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Design and Implementation of a Common Currency Area in
the East African Community

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Abstract

The East African Community (EAC) has fast-tracked its plans to create a single currency for the five countries making up the region, and hopes to conclude negotiations on a monetary union protocol by the end of 2012. While the benefits of lower transactions costs from a common currency may be significant, countries will also lose the ability to use monetary policy to respond to different shocks. Evidence presented shows that the countries differ in a number of respects, facing asymmetric shocks and different production structures. Countries have had difficulty meeting convergence criteria, most seriously as concerns fiscal deficits. Preparation for monetary union will require effective institutions for macroeconomic surveillance and enforcing fiscal discipline, and euro zone experience indicates that these institutions will be difficult to design and take a considerable time to become effective. This suggests that a timetable for monetary union in the EAC should allow for a substantial initial period of institution building. In order to have some visible evidence of the commitment to monetary union, in the meantime the EAC may want to consider introducing a common basket currency in the form of notes and coin, to circulate in parallel with national currencies.

JEL Classification Numbers: E42, E58, E61, F33, F55

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* The views expressed are those of the authors and do not reflect those of any official institution.

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I. INTRODUCTION

The interest in regional integration—including monetary integration—in Africa has been high over the decades since independence and various regional groupings have been formed. Those initiatives were stimulated by the generally small size of individual economies leading to a desire to exploit economies of scale in production and distribution, as well as having more influence on the world's stage. Currently, two examples of monetary integration in Africa are in place: the CFA franc zones (UEMOA and CEMAC) and the Common Monetary Area (CMA) in southern Africa. Several regional monetary union projects are planned, for ECOWAS, COMESA, SADC and EAC, and a common currency for Africa is a long term goal of the African Union (Masson and Pattillo, 2004).

The major benefits of a monetary union are the reduction of transaction costs, economies due to the pooling of international reserves, elimination of exchange rate risk and region-wide price harmonization. On the other side, the costs of a monetary union are related to the loss of sovereignty over monetary and exchange rate policy, especially in the case of asymmetric shocks that may make the same monetary policy inappropriate for all member countries of a monetary union. Indeed, in a monetary union, member countries lose direct control over instruments of monetary and exchange rate policy that may be useful in dealing with country-specific macroeconomic shocks. This freedom is gone once the monetary union has been formed.

In general, for countries to benefit from a monetary union, they should meet some or all of the following criteria which contribute to mitigate the effects of asymmetric shocks: flexibility of prices and wages, intra-regional factor mobility, openness to trade, product diversification, and fiscal integration (Masson and Taylor, 1993). In addition, and perhaps most important, a monetary union project needs strong political will and public support to overcome short-term challenges.

A new currency will be attractive if it is more stable, in terms of better maintaining its purchasing power, than the currencies it replaces. This may result from an institutional framework in the monetary union that achieves more discipline over fiscal

policies and thus insulates the regional central bank from pressures to provide monetary financing.

The process of East African Community (EAC) integration has continued to gather momentum, following the establishment of a customs union and a common market in 2005 and 2010, respectively. The next phase mandated by the EAC Treaty is a monetary union (EAMU); negotiations of a monetary union protocol began in January 2011 and are expected to conclude in 2012.

The objective of this paper is to contribute to the few studies on EAMU by assessing the viability of the EAC common currency and by considering how best to bring it about. This is important, especially in light of the crisis currently affecting the European Monetary Union (EMU). The crisis has exposed design flaws in the institutions of the euro zone, which was hitherto considered a good model of a successful common currency area.

The rest of the paper is structured as follows. In section II, we give an overview of the progress made towards currency union. Section III presents a summary of the literature on the feasibility of currency union in East Africa. An empirical analysis of the viability of EAMU using the most recent data follows in section IV. Challenges and a way forward are discussed in section V, before a section of conclusions and policy recommendations.

II. PROGRESS MADE TOWARDS THE IMPLEMENTATION OF EAMU

Some progress has already been made to prepare for monetary union. Experts from the European Central Bank, in collaboration with EAC central banks, have conducted a study on how to create a monetary union in the region. Steps have been taken by the Monetary Affairs Committee (MAC) of EAC central banks toward harmonizing banking regulation, integrating payment systems, and making more uniform the way monetary and exchange rate policies are implemented. On the fiscal side, finance ministers conduct pre- and post-budget consultations, regularly share budget information, and budget statements are read the same day.

Negotiations of an EAMU protocol started in January 2011, and it is expected that they will conclude and an agreement will be signed in 2012. As of April, 2012, there remain a number of outstanding issues, however. These include how fiscal policy discipline would be monitored and enforced within the common currency area, the criteria that would be used to assess countries' eligibility for monetary union, and a timetable or road-map for achieving it. The statutes of the central bank and other new EAC institutions also need to be drawn up and implemented.

III. REVIEW OF THE LITERATURE ON THE FEASIBILITY OF A CURRENCY UNION IN EAST AFRICA

Though there are only a few studies on East Africa, an important literature exists on the feasibility of monetary unions in Africa. Most of these studies conclude that African economies are too different on too many accounts to allow for sustainable monetary unions. These differences range from production structures to institutional effectiveness (Debrun, Masson, and Pattillo, 2010). In this context, the potential costs of currency unions in Africa derive from the ineffectiveness of a single monetary policy to fit the needs of all countries. In addition, the slow convergence in fiscal policy performance and the low level of regional trade have been identified as factors reducing the net gains of potential monetary unions in Africa.

The desirability of monetary unions in Africa has been in general assessed following three classical methodological approaches. The **first**, inspired by Optimum Currency Area theory pioneered by Mundell (1961), McKinnon (1963) and Kenen (1969), involves measuring the asymmetry of shocks. The **second** compares macroeconomic performances between countries that are members of a monetary union with non-member countries. The **third** employs the convergence indicators decided by countries that are candidates to form a monetary union, and views them as criteria for membership.

The same methodologies were first used to assess the viability of the European monetary union, while considering that institutions could be designed to insulate monetary policy from providing financing of fiscal deficits. This is not necessarily the case in Africa, where in many countries central banks are not independent. High inflation has occurred in a number of countries where central banks were obliged to finance public deficits. However, a well-designed institutional framework in Africa may contribute to creating a regional central bank that is more independent than the national central banks. Since fiscal policies are fragmented in a regional economic community, a common central bank in a monetary union may be better able to resist pressures to monetize deficits than a national central bank (Debrun, Masson, and Pattillo, 2010)

Most existing studies on EAC monetary union use the first approach to assess the potential disadvantages of adopting a common currency. The key question is whether shocks hitting the economies of members of a monetary union are sufficiently similar to allow a common monetary policy to fit every member's needs. This requires identifying the exogenous shocks to output and prices and assessing if these shocks are significantly positively correlated across countries. Analysis of asymmetries focuses on supply shocks, since they are not expected to be affected by the formation of monetary union, contrary to demand shocks, which should become more similar once a common monetary policy is put in place.

