

**ANALYSIS OF FEASIBILITY OF MONETARY UNION IN THE SADC  
AND EAC: EVIDENCE FROM ANALYSIS OF TRADE OPENNESS**

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**—Abstract—**

The SADC and EAC are working toward developing monetary unions in their respective regions in the near future. Trade openness of an economy is a crucial characteristic in assessing the feasibility of a monetary union and the adoption of a common currency. Trade is usually regarded as the main channel through which the benefits from a common currency are enjoyed by member countries. The purpose of this paper is to analyse the feasibility of a monetary union in the SADC and the EAC through the analysis of trade openness within the two economic regions. Descriptive and comparative analyses are employed to achieve the outcomes of the study. Results show that, in general, most of the SADC member countries are open to external trade, meeting the requirement of the optimum currency area (OCA) theory in this regard. This may mean that they stand to benefit from adopting a common currency in as far as trade openness is concerned. However, the low intra-regional trade is expected to limit such benefits because most of the transactions are made with the rest of the world, using foreign currencies such as the US dollar and the euro. While the countries in the EAC region have shown some progress in opening their economies in the last 30 years, results show that none of them has attained the required criterion. Our findings suggest that the countries in the EAC region may not stand to benefit from adopting a common currency. Both economic regions need to significantly

increase their intra-regional trade before the implementation of the envisaged monetary union.

**Keywords:** Trade openness, monetary union, optimum currency areas, SADC, EAC

**JEL Classification:** F02; F15; F45

## 1. INTRODUCTION

Africa is aiming to have a single currency and common central bank for the continent by the year 2021. This declaration was made in 2003 by the Association of African Central Bank Governors, and is in line with Article 44 of the Abuja Treaty, made earlier in 1991, which calls for the harmonisation of economic policies across the African continent (Mboweni, 2003; Masson & Pattillo, 2004a; Guma, 2007). The treaty emphasises two important pillars of economic integration across the African continent, namely the promotion of intra-Africa trade and the enhancement of monetary co-operation (Mboweni, 2003). Furthermore, the African Union aims, at a macroeconomic level, to accelerate the process of economic integration on the continent and to enable member countries to play a prominent role in the global economy and address Africa's multifaceted socio-economic problems (Van Der Merwe & Mollentze, 2010). The East African Community (EAC), the Southern African Development Community (SADC) and many other regional groupings, such as the Arab Monetary Union (AMU), the Economic Community of Central African States (ECCAS), the Common Market for Eastern and Southern Africa (COMESA) and the Economic Community of West African States (ECOWAS) are working towards this ambitious objective of a single currency for the African continent (Masson & Pattillo, 2004, Buigut & Valev, 2005; McCarthy, 2008; Kowlessur *et al.*, 2013; Sheikh *et al.*, 2013).

The SADC is the biggest trading block in the continent and comprises 15 Member states: Angola, Botswana, Congo (DR), Lesotho, Madagascar, Malawi, Mauritius, Mozambique, Namibia, the Seychelles (the Seychelles is still in the process of ratifying the SADC Treaty), South Africa, Swaziland, Tanzania, Zambia and Zimbabwe. It is worth noting the existence of a separate and long-standing common monetary area (CMA) within the SADC region, which includes South Africa, Lesotho, Namibia and Swaziland. In terms of the CMA agreement, member countries have their own currencies, which are on a par with each other, allowing free capital flows within the region (Nielson, Uanguta & Ikhide,

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2005:711). Within this framework, the Reserve Bank of South Africa sets the monetary policy and the other smaller countries' central banks function as currency boards and issue their own currencies (Masson & Pattilo, 2001). The EAC, a much smaller grouping compared with the SADC, consists of Kenya, Rwanda, Tanzania, Uganda and Burundi.

Countries within economic blocks, such the SADC and EAC, commit to a monetary union and a single currency in order to stimulate trade, investment and economic growth across members of a monetary union (Drummond et al., 2015). Trade openness of an economy is a crucial characteristic in assessing the feasibility of a monetary union and the adoption of a common currency. Trade is usually regarded as the main channel through which the benefits from a common currency are enjoyed by member countries. It relates to a measure of the extent to which an economy engages in trade with other countries or regions. The purpose of this paper was to analyse the feasibility of a monetary union in the SADC and EAC through the analysis of trade openness within the two economic regions. Thus, this study intends to assess whether countries in the SADC and EAC have achieved the required trade openness to establish a monetary union.

