1 + \alpha) / [\gamma (1 + \beta) + \alpha] \quad ...(5)$$

The values of the above ratios are reported in Table (3), where we observe that the ratio of currency to demand deposits (α) in Oman, though has declined substantially, still the highest. This suggests that, although the ratio of currency to demand deposits has increased in all GCC members, people in Oman and Qatar, would seem to have a relatively high preference for currency. It also suggests that these two member states have a lower degree of monetisation and a smaller banking sector than other members of the integration. Meanwhile, the same ratio has increased substantially in Kuwait and Saudi Arabia where demand deposits represent more than 25% of M1. For Saudi Arabia, the figures suggest a significant shift in preferences for demand deposits versus currency, and a substantial expansion in the banking sector. From the view of the monetary authorities, the decrease in the ratio of currency to demand deposits, strengthen the effect of a policy change on commercial banks as they accumulate more reserves.

The ratio of time deposits to demand deposits (β) varies significantly between the member states of GCC. Although it has been stable in Saudi Arabia, it did increase steadily in Oman and Qatar, and fluctuated in other GCC members, where the decline has been strong in the case of Bahrain, Kuwait and the UAE. The β ratio depends, among other things, on the interest rates paid on saving accounts and on time deposits (in domestic and foreign currencies), and interest paid on other competitive alternatives (Friedman, 1970). Lately, as interest rate on quasi money declined, where it reached 1% in some cases, saving and time deposits have been losing ground, except in Saudi Arabia, where interest rate is having limited effect (Metwally, 1989; Campbell, 1996).

UAE has a much higher ratio of reserves to total deposits (γ) than other GCC members. This ratio depends very much on the reserve requirements for demand and time deposit since commercial banks are likely to expand their loans to the maximum level permitted by their reserve assets. The data in table 3 show that this ratio has been declining steadily in the cases of

Kuwait, Oman and Saudi Arabia, increasing in the cases of Qatar and the UAE while fluctuating in the case of Bahrain since 1982. The United Arab Emirates experienced a sharp rise in this ratio after 1994.

The values of the money multiplier declined steadily in the cases of Qatar and UAE, increased steadily in the cases of Kuwait and Saudi Arabia while were subject to substantial fluctuations in the cases of Bahrain and Oman. The UAE had the lowest value while Kuwait had the highest value of money multiplier in 2001. This value was similar in both Bahrain and Oman in the same year.

The wide difference in money multipliers of the GCC members would appear to suggest that an application of a unified monetary policy for the integration as a whole could present difficulties. Special consideration would need to be given to the monetary impact of a given change in money liabilities in the case of the UAE.

Table 3
Money Ratios and Money Multipliers

	α			β			γ			k		
	1982	*1989*	*2002*	*1982*	*1989*	*2002*	*1982*	*1989*	*2002*	*1982*	*1989*	*2002*
Bahrain	0.462	0.668	0.281	1.300	6.625	3.575	0.154	0.055	0.088	1.791	0.905	1.873
Kuwait	0.364	0.524	0.272	3.476	7.703	4.665	0.178	0.009	0.015	1.171	2.498	3.54
Oman	1.090	1.823	0.601	2.707	4.449	4.131	0.328	0.125	0.066	0.906	1.877	2.05
Qatar	0.435	0.577	0.440	1.805	5.026	5.92	0.024	0.034	0.068	2.857	2.017	1.582
SA	0.698	0.589	0.347	0.804	1.531	1.19	0.121	0.081	0.133	1.853	2.001	2.11
UAE	0.443	0.485	0.34	3.542	7.003	3.60	0.099	0.100	0.159	1.616	1.155	1.25

Domestic liquidity is another aspect that need to be examined when considering differences in monetary policies of the GCC countries. Table (4) shows that domestic liquidity has been affected differently across the member states. Net foreign assets can be singled out to have a diverse and heterogeneous influence on domestic liquidity. For example, although net foreign assets have been more stable and induced an increase in money supply in Bahrain and the UAE, they have been less stable in the other four members. This may unveil the underlaying degree of sensitivity of money supply to capital inflow and preferences by banks. A central monetary authority would have to take variations in net foreign assets seriously as they feed in money multiplier.