Research on the EAC gives mixed results. The first empirical study on the validity of a monetary union for the EAC (comprising Kenya, Tanzania, and Uganda at that time) as an Optimum Currency Area (OCA) was conducted by Mkenda (2001) using a generalized Purchasing Power Parity (GPPP) model developed by Enders and Hurn (1994). This model postulates that the determinants of real exchange rates—economic fundamentals such as income and the terms of trade—should move together if a region is an OCA. Thus, the real exchange rates of these countries should be cointegrated. The study concluded that the EAC was an OCA. Indeed, the study established cointegration between the real exchange rates in the three countries for the period 1981 to 1998, suggesting that they tended to be affected by similar stochastic trends.

However, this conclusion should be treated with caution. If nominal exchange rates and market prices are controlled by governments, which was the case for the period analyzed in the study, then movements of real exchange rates might not reflect common trends in market forces as would otherwise be expected (Xu, 2006). More recent data may allow a better assessment.

Buigut and Valev (2005, 2006) use data covering the period 1970 to 2001 to assess whether the EAC is an OCA. Identification of exogenous shocks was done by estimating Vector Auto Regression (VAR) models for output and the price level. Following the methodology developed by Blanchard and Quah (1989), shocks were decomposed into those affecting demand and supply. The authors conclude that both supply and demand shocks are mostly asymmetric in the EAC, a result not supportive of a currency union in the EAC.

Kishor et al. (2009) go beyond simple correlations by decomposing the movements in demand shocks and supply shocks into common and individual (or idiosyncratic) components. Countries are suitable for an optimum currency area if common shocks explain a significant portion of the overall variation in structural shocks. They conclude that the shares of common shocks are low in EAC, but that the degree of synchronization has increased since 2000, when the EAC treaty came into force.

Debrun, Masson, and Pattillo (2010) go beyond to the traditional approaches to develop a full-fledged cost-benefit analysis of monetary integration, calibrated to African data. They apply it to some actual and proposed currency unions in Africa, including an East African monetary union. The study concludes that EAMU could bring small gains to all the potential member countries except Tanzania, due to enhanced effective independence of the central bank and lower inflation. It finds that asymmetry of terms of trade shocks is lower in the EAC than elsewhere; the average of correlations between the EAC countries in the period 1990-2007 is higher than that for WAEMU and CMA, among existing African monetary unions. However, these correlations have decreased in the most recent period (2006-2008), reflecting differential export patterns in the face of a decline in commodity prices. Another recent study, Kamaludin et al. (2011), uses a business cycle synchronization approach and concludes that EAC countries do not differ significantly in cycle components.

In summary, the existing literature gives a very mixed assessment of the readiness of East Africa for monetary union.

IV. ANALYSIS OF THE VIABILITY OF EAMU USING RECENT DATA

We proceed to analyze the viability of the EAC monetary union by assessing macroeconomic convergence within EAC countries and measuring the asymmetry of shocks using the most recent data. We first assess a number of factors considered relevant for gains from monetary union before estimating econometric models of shock asymmetry. These factors include the extent of trade among EAC members, their openness, the degree of labor and capital mobility, diversification of production structures, financial integration, and fiscal integration. Finally, we discuss the important role of political factors for the success of a monetary union.

IV.1. MACROECONOMIC CONVERGENCE IN THE EAC

The interest in convergence is inspired by a general concern that asymmetries of shocks, macroeconomic performance, and policies may cause problems for a common monetary policy. However, the concept of convergence is by no means straightforward (Bagnai, 2010). A distinction must be made between *nominal* convergence, that is, of prices and currency values, and *real* convergence, of per capita incomes, growth of economic activity, and production structures.

On the one hand, some have argued that *nominal* convergence should not be a precondition for monetary union, since a common monetary policy would in any case enforce nominal convergence. Indeed, a high inflation rate, far from precluding adopting a stable currency, would indicate that doing so would yield large gains. On the other hand, nominal convergence may signal that economic adaptation to the single currency will not involve important challenges nor require substantial changes in the behaviour of households or firms—which may not be true if countries have very different starting points.

The importance of *real* convergence for monetary unions is also subject to dispute. Countries with lower per capita incomes have on average higher rates of inflation, suggesting that a common monetary policy may not be appropriate for rich and poor countries. But the difference in rates of inflation may be due to better institutions

(including central bank independence) in richer countries, and improving institutions is one of the anticipated benefits of a monetary union.

The need for convergence of *fiscal positions*, however, is less contentious. Fiscal discipline is important to safeguard central bank independence. Because the existence of an integrated monetary and financial area makes the financing of fiscal excesses easier, there are dangers that this may lead to bailouts and to an inappropriate easing of monetary policy. Greece is a telling example of the validity of this concern.

Macroeconomic convergence should be seen as both a precondition for monetary union membership and a permanent requirement for its successful operation (Masson, 1996). Consistent with the discussion above, the main macroeconomic convergence criteria within the EAC are convergence of inflation to a low value, and the maintenance of public deficits and debt ratios below some critical levels. Instead of considering convergence to a particular set of values, some studies use cross country dispersion and time series to examine whether macroeconomic variables converge to a common level.

In the EAC, macroeconomic convergence criteria were adopted by partner states in 2007. They are set for three different stages and divided into primary and secondary criteria in the first two stages, followed by introduction of a single currency at the last stage (see table 2 in appendix). However, performance has been mixed so far, with fiscal deficits excluding grants and inflation persistently exceeding the targets, as indicated in table 1 below.

IV.1.1. Fiscal convergence criteria

While Burundi and Rwanda were at or below the deficit ceiling of 3 percent of GDP including grants, the three larger countries were well above it in 2010. Moreover, the criterion to be applied in the future, 2 percent, is even stricter. The criterion for the deficit excluding grants has been even harder to achieve, and no country, except Kenya in 2007 and 2008, has ever recorded a deficit below the 6 percent ceiling. Fiscal convergence continues to be a major challenge within the EAC.

Table 1: EAC Primary convergence criteria

	Target value		Performance of member countries in 2010				
	Stage 1	Stage 2	Burundi	Kenya	Rwanda	Tanzania	Uganda
Overall fiscal deficit (excluding Grants) as percentage of GDP (ceiling)	6	5	31.8	7.2	14.0	11.6	7.5
Overall fiscal deficit (including grants) as percentage of GDP (ceiling)	3	2	3.0	6.2	0.4	6.9	5.0
Inflation, period average, in percent (ceiling)	5	5	6.4	3.9	2.3	10.5	9.4
Foreign exchange reserves in months of imports (minimum value)	4	6	5.2	2.9	4.4	4.8	5.6

Source: IMF, 2012.

