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On the Sustainability of a Monetary Union under External Shocks: a Theoretical Result and Its Application to the Gulf Countries

Etienne Farvaque
Faculty of Economic and Social Sciences, University of Lille I

Norimichi Matsueda
School of Economics, Kwansei Gakuin University

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SCHOOL OF ECONOMICS

KWANSEI GAKUIN UNIVERSITY

1-155 Uegahara Ichiban-cho
Nishinomiya 662-8501, Japan

On the sustainability of a monetary union under external shocks: a theoretical result and its application to the Gulf countries

Etienne Farvaque*
Norimichi Matsueda†

Abstract

External shocks, be they political or economic, can pose a significant threat to the sustainability of a monetary union. This paper focuses on the openness of a monetary union, and examines how the degrees and characteristics of the sensitivities of its member nations towards external shocks affect the sustainability of the commitment which each of its members made when joining the union. Furthermore, we discuss the sustainability of the prospective monetary union among the Gulf Cooperation Council countries in the light of obtained insights.

Keywords: Monetary Union, Optimum Currency Areas, External Shocks, Gulf Cooperation Council

JEL Classification: E58, E61, F33

*Equippe - Universités de Lille, Faculté des Sciences Economiques et Sociales, Université de Lille 1, 59655 Villeneuve d'Ascq Cedex (France). Etienne.Farvaque@univ-lille1.fr

†School of Economics, Kwansei Gakuin University, 1-1-155 Uegahara, Nishinomiya, Hyogo 662-8501 (Japan). nmatsued@kwansei.ac.jp. First author gratefully acknowledges DULBEA (Free University of Brussels, Belgium), Equippe and EUIJ (European Union Institute Japan - Kansai), for their hospitality and support. Our thanks go to Pierre-Guillaume Méon, as this paper builds on our common work, and to Andrea Fracasso, Kenji Fujiwara, Kenjiro Hirayama, Florence Huart, Wim Meesen, Toshihiro Okada, Katsuhiko Suzuki, Tsuyoshi Toshimitsu, and participants in the Staffordshire University Conference on "International trade: a global perspective for the 21st century," in the Middle East Economics Association 2009 conference and in a seminar at Kwansei Gakuin University for their comments. We have also benefited immensely from the referee's valuable suggestions, for which we are truly grateful. Any remaining errors and omissions would of course be ours.

1 Introduction

Since the implementation of the European Monetary Union (EMU), its relatively smooth functioning has attracted increasing interests in similar endeavours in other parts of the world (De Grauwe and Melitz, 2005, and Chey, 2009), especially where monetary unification projects have been reassessed and sometimes relaunched historically. The Middle East region is among these areas, notably within the members of the Gulf Cooperation Council: Bahrain, Kuwait, Oman, Qatar, Saudi Arabia and the United Arab Emirates (UAE). Although the prospect of a monetary union among these countries has recently stagnated (with some countries even disengaging from the convergence plans), official statements by its prospective members still suggest that the deadline of 2010 should not be pushed too far away. Following the work of Zaidi (1990), the project has also attracted academic attention, and the approaching official deadline has triggered renewed interests with broadly optimistic assessments (see the recent evaluations by Abu-Bader and Abu-Qarn, 2008, Buiter, 2008a, Furceri and Karras, 2008, and Pattanaik, 2007, for instance).

However, most of the studies look at this project from the viewpoint of the traditional literature on Optimum Currency Areas (OCA) and focuses on ex-ante criteria for belonging to a successful monetary union. Although ex-post criteria have attracted increasing attention recently, internal shocks (and the ensuing divergence processes) still lie at the core of their reasoning. Since the seminal contributions of Mundell (1961), McKinnon (1963) and Kenen (1969), the literature weighs the benefits of having a common currency against the costs of losing monetary autonomy. As long as the benefits of possessing a single currency arise solely from a reduction in transaction costs for internal transactions, the benefits are certainly greater when member countries trade more intensively within a union. On the other hand, the costs are mainly due to asymmetric shocks, i.e., shocks which induce divergence in the economic growth of the member countries. Therefore, the optimality of monetary unions fundamentally depends on the asymmetry of shocks, which in turn is related to the degree of synchronization of shocks among the prospective members of a monetary union. As Santos Silva and Tenreyro (2010) state, the asymmetry of shocks has become a catch-all concept to capture the impacts of all types of shocks (supply and demand) as well as the structure of the economy, which "in turn may affect the nature and speed of adjustment of the economy to shocks (p. 26)." Hence, the OCA criteria generally look at factors inside a newly formed monetary union in investigating what could or would happen after the introduction of a new currency. It is true that the more recent literature, notably following the line of Frankel and Rose's (1997, 1998) argument, has stated

that countries which would not form an optimum currency area ex ante could evolve towards such a reference point by reducing the asymmetry of real output movements. Such an ex post evolution would originate from the reorganization and rationalization of production activities inside the union.

