# A Literature Survey on Proposed African Monetary Unions

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## Abstract

This study provides a survey of recent advances in the literature on proposed African monetary unions. The survey comprises about 60 empirical papers published during the past fifteen years. Four main strands are discussed individually and collectively, notably, the proposed: West African Monetary Zone (WAMZ), East African Monetary Union (EAMU), Southern African Monetary Union (SAMU) and African Monetary Union (AMU). We observe a number of issues with establishing the feasibility and/or desirability of potential monetary unions, *inter alia*, variations in: choice of variables, empirical strategies, sampled countries and considered periodicities. We address this ambiguity by reviewing studies with scenarios that are consistent with Hegelian dialectics and establish selective expansion as the predominant mode of monetary integration. Some proponents make cases for strong pegs and institutions as viable alternatives to currency unions. Using cluster analysis, disaggregating panels into sub-samples and distinguishing shocks from responses in the examination of business cycle synchronisation provide more subtle policy implications. We caution that for inquiries using the same theoretical underpinnings, variables and methods just by modifying the scope/context and periodicity may only contribute to increasing the number of conflicting findings. Authors should place more emphasis on new perspectives and approaches based on caveats of, and lessons from the European Monetary Union (EMU) and CFA zones.

*JEL Classification*: F15; F36; F42; O55; P52
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## 1. Introduction

A substantial proportion of the literature has been documented on the feasibility of proposed African monetary unions. Inquiries have been positioned on different countries, proxy indicators, periodicities and estimation strategies to assess whether potential currency unions are optimal or not. Empirical findings from these studies have been conflicting and diverse. The results also appear to be different depending on scope of inquiry, namely: West African Monetary Zone (WAMZ), East African Monetary Union (EAMU), Southern African Monetary Union (SAMU) and African Monetary Union (AMU). Hence, corresponding policy implications from the plethora of studies may also vary depending on contexts.

The above strands in the literature have not been structured to present a holistic perspective to policy makers, who arguably need to compare empirical evidence from different studies in order to improve their policy choices. Moreover, findings may also be contingent on regional-specific factors like, *inter alia*: economic integration, politico-economic histories, varying political and institutional arrangements and cultures (Masson, 2008).

A pilot assessment of the task to be accomplished in this study is in line with our expectations of heterogeneity because, we observe a number of issues with establishing the feasibility and/or desirability of potential monetary unions, *inter alia*, variations in choice of variables, empirical strategies, sampled countries and considered periodicities. We address this ambiguity by engaging some strands with scenarios that are consistent with Hegelian dialectics. These include: (i) a thesis for feasibility; (ii) an anti-thesis when studies do not establish feasibility; (iii) a synthesis when conditional feasibility is apparent and (iv) justifications for the first-three scenarios. Hence, the feasibility of proposed monetary zones on the continent can be summarised into four main perspectives with each having relevant and/or specific implications for monetary policy.

*First*, a potential monetary union is feasible when (i) it is well designed to be robust in the face of a variety of macroeconomic shocks and (ii) candidate countries are converging towards some established common criteria. *Second*, for a potential monetary union to be impractical, the opposite criteria enunciated for feasibility should be observed. *Third*, a potential currency union may be both feasible and unfeasible contingent on the implementation of certain recommendations. Within this framework, it is established that the potential union is not realistic but could be achievable in the future with the formulation and implementation of some policies. *Fourth*, in order to enhance policy prescription, it is relevant

to briefly ask why each of the three underlying conclusions might be drawn. The above narrative is consistent with Asongu (2013a, 2014a).

It is also important to substantiate the above scenarios with some examples. For this purpose, we use three studies on the WAMZ published in 2005 to clarify the three scenarios. *First,* Ogunkola (2005) has justified a feasible (or yes) scenario with evidence of increasing convergence in Real Exchange Rate (RER). *Second,* the unfeasible (or no) scenario has been established by Debrun et al. (2005) with evidence of fiscal heterogeneity. *Third,* Bénassy-Quéré and Coupet (2005) have been ambiguous and have established a yes/no scenario, based on correlations in economic growth, debts and trade variables. The authors have recommended: (i) an extended West African Economic and Monetary Union (WAEMU) without Nigeria, but with Ghana, the Gambia and Sierra Leone, or (ii) the creation of a distinct monetary zone with core WAEMU countries, including the Gambia and excluding Nigeria. It follows that the WAMZ may be feasible contingent on specific groupings or clusters of countries.

Another relevant aspect worth elucidating is that underlying heterogeneity in findings and corresponding policy recommendations may be traceable to several factors, notably, dissimilarities in variables, periodicity, sample and methodology. *First,* variability in optimal currency area (OCA) indicators have already been highlighted above, namely: the real exchange rate (RER) fiscal indicators and plethora of macroeconomic variables (economic growth, trade and debt). *Second,* the periodicity employed in the first, second and third scenarios of our examples are respectively: 1970-1997, 1996-2000 and 1990-2004. *Third,* samples also differ with focus on: (i) the Economic Community of West African States (ECOWAS) in the first-two scenarios and (ii) 17 African countries in the third scenario. *Fourth,* a calibration model, a RER variability model and cluster analysis are employed in the first, second and third scenarios respectively. In light of the above, it becomes apparent that the observed heterogeneity in results may be traceable to the substantiated factors.

As far as we have reviewed, this is the first line of inquiry to review the literature on proposed African monetary zones. We survey studies that have assessed the underlying issue covering the period 1964-2010, published during the past 15 years for the most part. The objective of the study is to put some structure on the empirical literature in order to provide policymakers with the much needed guidance on the issues. The survey is timely given that none of the proposed monetary unions has launched a single currency yet. The relevance of the findings may not be limited to policymakers concerned with the African continent, but

could have scope for other comparative economies in Asia and Latin America harbouring similar intensions for currency unions.

The rest of the survey is structured as follows. Section 2 reviews the literature focusing on the WAMZ, while Section 3 is oriented towards the EAMU. Section 4 tackles concerns with the SAMU. We devote space to an AMU in Section 5. Section 6 covers a further discussion of results and implications while Section 7 presents concluding lessons.