IV.1.2. Similarity in inflation

Differences in inflation may signal differences in the way countries conduct their economic policies and hence potential problems for a common currency. Though all EAC countries undertake IMF programs, which should help make their inflation rates converge, data for 2010 indicate that only Kenya and Rwanda were below the target of 5%. Clearly, that ceiling is highly demanding when considering the trend of inflation rates in EAC countries—even if we exclude periods when countries faced severe shocks. Viewing convergence to a common level as more critical than convergence to a particular value would suggest defining this criterion differently, relative to the EAC average or an average for the best performing members (IMF, 2012).

We can test whether convergence in this latter sense occurs (“sigma convergence”) by calculating the standard deviation across the 5 countries’ inflation rates and looking at the evolution of this measure over time. As table 2 shows, there is a trend toward convergence of inflation rates in the EAC region. A regression of the standard deviation on a time trend gives a significantly negative coefficient at the 10% level, using

monthly data from January, 2000, to December, 2011—even if the coefficient itself is low.

Table 2: Sigma convergence test of inflation

Variable	Coefficient	Std. Error	t-Statistic
@TREND(2000:1)	-0.008995	0.004756	-1.891110
C	4.889646	0.393370	12.43015

IV.2. SIMILARITIES IN THE ECONOMIC STRUCTURES OF EAC COUNTRIES

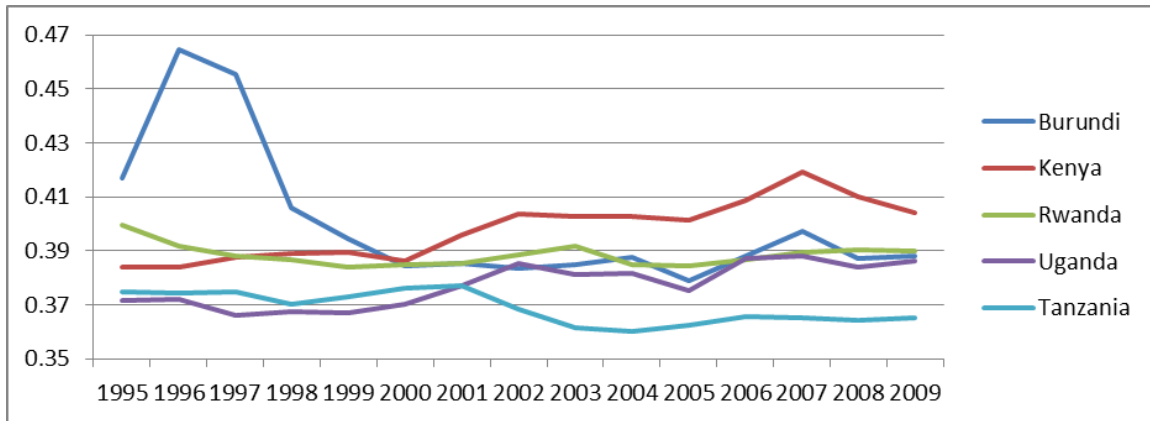
Countries with similar per capita incomes and similar sectoral and export structures are less likely to face different shocks, and hence would find it easier to share the same monetary policy as their partners in a monetary union. We analyze the structures of the economies in the five EAC member countries with the objective of identifying similarities and differences between them.

IV.2.1. Level and sectoral composition of output

GDP per capita is similar in EAC countries; except for Burundi whose GDP per capita in 2010 was only 189 USD. For the other countries, it varies between 503 USD in Uganda and 767 USD in Kenya. The structure of GDP in terms of contributions of different sectors of the economy is also quite similar. Based on 2010 data, agriculture's share in GDP is 22.6% in Kenya, 28.8% in Uganda and 24.7% in Tanzania. The share is somewhat larger in Rwanda where it reaches 32%¹. Since 1995, only for Tanzania in the early years does there seem to be any marked change in the composition of GDP in the five countries, as indicated by the Herfindahl Index (HI), which sums the squared shares of each of the three sectors—agriculture, services, and industry.

¹Data on Burundi are not available in 2010.

Graph 1: Herfindahl Index for GDP structural change

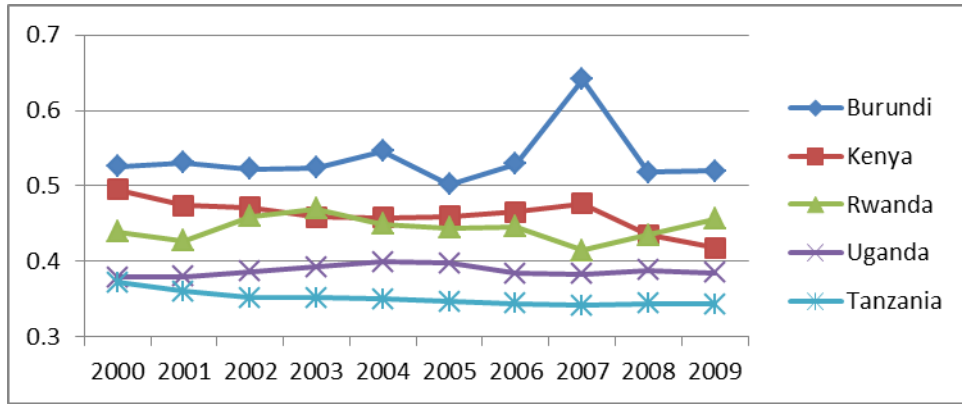


Source: our own calculation, data from UNCTADstat

Another important factor favouring a currency area is the diversification of products within the industrial sector. The more a country is diversified in the goods it produces, the less is its need to adjust to external shocks using the nominal exchange rate so that a more diversified economy is a more suitable candidate for a currency union than a less diversified one (Kenen, 1969).

Using data on the manufacturing, mining and construction sectors as proxy measures of value-added of the industrial sector as a whole, we observe that this sector is most concentrated in Kenya and Burundi, where the contributions of manufacturing to industry value-added were 62% and 69%, respectively, when averaged over 2000-2009. Shares of manufacturing were 48% in Rwanda, 40% in Tanzania, and 31% in Uganda. Construction is most important in Rwanda (45%) and Uganda (51%), while construction's share was only 36% in Tanzania, 22% in Kenya, and 21% in Burundi. There no evidence of a change in the structure of the industry in any of the five countries as evidenced by a time series of the HI of industrial concentration.