However, such a perspective overlooks an important aspect of monetary unions. As Bordo and James (2008) argue by looking at the historical evidence, multinational monetary unions can be fragile, or strongly weakened by external common shocks (in particular, they study the impact of World War I, and the ensuing business cycle divergence it has induced). Assessing the viability of a multinational monetary union against common external shocks may prove crucial, as proved by the demise of some well-known monetary unions, such as the Latin Monetary Union, the Scandinavian one, and, more recently, the one of Czechoslovakia. As we discuss below, this feature is particularly important in the case of the GCC countries. While it is true that some authors, e.g., Nitsch (2005) and Rose (2007), emphasize inflationary shocks as the most important determinant for the dissolution of monetary unions, their arguments do not contradict the possibilities that the gap in inflation rates between monetary union members may be induced by external shocks and the following member economies' reactions to such shocks.

In other words, the traditional argument of the OCA theory is that a prospective monetary union will not be sustainable under the following two conditions: Either its members face asymmetric (or asynchronous) shocks and/or they respond asymmetrically to uniform shocks (a difference in reactions which itself may be due to their different economic structures since varying degrees of price and wage flexibility, for example, induce asynchronous shocks). However, the empirical studies that look at the optimality of a monetary union have not explicitly distinguished whether such shocks originate from within the monetary union or from its outside. Prominent examples include Alesina et al. (2002) and Barro and Tenreyro (2007) which study the impact of currency unions on the pattern of covariance of shocks, but do not distinguish shocks according to their origins (external or internal) and simply consider the impact of all the shocks (whatever their natures are) on a union's member macroeconomic indicators. For the GCC countries, such an argument is especially valid, as it has been shown that symmetric shocks in the region, be they real or nominal, are associated with significantly different variances (Razzak, 2009). This result is refined in the study by Rosmy et al. (2010), which distinguishes between demand and supply shocks, differentiates their oil and non-oil parts, and shows that the sole symmetric shocks for these countries are actually the oil-demand shocks. However,

the origins of the shocks considered are not mentioned there. In sum, the literature deals with the consequences of the shocks, but differentiating the impact of the origins of the shocks is still an open question and has not received much considerations in the literature.

Besides the existing criteria for a currency area, therefore, we consider in this paper how a multinational monetary union can resist to the shocks coming from the rest of the world. In other words, we are interested in the conditions under which a monetary union can survive external shocks. In order to analyze the consequences of external shocks on a multinational monetary union, we first build a simple model of a monetary union, focusing on the divergent characteristics of members when they have different degrees of sensitivities to external shocks.

We then demonstrate the relevance of our argument by looking at one of the most striking examples of monetary union projects that could be threatened by external shocks, i.e., the one currently contemplated by the members of the Gulf Cooperation Council. While being a prominent example of on-going Arab economic integration (Hoekman and Sekkat, 2010), its feasibility has not been examined from the specific perspective we adopt here. Unfortunately, our assessment of the sustainability of this monetary union project is not quite optimistic unless strong deepening of political integration happens prior to (or, at least, in parallel with) monetary unification, and the new central bank receives large amount of official reserves from its founding members. This emphasis on political commitment is detailed in a book by Rutledge (2009), which stresses the lack of institutional preparation for the planned monetary union as an impediment for its establishment.[1]

This paper is organized as follows. Section 2 sets up the model upon which our argument rests. The following section establishes the features of the monetary union when the sensitivities of its members to external shocks differs. Section 4 applies the model's insights to the GCC case and provides some comparisons with the European experience. Section 5 concludes the paper.

2 The model

Our model basically consists of a description of the economic structure of a monetary union and a specification of policy-making bodies' preferences. In this section, we first describe the situation under autonomy and compute each policy-maker's optimal interest rate as a function of each country's characteristics.

[1] Chey (2009) has a similar focus on political-economy issues in discussing possible monetary unions in East Asia.