## 2. The Proposed West African Monetary Zone (WAMZ)

In this section, as summarised in Table 1, we engage a chronological list of empirical studies that have focused on assessing the proposed WAMZ by author, periodicity, sampled countries, methodology, feasibility and justifications/recommendations. In most studies within this strand of the literature, results are mixed with conclusions on viability (Ogunkola, 2005; Diop, 2012), impracticality (Debrun et al., 2005; Tsangarides & Qureshi, 2006; Houssa, 2008; Cham, 2009; Alagidede et al., 2012; Chuku, 2012; Dufrénot & Sugimoto, 2013; Asongu, 2013b, 2014bc ; Harvey & Cushing, 2015) and conditional feasibility (Bénassy-Quéré & Coupet, 2005; Bangaké, 2008; Ekpoh & Udoh, 2013; Asongu, 2014a; Saka et al., 2015).

Ogunkola (2005) is quite optimistic about the viability of a currency zone in the ECOWAS region. The author has used a RER variability model to show that the sub-region is increasingly closer to a monetary union. According to the narrative, by implementing structural adjustment programmes (SAPs) in ECOWAS, governments of countries have enhanced the much needed convergence for a common monetary union. Nonetheless, the author is also cautiously optimistic by asserting that there are some tangible variations between RER shocks confronted by West African countries of the French Colonies of Africa (CFA) zone, relative to their non-CFA counterparts. In this light, the author recommends that further convergence is needed in economic policy as well as an alternative to dependence on income accruing from taxes generated by international transactions needed for Western African monetary integration.

Debrun et al (2005) have also assessed the potential for monetary integration in ECOWAS by employing a model of fiscal and monetary policy interactions. Their results show that the proposed currency area is feasible for most non-WAEMU countries, but not for the current WAEMU countries.

Celasun and Justiniano (2005) have employed a dynamic factor analysis to investigate the synchronization of fluctuations in output among ECOWAS member states. The results show that small countries are comparatively more harmonized with respect to variations in output. In conclusion, the authors have suggested selective monetary unions based on country subsets instead of wider monetary integration.

Cluster analysis has been employed by Bénassy-Quéré and Coupet (2005) to assess the optimality of the WAEMU, Central African Economic and Monetary Union (CAEMU), ECOWAS and WAMZ as common currency zones. The authors have concluded that the CFA zone is not an optimal currency area (OCA). They have also sustained that a monetary union in ECOWAS, with the inclusion of Nigeria, is not economically practical. According to the narrative, Sierra Leone, the Gambia and Ghana can align with the WAEMU for a common monetary area.

Using the same empirical underpinnings of cluster analysis, Tsangarides and Qureshi (2008) have employed a set of macroeconomic variables to the convergence criteria and OCA theory to conclude that WAMZ and WAEMU are significantly heterogeneous. Moreover, consistent with Bénassy-Quéré and Coupet (2005), there are substantial dissimilarities between WAEMU and CAEMU. Meanwhile, important similarities are apparent between WAMZ and CAEMU countries.

Diop (2007) employs a gravity model on bilateral trade data between ECOWAS member states to establish that structural and geographic factors as well as membership within the WAEMU substantially influence the intensity of trade relations in Africa. The author concludes that a common currency area in the region would increase intra-regional trade and further argues that the underlying trade intensity can be further enhanced by placing more emphasis on the structural reforms essential for economic diversity, infrastructural development and convergence in macroeconomic performance and policies. The recommendations of Diop (2007) are consistent with those of Ogunkola (2005) who had earlier expressed strong optimism with regards to the currency union, but also advised on further implementation of SAPs in candidate countries.

Houssa (2008) has employed a dynamic factor model to show that a monetary union in the ECOWAS region would be costly from an economic standpoint based on asymmetric evidence of supply shocks between candidate countries. The author has also emphasised that the presence of some positive correlation in demand shocks is less relevant than supply shocks within a currency area because of its temporal effect on output.

Masson (2006, 2008) have engaged in a cost-benefit analysis for West Africa, with particular emphasis on the concern about endogeneity. The author has concluded that, whereas a monetary zone could engender substantial trade impacts among potential member states, it is feasible for countries within ECOWAS to form a currency union without Nigeria, which might be relatively better-off compared to other countries.

The findings of Bénassy-Quéré and Coupet (2005) have been confirmed by Bangaké (2008) who has investigated the nexus between bilateral exchange rate viability and OCA-related indicators. The authors, while emphasising that Ghana could be included in the WAEMU, are strongly against the involvement of Nigeria in the WAMZ or extension of the WAEMU to include Nigeria.

Alagidede et al. (2012) have used cointegration methods and fractional integration to investigate inflation dynamics and common tendencies in the real domestic product of candidate countries in the WAMZ, to establish evidence of substantial heterogeneity. In the same year and for the same ECOWAS region, Chuku (2012) has emphasised that, compared to external shocks that are symmetric, internal shocks are likely to be asymmetric. According to the author, about 85 percent of correlations in demand, supply and monetary shocks within the sub-region are asymmetric, whereas external or real exchange rate shocks have a symmetric tendency. The findings of Chuku align with those of Debrun et al. (2015), Tsangarides and Qureshi (2008), Houssa (2008) and Alagidede et al. (2012) illustrated a questionable OCA that is an embodiment of all candidate countries in the sub-region.

**Table 1: Summary of empirical studies on the proposed West African Monetary Zone (WAMZ)**

| Author(s) | Period | Countries | Methodology | Feasibility | Justification/ recommendation |
|---|---|---|---|---|---|
| Ogunkola (2005) | 1970-1997 | ECOWAS | A RER variability model | Yes | Growing RER convergence |
| Debrun et al. (2005) | 1996-2000 | ECOWAS | A calibration model | No | Presence of fiscal heterogeneity |
| Bénassy-Quéré & Coupet (2005) | 1986-1999 | 17 Sub-Saharan African countries(CAEMC, WAEMU, WAMZ and ECOWAS) | Clustering analysis | Yes/No | Yes with Gambia, Ghana and Sierra Leone |
| Diop (2012) | 1997-2004 | ECOWAS | Gravity model | Yes | Substantial gains in trade |
| Tsangarides & Qureshi (2008) | 1990-2004 | ECOWAS | Clustering analysis | No | Dissimilar economic characteristics between WAMZ and WAEMU |
| Bangaké (2008) | 1990-2003 | 21 African countries | system of simultaneous equations and GMM | Yes/No | Yes with Ghana, No with Nigeria |
| Houssa (2008) | 1966-2000 | ECOWAS | VAR | No | Asymmetry of supply shocks |
| Masson (2008) | 1995-2000 | ECOWAS | Welfare gain analysis | Yes/No | Selective expansion |
| Cham (2009). | 1980-2005 | ECOWAS | Exploratory convergence criteria | No | Significant absence of convergence |
| Alagidede et al. (2012) | 1961-2010 | Gambia, Ghana, Guinea Bissau, Nigeria and Sierra Leone | Fractional integration and cointegration | No | Heterogeneity in inflation and economic trends |
| Chuku (2012) | 1970-2010 | ECOWAS | Symmetry and/or | No | Costs (asymmetry) outweigh |