Graph 2: HI index of industrial concentration

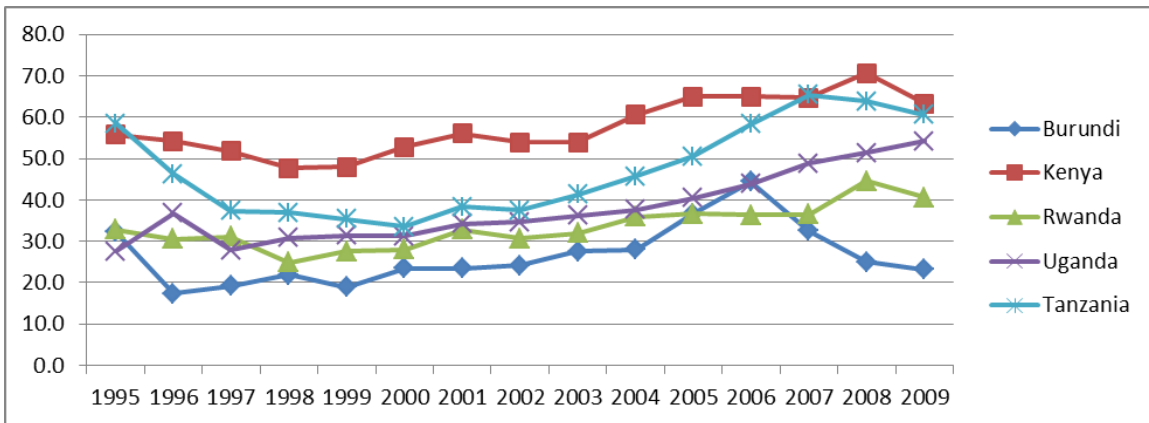


Source: our own calculation, data from UNCTADstat

IV.2.2. Degree of openness and intra-regional trade

Measured by the sum of exports and imports as a percentage of GDP, the level of economic openness differs substantially among the five countries. Kenya is the most open economy in the region (61%) followed by Tanzania (50%), Uganda (41%), Rwanda (35%) and Burundi (29%). However, economic openness has been increasing in all countries except Burundi, where the measure declined between 2006 and 2010. These differences in openness suggest that EAC economies may face shocks whose amplitude differs, since they have different exposures to the terms of trade—a situation which does not support the EAC monetary union. However, the observed increase in economic openness is a trend which, if sustained, would help enhance the viability of a common EAC currency.

Graph 3: Exports plus imports as percentage of GDP



So far the customs union does not appear to have much increased total intra-regional trade, which represents only about 17.5% of total EAC exports and 7% of imports. The EAC absorbs 29% of Uganda's exports, but only 5% of Burundi's (table 3). As ratios to GDP, exports to other EAC countries amount to about 4 percent of GDP for Kenya, 2 percent for Uganda, and less than one percent for the remaining countries.

Table 3 : Intra EAC exports as share of total exports, 2009, in percent

Country	Burundi	Kenya	Rwanda	Tanzania	Uganda
Burundi		0.1	0.2	0.0	0.1
Kenya	1.5		9.3	25.2	25.9
Rwanda	0.4	7.1		0.1	0.4
Tanzania	0.9	2.6	2.7		2.8
Uganda	2.5	9.1	7.6	1.7	
EAC	5.3	18.9	19.8	27.0	29.2

In contrast, the share of internal trade in what was to become the euro zone was 26% of GDP in 1998; by 2007 it had increased to 33% (ECB, 2010); intra-euro-zone trade amounts to considerably more than half of total trade of euro zone countries. Thus, EMU was accompanied by much higher trade integration than currently exists in the EAC. Despite this, the benefits in the form of reduced transaction costs due to a common currency were estimated to be small in EMU, and thus are likely to be even smaller in EAMU.

At this stage, it thus seems that the benefits of the EAC common currency in terms of reduction of transaction costs would be limited. Indeed, the larger the size of intra-regional trade among EAC members, the smaller the costs and the larger the benefits of forming the currency union (Alkharofey et al., 2009; Kamaludin, et al., 2011).

IV.3. OTHER FACTORS CONTRIBUTING TO THE SUCCESS OF MONETARY UNION

IV.3.1. Flexibility of Factor Prices and Mobility of Factors

Flexibility of product, labour and capital markets is an important foundation for monetary union. This flexibility eases the response to country-specific shocks, given the

inability to use monetary policy to address them. Flexibility can take the form of internal flexibility within each country (that is, the speed with which prices and wages move to reestablish equilibrium, as well as intersectoral mobility of factors), and intra-regional mobility of factors. Labour mobility was the focus of the original OCA analysis (Mundell, 1961); it mitigates the rise in unemployment due to a decline in the demand for the goods produced in a particular location. Mobility of capital can facilitate payments between regions, channel resources to their most profitable uses, and ease the burden of adjustment to shocks by allowing structural changes to be spread out in time. However, increased capital mobility that accompanies the creation of a common currency zone is a two-edged sword. By making more financing available, it may exacerbate perverse incentives to run fiscal deficits, to take excessive risks, or to invest in speculative bubbles. The euro zone experienced this unfavourable effect of increased capital mobility in the years leading up to the 2008 crash. Market discipline was not effective in restraining fiscal excesses in Greece, property bubbles in Spain, or over-leveraged banks in Ireland. A lesson from the euro zone crisis is that institutions for reinforced fiscal surveillance and financial regulation may be needed to support a successful monetary union—to an extent that was not fully understood before the crisis.

Adam, Kombe, and O'Connell (2012) find that the degree of price stickiness is similar in the EAC to that present in other developed and developing countries. As for capital mobility, Wang (2010) finds that an aggregate measure of financial barriers differs significantly across Kenya, Tanzania, and Uganda; while an econometric analysis also suggests important differences in the extent of short-run capital mobility across EAC countries (Adam et al., 2011). Yabarra (2012), using price-based measures, concludes that capital market integration is limited in the EAC.

There is a plan to integrate capital markets in the EAC by removing all controls on capital transactions among the member countries and harmonizing capital market infrastructure—including regulations, taxation, accounting, trading systems, and cross listings of securities (EAC Capital Market Protocol, article 85). However, there is still much to do to achieve this objective. Uganda, Rwanda and Kenya have fully liberalized capital transactions within the region, even if restrictions on investments in the Kenyan

domestic market by non-residents of the EAC remain. Tanzania and Burundi have committed to fully liberalize their capital accounts by 2015.

IV.3.2. Political factors

Political factors are also important in the formation of a currency area. Political will by the leaders is crucial because membership in a currency union involves commitment to coordinate policies and to accept a loss of national sovereignty. In addition, political will is important to ensure the public's support for the process toward a monetary union (Jonung and Sjöholm, 1998). Public support is one of key factors that contribute to the sustainability of monetary union beyond short-term political cycles or terms of office. To create this support from the public, the integration process has to be conducive to higher economic growth and jobs creation as well as create regional infrastructure that impacts directly the daily life of the population.