2.1 Economy

The framework we use is based on the literature on discretion and time-consistency (see for example Walsh, 2010, chapter 7, and Alesina and Barro, 2002). For the simplicity of exposition, we assume that the union consists of 2 economies, indexed by $j = 1, 2$. The aggregate demand of an economy j is described by the following equation:

$$y^d_{j,t} = -\alpha \left(i_t - \pi_{j,t} \right), \tag{1}$$

where $y^d_{j,t}$, i_t, and $\pi_{j,t}$ are respectively the aggregate demand, the nominal interest rate and the inflation rate of this economy at time t, whereas α is a positive parameter.

On the other hand, each economy's aggregate supply is given by a Lucas-type supply function where unexpected inflation boosts its output:

$$y^s_{j,t} = \beta \left(\pi_{j,t} - \pi^e_t \right) + \omega_j \upsilon_t, \tag{2}$$

where $y^s_{j,t}$ and π^e_t are the aggregate supply and the expected inflation rate, while υ_t represents period t's supply shock, originating from the rest of the world, and ω_j is a positive parameter and signifies country j's sensitivity to this shock.[2] Also, β is a parameter with a positive value. In equilibrium, we have

$$\pi_{j,t} = \frac{1}{\beta - \alpha} \left(-\alpha i_t + \beta \pi^e_t - \omega_j \upsilon_t \right), \tag{3a}$$

$$y_{j,t} = \frac{\beta}{\beta - \alpha} \left(-\alpha i_t + \alpha \pi^e_t - \frac{\alpha}{\beta} \omega_j \upsilon_t \right). \tag{3b}$$

Here, we suppose $\alpha < \beta$ so as to rule out an unrealistic behavior of inflation. The two local economies differ from each other only with respect to their individual sensitivities to the rest-of-the-world shock. We suppose that the shock is normally distributed with a well-defined variance and a zero mean.

2.2 Policy-makers

In our model of a monetary union, monetary policy is decided by a federal college, consisting of country representatives. We also refer to them

[2] We do not consider national (or regional, or sectorial) shocks as well as any demand shocks. Incorporating them would make the algebra more tedious, without additional implications of great significance. Moreover, focusing on the external supply shock reinforces the link between our setup and historical evidences on some monetary unions demises, principally triggered by a price variation in an oversea commodity market among others.

as "governors." In order to focus on the impact of shocks, we discard differences over their preferences and suppose that representatives agree on the objectives to be followed. Namely, they all target the same inflation rate and the same output level.

Accordingly, the objective of each representative central banker, i.e., governor, is to minimize the following loss function:

$$G_{j,t} = \frac{1}{2}\left(\pi_{j,t} - \pi^*\right)^2 + \frac{\lambda}{2}\left(y_{j,t} - y^*\right)^2, \tag{4}$$

where we assume that the desired inflation rate and output level (π^* and y^*) are identical across all the governors.[3] Moreover, we suppose exactly the same preference for the monetary delegates (identical λ), for the sake of simplicity. The assumption of a common inflation objective across the union does not seem too unrealistic for countries sharing (or considering to share) the same currency. Furthermore, we normalize these desired values as $\pi^* = y^* = 0$.[4]

To complete the model, the timing of policy-making decisions needs to be specified. Here, we consider that private agents form their expectations first, and the value of the shock is subsequently revealed. Then, the monetary authority sets its policy rate. Finally, transactions take place, which determines the actual levels of output and inflation.[5]

2.3 Optimal policy under autonomy

We start by deriving our benchmark case, i.e., what happens if a country lives outside the monetary union? Even such an autonomous case is not equivalent to autarky and the country is not immune from rest-of-the-world shocks. Moreover, it may suffer from even larger shocks than when it is a member of the monetary union since the relative size of the outside world increases when staying out. In order to simplify the discussion here and not to bias the results in any specific way, we assume that the sensitivity to external shocks under autonomy is the same as when being inside the monetary union.

To determine each policy-maker's optimal interest rate, it suffices to notice that the model is fully symmetric around zero. Therefore, the

[3] Alternatively, y^* can be considered as the difference between the desired and the natural output growth rates. Here, this would simply mean that, while economies may have different natural output growth rates, the policy-makers try to minimize the gap between the actual and the optimal growth rates.