Table 4
Factors Affecting Domestic Liquidity, %

	Net foreign assets		*Net domestic credit*		*Others*	
	2001	*2002*	*2001*	*2002*	*2001*	*2002*
Bahrain	7.45	1.15	6.32	17.12	-14.36	3.03
Kuwait	19	-11.37	7.31	10.55	3.68	5.14
Oman	-5.44	58.02	14.54	-2.54	12.3	15.13
Qatar	2.64	27.81	3.51	4.81	11.25	14.43
Saudi Arabia	2.81	-5.18	10.04	12.81	10.27	-16.87
UAE	4.9	10.14	12.84	11.47	4.65	10.37

Source: Arab Monetary Fund Report, 2003.

VELOCITY

The behavior of velocity has been of interest to economists. This is evident from the relationship between money supply and the level of economic activities. If velocity is constant, then money supply will determine economic activities. On the other hand, if velocity fluctuates in unpredictable manner, monetary authorities would find it difficult to influence or predict the change in GDP as money supply changes. The predictability of the value of velocity contributes to the effectiveness of monetary policy. In addition to policy makers at central bank, the effectiveness of fiscal policy is also influenced by the predictability of velocity. For example, if the value of velocity increases whenever government expenditure increases, and decreases as expenditures decline, then fiscal policy becomes an effective policy tool.

The essential aspect of the monetarists view appears to be the assumption that velocity, rather than the multiplier, is the key relationship in the understanding of microeconomic development in the economy (Bomberger, 1993). It has long been suggested that the quantity theory holds in the long run, though it may not be an appropriate framework for short-run analysis. The quantity theory has also been suggested as the more applicable hypothesis for analysing the monetary problems in less developed economies. Practical considerations may also make it desirable for monetary authorities to base their decisions on a simple hypothesis such as the constant velocity of money (Friedman, 1970).

If one views the GCC region to be one economic block heading toward a unified monetary policy, a common behavior of velocity is important. Then, a change in money supply would have a similar impact on economic activity in each member state.

There are different measures of income velocity, depending on how money is defined and what concept of income is used. The three measures used are:

V_1 = income velocity of currency outside banks

V_2 = income velocity of M1

V_3 = income velocity of M2

Where,

$V_1 = (Y/C)$

$V_2 = (Y/M1)$

$V_3 = (Y/M2)$

and,

Y = nominal GDP or GNI

C = currency outside banks

M1= demand deposits plus currency outside banks

M2= M1 plus quasi money.

The variability of V_1, V_2, and V_3, is computed in terms of the degree of dispersion of each velocity around its mean value. To measure this concept, the coefficient of variation for each V_1, V_2, and V_3, is computed using data covering the period 1991-2002 (based on the availability of published data for some variables). Note that gross national income, GNI, or GDP were used depending on data availability. Results are given in Table (5) which show that the coefficients

of variation of the velocity differ substantially between GCC members, according to the definition used. Thus, Bahrain has the lowest coefficient of variation for V_1 while Saudi Arabia has the lowest coefficient of variation for V_2 and V_3. Qatar, on the other hand, has the highest coefficient of variation for V_1, V_2 and V_3, followed by UAE. These differences reflect variations in the relative growth of currency, demand deposits and quasi-money in various member countries.

A major finding is that all measures of velocity have shown a relatively large degree of instability. This is very much the case in Qatar, and to a lesser degree, in the UAE. The high coefficients of variation in velocity in the GCC countries may be attributed to a number of factors that include:

1. The dependence of members of the GCC on the export of oil makes income vulnerable to fluctuations for which policy makers have limited ability to encounter. Therefore, velocity will change as income changes and money supply doesn't follow with the same magnitude. However, with reliance on reserves and public borrowing, some GCC countries have smoothed the impact of fluctuations in income better than others, assuming fluctuations in oil revenues to be temporary.
2. As a result of fluctuations in income, most GCC countries are subject to greater discrepancies between current and permanent income, implying a greater variability in velocity than in other countries. In periods when measured income was above permanent income, velocity would tend to rise, while when measured income was below permanent income, velocity would tend to fall (Park, 1973).
3. The variability in velocity may also be partly due to the variability in the lag in the adjustment of income money. This variability may be due to the source of exchange in money (eg. the government's borrowing from the central bank, the supply of bank loans etc.). Again shifts in confidence and expectations (largely non-quantifiable, psychological, sociological and political) may account for observed variations in velocity. These expectations may have been fuelled by the three wars erupted in the Gulf region.
4. There is, in addition, a host of factors affecting the behavior of velocity in GCC countries. Traditionally, they include variables that affect demand for real balances such as changes in expected rates of inflation, changes in nominal interest rate, and real income and its structure. In addition, financial innovations that include availability of new money substitutes, and new methods of payments, would have contributed to variability of velocity (Palivos and Wange, 1995; Duca, 1995; Feinman and Porter, 1992; Chowdhury and Wheeler, 1999).