Some empirical studies show that political factors may dominate economic criteria in successful currency areas². The full implementation of the customs union and common market protocols and the creation of surveillance and enforcement mechanisms to support EAC monetary union will depend crucially on the level of political support for the regional integration process. However, public support must supplement the determination of politicians, since the success of monetary union cannot be dependent on their political will alone, given that they may no longer be in office in a few years' time. How to involve the public in the monetary union project is discussed further below.

IV.4. ECONOMETRIC ANALYSIS OF SHOCK ASYMMETRIES AND BUSINESS CYCLES

In order to test if EAC countries are affected by common fluctuations, we examine the cyclical behavior of economic aggregates over time. Business cycle synchronization is widely used in the OCA literature to determine whether countries that are candidates to form a monetary union face correlated trend and cyclical components of their macroeconomic indicators such as GDP. One of the most used methods is the Hodrick-Prescott (1997) decomposition of GDP into trend and cyclical components. The table

²According to Mkenda (2001), the dissolution of the EAC currency board in 1966 was the result of the lack of political will to sacrifice domestic policy needs for the sake of maintaining the currency.

below shows correlations of the cyclical component of GDP among the five EAC countries over 1990-2010. Correlations are high and positive between the original members of EAC (Kenya, Tanzania and Uganda), but low or even negative with Burundi and Rwanda.

Table 4: Business cycle correlation among EAC countries: 1990-2010.

	BDI	KYA	RDA	TZ	UGA
BDI	1				
KYA	-0.1	1			
RDA	0.3	0.1	1		
TZ	0.4	0.6	0.4	1	
UGA	0.03	0.7	0.1	0.7	1

However, the picture is quite different with recent data. All of the correlations increased after 2000 (the year of the entry in force of the EAC treaty); see table 5. Thus, there is some indication that EAC countries are converging toward similar patterns of economic fluctuations—though this latest period includes few observations so it is hard to draw strong conclusions.

Table 5: Business cycle correlation among EAC countries: 2001-2010.

	BDI	KYA	RDA	TZ	UGAC
BDI	1				
KYA	0.5	1			
RDA	0.7	0.3	1		
TZ	0.8	0.7	0.5	1	
UGA	0.9	0.6	0.6	0.9	1

In order to benefit from a more homogeneous set of recent data than that available to Buigut and Valev (2005), the Blanchard-Quah decomposition was applied to data for the five EAC countries for 1995-2010³. Identification of supply shocks was obtained through the constraint that demand shocks had no long-run effect on output. The table

³The period was chosen to eliminate the period of civil war and genocide in Rwanda.

below correlates the supply shocks derived for the five countries, as well as presenting their estimated standard deviations.

Table 6: Correlations of Supply Shocks between Pairs of EAC countries

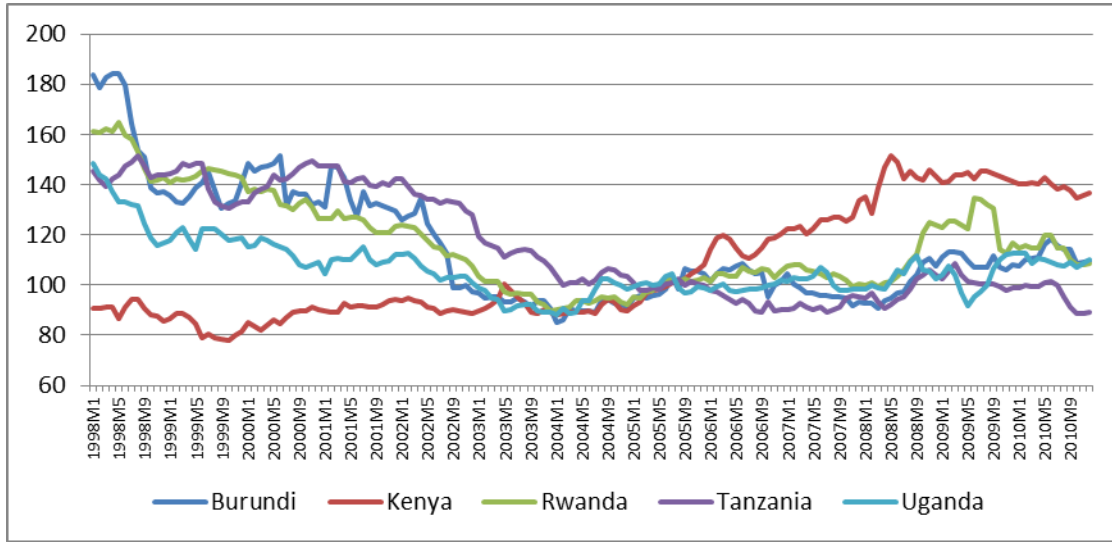
	BDI	KYA	RDA	TZ	UGA	Memo: std dev.
BDI	1					0.023
KYA	0.26	1				0.020
RDA	0.15	-0.42	1			0.027
TZ	0.33	-0.06	0.89	1		0.018
UGA	0.46	0.15	0.01	0.24	1	0.019

Source: World Bank, World Development Indicators and authors' calculations.

It can be seen that there are considerable asymmetries in supply shocks among the countries. While Burundi has positive correlations with each of the others—as does Uganda—Kenya, Rwanda, and Tanzania have some negative correlations among themselves. Given the small number of observations, only the positive correlation between Rwanda's and Tanzania's supply shocks is actually significantly different from zero at the 5% level (the critical value with 14 observations is 0.497). Low correlations should not be surprising, given the differences in production structures. Nevertheless, a promising feature is that the size of the supply shocks is quite similar in the five countries, suggesting that the amplitude of fluctuations from this source could be handled by a common monetary policy.

We also use the generalized Purchasing Power Parity (GPPP) model developed by Enders and Hurn (1994) to test if real effective exchange rates are cointegrated. This model postulates that the economic fundamentals must move together in countries that suitable for membership in a currency union. The difference with the study conducted by Mkenda (2001) is that our model is estimated using data covering the period 2000-2011, when there was no price control by EAC governments. In addition, we extend the analysis to all five countries now forming the EAC.

Graph 4 : Real effective exchange rates (2005=100)



Graph 4 shows that there have been large differences in the trends of real effective exchange rates in the region. A formal test indicates that real exchange rates in EAC countries are not co integrated, suggesting that the five countries tend to be affected by asymmetric non-stationary fundamentals--results which do not support the EAC monetary union. The same conclusion emerges when considering a sample limited to Kenya, Uganda and Tanzania.

