

Central Bank Independence in Sub-Saharan Africa

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Abstract

The objective of this paper is to assess the degree of independence of African Central Banks over the period 1990 to 2019. To achieve this objective, we rely on statutory and real central bank indicators developed by (Dumiter & Sorina, 2011). The results show that the degree of political and legal independence is relatively higher in countries with a fixed exchange rate regime (Bank of Central African States (BCAS) and Central Bank of West African States (CBWAS) countries). The index of Central Bank governance and the conduct of monetary policy, on the other hand, is higher in countries with flexible exchange rate regimes. A clear improvement in Central Bank transparency and accountability in monetary policy was revealed in the Central Banks of Botswana, Malawi, Zambia and the CBWAS.

Keywords: Independence, Central Bank, Inflation, index, fixed exchange, flexible exchange rate

JEL: E51, E57 E64

1. Introduction

Since 1980, some remarkable changes (note 1) have profoundly modified the institutional framework of African Central Banks (Arnone et al., 2006). In 2010, the Central Banks of the franc zone (note 2) began to modify their statutes in order to increase their independence and to protect themselves from political and economic cycles resulting from the temporal incoherence of political powers. This logic results from the abolition of the statutory advances of the Central Banks to the national treasuries (Avom, 2020).

The Central Banks of the African Franc Zone (BCAS and CBWAS) (note 3) have undertaken reforms of their statutes (note 4) to increase independence (Guillaumont, 2017). According to (Guillaumont, 2006), two arguments justified the independence of these two Central Banks. First, to increase the effectiveness of monetary policy by consolidating the credibility of monetary policy decisions. Second, to prevent the dangers of a break-up of the two monetary unions in case of governmental disputes on monetary policy.

Initially, the two Central Banks were conceived as lingering in some way "in the hands of governments" because the members of the board of directors responsible for implementing monetary policy based on the directives of the Council of Ministers of each Union, were appointed by the governments. The new institutional architecture avoids the situation where the governing bodies in the monetary field are the object of pressure from the States.

Similarly, the possibilities of direct financing of States by central banks are framed so that the latter are not constrained in the implementation of their policies by requests for direct advances from public treasuries. For example, at the CBWAS, direct advances to States are prohibited, while at the BCAS they are limited to 20% of the fungible budgetary revenue of the previous year (BCAS ,2017), art. 36 and 18 respectively). The reward of this independence is the improvement of transparency and communication. All these developments have gradually contributed to the reform (note 5) announced on 21 December 2019 (Avom ,2020). The independence enjoyed by Central Banks is accompanied by the principles of accountability, transparency and public information (Doumbia ,2013).

In the economic literature, independence is the ability of a Central Bank to carry out its statutory tasks without guiding instructions or other forms of interference from the government, parliament or any other interest groups (Amttenbrink, De Haan,2004; Mishkin, 2010).

Central Bank independence could impact macroeconomic performance in several ways. For example, a high degree of Central Bank independence can help countries achieve low inflation and reduce its variability. In addition, it also reduces the effect of political cycles on the economy (Nordhaus, 1975), promotes fiscal discipline and improves

financial stability without an additional cost or sacrifice in terms of lower output growth or increased output variability (Arnone et al., 2009). It can help countries reduce average inflation, cushion the impact of political cycles on business cycles, improve the stability of the financial system and strengthen fiscal discipline without any additional cost or real sacrifice in terms of output (Arnone et al., 2006).

This paper contributes to the literature by seeking to examine a new index for measuring central bank and inflation targeting in Sub-Saharan Africa over the period 1990-2019.

Secondly, the paper uses a new methodology developed by (Dumiter & Sorina, 2011). to construct the independence index. The new index for measuring Central Bank independence has three main pillars: Central Bank political and legal independence, Central Bank governance and the conduct of monetary policy, and Central Bank transparency and accountability. The assessment of the degree of Central Bank independence was based on the methodology developed by (Dumiter & Sorina, 2011).

The results show that the degree of political and legal independence is relatively higher in countries with a fixed exchange rate regime (BCAS and CBWAS countries). The index of Central Bank governance and the conduct of monetary policy, on the other hand, is higher in countries with flexible exchange rate regimes. A clear improvement in Central Bank transparency and accountability in monetary policy was revealed in the Central Banks of Botswana, Malawi, Zambia and the CBWAS.