## **2. LITERATURE REVIEW**

The literature on the feasibility of monetary union is dominated by the theory of optimum currency areas (OCA), a theory pioneered by Mundell (1961) which later earned him a Nobel Prize. His theory is credited for paving the way for the implementation of the euro in Europe (Ngo, 2012). Other important contributors to the theory include McKinnon (1963) on trade openness and Kenen (1969) on economic structures, product diversification and fiscal integration (Broz, 2005; Dellas & Tavlas, 2009). This paper focuses on the feasibility of developing monetary unions through the analysis of trade openness within the two economic regions (McKinnon, 1963).

Saxena (2005) highlights the fact that literature on optimum currency areas emphasises trade as the main channel through which benefits from a common currency are enjoyed. McKinnon (1963), the main contributor to the OCA theory, is of the view that open economies are better candidates for a monetary union than are closed economies. Thus, the openness of the economy and/or trade integration is a critical requirement for an effective monetary union. Drummond, Aisen, Alper, Fuli and Walker (2015) argue that members of a monetary union and single currency benefit from lower transaction costs, price stabilisation, efficient resource allocation and improved access to goods, labour and financial markets.

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There is no doubt that using a single currency reduces the cost of trade and the risk of exchange rate uncertainty. Thus, an economy that trades with the rest of the world has greater interest in having a stable exchange rate (Mongelli, 2008). To achieve this, countries are seen to integrate their economies through the adoption of a common currency and the establishment of a common central bank for their regions.

Furthermore, countries commit to such integration with the expectation that a monetary union and single currency will further stimulate trade, investment and economic growth across members of a monetary union (Drummond et al., 2015). The “endogeneity of OCA” theory asserts that monetary integration catalyses further openness of the economies of currency union members because of the benefits accrued from it (Mongelli, 2010). It is argued that a currency union supports the development of financial markets, contributes to business cycle synchronisation within member countries and eases price and interest rate arbitrage, which imposes greater competition; it is also believed that it is a guarantor of better capital allocation (Bąk & Maciejewski, 2015).

It is crucial to highlight the fact that forming a monetary union has serious economic implications for potential member countries to consider. The main cost of a monetary union is the relinquishing of the control of a monetary policy at a national level (Dellas & Tavlas, 2009; Van Der Merwe & Mollentze, 2010). The inability of member countries to employ monetary and exchange rate policies in pursuit of domestic economic objectives is indeed a big loss (Zis, 1992). This implies that member countries of a monetary union should abandon their independent and nationally-tailored monetary and exchange rate policies in place of common (supranational) policies applicable to the wider economic conditions of the economic union rather than national conditions. In the case of the EU, a limited loss of political and potential fiscal autonomy has been observed over the past few years (Ngo, 2012).

Generally, it is evident that there is a political rhetoric of economic and political unity among African leaders to solve problems of the continent through various economic integration initiatives. Indeed, since independence, African countries have embraced regional integration as a key component of their development strategies and signed several regional integration arrangements (RIAs) (Hartzenberg, 2011). Such initiatives are good politics, but to survive they must extend beyond unfulfilled good intentions and have a sufficiently sound economic basis (Melo & Tsikata, 2013) because some of the initiatives are ambitious

programmes with unrealistic time frames towards deeper economic integration and, in some cases, even political union (Hartzenberg, 2011).

In light of the discussions above and the objective situation of the African continent, and specifically the regions under study (the SADC and EAC), a question needs to be posed: Is monetary union feasible in these two economic regions? This is particularly important as we witness the economic crises in the eurozone, which in, fact, is hailed for its successful launch of the euro and the establishment of the European Central Bank (ECB). As the year of the implementation of the monetary union in the SADC and EAC draws closer, this study attempts to provide an economic analysis of the feasibility of the said monetary unions based on trade openness (McKinnon's theory - 1963) so that informed economic decisions may be made by policy makers.