| | | | | | |
|---|---|---|---|---|---|
| | | | asymmetry of responses to macroeconomic shocks. | | benefits (symmetry of shock). |
| Ekpoh & Udoh (2013) | 2005-2010 | ECOWAS | Exploratory convergence criteria. | Yes/No | Yes, but at the price of monetary policy. ineffectiveness is boosting output. |
| Coulibaly & Gnimassoun (2013) | 1985-2009 | ECOWAS | Convergence and co-movements between exchange rate misalignments. | Yes/No | The WAEMU could be joined by Ghana and Gambia. |
| Dufrénot & Sugimoto (2013) | 1999-2008 | ECOWAS | Counterfactual analyses and simulations. | No | Simulations show little support for a dominant peg. |
| Asongu (2013b) | 1980-2010 | Gambia, Ghana, Nigeria, Sierra Leone | Granger causality | No | Non-traditional monetary policy instruments. |
| Asongu (2014a) | 1980-2009 | The Gambia, Ghana, Nigeria and Sierra Leone | Cointergration and VECM | Yes/No | Evidence of cointegration but with dissimilar nexus of fundamental with the equilibrium. |
| Asongu (2014b) | 1981-2009 | Gambia, Ghana, Nigeria, Sierra Leone | GMM | No | Lack of real, monetary and fiscal policy convergence. |
| Asongu (2014c) | 1980-2010 | Gambia, Ghana, Nigeria, Sierra Leone | VAR | No | Ineffective monetary policies. |
| Saka et al. (2015) | 2000-2008 | ECOWAS | Panel least squares and beta convergence. | Yes/No | Evidence of income convergence but more integration is needed. |
| Harvey & Cushing (2015) | 1987-2011 | Gambia, Ghana, Guinea, Nigeria, Sierra Leone | Structural VAR, impulse-response and variance decomposition. | No | Uncommon sources of shocks and asymmetric responses to common shocks. |

ECOWAS: Economic Community of West African States. RER: Real Exchange Rate. CAEMC: Central African Economic and Monetary Community. WAEMU: West African Economic and Monetary Union. GMM: Generalised Method of Moments. VECM: Vector Error Correction Model. VAR: Vector autoregression.

Coulibaly and Gnimassoun (2013) have employed a new methodology to assess the optimality of a monetary union in West Africa. Using an estimation technique based on catch-up, co-movements between misalignments in exchange and cluster analysis, the findings show that the WAEMU which is the most homogeneous zone in Western and Central Africa can be joined by the Gambia and Ghana and to a lesser extent Sierra Leone. Moreover, Senegal and Ghana are referenced nations for the creation of such a monetary union. The exclusion of Nigeria by Coulibaly and Gnimassoun concurs with previous literature.

Counterfactual analyses and estimation of a dependent-economy model for small commodity-exporting nations is used to compare various nominal anchors that boost external and internal competitiveness in the event of fixed exchange regimes within ECOWAS (Dufrénot and Sugimoto, 2013). Four anchor currencies are considered, namely: the yen, US dollar, the euro and the yuan. Corresponding simulation findings show little support for a dominant peg in the region if the following goals are to be pursued in the potential monetary union. They are: (i) minimization of exchange rate variability, (ii) maximization of export revenues and (iii) stabilization and minimization of RER misalignments based on fundamental value.

Ekpoh and Udoh (2013) focus on what is required to enhance the process of monetary integration by providing an analytical perspective of the costs of monetary union stability, notably the loss of country-specific ability to use monetary policy to stimulate aggregate productivity. The authors further argue that, economic policy coordination and channels of effective risk-sharing would improve a monetary union's consolidation process.

As in the case of Dufrénot and Sugimoto (2013), Asongu (2013b) has also stimulated an inquiry with externalities like the recent Euro crisis. His short-run Schumpeterian trip to the embryonic WAMZ with Granger causality reveals bleak findings for the region, essentially because corresponding results are consistent with the non-traditional strand of monetary regimes for which appropriate policy instruments cannot be used in the short-run to offset adverse output shocks. Within the same framework of the euro crisis hunting embryonic African monetary zones, Asongu (2014a) has shown that the long-run behaviour of real exchange rate in the WAMU can be explained by changes in productivity, terms of trade, openness, investment and debts. Moreover, the author finds evidence of stable error correction mechanisms, with four out of five long-run relationships having the correct signs. He has however expressed some scepticism based on further evidence of substantial cross-country disparities in connections between RER and macroeconomic fundamentals. Asongu (2014b) has extended Asongu (2014a) by investigating convergence in real, monetary and fiscal policies to conclude on a substantial absence in the much needed catch-up for policy harmonization. Asongu (2014c) further extends Asongu (2014ab) by analysing the impacts of monetary policy on economic activity in the region to establish that the proposed WAMZ cannot employ policy instruments to dampen adverse output shocks by either pursuing a contractionary or an expansionary policy.

Using a methodology based on the convergence criteria, Saka et al. (2015) established evidence of income convergence. They concluded that more integration would enhance the objectives of long-term steady growth among countries. Differences between the findings of Saka et al. (2015) and Asongu (2014b) may be traceable to variations in periodicity and methodology. A structural vector autoregressive model (SVAR) is employed by Harvey and Cushing (2015) to find that: (i) common sources of shocks are not apparent in a zone due to diverse country-specific economic structures, (ii) the correlation of underlying structural shocks reveals that countries would have different responses to a common monetary policy

owing to asymmetric responses to common demand, monetary and supply shocks and (iii) a common monetary union is neither feasible immediately nor in the short-term.