In addition to this introductory section, this article is divided as follows. The next section, 2, presents a discussion of the literature related to Central banks independence. In the following section, 3, we will present the methodology to assessing the degree of independence and inflation targeting of Central Banks. In the section 4, we will present the main results of the applied methodology. Section 5 presents a discussion in the light of the literature. Finally, our conclusion and policy implications will be presented, in section 6.

2. Literature Review

The independent central bank model is mainly based on two pillars stemming from theoretical work developed since the end of 1960 on the Philips curve and time inconsistency (Blot & Hubert, 2018).

The economist, (Phillips, 1958) demonstrates that there is a trade-off between inflation and unemployment in the short-run. That is to say, an active monetary policy can reduce unemployment at the cost of high inflation. Friedman (1958), questions this possibility of trade-off by means of several criticisms. These criticisms focus on two points: firstly, unemployment cannot be reduced to a certain level because there is a natural level of unemployment (note 6). Secondly, he demonstrates the invalidity of this curve caused by the adaptive expectations of economic agents. Moreover, the new classical economics (note 7) also validates the verticality of this curve in both the long and short runs. Muth (1961) introduces the notion of rational anticipation, i.e. he substitutes the notion of adaptive anticipation with that of rational expectations. Lucas (1972), postulates the inefficiency of monetary policy in the short-run as well as in the long-run and its lack of credibility due to the notion of rational anticipation.

This was followed by the work of Kydland & Prescott, (1977), who summarised their thinking in a simple principle: "rule versus discretion", according to them, the rule can give the government the opportunity to optimise social welfare, never the discretionary use. It is not credible, since the government can renege on its commitments. However, monetary policy conducted under discretion creates an inflationary bias.

Following (Kydland & Prescott, 1977; Barro & Gordon, 1983) published their paper "Rules, Discretion and Reputation in a model of monetary policy". They emphasise the importance of credibility in the conduct of monetary policy. The authors show that an unanticipated monetary policy could affect the real variables of the economy. Moreover, they postulate that there is a trade-off between credibility and flexibility because of the difference between output stability and price stability.

Indeed, it is because the Central Bank has an overly ambitious growth rate target that it is led to over-stimulate the economy, which economic agents with rational expectations foresee the temptation of the Central Bank to cheat. The behaviour of the government and its Central Bank leads to an inflationary bias. (Barro & Gordon, 1983) did not specify the reason why the government renege on its initial commitment.

It was left to authors such as (Alesina & Roubini, 1992) to specify it. However, they added to the work of (Barro & Gordon, 1994 & Nordhaus, 1975) the notion of political business cycle. The author adds to the model proposed by these authors a bias generated by the electoral cycle on government policy. He reaches the following conclusion: it is the opportunism of governments that pushes them, shortly before an election, to use monetary policy in a discretionary manner in order to increase their chances of re-election, without considering the unfavourable consequences of such a policy on price stability.

Rogoff (1985) proposes as a solution to gain credibility and reduce the inflationary bias the appointment of a

conservative central banker who is more inflation-averse than the government or the majority of voters. This solution has been criticised by two authors in particular: (Walsh ,1995 & Mishkin ,2011). According to (Walsh ,1995), the Central Bank's budget should be defined according to its inflation performance. As for (Mishkin, 2011), he proposes to have an institutional commitment to price stability set by parliament at the Central Bank.

Indicators measuring the degree of Central Bank independence can be grouped into two. The de jure indicators are based on the interpretation of the legal text of the Central Banks and the de facto indicators try to assess the degree of actual Central Bank independence.

Empirical work analysing the effects of central bank independence on macroeconomic performance (inflation, budget deficit and economic growth etc) is mixed. Authors such as (Barro & Gordon ,1983; Capite & Wood, 1991; Grilli et al.,1991; Cukierman, Webb & Neyapti,1991; Alesina & Summer, 1993; Eiffinger & Haan ,1996) have found a negative relationship between central bank independence and inflation. This means that central bank independence reduces inflation.

On the other hand, some authors, such as (Posen,1993; Campilo & Miron,1997; Parking, 2012; Klomp & De haan (2010), have not found a relationship between central bank independence and inflation.

The work of Bade & Parkin (1988) focuses on the de jure (note 8) independence of national central banks in a sample of twelve industrialised countries over the period from 1972 to 1986. Their estimates reveal a negative relationship between central bank independence and inflation.

Grili et al.,1991) criticise this approach, which, according to them, fails to capture the real independence of the institution. They integrate a new index, namely political independence (similar to that of Bade & Parkin,1988) and economic independence. By linking this new index to inflation levels, they found a negative correlation in eighteen OECD countries.

