

A G D I Working Paper

WP/17/008

A summary of a survey on proposed African monetary unions

Forthcoming: Development Finance Agenda

Simplice A. Asongu

African Governance and Development Institute,
P.O. Box 8413 Yaoundé, Cameroon.

E-mail: asongusimplice@yahoo.com / asongus@afridev.org

Jacinta C. Nwachukwu

School of Economics, Finance and Accounting,
Faculty of Business and Law,
Coventry University

Priory Street, Coventry, CV1 5DH, UK

Email: jacinta.nwachukwu@coventry.ac.uk

Vanessa S. Tchamyou

African Governance and Development Institute,
P.O. Box 8413 Yaoundé, Cameroon.

E-mail: simenvanessa@yahoo.com / simenvanessa@afridev.org

Research Department

A summary of a survey on proposed African monetary unions**Simplice A. Asongu, Jacinta C. Nwachukwu & Vanessa S. Tchamyou**

March 2017

Summary

This review summarises a survey of about 70 empirical studies on proposed African monetary unions published during the past fifteen years. Four main strands are outlined in four tables. They include the: (i) West African Monetary Zone (WAMZ), (ii) East African Monetary Union (EAMU), (iii) Southern African Monetary Union (SAMU) and (iv) African Monetary Union (AMU). A number of concerns are apparent from the feasibility and/or desirability of potential monetary unions. They are variations in: empirical strategies, selection of variables, considered periodicities and sampled countries. The Hegelian dialectics are used to establish selective expansion as the predominant mode of monetary integration. Some studies make the case for strong institutions and pegs as alternatives to currency unions. The employment of cluster analysis, distinguishing shocks from responses in the examination of business cycle synchronisation and the disaggregation of panels into sub-samples provide more subtle policy implications.

JEL Classification: F15; F36; F42; O55; P52

Keywords: Currency Area; Policy Coordination; Africa

1. Introduction

This is a summary of a survey on the feasibility of potential monetary unions in Africa. While much of the literature has focused on the viability of proposed monetary zones and existing regional economic blocks in the continent, the studies are characterised by different periodicities, proxy indicators, different countries and estimation approaches. Moreover, the empirical results are conflicting. It is also important to note that such diverse findings are contingent on the scope of inquiry, notably, the: West African Monetary Zone (WAMZ), East African Monetary Union (EAMU), Southern African Monetary Union (SAMU) and African Monetary Union (AMU). This survey aims to structure the above strands in order to provide policy makers with the much needed guidance on their choices regarding the feasibility of the embryonic monetary zones.

The above objective is achieved by using Hegelian dialectics, namely: (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. Within this framework, each potential monetary union under consideration is assessed in the light of four principal views with each relaying relevant monetary policy implications. *First*, for a potential monetary union to be achievable: (i) it should be designed to be robust to a plethora of macroeconomic shocks and (ii) member states should be converging towards some established criteria. *Second*, in order for the proposed monetary zone to be impractical, the observation should be the opposite criteria used to assess and establish feasibility. *Third*, contingent on certain factors, an embryonic monetary zone could both be feasible and unfeasible. Under this scenario, the potential monetary union is feasible if some policies are implemented in due course. *Fourth*, in order to inform policy, we also provide insights into why the underlying conclusions are established.

To the best of our knowledge, we are the first to put some structure in existing literature on the proposed African monetary zones. We review inquiries that have examined the underlying concern during the period 1964-2010 and largely published during the last fifteen years. This appraisal is timely and the relevant findings are not exclusively limited to policy makers focusing on Africa, but could as well be used in steering decisions in other comparative economies in Asia and Latin America harbouring similar intensions for currency unions.

2. Summary of survey

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 VAR	Yes/No	Yes with Ghana, No with Nigeria
Houssa (2008)	1966-2000	ECOWAS	Welfare gain analysis	No	Asymmetry of supply shocks
Masson (2008)	1995-2000	ECOWAS	Exploratory convergence criteria	Yes/No	Selective expansion
Cham (2009).	1980-2005	ECOWAS	Fractional integration and cointegration	No	Significant absence of convergence
Alagidede et al. (2012)	1961-2010	Gambia, Ghana, Guinea Bissau, Nigeria and Sierra Leone		No	Heterogeneity in inflation and economic trends
Chuku (2012)	1970-2010	ECOWAS	Symmetry and/or asymmetry of responses to macroeconomic shocks.	No	Costs (asymmetry) outweigh 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	Cointegration 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. Source: Asongu et al. (2016).

