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**ASSESSING THE PREPAREDNESS OF WAMZ COUNTRIES FOR MIGRATION
TO INFLATION TARGETING FRAMEWORK¹**

WAMI OCCASIONAL PAPER SERIES NO. 23

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ASSESSING THE PREPAREDNESS OF WAMZ COUNTRIES FOR MIGRATION TO INFLATION TARGETING FRAMEWORK

Abstract

Inflation targeting (IT) has become the dominant monetary policy framework around the world and most of the countries that have adopted it have successfully improved their monetary policy regime. The objective of this paper is to assess WAMZ member countries' readiness to adopt inflation targeting regime as recommended by the Authority of Heads of State and Government for the single currency program, and to learn from Ghana's experience that have been using the IT framework since 2007. We utilized the prerequisites and initial conditions for IT developed by Mishkin (2004) and the IMF (Carare et al., 2002; Freedman et al., 2010) in our assessment of the member countries readiness. Our study revealed the challenges that some WAMZ countries may encounter in adopting the IT framework. For example, while The Gambia would have no major challenges; Guinea needs to improve its monetary policy transmission mechanism; Liberia has major challenges regarding both external and domestic stability as well as monetary policy transmission issues, Nigeria need to continually improve its domestic stability, while Sierra Leone need to focus more on both domestic and external stability. The lesson from Ghana showed that the country has successfully improved its monetary policy transmission mechanism however, experienced challenges including presence of fiscal dominance, weak fiscal positions, and external shocks which impaired its ability to sustainably subdue inflation to the desired level.

Keywords: Monetary policy, Inflation targeting, WAMZ

JEL Classification : E52, E58, E31

1.0 Introduction

In recent years, Inflation Targeting (IT) has emerged as a dominant monetary policy framework in many of the developed and emerging economies including New Zealand, Canada, South Africa, and Ghana, among several others. The growing popularity of IT resides on its efficiency in providing short run flexibility for the central bank without undermining its medium-term anti-inflationary credibility thus, becoming an appropriate institutional framework for monetary policy, (Hofman *et al.*, 2020). Inflation targeting also correlates with better macroeconomic performance than the alternative monetary policy frameworks while it plays an important role in preventing monetary authorities from exhibiting pro-inflationary and pro-cyclical biases as exhibited in many countries, particularly the developing economies (Rogers, 2006; Montiel, 2013). The IT framework sets the numerical target for inflation over a specified time horizon and makes effective communication to the public thereby improving the transparency and credibility of monetary authorities. Central banks across the world adopt IT framework through an open commitment of maintaining price stability as the overriding objective of monetary policy.

Prior to adopting IT, many central banks were targeting other monetary aggregates such as broad money or exchange rate. For example, despite its advantages such as its tight link to the price level and the fact that the public can easily observe and understand it, Exchange rate targeting, has some drawbacks and has been challenging for central banks, given countries openness to capital mobility during the last two (2) decades. Monetary targeting, on the other hand, has its own benefits including the

control of money supply, in relation to price level. Like exchange rate targeting, monetary targeting might be challenging for central banks as the relationship between price level and broad money is no more obvious. Equally, the public may not easily comprehend monetary aggregate target as they would to exchange rate or inflation. More importantly, money demand has more often become unstable, implying that it is not under the control of the central bank as the bank only controls reserve money (Montiel, 2013).

As at end-2006, twenty-four (24) countries adopted IT policy framework followed by four (4) additional countries that joined IT between 2006 and 2009, bringing the total number to twenty-eight (28) (Epstein and Yeldan, 2008; Sarwat, 2012). In Africa, South Africa and Ghana are the pioneer countries that adopted inflation targeting as their monetary policy framework. Other countries in ECOWAS use monetary or exchange rate-targeting regime (Table B in appendix). However, the Authority of Heads of States of WAMZ at its 2019 Statutory Meeting in Abuja proposed and adopted a flexible exchange rate regime along with a monetary policy framework that focused on inflation targeting for the single currency and West African Central Bank programme.

Ghana has considerable experience in the use IT framework hence can provide a guidepost for adoption of the IT framework in the WAMZ and other ECOWAS countries particularly those with similar economic structure. This paper attempt to provide an insight on the readiness of WAMZ countries to migrate to Inflation Targeting framework. Since member States are moving toward integration, it is imperative that they harmonize their

monetary policy practices in line with the directive from the Authority of Heads of States. It is on this note that we undertook this survey to assess the readiness of WAMZ member countries to adopt IT as their monetary policy framework.