This work was extended by Cukierman and al (1992). These authors proposed a new index to go beyond the formalism of Bade & Parkin, 1988), with three components. Legal independence, the turnover rate of central bank governors and the opinion of central bank members (data collected through questionnaires sent to specialists in 23 countries). They then aggregate these indices into a global index and test on a broader spectrum of countries by including developing countries for the first time. Their results reveal a negative relationship between the degree of independence and inflation in industrialised countries, but not in developing countries.

Alesina & Summer (1993) contribute to the link between the degree of Central Bank independence and inflation. They combine the index of Bade & Parking (1988) and that of Grilli et al (1991). They construct a new index of the degree of Central Bank independence. This index is tested on 16 countries in their sample over a period from 1955 to 1988. The major contribution of these two economists is the evaluation of the effects of central bank independence on average variables of the real economy such as: growth, unemployment and the real interest rate. At this point, no conclusion is reached on the relationship between these variables and central bank independence.

Dumiter & Sorina (2011) study the relationship between the degree of central bank independence and macroeconomic performance. The authors develop a new index to measure the degree of independence and inflation targeting of central banks. Then, they estimate the evolution of central bank independence on macroeconomic performance. The impact of central bank independence was estimated using the double ordinary least squares technique on a set of variables such as: GDP at constant prices, the harmonized consumer price index (HPI), the unemployment rate, the budget deficit and the current account balance over the period from 1990 to 2009. The result shows a positive correlation between the degree of central bank independence and economic growth. However, countries with independent central banks show low inflation and unemployment.

In Sub-Saharan Africa, a few studies have looked at the relationship between the degree of central bank independence and inflation.

Fouda (1998) uses, respectively, the method of (Grilli & al., 1991; Cukierman ,1992) to evaluate the degree of independence of Central Banks over the period from 1980 to 1998. This study reveals a negative relationship between the degree of central bank independence and inflation.

Guillaumont (2006) proposes desirable reforms to increase the degree of independence of the Central Bank of West Africa (CBWAS). The author argues that the independence of the CBWAS will have the advantage of increasing confidence in the value of the currency and will also ensure the sustainability of monetary and economic integration in West Africa.

Mpofu (2012) studies the degree of legal and actual independence of central banks and investigates the relationship between the degree of central bank independence and macroeconomic performance in sub-Saharan Africa. The author assesses the degree of central bank independence using the methodology developed by (Grilli et al., 1991; Cukierman &

al.,1992). He finds that the degree of central bank independence has not improved macroeconomic performance in sub-Saharan Africa. On the other hand, he finds that recent macroeconomic performance has significantly impacted on the reforms of central bank independence.

Ngniado (2016) addresses the issue of uncertainty and the implementation of monetary policy in the Central African Economic and Monetary Community (CAEMC). The author argues that the problem of heterogeneity in this zone lies mainly in the delays in the transmission of monetary policy, leading countries to pursue pro-cyclical fiscal policies to cope with shocks. In addition, the author recommends granting greater independence to the BCAS vis-à-vis their government, especially in times of stress.

Agoba et al (1994) study the effect of the financial system and the quality of political institutions on the efficiency of central banks in a sample of 48 countries over the period 1970 to 2012. The authors estimate a panel regression model using the double least squares method. Their findings show that central bank independence is not sufficient to achieve low inflation in Africa and developing countries. On the other hand, they find that a high level of central bank independence is more effective with low inflation associated with a high level of banking sector development and institutional quality.

3. Methodology

This section consists of two sub-sections. On the one hand, we assess the degree of independence and inflation targeting of Central Banks, and on the other hand, we estimate its impact on macroeconomic performance.

3.1 Index Construction

We are inspired by the methodology developed by (Dumiter & Sorina ,2011). to construct the independence index. This methodology has the advantage of considering a new index combining the independence and inflation targeting of Central Banks by integrating three dimensions of the Central Bank, namely, legal and political independence, Central Bank governance and the implementation of monetary policy, transparency and accountability of the Central Bank.

The first dimension, namely, *the legal and political independence* of the Central Bank refers to the freedom and flexibility granted to the Central Bank by the legislator. It covers variables such as: the mandate of the governor, their legal power of appointment and dismissal, the governor holding a government position, the turnover of governors, their political vulnerability, and the status of board members, their appointment and mandate (Appendix A).

The second dimension, which is the *Governance of the Central Bank and the implementation of monetary policy*, includes some features such as: the objective of monetary policy, targeting of monetary policy, instruments of monetary policy, conflict resolution, exchange rate policy, institutional separation of monetary policy and banking supervision, financial and fiscal independence (Appendix B).