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 Yes, with more integration	Asymmetric demand and supply shocks. 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. Source: Asongu et al. (2016).

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 & Mensteb (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. Source: Asongu et al. (2016).

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. Source: Asongu et al. (2016).

3. Conclusion

We have presented a summary of articles that have focused on potential African monetary zones in order to put some structure on the empirical literature and draw some relevant lessons for both policymakers and academics. From a broad observation, we have noted that in addition to differences in empirical strategies, considered periodicities and sampled nations, there is an apparent concern with the establishment of the feasibility and/or desirability of the potential monetary zones. In the light of this ambiguity, three scenarios have been employed to develop the survey, namely: feasibility (or yes), unfeasibility (or no) and conditional feasibility/unfeasibility (yes/no). Moreover, these scenarios have been adapted to the Hegelian dialectics (thesis, anti-thesis and synthesis) in various discourses.

Irrespective of monetary unions, the most recurrent position from findings is a selective procedure of monetary integration. It is relevant to briefly highlight some nations that could be left-out through direct disqualification of some countries and/or identification of clusters. The following observations are noteworthy. (i) Nigeria's membership in the West African Monetary Union has been consistently questioned. (ii) Burundi and Rwanda are excluded from the East African Community depending on whether the sample is old or new. (iii) In the Southern African Monetary Union, joining the Common Market Area (CMA) by members of the South African Development Community (SADC) is beneficial to all, with the exception of Mauritius, Tanzania and Angola. A SADC-wide symmetric currency area continues to be beneficial without Mauritius. Furthermore, the main convergence group in the CMA encompasses Swaziland, South Africa, Namibia and Lesotho, including Tanzania, Mauritius, Mozambique and Botswana. Conversely, the non-converging group entails Zambia, Zimbabwe, Malawi, the Democratic Republic of Congo and Angola. (iv) Selective expansion is viewed as the most plausible roadmap to the feasibility of a continental monetary union.

References

- Agdeyegbe, T. D., (2009). "On the Feasibility of a Monetary Union in the Southern Africa Development Community," *International Journal of Finance and Economics*, 13(2), pp.150-157.
- Alagidede, P., Coleman, S., & Cuestas, J. C., (2012). "Inflationary shocks and common economic trends: Implications for West African Monetary Union membership", *Journal of Policy Modeling*, 34(3), pp. 460-475.
- Asongu, S. A., (2013a). "Real and Monetary Policy Convergence: EMU Crisis to the CFA Zone". *Journal of Financial Economic Policy*, 5(1), pp. 20-38.
- Asongu, S. A., (2013b). "A short-run Schumpeterian Trip to Embryonic African monetary zones", *Economics Bulletin*, 33(1), pp. 859-873.
- Asongu, S. A., (2014a). "REER Imbalances and Macroeconomic Adjustments in the Proposed West African Monetary Union", *South African Journal of Economics*, 82(2), pp. 276-289.
- Asongu, S. A., (2014b). "Are Proposed African Monetary Unions Optimal Currency Areas? Real, Monetary and Fiscal Policy Convergence Analysis". *African Journal of Economics and Management Studies*, 5(1), pp. 9-29.
- Asongu, S. A., (2014c). "How Would Monetary Policy Matter In The Proposed African Monetary Unions? Evidence From Output And Prices ", *African Finance Journal*, 16(2), pp. 34-63.
- Asongu, S. A., Nwachukwu, J. C., & Tchamyu, V. S., (2016). "A literature survey on proposed African monetary unions", *Journal of Economic Surveys*, DOI: 10.1111/joes.12174.
- Bangaké, C., (2008). "Exchange Rate Volatility and Optimum Currency Area: Evidence from Africa", *Economics Bulletin*, 6(12), pp. 1-10.
- Bayoumi, T., & Eichengreen, B., (1992). "Shocking Aspects of European Monetary Unification", *NBER Working Paper* No. 3949. Cambridge.
- Bayoumi, T., & Ostry, J., (1997). "Macroeconomic Shocks and Trade Flows within Sub-Saharan Africa: Implications for Optimum Currency Arrangements," *Journal of African Economies*, 6(3), pp. 412-444.
- Bénassy-Quéré, A., & Coupet, M., (2005). "On the Adequacy of Monetary Arrangements in Sub-Saharan Africa", *The World Economy*, 28(3), pp. 349-373.
- Buigut, S., (2006). "Monetary integration initiatives in Eastern and Southern Africa (ESA): sorting the overlapping membership", *International Finance*, 9(3), pp. 295-315.