[4] Note that, as we are interested solely in computing the parameter conditions for a monetary union to be sustainable, this simplification about structurally deterministic components is inocuous while it simplifies the algebra significantly.

[5] The model here is a static one and we do not consider reputation gains which could accrue from the monetary unification.

expected inflation rate can only be equal to zero. For each local economy, the preferred policy is therefore obtained by minimizing her loss function over $i_{j,t}$, while assuming that the expected inflation rate is equal to zero. This is the interest rate that that governor would choose to implement if monetary policy was independently decided. Inserting this interest rate in equations (3a) and (3b), one obtains

$$\pi_{j,t}^{A} = -\frac{\lambda\beta}{1+\lambda\beta^2}\omega_j \upsilon_t, \tag{5a}$$

$$y_{j,t}^{A} = \frac{1}{1+\lambda\beta^2}\omega_j \upsilon_t, \tag{5b}$$

where the subscript A signifies "autonomy."

It is obvious from (5a) and (5b) that an external shock affects different countries differently, depending on the degrees of sensitivity, ω_j. Hence, even though we assume that the countries have identical preferences and objectives, monetary policy would need to be tailored to their individual needs, due to the differentiated impacts of external shocks, which are perceived asymmetrically between the respective member states. An example of the situation we have in mind is the effects of an oil shock, which would be symmetric at origin but felt differently across nations, depending on a country's import dependence, industrial structures, climate patterns, and so on.[6]

Even though a significant benefit of joining a monetary union stems from the commitment of the newly founded central bank to fight inflation, such a benefit depends on the new central bank's ability to adhere to adopting the currency of the third country as an anchor or to a monetary rule that guarantees the reduction of the inflationary bias. In (5a) and (5b), the existence of an idiosyncratic part of the common external shocks implies that each member economy of a union could suffer from joining a common monetary policy. Such an ambivalence is now commonly recognized in the debates on the sustainability conditions for monetary unions (see Santos Silva and Tenreyro, 2010, for example). We adress this issue in the next section.

3 Life in a monetary union

3.1 Policy of the union's central bank

In a monetary union, the decisions over the interest rate are made by a monetary policy body that is interested in the union's welfare as a

[6]Note that our theoretical result conforms with the findings in Nitsch (2005). Although he considers inflation differentials as the main culprit for the dissolution of monetary unions (and dismisses the role of openness), he does not investigate the impact of external shocks on inflation dynamics.

whole, rather than the situation of any single country in particular. Such a body's preference is described by the following loss function:

$$G_t^f = \frac{1}{2}\left(\pi_t^f - \pi^*\right)^2 + \frac{\lambda}{2}\left(y_t^f - y^*\right)^2, \tag{6}$$

where π_t^f and y_t^f are respectively the weighted averages of the member countries' inflation rates and output levels,[7] and the superscript f indicates the case where the interest rate is chosen by a (federal) policymaker with a union-wide objective. In the two-country situation, we can write these as

$$\pi_t^f = \rho\pi_{1,t} + (1-\rho)\,\pi_{2,t}, \tag{7a}$$

$$y_t^f = \rho y_{1,t} + (1-\rho)\,y_{2,t}, \tag{7b}$$

where ρ ($\rho \in [0,1]$) is the relative weight assigned to country 1.

Invoking the assumptions of $\pi^* = y^* = 0$, the minimization of this loss function under the constraints of the expressions in (7a) and (7b), which give the union's inflation rate and output level, leads to the following optimal interest rate:

$$i_t^f = -\frac{1+\lambda\alpha\beta}{\alpha\left(1+\lambda\beta^2\right)}\left(\rho\omega_1 + (1-\rho)\,\omega_2\right)\upsilon_t. \tag{8}$$

Hence, the union's monetary policy reacts to the external shocks by considering its members' idiosyncrasies and weighting them accordingly. By plugging this interest rate into the expression of each country's inflation rate and output level, we obtain:

$$\pi_t^f = -\left(\rho\omega_1 + (1-\rho)\,\omega_2\right)\frac{\alpha\lambda\beta}{\left(1+\lambda\beta^2\right)}\upsilon_t, \tag{9a}$$

$$y_t^f = \left(\rho\omega_1 + (1-\rho)\,\omega_2\right)\frac{\alpha}{1+\lambda\beta^2}\upsilon_t. \tag{9b}$$

These equations indicate that, even in a highly stylized model, external shocks cannot be disregarded since they impact the determination of the optimal single monetary policy. Moreover, depending on the relative size of the countries, ρ, and the sensitivity to external shocks, ω, the optimal union-wide monetary policy differs from the optimal policy under autonomy. Quite intuitively, the gap between these two optimal policies (autonomous and centralized) is all the more significant if

[7] This assumption is relatively standard in the literature as a union's objective. For different formulations, see Aaron-Cureau and Kempf (2006) for example.

countries are of different sizes and if external shocks are probable. The likelihood of external shocks could be expected to be even higher if the monetary union newly-founded central bank adopts the currency of the third country as an external anchor. We now turn to the impact of such an anchoring policy on our results.