As we have observed from Ekpoh and Udoh (2013), some lines of inquiry are more focused on providing requirements needed for the transition to a common monetary union, as opposed to directly engaging in the debate on whether a currency union is feasible or not. This is the case with Quah (2015) who has evaluated the appropriateness of WAEMU forming a currency zone by concluding that, of the world's three largest economies dominating in the region, the emerging Chinese yuan is preferable to the euro as peg or monetary anchor.

## 3. The Proposed East African Monetary Union (EAMU)

In this section, we summarise empirical studies on the proposed EAMU in a chronology that is consistent with Hegelian dialectics, notably: (i) a thesis on studies presenting a case for the monetary union (Mkenda, 2001; Bangaké, 2008; Asongu, 2013b), (ii) an anti-thesis on papers that have recommended against the common currency area (Buigut, 2011; Rusuhuzwa & Masson, 2012; Davoodi et al., 2013; Mafusire & Brixiova, 2013; Lepetit et al., 2014; Asongu, 2014bc) and (iii) a synthesis for inquiries that have presented a case for the monetary zone, contingent on substantial policy efforts from candidate countries (Buigui & Valev, 2005 ; Falagiarda, 2010; Kishor & Ssozi, 2011; Sheik et al., 2011). From an initial assessment, like with the case of the WAMU, we find that empirical results and corresponding recommendations differ by authors, periodicity, sampled countries and methodology.

In the first strand of the thesis, Mkenda (2001) has employed a Generalized Purchasing Power Parity (GPPP) model to examine the suitability of the EAC (East African Community) for a common monetary zone. The findings suggest that the EAMU is an OCA because RERs between candidate countries were cointegrated during the period 1980-1998. It is important to note that Mkenda used a sample of old EAC, which excludes Burundi and Rwanda. In a similar vein, Bangaké (2008) has used the same sample with a different periodicity and methodology to establish findings that are consistent with those of Mkenda (2001) when Burundi and Rwanda are excluded from the current EAC sample. More recently, Asongu (2013b) has taken a short-run Schumpeterian trip to the EAMU using Granger causality to conclude that the region is a feasible one for a monetary union because it is consistent with discretionary policy arrangements. In other words, in the short-term, monetary policy instruments can be employed to offset adverse shocks to output.

There are relatively more studies in the second strand on the anti-thesis, documenting papers which have concluded that the EAMU is unworkable. There are seven studies in this strand.

*First,* Buigut (2011) has used techniques of cointegration to assess if candidate members of the EAC make-up a feasible monetary union. Using exchange rates and monetary base, the study concludes that there is an existence of partial convergence. Hence, a fast-track process would entail considerable cost for the candidate countries. The authors recommend that potential member states engage in substantial adjustments in order to align their monetary policies with some tolerance in policy coordination in order to enhance the convergence needed for a sustainable monetary union.

*Second,* Rusuhuzwa and Masson (2012) have shown that countries in the EAC substantially differ in terms of asymmetry shocks and structures of production. They conclude that the building of effective institutions for enforcing fiscal discipline and enabling macroeconomic surveillance are essential. According to them, instead of fast-tracking the process, introducing a common basket currency in parallel with national currencies is recommendable.

*Third,* policy recommendations from Buigut (2011) and Rusuhuzwa and Masson (2012) which have been positioned on a fast-track process for the year 2012 should have been taken into account by policy makers. This is essentially because Mafusire and Brixiova (2013) have positioned their inquiry on the adoption of a single currency in the region by 2015. They concluded on the absence of macroeconomic convergence and argued that a quick transition to a currency area is not advisable. They recommend, structural reforms, entailing the bridging of infrastructural gaps and policy harmonization that would enhance business cycle management.

*Fourth,* Davoodi et al. (2013) investigate whether monetary policy can be employed to influence output and inflation in the EAC to establish that the currency union is unworkable because: (i) Monetary Transmission Mechanisms (MTM) are conflicting depending on whether statistical inferences are standard or non-standard and (ii) in the presence of MTM, their relevance differ across countries. Moreover, mainstream policy instruments such as the interest rate and reserve capital are ineffective.

Fifth, a stylized model that allows for uncertainty rewards from fiscal, financial and monetary stability has been employed by Lepetit et al. (2014) to conclude that, in the presence of uncertainty, only Rwanda might prefer a monetary union on the grounds of fiscal stability.

The authors further recommend robust institutional arrangements for improvements in fiscal, monetary and financial stability.

Sixth, Asongu (2014b) assesses convergence in real, monetary and fiscal policies. He remarked that the harmonisation which is needed for policy harmonization is lacking.

Seventh, as an extension, Asongu (2014c) has concluded that there is general ineffectiveness of monetary policy in influencing economic activity (or output and prices). The findings are broadly aligned with those of Davoodi et al. (2013) and are also positioned on the use of monetary policy instruments to manage economic activity.

**Table 2: Summary of empirical studies on the proposed East African Monetary Union**

| Author(s) | Period | Countries | Methodology | Feasibility | Justification/ recommendation |
|---|---|---|---|---|---|
| Mkenda (2001) | 1980-1998 | Kenya, Tanzania, Uganda | Generalized Purchasing Power Parity (GPPP) model. | Yes | Cointegrated real exchange rates between member states. |
| Buigut & Valev (2005) | 1970-2001 | Kenya, Tanzania, Uganda, Burundi, Rwanda (EAC) | Structural vector autoregressive analysis. | No | Asymmetric demand and supply shocks. |
| | | | | Yes, with more integration | Similar speed and magnitude in adjustment of shocks. |
| Bangaké (2008) | 1990-2003 | 21 African countries | System of simultaneous equations and GMM. | Yes | Yes for Kenya, Tanzania, Uganda (structural similarities). |
| Buigut & Valev (2009) | 1990-2004 | EAC | Simulation of welfare effects from a monetary union | Not definite | Mutual restraint in monetary policy is a potential benefit. |
| Falagiarda (2010) | 1990-2006 | EAC | Cointegration analysis. | Yes/No | Single currency viable but currently doubtful. |
| Buigut (2011) | 1997-2008 | EAC | Cointegration techniques on exchange rates and monetary base. | No | Only partial convergence. |
| Kishor & Ssozi (2011) | 1970-2007 | EAC | Unobserved component model and time-varying parameter model. | Yes/No | Increased but weak business cycle synchronisation since 2000. |
| Sheik et al. (2011) | 1980-2010 | EAC | Cross country correlation and variance analysis. | Yes/No | Similar business patterns, but for Rwanda. |
| Rusuhuzwa & Masson (2012) | 1990-2010 | EAC | Correlation and cointegration of business cycle and shocks. | No | Substantial asymmetric shocks and production structures. |
| Davoodi et al. (2013) | 2000-2010 | EAC | Structural vector auto-regression analysis (SVAR) | No | Weak Monetary Policy Transmission Mechanism. |
| Asongu (2013b) | 1980-2010 | EAC | Granger causality. | Yes | Traditional monetary policy instruments. |
| Mafusire & Brixiova (2013) | 1980-2009 | EAC | SVAR | No | Lack of macroeconomic convergence. |
| Lepetit et al. (2014) | 2003-2010 | EAC | Stylised model of policymakers' decision problem | No | Uncertainty does not allow for monetary and financial stability. |
| Asongu (2014b) | 1981-2009 | EAC | GMM | No | Lack of real, monetary and fiscal policy convergence. |
| Asongu (2014c) | 1980-2010 | EAC | VAR | No | Ineffective Monetary policies. |