Table 4: Co-integration of real exchange rates

Unrestricted Cointegration Rank Test (Trace)			
Hypothesized		Trace	0.05
No. of CE(s)	Eigenvalue	Statistic	Critical Value
None	0.150807	49.94672	60.06141
At most 1	0.091003	28.69583	40.17493
At most 2	0.065284	16.29205	24.27596
At most 3	0.045166	7.515416	12.32090
At most 4	0.011526	1.507110	4.129906
Trace test indicates no cointegration at the 0.05 level			
* denotes rejection of the hypothesis at the 0.05 level			
**MacKinnon-Haug-Michelis (1999) p-values			

V. CHALLENGES AND THE WAY FORWARD

It is evident from the above discussion that EAC countries differ in a number of respects and are subject to asymmetric shocks. While this does not rule out an EAC monetary union, it does suggest that preparations for monetary union should be lengthy. It will be important to achieve a greater degree of convergence before proceeding to monetary union, and safeguard mechanisms need to be properly designed to prevent stresses from developing that endanger the continued existence of the monetary union.

V.1. DESIGN ISSUES

The model for constructing a monetary union is usually assumed to be the euro zone; it is the most recent and most ambitious example of a common currency shared by several countries, in the context of a regional integration initiative. However, it is not the only example; Table 1 in the Appendix gives details concerning other existing currency/exchange rate unions⁴, and for comparison purposes, also gives data for the EAC.

The existing currency unions range from very small—the ECCU, grouping six Caribbean countries with a population of 600,000 and combined GDP of \$5 billion—to the very large euro area, now comprised of 17 countries with 331 million inhabitants and with GDP totaling more than \$12 trillion. The EAC's GDP is roughly comparable to each of the two African CFA franc zones, though it has a larger population than the two combined and lower per capita income.

The existence of a primal country in terms of size can have a determining influence on the form a monetary union takes. A case in point is the CMA, where the Republic of South Africa constitutes 95 percent of the area's GDP. Consequently, South Africa's Reserve Bank sets monetary policy for the region, on the basis of purely South

⁴ Using the terminology in Masson and Pattillo (2004), borrowed from Corden (1986), an exchange rate union is comprised of several currencies, but tightly linked together without readjustment of parities. Southern Africa's CMA qualifies, since the currencies of Lesotho, Swaziland, and Namibia have always exchanged one-for-one with South Africa's rand, which is also legal tender throughout the area.

African objectives and economic conditions (it has an inflation targeting regime and a flexible exchange rate with respect to third currencies). Other monetary unions have lesser concentration of economic activity, though the EAC, with a Herfindahl index of 0.297 for GDP shares, with Kenya accounting for 40 percent, is more concentrated than any existing common currency area if one excludes the CMA. Unlike South Africa in the CMA or Germany in the euro zone, however, Kenya does not provide a natural anchor for the region's monetary policy.

Other aspects of common currency areas also differ. The CMA allows several currencies to co-exist; the other areas all have just a single currency. The euro and the rand float against other international currencies, while the ECCU dollar and the CFA franc(s) are pegged, to the US dollar and euro, respectively. Correspondingly, monetary policies of those currencies with flexible exchange rates need a domestic monetary anchor, which is effectively the rate of inflation for both South Africa and the euro zone (though the ECB also monitors monetary aggregates). The CFA franc zones have targets for monetary expansion, but the primary constraint over monetary policy is the peg to the euro, which is also guaranteed by the French Treasury.

The model of the euro zone suggests that a thorough and effective mechanism for preventing national fiscal policies from leading to excessive deficits and debt is essential. However, the other common currency areas do not necessarily bear that out. The reason seems to be that if there are other safeguards that prevent fiscal excesses from infecting monetary policy, then a monetary union can operate without it—however desirable it may be. Conversely, a fiscal surveillance mechanism seems essential if the currency union gives to the central bank considerable discretion over monetary policy, and all countries have a say in what that policy will be. In the CMA, South Africa dictates monetary policy, while in the ECCU and CFA franc zones, the exchange rate peg constitutes the ultimate discipline over monetary policy.

Turning to the plans for monetary union within the EAC, the countries' preferred objective is a monetary union along the lines of EMU. While country sizes are unequal, there is no country that can claim to dictate monetary policy on the basis of superior past performance. Moreover, there seems to be no interest at this time in using an external

exchange rate peg to anchor the common currency. Thus the monetary policy of the union would need to be guided by a clear domestic policy framework and the dangers of fiscal dominance minimized by strong surveillance institutions. Setting up a mechanism for monitoring and enforcing the appropriate fiscal convergence criteria in the EAC will be critical for conducting monetary policy by the regional central bank and avoiding potential negative spillover effects of excessive deficits and debt in the union. How fiscal surveillance and enforcement would be achieved is however one of the main challenges facing monetary union in the EAC.

V.2. DEFINING FISCAL CONVERGENCE CRITERIA

An important issue concerns the treatment of aid flows. Levels of dependence on aid are very different in EAC countries: for example, in 2008 the budget support from donors was equivalent to 1.3 percent of GDP in Kenya, 4.3 percent of GDP in Uganda, 5.1 percent in Tanzania, 10.5 percent in Burundi, and 10.9 percent in Rwanda⁵. These differences in aid also reflect differential capacity to generate domestic revenues; thus, it would seem more appropriate that the EAC adopt a measure of fiscal deficits that is inclusive of grants. The fiscal deficit excluding grants could provide an additional measure of the degree of domestic revenue mobilization over time. This would align member countries' efforts to raise domestic revenues with donors' objectives of gradually unwinding grants over the medium-to long term.

At the same time, the EAC should consider measures to limit discretion in spending budget aid by member countries, given that levels of donor support are volatile and unpredictable and aid inflows can have an independent inflationary impact. These measures could include limitation on the ability of countries to finance shortfalls in projected aid domestically or to spend unexpected increases in aid.

V.3. ENFORCING FISCAL DISCIPLINE

It is often argued that international financial markets can enforce fiscal discipline by pricing the risks associated with increasing sovereign debt. The euro zone seems to

⁵ European Central Bank, 2010.

provide a counter example, but even if true, this role of international markets is significantly reduced in the EAC. Indeed, the EAC has underdeveloped capital markets that are not integrated with those in the rest of the world. Capital markets remain thin and can't efficiently price government securities. Government securities outstanding, with maturities of up to 30 years, comprise 27.3% of GDP in Kenya, but only 10.3% in Tanzania, 8.5% in Burundi, 8.1% in Uganda and 2.2% in Rwanda.

Table 5: EAC: Treasury Bills and Bonds Outstanding at End-2010

	Burundi	Kenya	Rwanda	Uganda	Tanzania
		Millions of US dollars			
Treasury bills and bonds	126	8,612	120	2,080	1,230
Treasury bills	n.a.	2,046	94	445	544
Treasury bonds	n.a.	6,566	25	1,635	686
		Percent of GDP			
Treasury bills and bonds	8.5	27.3	2.2	10.3	8.1
Treasury bills	n.a.	6.5	1.7	2.2	3.6
Treasury bonds	n.a.	20.8	0.5	8.1	4.5

Source: IMF (2012).