The third dimension relates to the *transparency and accountability of the Central Bank*. It refers to the activities of the Central Bank in providing information. It includes elements such as: political transparency, economic transparency, monetary policy transparency, operational transparency and monetary policy accountability (Appendix C).

This new index captures the degree of independence and inflation targeting of central banks and is constructed by aggregating 38 institutional arrangements relating to central bank statutes on the one hand and actual practice on the other. We divide the 38 arrangements as follows: 9 arrangements are attributed to the first dimension, namely political and legal independence, 15 arrangements are attributed to Central Bank Governance and the conduct of monetary policy and 14 arrangements are attributed to Central Bank Transparency and Accountability. These three dimensions take on a maximum value of 90, 150 and 140 respectively and give a maximum aggregation of 380 points (see details in the appendix for the calculation of central bank independence and inflation targeting).

4. Results

4.1 Presentation of the Results

Table 1. Calculations of the independence indices and inflation targeting of central banks from 1990 to 2019

Central Banks	PLCB	CBGCMP	CBTA	ICBIIT
BCAS	53	124	55	232
CBWAS	50	122	70	242
Bank of Botswana (BOB)	49	122	90	261
Bank of Ghana (BOG)	48	111	90	249
Reserve Bank of Malawi (RBM)	47	107	90	244
Central Bank of Nigeria (CBN)	44	124	85	253

Bank of Tanzania (BOT)	47	117	75	239
Bank of Uganda (BOU)	49	122	85	256
Bank of Zambia (BOZ)	47	127	90	264
Reserve Bank of Zimbabwe (RBZ)	49	119	75	243
Central Bank of Congo (BBC)	49	127	70	246
Central Bank of Burundi (CBOB)	51	132	75	258

(*PLCB*) = Political and Legal Independence of the Central Bank

(*CBGCMP*) = Central Bank Governance and the Conduct of Monetary Policy

(*CBTA*) = Central Bank Transparency and Accountability

ICBIIT= Central Bank Independence and Inflation Targeting Index which is the sum of three indices.

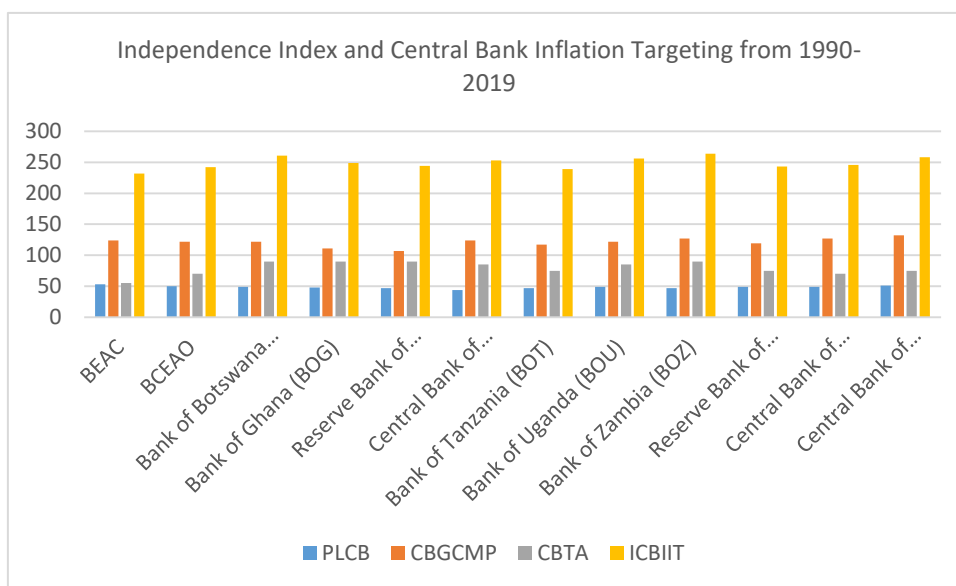


Figure 1. Independence Index and Central Bank Inflation Targeting from 1990 to 2019

5. Discussion

Table 1 presents the different values of the independence and inflation targeting indices of the central banks in our sample. The Central Bank Independence and Inflation Targeting Index (CBIITI) is composed of three pillars, namely: Political and Legal Independence (*PLCB*), Central Bank Governance and Monetary Policy (*CBGCMP*), and Central Bank Transparency and Accountability (*CBTA*). These indices are calculated as follows: the variables or criteria that enter into the calculation of each pillar have the same weight. That is, they have the same importance in the construction of the index. This new index is constructed by aggregating 38 (note 9) institutional arrangements, which are based on the texts of the Central Banks on the one hand and on their actual practice on the other. These different indices have been weighted by 10. A maximum score of 90 points for the political and legal independence of the Central Bank. A maximum score of 150 points for the governance of the Central Bank and the conduct of monetary policy. Finally, a maximum score of 140 points for the transparency and accountability of the Central Bank. A total score of 380 points for the three pillars.