Table 5
Coefficients of Variation of Income Velocity in the GCC, (%)

	V_1	V_2	V_3
Bahrain	10.82	10.57	9.02
Kuwait	15.67	9.84	9.34
Oman	14.51	11.23	15.37
Qatar	25.24	32.07	24.15
Saudi Arabia	14.60	8.60	7.57
UAE	18.5	21.3	22.6

One may argue that, these results suggest that monetary authorities in the GCC can't base their policy decisions on a simple hypothesis such as the concept of a constant velocity of money. Hence, the prediction and economic policies based on Crude Quantity Theory or on the time trend analysis of velocity in the GCC would be subject to substantial error.

DEMAND FOR MONEY

Performance of the monetary sectors of the GCC countries may also be assessed by examining demand for money function and estimating the elasticity. Whether one talks about a single economy or an economic block in which monetary policy is coordinated, stability of money demand is a vital prerequisite for implementing an effective monetary policy. It is for this, the literature on money demand is wide (for a survey, see: Sriram, 2001).

It is expected that demand for real cash balances (M/p) would be positively related to real income (Y), and negatively related to yield on alternative assets (financial and/or real). Real interest rate may be used to represent the yield on financial assets (Arango and Nadiri, 1981; Baba et al., 1992). However, since GCC members are open economies that are characterized with a high degree of international capital mobility, the equation of money demand would have to capture opportunity cost of holding money balances in alternative currency whether locally or internationally (Campbell, 1996; Ericsson et al., 1998). This would particularly be true for those members who may lack adequate domestic financial assets in which wealth maybe held. Thus, it can be assumed that the demand for money in these countries would be influenced by international monetary development reflected in movements of foreign interest rates. In the present analysis, demand for money function takes the conventional form of:

$$M/p = f(Y, i, r)$$

Where,

$$\partial(M/p) / \partial Y > 0$$
$$\partial(M/p) / \partial i < 0$$
$$\partial(M/p) / \partial r < 0$$

Two equations are tested for each member:[1]

$$\text{Model (1): } (M/p)_t = \alpha_0 + \alpha_1 Y_t + \alpha_2 i_t + \alpha_3 r_t + u_t \quad (6)$$

$$\text{Model (2): } (M/p)_2 = \beta_0 + \beta_1 Y_t + \beta_2 i_t + \beta_3 r_t + v_t \quad ...(7)$$

Where

$(M/p)_1$ = volume of real money (M1) in period t

$(M/p)_2$ = volume of real money (M2) in period t

Y_t = real GDP in period t

i_t = real domestic interest rate in period t

r_t = one-year London inter-bank offer rate on US dollar deposits in period t

1. A log-linear model was tested but proved to be inferior in terms of AIC criterion. Also partial adjustment mechanism was tested but did not give better results. Also, d*ue to lack of data (only 19 annual observations were used), it was not possible to use cointegration analysis (Patterson, 2000).*

These equations were estimated utilizing data from International Financial Statistics of the International Monetary Fund. Some data were extracted from other sources such as the Arab Monetary Fund and central bank bulletins. The models were estimated using the method of ordinary least-squares, but in cases where there were apparent problems in serial correlation, the models were re-estimated using a variant of the method Generalised Least Squares (Greene, 2000).

Results of estimating equation (6) for narrow money demand are reported in Table (6).

Table 6
Regression Results for Demand for Narrow Money in the GCC
Model (1): $(M/P)_t = \alpha_0 + \alpha_1 Y_t + \alpha_2 i_t + \alpha_3 r_t + u_t$

	Bahrain	*Kuwait*	*Oman*	*Qatar*	*SA*	*UAE*
α_0	109.544	233.658	199.826	3943.639	-68.393	-11.117
	(1.601)	(1.267)	(4.289)	(5.394)	(-2.570)	(-2.328)
α_1	0.137**	0.177**	0.064**	0.039**	0.435**	0.226
	(6.499)	(8.399)	(8.651)	(2.874)	(9.109)	(8.976)
α_2	-19.724	-11.138	-4.466	-118.140	-0.748	-.335
	(-1.458)	(-.692)	(-.755)	(-1.304)	(-.499)	(-1.310)
α_3	-7.134	-7.481	-1.472	-1.039	-0.141	-.003
	(-.731)	(-.831)	(-.249)	(-.029)	(-.097)	(-1.658)
R^2	0.858	0.856	0.894	0.530	0.879	0.912
F	39.120	26.862	51.463	8.129	46.981	66.917
DW	1.651	1.808	2.050	1.622	1.672	1.844

Figures in parenthesis represent "t" values.
* Statistically significant at (at least) the 5% level of significance.