Notes. VAR: Vector autoregressions. GMM: Generalised Method of Moments.

The third strand on synthesis (yes/no scenario) is an embodiment of four major studies. They are motivated by the emphasis of Angeloni and Dedola (1999) on the need to distinguish shocks from responses, Buigut and Valev (2005) have built on weaknesses of previous methodologies (e.g that used by Mkenda, 2001) to adopt one that separates errors

from responses. Their findings show: (i) asymmetric demand and supply shocks and (ii) the speed and magnitude of adjustments to shocks are symmetric across countries. Based on this evidence, enhanced integration among candidate states could provide a favourable framework for a monetary union in the EAC. Besides, by assessing some traditional optimum currency areas, criteria and employing cointergration analysis to investigate the behaviour of real exchange rate Falagiarda (2010) has suggested that, whereas a common currency area in the region is a viable option, there are some statistical and country-specific anomalies that raise some doubts on quality of findings. Additionally, Kishor and Ssozi (2011) have used synchronization of the business cycle as criteria of optimum currency area to conclude that, while the rate of harmonization has increased since the EAC Treaty was enforced in the year 2000, the degree of interrelatedness is still relatively weak, given that the proportion of shocks common to candidate states is still small. On the same basis of business cycle co-ordination, Sheik et al. (2011) have used extracted business trends and cycles to examine correlations and variances of annual GDP data. The findings show that four EAC nations (with the exception of Rwanda) exhibit similar tendencies in business patterns. They concluded that while these countries have similar cycle and transitory components, they display differences in permanent components of the growth tendency.

As with the preceding section on the WAMZ, some studies have not directly focused on assessing the feasibility of the EAMU, but aligned with the principal investigation of factors that can enhance the process of consolidation. In this vein, Buigut and Valev (2009) built on their previous study to caution that the exercise of mutual restraint on monetary policy is paramount for potential rewards from a common currency in the EAC.

## 4. Southern African Monetary Union (SAMU)

Consistent with the narrative of the previous section, we review studies on the proposed SAMU with Hegelian dialectics, namely: (i) a thesis on studies presenting a case for the monetary union (Grandes, 2003; Debrun & Masson, 2013), (ii) an anti-thesis for works that have recommended against the common currency area (Agdeyegbe, 2009) and (iii) a synthesis on inquiries that present a case for a monetary zone contingent on substantial efforts from candidate countries (Khamfula & Huizinga, 2004; Jefferis, 2007; Wang et al., 2007; Bangaké, 2008; Masson, 2008; Zehirun et al., 2015). As with previous sections, the findings are conditional on a number of factors, namely periodicity, methodology and

sampled countries. We also notice that studies in the strand on synthesis are substantially more than the two other parts combined.

In the first aspect, Grandes (2003) assessed two main concerns, notably on: (i) whether the Common Monetary Area (CMA) in Southern Africa is an optimum currency area (OCA) and (ii) the benefits and costs experienced by countries participating in the CMA. The author confirmed the existence of a significant evidence of combined positive impact resulting from higher levels of openness and common diversification. According to the econometrics finding, the CMA (Lesotho, Namibia, South Africa and Swaziland) form an OCA based on the presence of common long-term tendencies in their bilateral real exchange rates. Ten years after, Debrun and Masson (2013) presented a quantitative investigation of welfare impacts from the CMA (that is extended with some groups of SADC countries) to advise that: (i) all CMA members would benefit from participating, (ii) joining the CMA by SADC members is beneficial to all, with the exceptions of Angola, Tanzania and Mauritius and (iii) a SADC-wide symmetric currency area continues to be beneficial for all, without Mauritius.

In the second strand on anti-thesis, Agdeyegbe (2009) assessed the optimality of a currency area in the SADC through the prism of inflation and nominal exchange rate convergence. Based on time-varying parameters, there is strong evidence of non-convergence in consumer price inflation and nominal exchange rates, which indicates that SADC is not yet ready to satisfy criteria similar to the Maastricht-type for the Euro.

The area on the synthesis or papers documenting feasibility based on some reservations entails four main studies. They comprised (1) Khamfula and Huizinga (2004) have used the GARCH model to assess the real exchange rate (vis-à-vis South Africa) in order to elucidate divergences in fiscal and monetary policies. The findings show that monetary integration would considerably eliminate real exchange rate variations owing to country-specific monetary policies. However, the study has also cautioned that it is not recommended that all SADC members form a currency union because corresponding costs outweigh benefits. (2) Wang et al. (2007) have employed convergence, and adjustment analyses to conclude that while there is evidence of integration, more symmetric responses to shocks are required. (3) Jefferis (2007) investigated the extent to which fundamental monetary and economic indicators (inflation, exchange rates and interest rates) are converging within the SADC. He advised that a core convergence group in the CMA consists of Lesotho, Namibia, South Africa and Swaziland, including, Botswana, Mozambique, Mauritius and Tanzania. The

non-converging group includes Angola, the Democratic Republic of Congo (DRC), Malawi, Zimbabwe and Zambia. The author also notes some heterogeneity within the convergence groups, notably in: (i) full labour and capital mobility, (ii) intra-regional trade and (iii) substantial political constraints. (4) Bangaké (2008) established that reasonable structural catch-up is present between Malawi, Zimbabwe and Zambia. The author concluded that a monetary union embodying these three countries would be associated with less cost. This finding is contrary to previous results by Khamfula and Huizinga (2004) which stressed the feasibility of a monetary union within SADC that included Malawi, Mauritius, South Africa and Zimbabwe. (5) Countries in Southern Africa have also been studied by Zehirun et al. (2015) who joined the previous narratives in concluding that a SADC monetary union is feasible without Angola and Mauritius.