Table 1 equally reveals a relatively high (note 10) index of the degree of political and legal independence of Central Banks (*PLCB*). Despite this development, we can note an active participation of heads of states in the appointment of governors and board members of the Banks. Furthermore, we also observe that the Governors of the Banks are not politicians and do not hold positions of responsibility in the government. Similarly, the turnover rate of Governors is very low (0.2) (note 11) and seems to depend on the appointment and dismissal procedures. For example, in non-member countries of the franc zone, the appointment and dismissal of central bank governors is at the discretion of the head of state, government or finance minister alone. Whereas in the CAEMC and WAEMU zones, the procedure for appointing and dismissing governors is subject to a complex procedure that requires the agreement of all heads of state of the countries in the union. Thus, central bank governors are not subject to political vulnerability.

The Central Banks belonging to the Monetary Union (BCAS, CBWAS) show the highest (note 12) degree of political and legal independence (53 and 50 points respectively), compared to national Central Banks. The membership of these two central banks (BCAS, CBWAS) in the monetary union has certainly improved their degree of political and legal independence. This improvement can be explained by their institutional developments regarding the collegiality of monetary decisions. They are Central Banks common to the six countries participating in the Central African Economic and Monetary Community (CAEMC) and the eight-member countries of the West African Monetary Union respectively. Moreover, their degree of political and legal independence is also enhanced by their supranational character, which makes them immune to unilateral government decisions. According to Strong et al. (2020), governors of Central Banks in non-CFA countries are 2.4 times more likely to be dismissed prematurely than governors of Central Banks in CFA countries (39.8% versus 16.7%).

Similarly, this improvement can also be justified by the length of the mandates of their respective governors, 7 years at BCAS non-renewable (BCAS, 2017), art. 50) and 6 years at CBWAS renewable (CBWAS, 1994), art. 56) which justifies this increase compared to Central Banks that practice the flexible exchange rate regime, which have a mandate of between 4 and 5 years, i.e. below the political cycle. According to Vuletin & Zhu (2010), premature changes of central bank governors are more frequent in developing countries (64%) than in advanced economies (30.1%).

In contrast, in countries belonging to the flexible exchange rate regime such as Ghana, DRC, Tanzania, Uganda and Zambia etc, governments often continue to be involved in the selection and appointment of board members, and their tenure tends to be short. Furthermore, in these countries, governments also continue to be involved in the implementation of monetary policy. Also, central banks have limited legal protection in case of conflict with the government. That is, there is no legal protection to strengthen the position of central banks in case of conflict with the government. This is the case for the Central Banks of Botswana, Tanzania, Zimbabwe, Malawi and Nigeria. On the other hand, other Central Banks have legal protection that allows them to strengthen their position in case of conflict with the government. These are Central Banks such as: BCAS, CBWAS, Central Bank of Ghana, Zambia and Uganda.

Regarding the degree of independence of the BCAS, *Article 5.2* of the new statute of 2017 states that: "the BCAS in the pursuit of its objectives, missions and functions is independent. The States and organs of CEMAC undertake to respect this".

Similarly, the degree of independence of the CBWAS is also reinforced by its new statute in *Article 4*, which states that: "In the exercise of the powers and in the performance of the missions conferred on it by the WAMU Treaty and by the present Statute, the Central Bank, its organs, any member of its organs or its staff may not seek or receive directives or instructions from Community institutions or organs, from the governments of WAMU member states, from any other body or from any other person".

However, as Cukierman et al. (1992) point out: "Even where the law is explicit, actual practice may deviate from it". They also point out that the discrepancies between practice and law are greater in developing countries than in industrialised countries.

Despite the above remarks, it is clear that the institutional reforms undertaken within the BCAS and the CBWAS show a general move towards greater political and legal independence of these two institutions and their decision-making bodies. Moreover, although these two banks are multinationals, this makes them de facto immune to unilateral decisions by their respective governments.