3.2 The effects of exchange rate anchoring

Suppose that the new central bank adopts the currency of an external anchor, the role of the exchange rate of the union vis-à-vis the anchor currency has to be incorporated in the model. As in von Hagen (1992), or Kohler (2002), the inclusion of the exchange rate between the external anchor and the new currency area leads to a modification in the model's basic equations. Specifically, the equation that represents the dynamics of the exchange rate needs to be added to the aggregate demand and supply equations.

The exchange rate equation for the union with a third-country currency can be described by the following equation:

$$e_t^f = \psi \left(\pi_t^f - \pi_t^a \right). \tag{10}$$

where e is the real exchange rate, a subscript a indicates the anchor country, and ψ is a positive parameter.

Reordering this equation gives an expression for the evolution of the union's inflation rate, π_t^f, as a function of the exchange rate and of the anchor currency's inflation rate (and, de facto, monetary policy). Here, we need to consider two different cases. Firstly, if the new central bank decides to fix the exchange rate or to adopt an anchoring policy, it will experience pressures each time the anchor country's monetary policy is modified. In such a case, the thrust of our argument would only be strengthened since the union's monetary policy becomes more closely linked to external considerations (and not only to external shocks hitting each member economy). In other words, the pass-through from the rest-of-the-world to the union will be reinforced. Secondly, it could be the case where the central bank chooses to have a floating, or flexible, exchange rate. Indeed, this is the situation we have implicitly supposed in the previous subsection where the union's monetary policy is determined solely by considering the members' economies. In this case, the exchange rate movements hit each economy as an external shock, whose magnitude is given by each economy's sensitivity to exchange rate fluctuations. Therefore, explicitly incorporating the exchange rate relations between the monetary union and the rest of the world into the model does not lead to a qualitatively different result than the one obtained

above.[8]

Whereas the model above is highly stylized and can only be considered as an illustrative one, we believe that, in the light of the analytical observations it produces, the sustainability of monetary unions should also be considered from the perspective of the occurrence of external shocks (Farvaque and Matsueda, 2009). The next section discusses the prospective project in the Gulf region from this particular viewpoint.

4 The Gulf Cooperation Council monetary union

4.1 Prospect and assessment

The member countries of the Gulf Cooperation Council (GCC), i.e., Bahrain, Kuwait, Oman, Qatar, Saudi Arabia and the United Arab Emirates (UAE), may seem very similar at first sight. They all depend heavily on oil both in their outputs and in their exports. Moreover, they share a number of geographical borders, a common language, and high average living standards, which are attributable to the remarkable economic growth rates since the 1970s, being on average above 2% p.a. (an exception is Kuwait, where its growth rate has been barely positive on average with a high volatility mainly due to its war years). While not all of them are under the threat of depleting their oil reserves, they are all facing rapid population growth which is now creating a need for even higher economic growth rates.[9] Diversification of their production is also pressing, given the fact that the public sector still provides a large part of employment to the indigenous part of the labor force.

Such similarities have probably contributed to stronger political relations and created the impetus to policy coordination. Efforts have been made along several dimensions, with trade being perceived as an engine of growth, even though the negotiations related to a free trade agreement between the GCC countries and the European Union have ups-and-downs,[10] revealing both the will and the impediments towards a regional free trade area.

The integration process among the GCC countries officially started in 1981, with the ratification of the Charter of the GCC. From the start,

[8] Although this is out of the scope of the current paper, a more complete modeling would induce quantitative changes as is shown in Ball (1999), for example.

[9] Since a substantial part of the population growth is related to imported foreign labor, it can be controlled relatively easily through hardened immigration procedures and visa requirements. Razzak (2009) also underlines this point.