**Table 3: Summary of empirical studies on the proposed Southern African Monetary Union**

| Author(s) | Period | Countries | Methodology | Feasibility | Justification/ recommendation |
|---|---|---|---|---|---|
| Grandes (2003) | 1990-2001 | Botswana, Lesotho, Namibia, Swaziland , South Africa | Cointegration and cost/benefit analysis. | Yes | Common long-run trends. |
| Khamfula & Huizinga (2004) | 1980-1996 | SADC | GARCH Model to assess disturbances in RER. | Yes/No | Yes for South Africa, Botswana, Lesotho, Malawi, Mauritius, Namibia, Swaziland and Zimbabwe. |
| Khamfula & Mensteab (2004). | 1995-1999 | SAMU (Southern African Monetary Union) | Cost and Benefit analysis. | Not definite | Structural adjustment policies are needed to enhance integration needed for the SAMU. |
| Jefferis (2007) | 1990-2002 | SADC | Macroeconomic and monetary convergence. | Yes/No | Selective expansion. |
| Wang et al. (2007) | 1980-2005 | CMA | Integration, convergence, shock and adjustment analyses. | Yes/No | Evidence of integration but more symmetric responses to shocks are needed. |
| Bangaké (2008) | 1990-2003 | 21 African countries | System of simultaneous equations and GMM. | Yes/No | Yes for Malawi, Zambia and Zimbabwe. |
| Masson (2008) | 1995-2000 | SADC | Welfare gain analysis. | Yes/No | Selective expansion. |
| Agdeyegbe (2009) | 1992-2000 | SADC | Estimating time-varying convergence parameters. | No | Non convergence in exchange rate and inflation. |
| Debrun & Masson (2013) | 1994-2010 | SADC | Welfare gain analysis. | Yes | Most members would benefit. |
| Zehirun et al. (2015) | 1995-2012 | 11 SADC member countries | Cointegration and VECM. | Yes, without Angola and Mauritius. | Generalised Purchasing Power Parity (GPPP) hypothesis holds. |

Notes. SADC: Southern African Development Community. CMA: Common Monetary Area. GARCH: Generalised Autoregressive Conditional Heteroscedasticity. RER: Real Exchange Rate.

In accordance with the atypical discourse in previous sections, some studies have not specifically focused on assessing the feasibility of the SAMU. Within this framework, Khamfula and Mensteab (2004) have examined the sources of benefits and costs as well as the role SAPs played in enhancing the convergence process. They established that compliance with current SAPs would heighten the rate of economic integration needed for a monetary

union within the SADC. There are some concerns however, notably regarding, the elusiveness of whether: (i) conducive SAPs should be maintained and (ii) all member states would accept them.

## 5. African Monetary Union (AMU)

Heterogeneity in African countries has brought about an important concern of geography in the objective of currency unions, first raised by Masson and Patillo (2004). Consistent with Coulibaly and Gnimassoun (2013), we argue here that due to economic asymmetries, it is relevant to investigate potential suitable geographical zones that can form a monetary area in Africa.

In accordance with the discourse in previous sections, we also present in this section on the AMU with the Hegelian dialectic, which embodies: (i) a thesis on studies presenting a case for the AMU (Guillaume & Stasavage, 2000; Tsangarides et al., 2006); (ii) an anti-thesis against it (Bayoumi & Ostry, 1997; Karras, 2007) and (iii) syntheses on works that have documented a case for the AMU with some strong reservations (Yehoue, 2005; Buigut, 2006; Buigut & Valev, 2006; Masson, 2006, 2008; Debrun et al., 2011; Tsangarides & Qureshi, 2015). Still in line with previous sections, the findings are conditional on a number of factors, notably: periodicity, methodology and sampled countries. As in the case of SAMU, we also observe that works in the strand on synthesis are substantially more than those in the two other elements combined.

To the best of our knowledge, the first strand begins with Guillaume and Stasavage (2000) who have argued that African nations are short of the efficient political institutions needed for a credible commitment to financial stability. They argue that an alternative means to sound commitment towards macroeconomic policies can be provided with the help of monetary unions. The conditions required for this sound commitment include, *among others*: (i) the design of monetary unions to maximise effective enforcement of monetary rules, (ii) that exit should be structurally costly and (iii) that states seeking to break the rules should be severely sanctioned. Tsangarides et al. (2006) have shown with the help of a gravity model that membership to a currency union would be rewarding to Africa as a whole, especially in terms of increased trade.

The second strand on anti-thesis also comprises two studies. Bayoumi and Ostry (1997) who investigated whether current (and substantially fractured) currency arrangements in Sub-Saharan Africa (SSA) are consistent with the theory of optimum currency area After

analysing the correlation of intra-regional trade and real cross-country disturbances, the findings show little evidence that countries in SSA would be rewarded by larger currency unions in the near future. In another study, Karras (2007) has assessed the macroeconomic benefits and costs of adopting a single currency in thirty-seven African countries. The author finds that, based on estimated costs and benefits, some countries have more to gain (Ghana, Uganda and Guinea) and little, if anything to lose (Cote d'Ivoire, Morocco and Gabon) by adopting a common currency. In addition, empirical findings provide some country comparative insights, particularly: (i) Nigeria being a more promising candidate for an AMU than Kenya and (ii) Zambia a better candidate than, say Mauritius or Benin.