As for the second pillar, i.e. Central Bank Governance and the Conduct of Monetary Policy (*CBGCM*), the majority of Central Banks have relatively high (note 13) indices. This is the case for the Central Banks of Burundi (a score of 132), the Democratic Republic of Congo (a score of 127), Zambia (a score of 127) and BEAC (a score of 124) etc. This increase in the index can be justified by the fact that several Central Banks have a single objective (price stability), while others have several objectives with prioritisation, one of which is inflation targeting. In addition, they also show a high degree of instrumental independence in setting and applying their interest rates. This degree can also be assessed by a strong direct and indirect ban on Central Bank lending to governments and the total or partial abolition of statutory advances to governments.

In some countries, legislation prohibits direct Central Bank lending to government or limits it to very exceptional circumstances or sets quantitative limits. These restrictions sufficiently demonstrate that Central Banks enjoy independence in the pursuit of their monetary policy objective and that they are not obliged to lend automatically to the government (*Article 36* of the CBWAS and *Article 17* of the BCAS). If central banks lend to governments, they do so at market rates and for a limited and temporary amount. This is the case for Central Banks such as: BCAS (*Article 18*) (note 14), the Central Bank of Tanzania, Ghana, Malawi, and Uganda. Others, on the other hand, lend to the government at below-market rates. These include Central Banks such as Botswana, Zimbabwe, Zambia, Nigeria and Burundi.

The various Franc Zone agreements have reduced the weight of French representatives in the governance of the Central Banks (BCAS and CBWAS). French representatives on the BCAS Board of Directors have been reduced from one half to one third and then to one quarter, and on the CBWAS Board of Directors from one third to one seventh; the governors are now African.

However, some factors have contributed to the deterioration of governance and the conduct of monetary policy, notably the primacy of heads of state over central bank decisions in case of conflict. That is, Central Banks have limited legal protection in case of conflict with the government. The direct and indirect financing of the government deficit by some Central Banks, the interference of the government in the implementation and formulation of monetary policy. The active involvement of governments in the establishment and regulation of exchange rate policy. Some central banks such as Tanzania, Ghana, Zimbabwe, Zambia, Uganda and Malawi participate in the primary market for government debt.

Ghana has recently opted for an inflation targeting strategy. In addition, other Central Banks such as Ghana, Tanzania and Malawi participate in the primary market for the repurchase of securities issued by their respective governments.

Regarding the third pillar, namely, *Central Bank transparency and accountability*, our calculations also reveal a clear improvement in some national Central Banks such as Botswana, Ghana, Malawi, Zambia, Uganda and the CBWAS which are supported by factors including: instrumental independence, quarterly publication of macroeconomic variables such as inflation: GDP, money supply and industrial production capacity. In addition, the activities of Central Banks are audited by external and internal auditors, which justifies the production of annual management accounts. Also, their governors are accountable to parliament or members of government. Some Central Banks, notably BCAS (a score of 55 points), the Central Bank of the Republic of Congo (a score of 70 points) and CBWAS (a score of 70 points) reveal a low degree of transparency and accountability of the Central Bank. This relative weakness may be due to some factors such as: a weak communication process, the absence of debate between the public, the media and the Central Banks on monetary policy, the absence of time series for some main economic variables, the non-disclosure of macroeconomic models used by the Central Banks for their economic policy analysis and the absence of forecasts on inflation and output. However, some of them organise continuous communications with the public, the press and businesses and provide quarterly data. This is the case of the CBWAS, the Central Bank of Nigeria, Botswana and Uganda.

Despite the remarks made above, it must be noted that the institutional reforms undertaken within the BCAS clearly show the general evolution towards the reinforcement of a greater independence of this institution, as well as of its decision-making bodies. Moreover, although the Bank is a multinational, which makes it de facto immune to unilateral decisions by governments, it was conceived as remaining in some way "in the hands of governments" since the members of the BCAS Board of Directors responsible for implementing monetary policy, according to the directives of the Council of Ministers of each Union, were appointed by governments. Furthermore, the extremely minority position of the French representatives in the Monetary Policy Committees gives them a role of observers and advisors. Even if they receive instructions from their government, their presence is not incompatible with the independent status of the Central Banks as would be the case with a dominant position (in no case would France have a veto power and it happened that some decisions were taken contrary to the opinions of the French representatives (Guilaumont ,2017).

The Countries of the franc zone grouped around two central banks, namely the BCAS and the CBWAS. The countries with flexible exchange rate regimes are: Botswana; Burundi; Ghana; Malawi; Nigeria; Uganda; Tanzania; DR Congo; Zambia and Zimbabwe.