[10] This trade agreement is currently suspended for a long while and presented as to be concluded as soon as possible. See the 20th EU-GCC Joint Council and Ministerial Meeting (June 2010) communiqué, which is available at the following URL: http://eeas.europa.eu/gulf_cooperation/index_en.htm.

monetary unification was considered as an ultimate goal of the process. In 2001, the common currency, the Khaleeji, was agreed to be established no later than 2010.[11] In between, a customs union was to operate from 2003, with a single market to be achieved by 2008. Whereas the official adoption of EU-style convergence criteria in 2005 showed some success for public debt and deficit, currency reserves, and interest rates, several clouds have recently accumulated over the GCC's horizon.

First, inflation rates have not yet converged among these countries although inflation is one of the convergence criteria and is generally considered as a pre-condition for monetary unification. Second, and as a related issue, while all the GCC countries had pegged their national currency to the U.S. dollar, both Kuwait and the UAE announced that they would shift to currency baskets, as their international position was threatened by the depreciation of the U.S. dollar.[12] Although the UAE finally reversed its position in favor of a dollar peg, such hesitations can also be interpreted as an indication that the future common central bank may have to manage a basket anchor, or even a floating currency. These pronouncements came after the announcement by Oman in 2006 that it is ready to join in 2010 and would let the five others go ahead with the integration process. Third, it has to be recognized that a single market with free circulation of goods, services, labor and capital is still far away. Fourth, the UAE have decided to withdraw their support for the project, following the Saudis proclamation that they intended to host the future common central bank, to be located in Riyadh and now referred to as the Gulf Central Bank while confirmed by the remaining members as well.

Zaidi (1990) is among the first to have assessed the GCC monetary projects. At the time of his writing, while inflation rates were converging among the member states, there were worries concerning the divergence in economic structures, which induces a rather skeptical conclusion that the whole evidence calls for increased coordination among the member countries. Other studies have applied the Optimal Currency Areas criteria to the GCC countries. These include Laabas and Limam (2002), who conclude that, whereas the criteria are not met on an ex-ante basis, ex-post movements would ensure the viability of the projected monetary union, Jadresic (2002), who delivers a set of recommendations to ensure that the benefits of monetary unification exceed the costs, and Fasano and Schaechter (2003) and Sturm and Siegfried (2005), who are less critical although they condition their assessments on improved structural

[11] See its official website: http://www.gcc-sg.org.

[12] On the importance of the dollar peg for the region and its relevance to the monetary union, see Abed et al. (2003) and Rosmy et al. (2010).

policies.

More recent evaluations based on the OCA criteria include the studies by Pattanaik (2007), Abu-Bader and Abu-Qarn (2008), Buiter (2008a) and Furceri and Karras (2008).[13] While the findings from the first two studies generally indicate that the criteria are not met for the GCC to form a monetary union, Buiter (2008a) and Furceri and Karras (2008) are more affirmative. Buiter (2008) considers a monetary union to be the only game in town for those countries, stating that "even a suboptimal monetary union will be better than continued monetary autarky (Buiter, 2008b, p. 21)." Furceri and Karras (2008) cautiously state that the estimated costs and benefits of a monetary union strongly vary from one country to another, but still emphasize the favorable effects of strong convergence in business-cycle synchronization as well as inflation rates among most of the GCC members.

On the other hand, Darrat and Al Shamsi (2005) are more optimistic, as their cointegration test results show that the GCC members' macroeconomic variables (namely, GDP, inflation, exchange rate, money stock and money base) are linked in the long-run. Hence, they insist that the unification process is not impeded by economic divergences, but by (missing) political willpower. Hebous (2006) is even more upbeat through looking at the European-style convergence criteria and stressing upon the general similarities among the member states of the GCC.

In the light of our theoretical model above where exposure to rest of the world shocks is fundamental in assessing the sustainability of the GCC's prospect as a monetary union, it has to be noted, first of all, that the GCC nations do exhibit high degrees of openness. Data from the Penn World Tables 6.3 (Heston et al., 2009) show that, for two of the countries, openness ratios are close to 100% (Oman and Qatar), while that figure is above 100% for three of them (see Table 1, keeping in mind that Bahrain's figure is probably overestimated, due to its position as a regional transhipment pole).

Insert Table 1 around here.