The plethora of studies in the third strand (on synthesis) are discussed in two major streams, notably: (i) studies that have focused on the feasibility of common currency areas and (ii) works that make the case for strong pegs as substitutes for monetary zones. There are five main studies in the first stream. They are: (1) Yehoue (2005) who used historical data on trade, inflation and co-movements in output and prices to argue that an AMU would entail a gradual path, without necessarily leading to a continental currency. The author recommended regional currency blocks prior to the emergence of a continental block, mainly in: West Africa, Southern Africa and Central Africa. Moreover, from a trade criterion, the euro appears to be a good peg. (2) The concern of overlapping membership upon the initiative of monetary integration in Eastern and Southern Africa (ESA) represents a major issue for enhanced regional integration[2]. In an attempt to resolve the underlying concern, Buigut (2006) has employed cluster analysis based on nominal and real catch-up criteria. Corresponding convergence patterns do not confirm the case for an ESA-wide currency union. Conversely, two clusters in Southern and Eastern Africa are established, implying that a two-track currency integration course is preferable. (3) Buigut and Valev (2006) extend Buigut (2006) with a VAR technique for synchronising demand and supply disturbances to establish: (i) the existence of three sub-regional clusters and (ii) that sub-regions may be rewarded with a peg on the Euro. (4) The findings of Masson (2008) are broadly consistent with those of Buigut and Valev on selective expansion based on clusters with strong convergence in the relevant common policies. (5) Debrun et al. (2011) have deployed a cost-benefit assessment in Africa by estimating key equilibrium relationships, which allow for cross-country variations in fiscal

[2] For instance, according to Buigut (2006), the strict implementation of a customs union by the EAC reached in 2004 is likely to breach existing free trade agreements for SADC and COMESA.

revenues and inflation. The authors conclude that the EAC, ECOWAS and SADC monetary unions are characterised by net benefits for candidate members, though some members may register more losses than gains.

**Table 4: Summary of empirical studies on the proposed African Monetary Union**

| Author(s) | Period | Countries | Methodology | Feasibility | Justification/ recommendation |
|---|---|---|---|---|---|
| Bayoumi & Ostry (1997) | 1964-1993 | Sub-Saharan Africa (SSA). | Analysis of size and correlations of real disturbance. | No | Low levels of intra-regional trade. |
| Guillaume & Stasavage (2000) | 1960-1994 | SSA | Exploratory politico-economic analysis. | Yes | Could lead to better policies. |
| | 1960-2000 | 53 African countries | Analysis of historical data. | Yes/No | Yes for three blocks. No for Africa. |
| Buigut (2006) | 1990-2002 | EAC and SADC | Cluster analysis based on real and monetary convergence. | Yes/No | Selective expansion. |
| Buigut & Valev (2006) | 1970-2002 | 21 Eastern and Southern African countries | VAR technique for synchronising demand and supply disturbances. | Yes/No | Three clusters are feasible for monetary unions. |
| Tsangarides et al. (2006) | 1948-2002 | 49 African countries | Tobit model. | Yes | Substantial trade benefits. |
| Masson (2006) | 1995-2000 | Africa | Welfare gain analysis. | Yes/No | Selective expansion |
| Karras (2007) | 1960-2000 | 37 African countries | Cost/Benefit analysis. | No | Very heterogeneous benefits. |
| Masson (2008) | 1995-2000 | AMU, COMESA, ECCAS, ECOWAS, SADC. | Welfare gain analysis. | Yes/No | Selective expansion. |
| Debrun et al. (2011) | 1990-2008 | ECOWAS, EAC and SADC | Cost and benefit analysis of monetary integration | Yes/No | Selective clustering in regions. |
| Tsangarides & Qureshi (2015) | 1972-2006 | Africa | Augmented gravity model. | Yes/No | Conventional pegs may be better. |

Notes. SADC: Southern African Development Community. EAC: East African Community. ECOWAS: Economic Community of West African States. AMU: African Monetary Union. COMESA: Common Market for Eastern and Southern Africa. ECCAS: Economic Community of Central African States.

The second stream of studies in the third strand fundamentally argues that the rewards from fixed exchange rate regimes in Africa are comparable to benefits from monetary unions (see Tsangarides & Qureshi, 2015). In essence, the case for hard pegs in place of a common currency had previously been raised by Qureshi and Tsangarides (2012). This narrative is broadly consistent with the recommendations of Debrun et al. (2011) who have sustained that, consolidating domestic fiscal and monetary institutions is an alternative that could yield the same rewards as common currencies.

## 5. Further discussion and implications

We begin this section by presenting our views on the case for pegs as an alternative to the currency unions discussed in the last paragraph of the preceding section. The findings of Debrun et al. (2011), Qureshi and Tsangarides (2012), Tsangarides and Qureshi (2015) contribute to the ongoing debate on regional currency formation by providing alternatives to currency unions. This stream of the literature steers clear of the mainstream narrative in that,

it is not limited to the criteria employed to classify the conclusions of studies within scope of this inquiry (on the feasibility of currency unions), notably: feasible (or yes), unfeasible (or no) or conditional feasibility/unfeasibility (yes/no). Conversely, the underlying stream suggests an alternative to currency unions. Hence, it somewhat deviates from the scope of inquiry. However, this deviation only enriches the literature by advising candidate countries seeking greater stability in exchange rate regimes to consider pegs as a relatively more viable and sustainable alternative that guarantees some margin of flexibility compared with full monetary integration (Asongu, 2015).

The above policy prescription is quite relevant and remains open to debate because nations within the former French African Colonies (CFA) franc zone have not been exonerated from growth-inhibiting overvaluation that was a source of substantial devaluation in 1994 (see Fosu, 2012). It follows that, whereas a peg could mitigate volatilities in exchange rates, it is also likely to damage growth and development in scenarios of overvaluation.

Of more serious concern is the fact that the underlying narrative is evolving when projects for potential AMUs are already underway. Based on our reading, the recommendations of this stream of the literature should not necessarily be understood as a case against on-going common currency efforts. In essence, authors in this subject area are also informing policy on the causes of the recent European Monetary Union (EMU) crisis. Accordingly, a strong lesson from the recent EMU crisis has been that substantial disequilibria in a monetary zone are the result of a currency union that is not designed to be robust to a plethora of macroeconomic shocks. In this light, the recommendations of Debrun et al. (2011) on institutional building as an alternative to currency unions is complementary, and not contradictory to the formation of monetary unions.