6. Conclusion and Policy Implications

The result is that the degree of political and legal independence is relatively higher in the countries with fixed exchange rate regimes grouped in the BCAS and CBWAS. The index of central bank governance and the conduct of monetary policy is higher in countries such as Burundi, the Democratic Republic of Congo, Zambia and the CAEMC sub-region. We find a clear improvement in the transparency and accountability of central banks in monetary policy in the central banks of Botswana, Malawi, Zambia and the CBWAS.

The following policy recommendations can be forwarded on the basis of our results: Non-political interference in the appointment and dismissal of Bank officials; increasing the length of governors' terms so that they are longer than the electoral cycle; limiting monetary financing of governments by Central Banks. It would be necessary to institute a mechanism that would oblige the Central Banks of Sub Saharan Africans countries to report on their actions to the Community parliaments for the Central Banks belonging to the monetary union (BCAS and CBWAS) and to the national parliaments for the National Central Banks. Increase the degree of transparency of Central Banks by regularly publishing their quarterly economic data, notably GDP, inflation rate, industrial production capacity, unemployment rate and economic growth rate. In our future work, we will seek to examine the relationship between the degree of

central bank independence and the dynamics of inequality in sub-Saharan Africa. In this respect, we refer to the work of (Sturn & al, 2020; Aklin et al.,2021).

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Notes

- Note 1:** These changes include the way in which monetary authorities are elected or appointed and the length of their mandate. In addition, other changes relate to the legal framework of the Central Bank.
- Note 2:** BCAS revised its statute in September 2007, October 2010 and June 2017.s
- Note 3:** BCAS in English Central Bank African States and CBWAS is Central Bank of West African States
- Note 4:** Adopted respectively in April 2010 for the CBWAS and October 2010 for the BCAS.
- Note 5:** These reforms include the change of the CFA franc to eco, the abolition of the West African countries' operating account with the French treasury and the withdrawal of French representatives from the West African Monetary Union (France will no longer appoint any representative to the CBWAS's Board of Directors and Monetary Policy Committee, nor to the WAMU's Banking Commission)
- Note 6:** The natural rate of unemployment is the rate of unemployment consistent with zero inflation. According to Friedman, it is the spontaneous position of the economy in the absence of government intervention.
- Note 7:** New classical economics is a research programme that developed mainly from the 1970s onwards. This new economics adopts the rational expectations hypothesis and they deduce that cyclical economic policy is inefficient
- Note 8:** De jure independence is the degree of independence of the Central Bank as assessed through its statutes
- Note 9:** See Appendix 2 for details of the variables or criteria and the points allocated to each variable.
- Note 10:** Compared to the maximum value of 90 points.
- Note 11:** This means a change of governors every 5 years. This rate is calculated 1/the duration of the term.
- Note 12:** See Table 2, second column.
- Note 13:** See Table 2, second column. This index varies between 107 (the Federal Reserve of Malawi) and 132 (the Central Bank of Burundi) for a maximum value of 140 points.
- Note 14:** The limits of the budgetary financing of the States by the Central Bank are provided for in article 18. According to Article 17 of the BCAS statutes, the MPC (Monetary Policy Committee) may grant treasuries of member states, for a given budget year and at its main refinancing rate for credit institutions, current account overdrafts for a period not exceeding one year

Appendix A:

Index for Central Bank Independence and Inflation Targeting in sub-Saharan Africa

1: Political and Legal Central Bank Independence

Central Banks	Political and legal central bank Independence index									Total
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	
BCAS	10	0	0	10	10	10	10	0	3	53
CBWAS	10	0	0	10	10	10	10	0	0	50
Bank of Congo	7	0	0	10	7	10	10	0	5	49
Central Bank of Burundi	7	0	0	10	7	10	7	10	0	51
Central Bank of Nigeria	7	0	0	10	7	10	10	0	0	44
Central Bank Botswana	7	0	0	10	7	10	10	0	5	49
Central Bank of Uganda	7	0	0	10	7	10	10	0	5	49
Central Bank of Ghana	5	0	0	10	5	5	10	0	3	38
Central Bank of Tanzania	7	0	0	10	7	10	10	0	3	47
Bank of Zambia	7	0	0	10	7	10	10	0	3	47
Reserve Bank of Zimbabwe	7	0	0	10	7	10	10	0	5	49
Reserve Bank of Malawi	7	0	0	10	7	10	10	0	3	47

Source: Calculated by the Author from the respective central bank Acts

Definition of Variables Used to Calculate Central Bank Independence Index

- (1) Term of office of Governor (CEO); (2) Legal power to appoint the Governor (CEO) ; (3) Legal power to dismiss the Governor (CEO) ; (4) Does Governor holds any other office in the Government?; (5) Turnover rate of Central bank Governor (TOR) ; (6) political vulnerability of Central bank governor ; (7) Status of the Management Board of the central bank ; (8) Appointment of the Board Members ; (9) Term of office of the Board Members.