However, such an openness does not translate into high trade relations inside the region: exports to the other GCC members from a member state average merely 5.25% of total exports, a figure that is in stark contrast with the situation in the European Union, where intra-EU trade represents between 50 and 80% of the member countries' total

[13]Furceri and Karras (2008) consider 13 countries from the Middle East, encompassing the Gulf Cooperation Council members, and adding Egypt, Iran, Jordan, Lebanon, Libya, Syria and Yemen to the list of countries.

trade.[14] The prospects look even worse given the recent estimates by Boughanmi (2008), which show that those already low figures may be even higher than what one could expect in view of the traditional determinants of a gravity trade equation.

In the light of our model, these two facts combined would form a bad omen for a successful monetary union.[15] If one adds to this picture our estimates of elasticities of those economies' rates of growth to rest-of-the-world relations (proxied by their openness ratios), the assessment turns even more pessimistic (see Table 1). It is apparent from our computations that most of the GCC countries' growth rates are strongly related to their openness ratios, the average elasticity being close to 2, with a standard deviation of 3.75.[16] These values are largely superior to the comparable ones for the Euro area (see Table 1). Hence, any external shock could have a significant impact on the prospective members of the GCC monetary union.

According to the argument by Frankel and Rose (1997, 1998), monetary unions may be more resilient to shocks ex post than ex ante. However, this argument has been used mostly for internal adjustments needs, i.e., to explain how the members of a monetary union could cope with diverging business cycles within their member states while we are concerned here about the influence of external shocks.

As far as external shocks are concerned, exchange rate management could be an important tool to dampen or counter the impacts on the constituting economies. Such management is all the more significant as the GCC countries have clearly expressed the possibility for the future monetary authority to float the currency.[17] This consideration directly suggests the need for the union's central bank to have a sufficient amount of foreign reserve to be able to cope with external shocks, by adjusting the value of the common currency's exchange rate as a way to smooth

[14]This problem has been pinpointed by Dar and Presley (2001) as well. Laabas and Limam (2002) also regard the limited intra-regional trade as an impediment to a monetary union in this region.

[15]Of course, one would prefer to base the diagnosis on the shocks identified through a VAR or SVAR model. However, it should be noted that (1) estimating shocks can be tricky for econometricians in countries whose main export has volatile prices as in our sample and, (2) these countries mostly have had symmetrical (if not identical) responses to shocks, given their relation to the U.S. dollar. See Rosmy et al. (2010) for an evaluation along such lines.

[16]Abed et al. (2003) compute the elasticity of the region's trade balance to world GDP variations for the period of 1970-2003. They find the elasticity to be 9.21.

[17]See its official statement: http://www.gccsg.org/eng/index.php?action=SecShow&ID=58. Habib and Strasky (2008) show that a dollar peg is not necessarily optimal for oil exporting countries, and Rosmy et al. (2010) also argue that the dollar is only relevant to cope with certain types of shocks.

the adjustment of the union's economies to external influences. Although many central banks, even among the principal ones, do not have a strong balance sheet, not to mention external reserves (see Buiter, 2008b), the GCC countries could probably have a comparative advantage on this respect. Their external assets are significantly large. However, they are mainly located for the moment in the governments' treasuries or sovereign funds.

Hence, if the GCC countries are to proceed towards a full-fledged monetary union, one of the most important step they may have to take is to agree on the size and composition of their common central bank's balance sheet. Although this issue might appear technical, such a move would show a strong political commitment and may prove to be the key to the sustainability of their monetary union.

4.2 Insights from Europe

For the sake of comparison, the European Monetary Union (EMU) is a nice benchmark. Let us first recall that, since the implementation of the monetary union in Europe, several countries of the union, and occasionally the union itself, have been hit by shocks originating either from the United States, or from some commodity or financial markets. The impacts of these external shocks sometimes became so significant upon the Euro area members' economies that they created some tensions inside the monetary union, to the extent that certain Italian politicians even reconsidered the benefits of remaining inside the union and threatened to exit unilaterally, for instance.[18] Although such a political remark could have been directed towards the Italian electorate without substantial implications, the scenario has also been explored by Tilford (2006), under a 40 % probability of occurrence. Moreover, Nitsch (2005), Rose (2007) and Bordo and James (2008) offer the historical relevance of splitting scenarios.