### **3. RESEARCH METHODOLOGY**

As indicated earlier, this study analyses the feasibility of monetary union in the SADC and EAC based on the tenets of McKinnon's theory of trade openness of economies. The degrees of openness of member countries are analysed. Degree of openness as a criterion for judgment of currency union optimality, developed by McKinnon (1963), is adopted in this study. It relates to a measure of the extent to which an economy engages in trade with other countries or regions. The World Bank defines trade openness as the sum of exports and imports of goods and services measured as a share of GDP. The degree of openness of an economy is computed by the sum of its imports and exports expressed as a percentage of GDP (Byström *et al.*, 2005). Thus, it is the ratio of the sum of total imports and exports to GDP.

Annual trade as a percentage of the GDPs of all the countries in the two regions was obtained from the World Bank (World Development Indicators) from 1986 to 2015 (a period of 30 years). Data for the intra-regional and trade with rest of the world were obtained from UNCTADSTSAT, 2016. The number of observations is deemed sufficient to achieve the objective of the study. A trade openness of 60 percent has been used as a benchmark for the assessment of trade openness as applied in the European Monetary Union (EMU) (Amoah, 2013). If trade openness for a large number of member countries in each economic block is above this benchmark, it is an indication that the monetary union in such a block is feasible.

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Descriptive analyses such as mean and standard deviation are employed in assessing trade openness of the countries in both economic regions. Correlation analysis and tests for equality of variance are computed to identify and assess differences between intra-regional trade and trade with the rest of the world. Furthermore, line graphs are utilised to demonstrate the discrepancies between intra-regional trade and trade with the rest of the world by the two economic regions.

#### **4. RESULTS AND DISCUSSION**

##### **4.1 Analysis of trade openness**

Table 1 provides a report on the trade openness of the economies of the two regions over the last 30 years. There is a clear indication that most of the SADC countries are open to external trade and are showing improvement with time. In the first 20 years (1986-2005), one third of the countries, namely DRC, Madagascar, Mozambique, South Africa and Tanzania, did not meet the requirement of trade openness (recording average trade as a percentage of GDP less than 60 percent). In addition, the rest (Angola, Botswana, Lesotho, Malawi, Mauritius, Namibia, Seychelles, Swaziland, Zambia and Zimbabwe) did meet the requirement. Moreover, Angola, Lesotho, Mauritius and Swaziland were among the most open economies (having in excess of 100 trade percentages).

In the 10 years that followed (2006-2015), significant strides were made in opening of the economies in the SADC region. Most of the five countries that did not previously meet the requirement (DRC, Madagascar, Mozambique and South Africa) save Tanzania have shown significant improvement in the past 10 years (2006-2015) by increasing their economies' openness to international trade. The only country that consistently has not opened its economy for trade is Tanzania. For the year 2015, the results indicate that, in general, the SADC countries have open economies (exceeding the 60% requirement). The fluctuations (expressed by the standard deviation) in the attainment of this figure across member countries are significantly different, suggesting asymmetry of economic structure in the region in as far as trade is concerned. As elucidated in the analysis above, most of the countries in the SADC region indeed have open economies – meaning they may stand to benefit from adopting a common currency in as far as trade openness is concerned (Mongelli, 2008). However, further investigation is needed with regard to intra-regional trade; it is necessary to weigh intra-regional against their total trade with the rest of the world.

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When compared with the SADC member countries, the EAC member countries generally have less open economies. While the countries in the EAC region have shown some progress in opening their economies for trade in the last 30 years, none of them has attained an average of trade openness above 60 percent. For the year 2015, all of the countries in the EAC region recorded less than 50 percent of trade as a percentage of GDP. The fluctuations (expressed by the standard deviation) in the attainment of this figure across member countries are similar, suggesting uniform economic structure in the region in as far as trade is concerned. The evidence from this analysis suggests that the countries in the EAC region may not stand to benefit from adopting a common currency, when trade is considered. In the following section, further assessment is made with regard to the intra-regional trade of the two economic regions and the extent of their trade with the rest of the world in order to fully understand the rationale of these initiatives and answer the research question of this paper: Is monetary union feasible in these two economic regions?