Appendix B:

Central Bank Governance and Conduct of Monetary Policy Index.

Central Banks	Central bank governance and conduct of monetary policy index															Total
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	
BCAS	7	10	10	10	5	10	10	10	5	5	5	10	7	10	10	124
CBWAS	10	0	10	10	5	10	10	5	5	10	10	7	10	10	10	122
Bank of Congo	10	10	10	10	5	10	10	10	5	10	7	10	10	10	0	127
Central Bank of Burundi	10	10	10	10	0	10	10	10	5	10	10	7	10	10	10	132
Central Bank of Nigeria	10	10	10	10	5	10	10	10	10	10	7	10	7	5	0	124
Central Bank Botswana	10	10	10	10	5	10	5	10	5	10	0	7	10	10	10	122
Central Bank of Uganda	10	10	10	10	-	10	5	10	5	10	5	7	10	10	10	122
Central Bank of Ghana	10	10	10	10	-	10	10	10	5	10	7	7	7	5	0	111
Central Bank of Tanzania	10	10	10	10	-	10	5	10	5	10	7	10	10	10	0	117
Bank of Zambia	10	10	10	10	-	10	10	10	5	10	7	10	7	5	10	124
Reserve Bank of Zimbabwe	10	10	10	10	-	10	10	5	5	5	10	7	7	10	10	119
Reserve Bank of Malawi	10	10	10	10	-	10	10	5	5	10	5	5	7	10	0	107

Source: Calculated by the Author

- (1) Price stability ; (2) monetary strategy ; (3) the degree of Goal and Target independence ; (4) The degree of instrument independence ; (5) General Policy conflicts ; (6) Interest rate ; (7) Intervention of foreign exchange market ; (8) Regulation of foreign exchange market ; (9) Foreign exchange borrowings ; (10) Financial supervision ; (11) Lending to the government ; (12) terms of lending ; (13) Maturity of loans ; (14) interest rates of loan ; (15) Central banks's participation in the primary market for government securities.

Appendix C:**Central Bank Transparency and Accountability**

Central Banks	Central Bank Transparency and Accountability Index														Total
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	
BCAS	10	10	10	0	0	0	10	5	0	0	0	0	0	10	55
CBWAS	10	10	10	5	0	0	10	5	0	0	5	5	0	10	70
Bank of Congo	10	10	10	5	0	0	10	5	0	0	5	5	0	10	70
Bank of Burundi	10	10	10	5	0	5	0	5	10	5	5	0	0	10	75
Bank of Nigeria	10	10	10	5	0	5	10	5	10	0	5	5	0	10	85
Bank of Botswana	10	10	10		10	5	10	5	10	0	5	5	0	10	90
Bank of Uganda	10	10	10	5	0	5	10	5	10	0	5	5		10	85
Bank of Ghana	10	10	10	5	10	5	0	5	10	5	5	5	0	10	90
Bank of Tanzania	10	10	10	5	0	0	0	5	10	5	5	5	0	10	75
Bank of Zambia	10	10	10	5	0	5	10	5	10	5	5	5	0	10	90
Bank of Zimbabwe	10	10	10	-	0	5	0	5	10	5	5	5	0	10	75
Bank of Malawi	10	10	10	5	0	5	10	5	10	5	5	5	0	10	90

Source: Calculated by the Author

- (1) Formal statement of the objective(s) of monetary policy with an explicit prioritization in case of multiple objectives ; (2) Quantification of the primary objective ; (3) Explicit contracts between the monetary authority and the government ; (4) Publicly available economic data ; (5) Disclosure of the macroeconomic model(s) for policy analyses ; (6) Regular publishing of its own macroeconomic forecasts ; (7) The announcement of the monetary policy decisions ; (8) Explaining and justifying the monetary policy decisions ; (9) quarterly evidence of the monetary policy direction; (10) Regularly evaluating the central bank's targets ; (11) Regular information on macroeconomic disturbances that affect the policy transmission process ; (12) Outcomes evaluating in the light of macroeconomic objectives ; (13) Accountability of central bank Governor; (14) Auditing central bank activities.