The objectives of this paper are to: (i) assess WAMZ countries readiness should they decide to adopt IT as their monetary policy framework as recommended by Authority of Heads of States, and (ii) learn from the Ghana's experience, which has been practicing IT for more than a decade. We use the pre-requisites and initial conditions for IT developed by Mishkin (2004) and the IMF (Carare *et al.*, 2002; Freedman *et al.*, 2010) to assess countries readiness. We adopted an SVAR approach and used the Impulse Response Functions (IRF) to analyze the extent of the effectiveness of the current transmission mechanism of monetary policy. The efficiency of monetary policy transmission represents one of the key conditions of IT as it demonstrates central bank's ability to react to macroeconomic shocks and resilience in moderating inflation rate to the desired level.

The rest of the paper is organized as follows; section 2, highlights the literature review. Section 3 presents the definition and initial conditions of IT, whilst section 4 analyzes countries readiness to adopt inflation targeting as their monetary policy framework. Section 5 discusses Ghana's experience and finally section 6 concludes the paper and provide policy implications.

2.0 Literature Review

Prior to the 1990s, central banks focused more on economic growth as their primary

objective hence channel financial resources to priority sectors, thereby making them establish development banks. Similarly, the independence of central banks during the period supports the attainment of such goals. However, the 1990s brought about a huge paradigm shift towards price stability arising from findings in emerging economic literatures. Currently, almost all central banks around the world are legally obliged to pursue price stability as one of their primary objectives (Laurens *et al* 2015). Based on this mandate, countries began to move away from fixing exchange rates under monetary targeting (MT) regimes to a more modern regime known as inflation targeting (IT).

There exist major disagreements in the literature with regards to timing for the announcement of the adoption of IT in countries, due to gradual adoption of the regime. The central banks often lag in adjusting their structures to the new regime as it took some a little while for countries longer to adopt all the main features of inflation targeting. This makes it difficult to determine the exact timing of adoption such that different dates can be argued for, depending on which of the criteria are deemed necessary for the regime to be defined as formal IT. One alternative would be to choose the date the central bank would embraces all the required features. Second, is to align with the first announcement of a numerical target, even if the bank has not adopted any IT features and thirdly, to formally and completely adopt the IT and all its features.

Fracasso *et al.* (2003) define the starting date of IT as the first time a numerical figure for inflation is announced in Government budget statement at the start of

the first calendar year of the new regime. Mishkin *et al.* (2001), defines the starting date as the period when the first Policy Targets was agreed between the Minister of Finance and the Governor of a central bank. This agreement needs to be made public specifying numerical targets for inflation and the dates or achieving them. Truman (2003) defined the starting date as when the Central Bank first announced an inflation target. Others, such as Schaechter *et al.* (2001) defined it as the period when the crawling exchange rate peg transform to a full-fledged IT regime. Following the same line of argument, (Bernanke *et al.*, 1999) defined it as the time when a central bank announces the adoption of IT framework not when an exact numerical target was first declared.

In their studies, Kahn *et al.* (1998), Corbo *et al.* (2001) and Neumann and von Hagen (2002) examined whether inflation targeting has led to changes in central banks behaviour, especially in terms of reaction to inflationary pressures. Using Taylor rules and impulse response analysis from VAR models, their results indicated that responses to transitory inflation shocks have become less aggressive but long run responses to inflation increased. These studies also showed monetary policy in the inflation targeting countries converging towards other industrial countries with long time experience in the credibility of the framework such as Germany and the USA. Empirical analyses presented by Omojolaibi and Ayoola (2010) utilized the cointegration and OLS estimates and found counter- intuitive result showing that growth in output does not lead to rise in the expected inflation figures thus, indicating that the theory of full employment does not hold in Nigeria. This impliedly mean that intensive effort at policy implementation,

monetary policy transparency, accountability, and improvements in communication is needed in Nigeria prior to adopting inflation targeting. Mishkin *et al.* (2007) found the impact of inflation targeting and associated variables using Cross-country data while examining correlations using a multivariate probit model. Rano and Englama (2009) employed Granger causality tests and an unrestricted VAR methodology in his study on Nigeria to show that the level of output, money supply, exchange rate and fiscal spending in the economy causes variations in the level of prices or the Consumer Price Index (CPI) while interest rate does not. He further indicated that interest rate, money supply and the level of fiscal spending influence output variations while the roles of exchange rate and prices were insignificant. The impulse response functions from the VAR model highlighted the response of CPI to its own shocks is contemporaneously robust throughout the short- and medium-term horizons, but less persistent afterwards. He concluded that there is no strong quantitative link between monetary aggregates and prices, therefore Nigeria should not pursue full-fledged inflation targeting but should adopt IT lite.