Success in meeting convergence criteria by EAC member states has been mixed so far. This poor performance is in part explained by the lack of a monitoring mechanism to ensure countries' adherence to the criteria. To build a solid foundation for the EAMU, it is important that EAC countries agree on surveillance and enforcement mechanisms for convergence criteria. One of the possibilities would be to give this mandate to the EAC secretariat. This would at a minimum require giving it greater capacity and legal powers to conduct regional surveillance and ensure that economic data submitted by the member states are correct (ECB, 2010). But doing so would not necessarily guarantee effectiveness. Fiscal policy will be the main macroeconomic policy tool available to member countries after they have given up independent national monetary policy, so sufficient discretion needs to be retained by national fiscal policies to respond to significant macroeconomic shocks, such as terms of trade shocks from international commodity prices and agricultural productivity shocks. This means that fiscal convergence has to be designed in such a way to allow short-run flexibility, while at the same time ruling out longer-term unsustainability.

The experience of Europe's euro area shows the difficulties of designing a strong surveillance and enforcement mechanism when countries retain their sovereignty over fiscal policies. The Stability and Growth Pact (SGP), agreed in 1996, was supposed to enforce euro zone budgetary discipline but the sanctions that countries not complying with agreed targets faced were in fact never applied. As a consequence, some countries ran excessive deficits for several years with impunity, and these included France and Germany, the two biggest economies of the euro zone. In September 2010, the EU commission reinforced the SGP by strengthening the preventive arm as well as sanctions, and in December 2011, the euro zone countries agreed to supplement the SGP with measures that would penalize government structural government deficits—that is, a fiscal position adjusted for the business cycle that was in the red. Under these new measures, each country is obliged to submit fiscal reports in an harmonized framework before budgets are voted by national parliaments. The CFA franc zones and the ECCU have also been led to bolster their fiscal surveillance, despite having other safeguards constraining monetary policy. EAMU will need to find a way to achieve and sustain fiscal discipline among EAC countries, in order to support the effectiveness of the monetary policy of the East African Central Bank.

Fiscal discipline is critical to avoid tensions between expansionary national budgets—which reflect needs to create infrastructures, stimulate economic growth, and put in place programs to meet Millenium Development Goals—and the regional central bank whose mandate requires it to keep inflation low and stable. The surveillance and enforcement mechanism should not be limited to fiscal policy but extended to other economic policies with significant spillovers across borders. Thus, there should be periodic reviews of macroeconomic conditions and economic policies in the five EAC countries, in order to prevent serious problems from arising and to allow for adequate and timely intervention if necessary.

The recent experience in enforcing fiscal discipline in the euro zone shows how challenging this task is. The latest measures take a further step in the direction of fiscal federalism—in which lower levels of government (in this case, national governments) have their powers restricted. This evolution of the euro zone gives some support for the

view that monetary union ultimately requires the institutions of a federal state to make it viable. A federation is also an objective of the EAC.

But perhaps the most important lesson for the EAC is that it is not sufficient to set up a surveillance and enforcement mechanism and to give it powers on paper. After a dozen years, the euro zone is still trying to find the right balance between flexibility and strict rules, and the European Commission's effectiveness in carrying out its surveillance role is still in doubt. The EAC is just starting to put in place a framework to do this, and will take an extended period of time to get up to cruising speed. It will not be able just to copy the design of EMU—which is still in a state of flux—but rather have to find its own methods to conduct effective surveillance. The challenge is great, and the period of preparation should be long enough so that effective surveillance is in place before going to a common currency. Otherwise, the crisis in the euro zone may be repeated in EAMU.

V.4. A TIMETABLE FOR EAMU

The above considerations suggest that it may be difficult to establish a precise timetable for monetary union in the EAC; instead, at most one could provide a roadmap, or conditional timetable. In the European Union, the Maastricht Treaty laid out two possible dates for monetary union, 1997 and 1999, and specified that the economic convergence criteria would be assessed six months before these dates. Monetary union would go ahead in 1997 if a sufficient number of countries qualified, and if not, it would be deferred to 1999. Given that a core group of countries in Europe was already very well advanced in convergence, it made sense to have a fixed horizon for the creation of EMU. However, in the case of the EAC, clearly a lot more convergence and institution-building needs to occur⁶.

The central problem is how to conduct surveillance effectively, such that it disciplines national fiscal policies. Enforcement will not be easy in a context where countries retain their sovereignty. Finding the right mix between mutually agreed constraints and the flexibility to use fiscal policy to respond to asymmetric shocks will be

⁶ ECB (2010) and Durevall (2011) also stress institution-building as a pre-requisite for proceeding with monetary union.

difficult, and will take time. The regional surveillance body will have to feel its way initially, gradually increasing its effectiveness. The monetary union protocol will not be able to define the rules precisely; they will have to be worked out over time as the surveillance process matures. The euro zone is still grappling with this issue after a dozen years of operation and 40 years of preparation for the single currency.

In the light of these considerations, a suitable roadmap for transition to a single currency could lay out the following steps:

- **Stage 0: Institution-building.** This stage would start when the protocol is ratified, and end when certain pre-requisites are satisfied—in particular, harmonisation of policies and economic structures, creation of other institutions, and experience in policy coordination—allowing to start the transition (the convergence phase) toward monetary union. The EAC Common Market should first become a reality and be fully implemented. Stage 1 would not start with the ratification of the protocol, but rather with a decision of the EAC Summit that the time was ripe to go ahead. Realistically, Stage 1 would not begin until 2015, at the earliest.
- **Stage 1: Convergence phase.** When the pre-requisites are satisfied, a decision could be made to set a target date for monetary union, say 2-3 years in advance, and, if provided in the protocol, to set up a parity grid for an Exchange Rate Mechanism for the 5 EAC currencies. There should also be a fall-back date 2-3 years later for monetary union if a sufficient number of countries did not qualify at the target date.
- **Stage 2: Conversion phase.** Six months before the target date countries would be examined for eligibility to proceed to monetary union. They would need to satisfy the macroeconomic convergence criteria and to have kept their currencies within the target bands without realigning. If there were a sufficient number of countries that qualified, then those countries would proceed to stage 2 at the target date, when national currencies would be converted into EACU. If not, then Stage 2 would not occur at the target date. Instead, countries would be again examined for eligibility six months before the fall-back date. Stage 2 involves the fixing of conversion rates and preparations for issuance of the common currency.
- **Stage 3: Full monetary union.** After a suitable period to do the changeover, notes and coin in EACU would be issued and national currencies of the countries in the monetary union would be redeemed. Other countries might join subsequently if they qualified.