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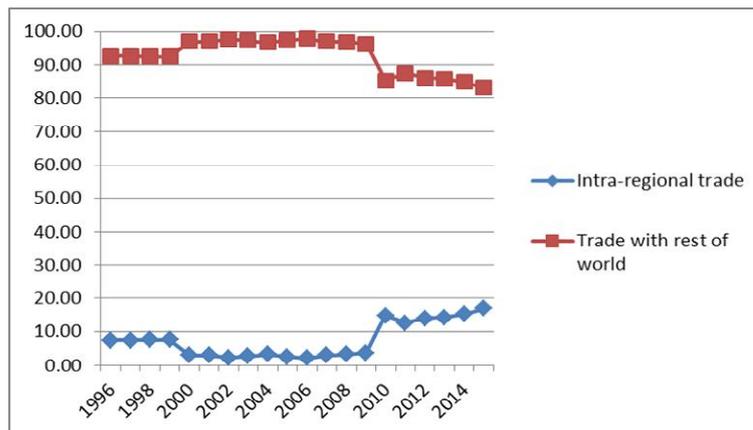
**Table 1: Trade as percentage of GDP (Degree of openness)**

SADC Countries	1986 – 2005 (20 years)				2006 – 2015 (10 years)				2015
	Highest	Lowest	Mean	St.Dev	Highest	Lowest	Mean	St.Dev	
Angola	178.99	50	122.14	34.56	127.54	75.1	104.75	15.49	75.1
Botswana	123.57	85.83	98.05	11.17	123.79	86.33	101.03	12.31	99.23
DRC	62.68	20.43	41.05	12.91	95	44.66	76.25	15.31	64.46
Lesotho	209.89	140.32	165.15	19.53	176.55	141.64	159.26	12.66	127.5
Madagascar	80.12	27.7	50.41	13.09	83.45	68.02	73.76	5.41	69.68
Malawi	91.38	41.9	60.01	11.79	78.27	48.79	61.24	9.5	61.95
Mauritius	137.11	110.41	125.18	7.48	131.38	107.28	117.52	7.39	109.39
Mozambique	80.42	14.55	55.48	16.2	114.38	68.51	87.11	17.99	91.59
Namibia	102.28	80.76	92.5	5.25	125.48	87.03	107.21	10.72	111.51
Seychelles	187.39	52.78	98.68	49.75	225.02	178.32	197.42	16.45	181.00
South Africa	59.76	38.65	47.9	5.75	72.87	55.42	62.04	4.94	62.81
Swaziland	202.85	127.9	155.4	22.76	155.63	101.21	134.32	19.63	96.95
Tanzania	65.69	33.49	46.45	10.81	56.8	42.11	49.25	4.35	49.52
Zambia	70.81	56.25	63.27	4.32	67.9	56.12	61.42	5.14	84.31
Zimbabwe	88.51	44.10	64.95	13.98	109.52	58.06	78.90	16.96	60.21
EAC Countries	1986 – 2005 (20 years)				2006 – 2015 (10 years)				2015
	Highest	Lowest	Mean	St.Dev	Highest	Lowest	Mean	St.Dev	
Burundi	41.65	20.96	31.56	7.17	54.15	40.04	45.75	4.54	40.04
Kenya	72.86	47.7	56.95	7.55	60.45	44.81	53.47	4.28	44.81
Rwanda	71.1	19.68	31.41	10.37	46.17	37.59	42.55	2.79	45.33
Tanzania	65.69	33.49	46.45	10.81	56.8	42.11	49.25	4.35	49.52
Uganda	38.99	25.35	31.73	4.25	56.26	43.63	49.02	3.98	46.89

#### 4.2 Assessment of intra-regional trade

Figure 1 illustrates the SADC's intra-regional trade and trade with the rest of the world for the last 20 years (1996-2015). The intra-regional trade as a percentage of total trade within the SADC is extremely low (mean=7%) compared with the trade it conducted with the rest of the world (mean=93%). On the positive side, it is evident from the figure that the intra-regional trade has been showing some improvement over the past six years while a proportional decline is observed in the SADC's trade with the rest of the world. For the year 2015, the intra-regional trade for SADC region stood at about 17 percent while its trade with the rest of the world accounted for about 83 percent. Correlation results, in Table 2, show that there is a high negative and statistically significant ( $p=0.000$ ) correlation between intra-regional trade and trade with rest of the world in SADC countries. This suggests that intra-regional trade and trade with rest of the world tend to move in different directions. However, various tests for equality of variances between the SADC's intra-regional trade and trade with rest of the world show that the null hypothesis, the same variance is rejected. Thus, the variability between the SADC's intra-regional trade and trade with rest of the world seem to be the same.