- Buigut, S., (2011). “A Fast-Track East African Community Monetary Union? Convergence Evidence from a Cointegration Analysis”, *International Journal of Economics and Finance*, 3(1), pp. 255-261.
- Buigut, S. K., & Valev, N.T., (2005). “Is the Proposed East African Monetary Union an Optimal Currency Area? A Structural Vector Autoregression Analysis”, *World Development*, 33(12), pp. 260-267.
- Buigut, S., & Valev, N., (2006). “Eastern and Southern Africa Monetary Integration: A Structural Vector Autoregression Approach,” *Review of Development Economics*,10(4), pp. 586-603.
- Buigut, S., & Valev, N. T., (2009). “Benefits from Mutual Restraint in a Multilateral Monetary Union”, *World Development*, 37(3), pp. 585-594.
- Celasun, O., & Justiniano, A., (2005). “Synchronization of output fluctuations in West Africa: Implications for monetary unification”, *IMF Working Paper*, Washington.
- Cham, T., (2009). “Is WAMZ an Optimum Currency Area(OCA)?”, *West African Journal of Monetary and Economic Integration*, 9(2), pp. 96-120.
- Chuku, A. (2012). “The proposed eco: should West Africa proceed with a common currency?”, Centre for the Study of African Economies (CSAE); Conference on "Economic Development in Africa" Oxford University, Oxford 18-20 March.
- Coulibaly, I., & Gnimassoun, B. (2013). “Optimality of a monetary union: New evidence from exchange rate misalignments in West Africa”. *Economic Modelling*, 32(May), pp. 463-482.
- Davoodi, H. R., Dixit, S., & Pinter, G., (2013). “Monetary Transmission Mechanism in the East African Community: An Empirical Investigation”, *IMF Working Paper* No. 13/39, Washington.
- Debrun, X., Masson, P., & Pattillo, C., (2005). “Monetary union in West Africa: Who might gain, who might lose and why?” *Canadian Journal of Economics*, 38(2), pp.454-481.
- Debrun, X., Masson, P., & Pattillo, C., (2010).” Should African Monetary Unions Be Expanded? An Empirical Investigation of the Scope for Monetary Integration in Sub-Saharan Africa”, *Journal of African Economies*, (2011) 20 (suppl 2), pp. ii104-ii150.
- Debrun, X., & Masson, P. R., (2013). “Modelling monetary union in Southern Africa: Welfare evaluation for the CMA and SADC”, *South African Journal of Economics*, 81(2), pp. 275-291.
- Diop, C. (2007). “L’UEMOA et la perspective d’une zone monétaire unique de la CEDEAO: les enseignements d’un modèle de gravité”, Document d’Etude et de Recherche BCEAO, N° DER/07/01 – Avril, pp. 2-38.