We have observed for the WAMU that various methodologies led to differing findings and recommendations. Among others, estimation strategies based on VAR/VECM have led authors to advise on impracticality for the most part while, those employing cointegration and convergence analyses have reached a Yes/No conclusion. Moreover, cluster analysis which has enabled authors to favour selective expansion has also enabled initiatives to clearly identify countries that should not be involved in the potential WAMZ. To this end, consistent recommendations have been made for Nigeria to be excluded from a potential monetary union. For the EAMU, in addition to the common discourse of results that are contingent on study-specificities already substantially engaged, we have observed that there are relatively more antithetical conclusions. Findings on feasibility for the most part are based on an old

EAC sample that excludes Rwanda and Burundi. This is not the scenario in the SADU and AMU in the last-two sections because studies focusing on these regions have overwhelmingly concluded in favour of conditionality feasibility (synthesis).

Regardless of specific monetary zones, empirical insights and stylized trends gathered from the studies suggest that African economies are still far-off from achieving the much needed macroeconomic convergence required for potential monetary unions. Meanwhile, most of the studies have also been consistent with evidence of growing convergence, albeit the catch-up processes need to be speeded-up. While cross-country disparities in institutional and structural factors have been discussed quite often as potential causes of non-convergence, some studies (see Kuteesa, 2012) have shown that some of the reasons for the lack of convergence could be traceable to, *inter alia*: (i) very high economic performance criteria and (ii) lack of sustained commitment from member countries. Revising proposed benchmarks to realistic and accessible standards may be considered.

Given that catch-up varies with countries and convergence criteria, the example of Europe is appropriate. This endorsement aligns with the bulk of literature advocating the need for selective expansion. The underlying path which is already being adopted by the WAMZ can seemingly be extended to the SAMU and EAMU in particular and the AMU in general.

Irrespective of potential monetary unions, convergence in stated factors and criteria can be enhanced by keeping inflation, debts and budget deficits in check. Moreover, policy harmonization towards more economic integration and the curtailment of constraints on common markets would bear positively on consolidating the likelihood of sustainable monetary unions within the continent. Some notable recommendations that may be common to all embryonic zones include: (i) engaging in adjustments aimed at aligning monetary policies (ii) the building effective institutions for enforcing fiscal discipline and enabling macroeconomic surveillance; (iii) implementing structural reforms which bridges the infrastructural and policy gaps ; (iv) building robust institutional arrangements for strengthening fiscal, monetary and financial stability and (v) introducing a common basket currency in parallel with national currencies, instead of fast-tracking the process.

The convergence process could be further facilitated by building data collection capacities and the sharing of relevant information. Moreover, as suggested by Kuteesa (2012), harmonization of statistics would be facilitated by the consolidation of skills, competences, knowledge and attitudes of central bank officials from member countries. In addition to

addressing infrastructural difficulties, knowledge sharing and information technology gaps, awareness campaigns are essential to regularly improve perceptions and the advantages of the potential monetary unions.

## 6. Concluding lessons

The purpose of this study has been to survey the literature focusing on potential African monetary unions in order to put some structure on the empirical literature and draw some important lessons for both academics and policymakers. We have broadly observed that in addition to variations in empirical strategies, sampled countries and considered periodicities, there is also an issue with establishing the feasibility and/or desirability of potential monetary unions. Given this apparent ambiguity, this literature survey has built on three main scenarios, notably: feasibility (or yes), unfeasibility (or no) and conditional feasibility/unfeasibility (yes/no). These scenarios have been adapted to the Hegelian dialectics (thesis, anti-thesis and synthesis) in various discourses.

The plethora of engaged studies have built on the theoretical underpinnings of optimal currency area (OCA) criteria and placed emphasis on correlation, cointegration, clustering and synchronisations, shocks and responses of, *inter alia*: real exchange rates, inflation, debts, output growth, real growth rates and terms of trade. The underlying intuition in methodology has been that high symmetry in the investigated factors is positively related to the need for common monetary policies. In this light, studies have based their recommendations on the existence of (i) symmetry, (ii) asymmetry and (iii) clustering of symmetry and asymmetry depending on adopted empirical strategies.

Within the third suggested option, some authors have not been clear-cut on the support of either symmetry or asymmetry, but have provided advice that are supportive for monetary unions comprised of small groups of countries. Whereas the underlying third option has been for the most part traceable to clustering and cost/benefit methodologies, other empirical strategies (e.g GMM and VAR/VECM) have skewed authors to conclude in favour of impracticality, especially in the WAMU. Moreover, we have learnt that disaggregating panels into sub-samples on the one hand and distinguishing shocks from responses in the examination of business cycle synchronisation on the other, provides findings with more subtle policy implications (see narratives surrounding Angeloni & Dedola, 1999; Mkenda, 2001; Buigut & Valev, 2005). The latter group of authors is more relevant to VAR approaches.

We briefly identify some countries that are likely to be left-out. Irrespective of monetary unions, the most recurrent position from findings is a selective procedure of monetary integration. This includes identification of clusters or direct disqualification of some candidate countries. For instance: (i) Nigeria's membership in the WAMU has been consistently questioned (Debrun et al., 2005; Bénassy-Quéré & Coupet, 2005; Masson, 2006, 2008; Bangaké, 2008; Coulibaly & Gnimassoun, 2013), (ii) Burundi and Rwanda (Mkenda, 2001; Bangaké, 2008) and Rwanda (Sheik et al., 2011; Lepetit et al., 2014) are respectively excluded based on an old EAC or a new EAC sample, (iii) In the SAMU, joining the CMA by SADC members is beneficial to all, with the exception of Angola, Tanzania and Mauritius and a SADC-wide symmetric currency area continues to be beneficial for all, without Mauritius (Debrun & Masson, 2013). Moreover, a core convergence group in the CMA consists of Lesotho, Namibia, South Africa and Swaziland, including, Botswana, Mozambique, Mauritius and Tanzania. The non-converging group includes: Angola, the Democratic Republic of Congo (DRC), Malawi, Zimbabwe and Zambia (Jefferis, 2007). (iv) The option of selective expansion to a monetary union is most apparent in studies assessing the feasibility of a continental monetary union.

Whereas we have already discussed policies required to enhance regional integration for convergence in previous sections, it is important to note that absolute feasible positions have not been established. Even overly optimistic positions from Ogunkola (2005) are still balanced with a caveat that structural reforms are needed (also see Diop, 2007 on these reforms).

We caution that inquiries using the same theoretical underpinnings, variables and methods, with the EU as reference, just by modifying the scope/context and periodicity examined, may only contribute to increasing the number of conflicting findings. Authors should place more emphasis on new perspectives and approaches based on caveats of, and lessons from the EMU and CFA zones

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