**Figure1: The SADC's intra-regional trade & trade with rest of the world**

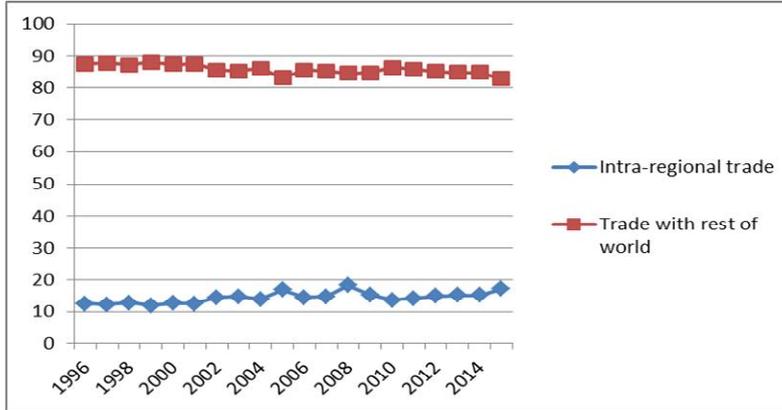


Similarly, Figure 2 demonstrates EAC's intra-regional trade and its trade with the rest of the world for the last 20 years (1996-2015). Similar to the SADC, the intra-regional trade as a percentage of total trade within the EAC is still low (mean=14%) compared with the trade it conducted with the rest of the world (mean=86%). The intra-regional trade for the EAC region was about 15 percent

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and with the rest of the world, 83 percent for the year 2015. Table 3 shows a significant negative correlation between intra-regional trade and trade with rest of the world in EAC countries. This may suggest that increasing in intra-regional trade is associated with a decline in trade with rest of the world and vice versa. Tests for similar variance between the EAC's intra-regional trade and trade with rest of the world show no difference between the types of trades engaged in.

**Figure2: EAC's Intra-regional trade & trade with rest of the world**



**Table 2: Correlation and Test for Equality of Variances between intra-regional trade & trade with rest of the world**

Method	SADC		EAC	
	Value	Probability	Value	Probability
Pearson Correlation	-0.9998	0.0000	-0.9334	0.0000
ANOVA F-test	1.0016	0.9972	1.347641	0.5218
Bartlett	0.00124	0.9972	0.410465	0.5217
Levene	0.00397	0.9950	0.177900	0.6756

#### 4.3 Comparative analysis of intra-region trade and trade with rest of the world between the SADC and the EAC

A further analysis was conducted to assess whether the means of of intra-regional trade and trade with rest of the world between the SADC and EAC differ. Overall,

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the EAC's intra-trade has been more favourable (mean=14.42%) compared with the SADC's intra-trade (mean=7.34%). with minimal improvement over the years. For trade with the rest of the world, the SADC seems to have a higher average (92.67) than the EAC (85.72). Results of various tests for Equality of Means are presented in Table 3. T-test and Satterthwaite-Welch t-test produce similar results because both groups have the (equal) sample period. All three tests show that the null hypothesis for equal means is rejected, implying that means of intra-regional trade and trade with rest of the world differ in the SADC and the EAC. However, it must be noted that when compared with SADC member countries, the EAC member countries generally have less open economies (none of the countries in the EAC attained an average trade percentage of 60 percent in the last 30 years).