The values of R^2 and F suggest that the model is a good fit. Also the values of DW statistics clear the fit from any serious problem of serial correlation. Moreover, all coefficients have the correct signs. In specific, the regression results in Table (6) would seem to suggest that:

1. Real income, as expected, is a major of determinant of the demand for narrow money in all GCC members. The t value of the coefficient a_1, is significant at the 1 percent level of significance in all cases except Qatar where it is significant at the 5 percent level of significance.
2. Domestic real interest rates do not seem to exert a significant influence on the demand for money in all members. This result is not surprising given the respect of Islamic values, which prohibit usury, on the economic behavior of many GCC citizens (Metwally, 1989; Campbell, 1996). Darrat and Al-Mutawa (1996) have reported similar findings for the UAE.
3. International interest rates do not seem to have any effect on the narrow demand for money (M1). The t value of the coefficient α_3 is not statistically significant in any of the GCC members. Again, Darrat and Al-Mutawa (1996) have reported similar findings for the UAE. This may be explained by the implications of the peg of most GCC currencies to the dollar on the relationship between domestic and dollar interest rate.

Table (7) reports the regression results for broad money. The values of R^2 and F suggest a better fit than that of narrow money in the case of Bahrain, Qatar and the UAE. All coefficients have the correct signs and the values of DW statistics suggest no serious problems of serial correlation.

Table 7
Regression Results for Demand for Broad Money in the GCC
Model (2): $(M/P)_t = \beta_0 + \beta_1 Y_t + \beta_2 i_t + \beta_3 r_t + u_t$

	Bahrain	*Kuwait*	*Oman*	*Qatar*	*S.A*	*UAE*
β_0	430.124	5306.853	-409.618	7923.903	-136.183	-16.434
	(1.752)	(5.825)	(-1.057)	(2.010)	(-3.000)	(-1.268)
β_1	0.672*	0.282*	0.423*	0.489*	0.873*	0.752*
	(8.128)	(4.086)	(6.851)	(6.733)	(10.731)	(10.989)
β_2	-61.680*	-265.7*	-55.548	-397.016	-1.349	-.848*
	(-2.230)	(-3.343)	(-1.129)	(-.813)	(-.528)	(-2.220)
β_3	-1.985*	-124.8*	-28.290	623.843*	-4.900	-2.156*
	(-2.253)	(-2.807)	(-.575)	(-3.221)	(-1.687)	(-2.787)
R^2	0.877	0.735	0.809	0.836	0.926	0.935
F	43.915	12.999	26.454	32.214	79.771	92.654
DW	1.914	1.837	1.842	1.429	1.828	1.640

Figures in parenthesis represent "t" values.
* Statistically significant at (at least) the 5% level of significance.

The statistical results of Table (7) would seem to suggest that:

1. The demand for broad money in all GCC members is strongly influenced, as expected, by real income. The t-values of the coefficients of the income variable were statistically significant at the 1% level of significance in all members.
2. Domestic real interest rates are significant determinants of the demand for broad money only in cases of Bahrain, Kuwait and UAE. Comparing this result with that for narrow money suggests that financial markets offering substitutability between money and other financial assets are developing fast only in a few GCC countries.
3. International interest rates exert a significant influence on the demand for broad money in all GCC members except Oman and Saudi Arabia. This suggests that international opportunity costs of holding money balances are as important as the domestic counterpart. The significant influence of international interest rate on the demand for broad money (M2) in the economies of the GCC countries can also be attributed to the fact that international capital flows are not subject to major governmental control in any of the GCC countries.

The regression results of Table (6) and Table (7) were used in estimating the elasticity of the demand for (narrow and broad) money with respect to income, domestic interest rates and international interest rates. The results are given in Table (8).