Notwithstanding, Favero and Giavazzi (2008) concretely show that the levels of long-term rates in Europe are almost entirely explained by shocks originating from the U.S. Their results notably suggest that U.S. variables are more important than local variables in the policy rules followed by the European monetary authorities. In other words, the European monetary union would be no exception in that external shocks

[18] Although the exit possibility was ruled out by the Maastricht Treaty, it had been introduced in the draft Treaty for the European Constitution. The draft has been rejected on many grounds other than this one and it has been reformulated as the Lisbon Treaty, which still maintains a unilateral withdrawal possibility under its article 49A. This issue resurfaced during the Greek crisis of 2010, but it occurred the other way round in this particular case, as some politicians in "virtuous" countries questioned the presence of Greece in the union.

may put its members' economies under considerable stress.

It should be noted that we are not considering the asymmetric characters of internal shocks affecting the members of the union. What we consider here are the differences in their reactions when external shocks hit the whole union, and when they do so with differing intensities. The sources of such differing intensities can be numerous and have been listed, e.g. by Dornbusch et al. (1998). A prominent source in our context is the pass-through of an exchange rate variation of a common currency compared to currencies of the rest of the world. And, if the member countries are affected differently in this regard, prices can evolve differently inside the union, calling into question the efficiency of its single monetary policy, and the viability of the union. Different price-setting behaviors can be traced back to the specializations of its member countries, with countries which produce more "up-market" goods being more capable of leaving their export prices unaffected and, accordingly, of smoothing external shocks. Based on this argument, Drissi (2008) obtains estimates that show a one-to-four difference between Germany and the Netherlands in the respective reactions of their price levels to real exchange rates variations.

Thus, strong disparities in the exposures to external shocks cannot be easily dismissed even inside the European monetary union, which has underwent the integration process of sixty years. Therefore, the influences of such disparities upon the viability of a multinational monetary union need to be accounted for. From a normative point of view, Arnold (2006) shows that, under such circumstances, the European Central Bank should be concerned more about the evolutions of countries that do not have strong trading ties with non-eurozone countries, and also more about the bigger countries (as small countries are relatively more open and trade more outside the euro area, thus benefiting from an automatic stabilizing instrument in the form of real exchange rate adjustment). The empirical evidence by Sturm and Wollmershäuser (2008) suggests that this has not been the case so far, as developments in the smaller countries seem to have received more than proportional weights in the ECB's decision-making. Such a disproportional attention would be worrying if it is sustained for a prolonged period.[19]

5 Concluding remarks

In this paper, we show that the sustainability of a monetary union not only depends on the reorganization and rationalization of production

[19]Indeed, this discrepancy could be expected from a theoretical point of view since smaller countries accept to enter a monetary union only if their weight is larger than their size (Casella 1992a and Casella 1992b).

activities inside the union (i.e., internal shocks), but also on the impact of external shocks. Unfortunately, the literature has mostly disregarded this rest-of-the-world feature. We have given a theoretical foundation to Bordo and James's (2008) historical argument that external shocks can impair a union's viability.

As one of the most striking real-world examples of a monetary union project that could be threatened by external shocks, we deliver a relatively pessimistic assessment of the sustainability of the prospective monetary union project conceived among the Gulf Cooperation Council nations. However, if the members countries' political commitments are sufficiently firm, and if they transfer large amounts of their official reserves to their future common central bank, the project might be regarded as more favorable.

The problem we highlight here may also concern other potential common currency projects. In the Asian region, for example, the prospect of a monetary union among the ASEAN members also seems plagued by the influence of shocks from the rest of the world. Among others, the recent estimates by Qin and Tan (2008) show that a large part of the variance in economic conditions within the region come from what they call "world factors." This illustrates the need to pay attention not just to internal aspects but also external conditions in considering future monetary union projects.

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Table 1.

Members of the Gulf Cooperation Council Compared with the European Monetary Union

	Openness ratio (%)	GDP elasticity w.r.t. openness
Gulf Cooperation Council		
Bahrain	158.89	0.32
Kuwait	101.55	9.49
Oman	89.23	0.08
Qatar	90.75	0.43
Saudi Arabia	71.38	0.55
United Arab Emirates	140.23	0.15
Average	*108.67*	*1.84*
Standard dev.	*33.64*	*3.75*
European Monetary Union		
Average	*80.91*	*0.19*
Standard dev.	*39.11*	*0.34*

Source: authors' computations, 1990-2007 averages. For consistency, EMU excludes Cyprus, Luxembourg, Malta, Slovakia and Slovenia. Data from Penn World Tables 6.3 (Heston et al., 2009).