**Table 3: Tests for Equality of intra-regional trade and trade with rest of the world Means between SADC and EAC**

Method	Intra-regional trade		Trade with rest of the world (	
	Value	Probability	Value	Probability
t-test	-5.6999	0.0000	-5.6574	0.0000
Satterthwaite-Welch t-test	-5.6999	0.0000	-5.6574	0.0000
ANOVA F-test	32.489	0.0000	32.007	0.0000
Welch F-test	32.489	0.0000	32.0067	0.0000
<b>Means</b>	<b>SADC : 7.338573</b>		<b>SADC: 92.66673</b>	
	<b>EAC: 14.42386</b>		<b>EAC: 85.71905</b>	
Null Hypothesis: the means are equal in SADC and EAC				

#### **4.4 Discussion of the results**

The African Union (2014) acknowledges the low level of intra-Africa trade at a continental level. The report of the Economic Commission for Africa (United Nations) (2015) indicated that, overall, the intra-African trade in 2012 was 12.8 percent, which is very low when compared with other regions in other parts of the world. The share of intra-regional trade in South and Central America, North America, European Union, and Asia stood at 17 percent, 49 percent, 61 percent and 62 percent respectively over the same period. The report also noted that Africa's share of the total exports in global trade flows is only about 3.5 percent, which is also extremely low when compared with other regions of the world.

Another study conducted by the ECA (Committee on Regional Cooperation and Integration, 2015), similarly indicates that the overall intra-Africa trade as a share of total trade and Africa's GDP is low. The study covers the period from 1995 to 2013 and it estimates that intra-Africa trade, as a percentage of GDP from 2013, is approximately 9 percent. Furthermore, the study suggests that Africa's total trade in 2013 was approximately 14 percent, meaning that 86 percent of the trade is with the rest of the world. This puts a question mark to whether adoption of a common currency will be beneficial to the SADC and EAC member countries while the intra-regional trade is low and constitutes only a small fraction of their total trade.

Geda and Seid (2015) assert that intra-Africa trade is challenged by lack of product diversification and competitiveness, lack of complementarities of exports and imports, as well as the weaker competitive position of African potential exporters. Geda and Seid (2015:9) attribute this challenge to Africa's weak infrastructure, productivity and trade facilitation. This was evident in our study as the intra-trade among the countries of the two economic blocks (SADC and EAC) was found to be low. This low level intra-regional and/or intra-Africa trade suggest limited benefit to be gained from adopting a common currency in these blocks and the continent as whole.

#### **5. CONCLUSION AND RECOMMENDATIONS**

There is no doubt that, if potential members of a union trade significantly with each other, monetary union would be beneficial to the members through the reduction of transaction costs, price stabilisation, efficient resource allocation and improved access to goods, labour and financial markets. There is also no doubt that having a common currency and common central bank can, in turn, facilitate and stimulate trade, investment and economic growth in an economic union. What

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needs to be underscored, however, is the cost of entering such a union if there is no sound economic basis in the first place: the cost of relinquishing monetary and exchange rate policies to advance country-specific economic conditions.

In terms of trade openness, there is a clear indication that most of the SADC countries, save Tanzania, are open to external trade, meeting the requirement of the OCA. This may mean that, at face value, they may stand to benefit from adopting a common currency in as far as trade openness is concerned. However, further assessment of the composition of the trade indicated that much of this openness is with the rest of the world, not with each other. The intra-regional trade in the two regions is a mere 17 percent. This implies that a common currency may not yield the intended benefits for the SADC since most of the transactions are made against foreign currencies such as the US dollar and the euro. When compared with SADC member countries, the EAC member countries generally have less open economies. While the countries in the EAC region have shown some progress in opening their economies somewhat in the last 30 years, none of them has attained an average trade percentage of 60 percent (the required criterion). The evidence from this analysis suggests that the countries in the EAC region may not stand to benefit from adopting a common currency. In conclusion, the analysis of trade openness is not supportive of the possibility of having monetary unions in both regions.

In this respect, it is recommended that the respective regional bodies enhance work on regional economic integration by implementing existing trade agreements so they their economies become more open to each other. The Abuja Treaty which stipulates the establishment of Africa Continental FTA by 2017 should also be welcomed and implemented to increase the intra-Africa trade. Once these are achieved, the implementation of a regional- and/or continent-wide monetary union and the adoption of a single currency can be considered seriously and may be beneficial to member countries. Gradual expansion of the existing CMA, which currently includes South Africa, Lesotho, Namibia and Swaziland, to include other qualifying SADC member countries in the region instead of embarking on a SADC-wide approach to a monetary union is also an option that needs consideration. Further economic analysis, such as business cycle synchronisation and convergence of key macroeconomic variables, including budget deficit and government debt, should be thoroughly investigated before embarking on such a huge commitment.

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