V. 5. INVOLVING THE PUBLIC IN THE TRANSITION TO MONETARY UNION

Some of the challenges discussed above, including achieving convergence and putting in place effective institutions to provide support for monetary union, are likely to take a considerable amount of time. The example of the euro zone is telling in that regard, since it came after more than four decades of preparation and progress in other areas of regional integration. Despite that preparation, the operation of the euro zone has not met expectations and some institutional strengthening has been needed.

At the same time, politicians in the EAC countries have shown their strong support for a rapid move to monetary union, and are likely to be frustrated by delays. And lack of visible progress may detract from the credibility of the project in the eyes of the general public. On the contrary, public support is essential if the project is to proceed, and be viable. Thus designing the transition to monetary union—not just the monetary union itself—will also be very important⁷.

Ways should be found to involve the public early on in the transition to monetary union. One way would be actually to introduce a common currency at an early stage, in the form of a basket of currencies of the five EAC countries⁸. This could be done through a quasi-currency-board arrangement, in which an agency (let us call it the East African Monetary Institute, or EAMI) issued the basket currency in exchange for national currencies tendered by the public. The basket currency's value would depend on the exchange rates of the 5 component currencies; the number of units of each currency would be fixed in such a way as to reflect the economic importance of each country in the EAC.

Basket currencies of various types have been created before, but not to serve as a method for making concrete a transition to a monetary union⁹. In the current proposal, the basket currency would actually take a tangible form, through the issuance of notes and coin that would circulate throughout the EAC. At the same time, there would be no

⁷ Transitional arrangements are discussed in Adam et al. (2012).

⁸ This is described in more detail in “A Simple Method of Introducing a Regional Currency,” by Paul Masson, National Bank of Rwanda, March, 2012.

⁹ For instance, the European Currency Unit, or ECU, served as a unit of account in the European Monetary System, and eventually became the euro. But no ECU notes or coin were issued.

danger that the issuance of the new currency would add to overall liquidity, since the EAMI would fully back currency issuance with its holdings of national currencies. If someone tendered the required amount of Rwandan francs, say, to buy a given amount of the new currency, then the Rwandan franc money supply would decrease by that amount, while the money supply in the new currency would increase correspondingly.

The basket currency would have several advantages over the national currencies that it was composed of. Its exchange rate (against the US dollar, for instance) would tend to be less volatile, since some shocks to individual currencies would offset. Since it would circulate throughout the EAC, it could serve for cross-border purchases and tourism, thus economizing on transactions costs and providing a benchmark for price comparisons—the primary purpose of creating a monetary union. Making it legal tender throughout the EAC would facilitate its general acceptance. The currency would be a visible symbol of the commitment of the EAC to proceed to a complete monetary union and to regional integration generally, while familiarizing the general public with what a common currency entailed. Finally, its introduction would help create the financial infrastructure needed for the monetary union, such as a payment system in the common currency, the design and production of notes and coin, etc. The eventual monetary union would still require the creation of a true central bank with safeguards of its independence, and effective surveillance over fiscal policy. But the interim creation of the basket currency would nevertheless make important progress toward the ultimate goal.

VI. CONCLUSIONS AND POLICY RECOMMENDATIONS

Good progress has been made so far to prepare for the establishment of the EAMU. This includes steps to implement the customs union and common market protocols, and the ongoing work of the MAC to complete the harmonization of banking regulation, payment system integration, and harmonization of monetary and exchange rate policy formulation and implementation.

However, important challenges remain in building the solid foundation needed to support an EAC single currency. Compliance with the existing convergence criteria is still poor, especially the criteria for budget deficits and for inflation. So far the customs union does not appear to have much increased total intra-regional trade, and the latter is a key determinant of potential benefits that a common currency would bring through reducing transaction costs.

There is no clear evidence that the EAC is an optimum currency area despite some similarities in structure of EAC economies. EAC economies are not diversified and not highly open even if there is a clear trend toward greater openness. There is some indication of business cycle synchronization, which supports the EAMU. However, the correlations of terms of trade and structural supply shocks as well as the test for cointegration between real effective exchange rates indicate that EAC countries face asymmetric shocks, calling into question the benefits of EAMU in the current situation.

These results have important policy implications. First, the EAC countries need to increase policy co-ordination and harmonization so as to establish a coherent policy environment in the region and to enhance macroeconomic stability. Second, effective monitoring and enforcement mechanisms need to be designed, with legal power to apply sanctions to countries not complying with agreed criteria. Furthermore, the EAC countries need to integrate the macroeconomic convergence benchmarks into national planning and decision-making.

There is a clear indication of political will to support the EAC integration agenda, including the implementation of EAMU itself. This political will is key to fully implementing the common market and customs union protocols and creating an efficient enforcement mechanism with legal powers to serve as a solid foundation for monetary union. But political will must be supplemented by public support, and ways need to be found to involve the general public in the transition to monetary union at an early stage. This is especially important given that the economic convergence and institutional development needed to support monetary union is likely to take an extended period of time. A visible symbol of the commitment to monetary union, such as the early issuance of a common currency defined as a basket of existing national currencies, would contribute to generating public support.

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Appendix Table 1. Selected Indicators for Monetary/Exchange Rate Unions, 2010 1/

	CFA franc zone					memo:
	CMA	ECCU	EMU	UEMOA	CEMAC	EAC
no. of countries	4	6	17	8	6	5
GDP (billions current US\$)	\$381.7	\$5.0	\$12,145.4	\$54.6	\$70.9	\$78.7
population, millions	55.6	0.6	331.4	70.6	41.5	136.7
GDP per capita (current US\$)	\$6,860	\$8,388	\$36,651	\$773	\$1,710	\$576
Herfindahl Index, GDP shares (current US\$)	0.909	0.185	0.168	0.273	0.213	0.297
largest GDP share	0.953	0.242	0.270	0.417	0.316	0.399
Country	South Africa	Antigua & Barb.	Germany	Cote d'Ivoire	Cameroon	Kenya
single currency?	N	Y	Y	Y	Y	
external exchange rate regime	Float	Peg to dollar	Float	Peg to euro	Peg to euro	
domestic target	Inflation (SA only)	no	Inflation	money supply	money supply	
Strength of fiscal surveillance	Low	Low	Medium/High	Medium	Medium/Low	
Supranational central bank?	No, SARB sets monetary policy	Yes, a currency board	Yes	Yes	Yes	

source: World Bank, World Development Indicators and authors' calculations.

1/ monetary unions: CMA=Common Monetary Area, ECCU=Eastern Caribbean Currency Union, EMU=European Monetary Union (euro zone), UEMOA=Union Economique et Monétaire Ouest-Africaine, CEMAC=Communauté Economique et Monétaire de l'Afrique Centrale, EAC=East African Community.