Table 8
Elasticity of Demand for Money in GCC Countries

Elasticity with Respect to:	*Bahrain*	*Kuwait*	*Oman*	*Qatar*	*S.A*	*UAE*
Real Income:						
M1	0.773	0.817	0.573	0.261	1.586	1.730
M2	0.941	0.342	1.165	0.729	1.716	1.356
Domestic interest Rates:						
M1	ns	ns	ns	ns	ns	ns
M2	-0.301	-0.191	ns	ns	ns	-.063
International interest rates:						
M1	ns	ns	ns	ns	ns	ns
M2	-0.011	-0.109	ns	-0.215	ns	-0.201

ns: The regression coefficient related to the variable is not statistically significant

These results suggest that:

1. Income elasticity of demand for broad money is higher than that for narrow money in all member states except Kuwait and the UAE. The broad money income elasticity exceeds unity in Oman, Saudi Arabia and the UAE. UAE experienced the highest income elasticity followed by Saudi Arabia in the case of narrow money, while Saudi Arabia experienced the highest income elasticity followed by UAE in the case of broad money.
2. Demand for narrow money is not sensitive to changes in the domestic or international interest rates in any member state.
3. Demand for broad money is sensitive to changes in the domestic real interest rate only in Bahrain, Kuwait and UAE. However, the elasticity of demand for broad money with respect to this variable is much higher in Bahrain than in Kuwait and UAE.
4. Demand for broad money in UAE is more sensitive to changes in international interest rates than to domestic real interest rate.
5. Both Qatar and the UAE have higher elasticity with respect to international interest rates than Bahrain and Kuwait.

CONCLUSION

In preparation of launching a single currency by the year 2010, central banks in the GCC countries ought to start coordinating monetary policy. The European Union would present a model, where gradual coordination has characterized the launching of the Euro. Based on the analysis of money supply multiplier, velocity of money, demand for money, and elasticity of money, there seems to be an agenda for coordination. Using a conventional estimation of these parameters of monetary policy, we may summarize the findings as follow:

1. The ratio of currency to the supply of money has declined in all GCC countries, which suggests the presence of substantial growth in the monetized sector in the six member countries of GCC.

2. Residents in Oman and Qatar seem to have a higher preference for currency versus demand deposits than residents in other GCC countries. Also, these two member states have a lower degree of monetization and a smaller banking sector than other members of the integration.
3. The wide differences in money multiplier of the GCC members would appear to suggest that an application of a unified monetary policy for the integration as a whole, could present difficulties. Special consideration would need to be given to the monetary impact of a given change in money liabilities for the UAE. Meanwhile, Kuwait experienced the highest value for the multiplier.
4. The coefficients of variation of the velocity differ substantially between GCC members. These differences reflect variations in the relative growth of currency, demand deposits and quasi-money in various member countries. The statistical results suggest that monetary authorities in the GCC integration can't base their policy decisions on a simple hypothesis such as the constant velocity of money.
5. Real income exerts a significant influence on the demand for real cash balances in all GCC countries.
6. Narrow demand for money in all members of the GCC is not sensitive to variations in domestic or international interest rates.
7. International interest rates exert a significant influence on the demand for narrow money only in Bahrain, Kuwait and UAE.
8. International interest rates exert a significant influence on the demand for broad money (M2) members in all GCC countries with the exception of Oman and Saudi Arabia. This suggests that the international opportunity cost of holding money balances are perhaps more important than their domestic counterpart.
9. Income elasticity of demand for broad money was much higher than its counterpart for narrow money and exceeded unity in all cases with the exception of Kuwait. Kuwait had the lowest coefficient while Saudi Arabia had the highest income elasticity.
10. In general, there seems to be a higher degree of similarity in the structure and performance of the monetary sectors of Bahrain, Kuwait and the UAE. Also, the performance of monetary sector in Oman is closer to that in Saudi Arabia. However, the present structure and recent performance of the monetary sector in Qatar lies in between these two patterns. This suggests that a unification of monetary policies of the integration, need to be carried at stages, with Bahrain, Kuwait, Qatar and the UAE, to be joined later by Oman, Qatar and Saudi Arabia.

Above all, monetary union can't be based on monetary policy only; fiscal policy is an important element in its success. Many member states of the GCC are undergoing huge investment in infrastructure and capital formation, two areas that require additional funding, both domestic and foreign. A homogeneous policy on this line is crucial if fiscal and monetary policies are to be tuned toward a successful and sound monetary union.

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