- Dufrénot, G., & Sugimoto, K., (2013). “West African Single Currency and Competitiveness”, *Review of Development Economics*, 17(4), pp. 763-777.
- Ekpoh, A. H., & Udoh, E., (2013). “Policy Coordination Framework for the Proposed Monetary Union in ECOWAS”, Chapter in *Regional Economic Integration in West Africa*, Part of the series *Advances in African Economic, Social and Political Development*, pp 59-77.
- Falagiarda, M. (2010). “Are the East African countries ready for a common currency? Traditional indicators and cointegration analysis”, School of Economics of the University of Reading, http://www.tn.auf.org/CEAFE/Papiers_CEAFFE10/Monnaie/Falagiarda.pdf (Accessed: 13/09/2015).
- Grandes, M. (2003). “Macroeconomic convergence in Southern Africa: the rand zone experience”. *OECD Development Centre Working Papers* No. 231, Paris.
- Guillaume, D. M., & Stasavage, D., (2000), “Improving Policy Credibility: Is There a Case for African Monetary Unions,” *World Development*, 28(8), pp. 1391-1407.
- Harvey, S. K., & Cushing, M. J., (2015). “Is West African Monetary Zone (WAMZ) a common currency area?”, *Review of Development Finance*, 5(1), pp. 53-63.
- Houssa, R., (2008) “Monetary union in West Africa and asymmetric shocks: A dynamic structural factor model approach”, *Journal of Development Economics*, 85(1-2), pp. 319- 347.
- Jefferis, K. R., (2007). “The process of monetary integration in the SADC region”. *Journal of Southern African Studies*, 33(1), pp. 83-106.
- Karras, G., (2007), “Is Africa an Optimum Currency Area? A Comparison of Macroeconomic Costs and Benefits,” *Journal of African Economies*, 16(2), pp. 234-258.
- Khamfula, Y., & Huizinga, H., (2004). “The Southern African Development Community: Suitable for a monetary union?” *Journal of Development Economics*, 73(2), pp. 699-714.
- Khamfula, Y., & Mensteb T., (2004). “South Africa and Southern African Monetary Union: A Critical Review of Sources of Costs and Benefits,” *South African Journal of Economics*, 72(1), pp. 37-49.
- Kishor, N. K., & Ssozi, J., (2011). “Business Cycle Synchronization in the Proposed East African Monetary Union: An Unobserved Component Approach”, *Review of Development Economics*, 15(4), pp. 664-675.
- Lepetit, L., Rugemintwari, C., & Strobel, F., (2014). “Monetary, Financial and Fiscal Stability in the East African Community: Ready for a Monetary Union?”, *The World Economy*, 38(8), pp. 1179-1204.
- Mafusire, A., & Brixiova, Z., (2013). “Macroeconomic Shock Synchronization in the East African Community”, *Global Economic Journal*, 13(2), pp. 261-280.

Masson, P. (2008) “Currency Unions in Africa: Is the Trade Effect Substantial Enough to Justify their Formation?”, *The World Economy*, 31(4), pp. 533-547.

Masson, P., (2006). “New Monetary Unions in Africa: a Major Change in the Monetary Landscape?”, *International Economics*, CEPII research Center, Issue 3Q, pp. 87-105.

Masson, P., & Pattillo, C., (2004). “The monetary geography of Africa”, Washington, DC: Brookings Institution.

Mkenda, B. K., (2001). “Is East Africa an optimum currency area?”, Working Papers in Economics, No. 41. School of Economics and Commercial Law, Goteborg University.

Ogunkola, O., (2005) “An evaluation of the viability of a single monetary zone in ECOWAS”, *AERC Research Paper* No. 147, African Economic Research Consortium, Kenya.

Qureshi, M. S., & Tsangarides, C., (2012). “Hard or Soft Pegs? Choice of Exchange Rate Regime and Trade in Africa”, *World Development*, 40(4), pp. 667-680.

Qureshi, M. S., & Tsangarides, C. G., (2015). “Exchange-rate regimes and trade: is Africa different?”, in *Growth and Institutions in African Development*, First edited by Augustin K. Fosu, 2015, Chapter 4, pp. 59-83, Routledge Studies in Development Economics: New York.

Rusuhuzwa, T. K., & Masson, P. R., (2012). “Design and Implementation of a Common Currency Area in the East African Community”, University of Toronto, Department of Economics *Working Paper* No. 451, Toronto.

Saka, J. O., Onafowokan, I. A., & Adebayo, A. A., (2015). “Analysis of Convergence Criteria in a Proposed Monetary Union: A Study of the Economic Community of West African States”, *International Journal of Economic and Financial Issues*, 5(1), pp. 230-239.

Tsangarides, C. G., Ewencyk, P., & Hulej, M., (2006). “Stylized facts on bilateral trade and currency unions: Implications for Africa”, *IMF Working Paper* No. WP/06/31, Washington.

Tsangarides, C.G., & Qureshi, M.S., (2008). “Monetary Union Membership in West Africa: A Cluster Analysis”, *World Development*, 36(7), pp.1261-1279.

Wang, J.-Y., Masha, I., Shirono, K., & Harris, L. (2007). “The common monetary area in Southern Africa: shocks, adjustment, and policy challenges”. *IMF Working Paper* No. 07/158, Washington.

Zehirun, M. F., Breitenbach, M. C., & Kemegue, F., (2015). “Assessment of Monetary Union in SADC: Evidence from Cointegration and Panel Unit Root Tests”, *Economic Research Southern Africa (ERSA) Paper* No. 945, Cape Town.