In their analysis, Filho (2010) concluded that the monetary policy of IT countries appeared to be more suitable in dealing with financial crisis. Relative to other countries, IT countries lowered nominal policy rates and the loosening translated into an even larger differential in real interest rates. He opined that with flexible exchange rate, IT countries might experience sharp depreciation, thus indicating feeble evidence of improved unemployment rates. On the other hand, studies showed that growth in developed IT countries tend to be higher relative to non-IT peers. According to Anwar and Islam (2011), both inflation-targeting and non-inflation-targeting low-

income economies experienced major reductions in inflation rates and improvements in average growth rates. Although the non-inflation targeting countries continued to have lower inflation and higher growth than the inflation targeting countries. For example, countries that adopted inflation targeting observed greater improvements in performance and recorded decline in inflation volatility. (Khan *et al.*, 2001) study on inflation growth relation for developing countries found 11 to 12% as the threshold level of inflation above which inflation significantly slows growth. This means that managing inflation at a single digit has a positive relation with growth in developing countries. Generally, the review of related literature above clearly highlighted the advantages IT framework has over alternative frameworks such as Exchange and Monetary Targeting. Perhaps, this explains why countries are migrating to the IT due to its effective reaction to inflationary pressures give that the major objective of many central banks is to maintain price stability that would be conducive to the growth of their economies.

3.0 Inflation Targeting: Definition and Pre-requisites.

There is no consensus on the definition of Inflation targeting (IT). However, Bernanke *et al.* (1999) views IT as a framework for monetary policy characterized by public announcement of official quantitative targets (or Target ranges) for the inflation rate period. Other features of IT as highlighted by Bernanke *et al.* (1999) include determined efforts at communicating with the public about plans and objectives of the monetary authorities including other measures taken to strengthen the central bank's accountability

and transparency in achieving its core mandate. Mishkin (2004), on the other hand, identified five (5) main components of inflation targeting. These include (i) a public announcement of medium-term numerical targets for inflation, (ii) an institutional commitment to price stability as the primary goal of monetary policy to which other goals are subordinated, (iii) an information inclusive strategy in which various indicators, not just monetary aggregates, or exchange rate, are used as policy instruments. The rest are (iv) increased transparency of the monetary policy strategy by communicating to the markets and the public, plans, objectives, and decisions of the monetary authorities (v) increased accountability of the central bank for attaining its inflation objectives.

Three types of inflation targeting framework have been identified as follows: (i) Full-fledged IT (FFIT) where a country adopts IT as its single nominal anchor upon which macroeconomic stability are benchmarked. This is suitable for countries with a robust or sound financial environment, and a central bank that is transparent, accountable, and highly committed to the attainment of the goals of IT. (ii) Eclectic IT (EIT) adopted by countries that pursue IT along with other monetary policy objectives in a stable financial environment. (iii) Inflation Targeting Lite (ITL), a low-profile form of IT often used by countries, with weak macroeconomic environment. (Aliyu and Englama, 2009) found that the major trait of ITL countries is that they float their exchange rate and announce an inflation target but are unable to maintain the inflation target as the foremost policy objective.

There are mainly two pre-requisites for IT: (i) the central bank's independence and (ii) the availability of robust forecasting model. The first prerequisite is focused on making the central bank accountable in reaching the desired inflation targets. This requires giving the central bank the freedom to pick instruments (instruments independence) that would help in achieving the desired target. The absence of instruments independence could otherwise induce the central bank to choose instruments that are not compatible with the IT. To ensure the credibility of every announcement by the central bank, the bank must create a macroeconomic model that would expressly link the selected instruments to the desired inflation target

In addition to the two prerequisites listed above, there are initial-conditions that a central bank needs to fulfil in adopting IT which Carare *et al.* (2002) categorized into four categories:

- i. *Mandate, transparency, and the accountability.* Required that a central bank enjoy *de facto* mandate to pursue an inflation targeting framework and be granted the discretion and autonomy to set its monetary instruments accordingly. This is followed by the need to inform the public about the monetary policy framework and its conduct;
- ii. *Macroeconomic Stability.* Demands the absence of fiscal dominance so that government access to central bank credit would be limited. There is need to have low inflation rate to allow reasonable degree of monetary control and domestic stability. This is important because the higher the inflation rate, the

larger the consequences on the real economy, for a given IT. Likewise, there should be a relative external stability to prevent the bank from having (*de facto*) an additional target, i.e., exchange rate stability;

- iii. *Financial system stability.* In order to enable the central bank focused mainly on inflation targeting and less on financial stability. Thus, a certain level of financial development and stability coupled with a well-functioning payment system should precede the announcement of IT framework;
- iv. *Effective conduct of monetary policy.* The central bank must have an effective forecasting and policy analysis system (FPAS). This would allow the bank to choose its instruments and operating target that can effectively have an influence on inflation outcome through a comprehensive link between the two.

Although achieving these initial conditions constitutes an important step to implementing inflation targeting, the framework can commence without fully satisfying all the initial conditions. The instruments independence, absence of *de-facto* fiscal dominance and robust forecasting and policy analysis system constitute some of the ultimate fundamental requirements of IT. The monetary authority could work towards meeting the condition in the short or medium term along with the implementation of IT.

4.0 Methodology and Data

We adopted the pre-requisites and initial conditions framework developed by Mishkin (2004) and the IMF (Carare *et al.*,

2002; Freedman *et al.*, 2010) to analyse WAMZ countries readiness to adopt IT. A survey approach was utilized by sending questionnaire to the six (6) central banks of the WAMZ and responses² were used for our analysis along with a working session with the Bank of Ghana. We considered the WAMZ convergence criteria, as the benchmark for assessing the relative importance of the WAMZs macroeconomic stability (See Convergence Criteria in Appendix E). The WAMZ and ECOWAS convergence criteria: fiscal deficit, inflation rate, central bank financing, and exchange rate variation, are aimed at ensuring that member countries attain sustainable level of macroeconomic stability which is also consistent with the prerequisites for IT framework (Diallo *et al.*, 2018).

As regards monetary policy transmission effectiveness, we followed (Mishra *et al.*, 2012) approach and adopted an SVAR³ model thus utilizing Impulse Response Functions (IRFs) and Forecast Error Variance Decomposition (FEVD) to analyse the effectiveness of countries monetary policy transmission. The data for the analysis was sourced from WAMI internal data and from the respective central banks of member countries using the recent five (5) year period, i.e., 2015-2019. However, the data used for the SVAR are monthly series spanning from January 2008-December 2019, except for Sierra Leone, which covered the period, January 2011-December 2019, as the policy rate variable was not available prior to 2011. The scope of the study was limited to this

period mainly due to data constraints, and this did not affect the robustness of the study. The details on the SVAR methodology are included in the Appendix.

5.0 Analysing countries readiness to adopt inflation targeting framework

The monetary policy regimes of the WAMZ went through various transformation since the attainment of political independence⁴. At the initial start, most Member States of the WAMZ adopted direct credit control regimes aimed at promoting economic development through credit expansion. The instruments used were direct credit control, rediscounting rates, reserve requirements, liquidity coefficient and exchange rate control. The reforms of the 1980s led to the abandonment of the direct control in favour of indirect monetary policy instruments. This led to the introduction of open market instruments that complemented the reserve requirement instrument. The foreign exchange markets moved in tandem with a market-oriented floating regime. Currently, all the Member States of the WAMZ⁵ practice monetary targeting as their monetary policy framework except Ghana, which officially adopted IT in 2007.

² Only the Central Bank of Sierra Leone did not respond to our questionnaire.

³ The model specification and other details are presented in appendix

⁴ Member States of the WAMZ were part of the West African Currency Boards prior to decolonization

⁵ Liberia was the only exception as it practiced exchange rate targeting until 2019 prior shifting to monetary targeting regime.

5.1. The Gambia

a. Mandate, Accountability and Transparency

Section five (5), of the statutes of the Central Bank of Gambia (CBG Act 2018) outlined the following as the primary objectives of the bank: (i) Achieve and maintain domestic price stability (ii) Promote and maintain the stability of the currency of The Gambia; (iii) Direct and regulate the financial system; (iv) Encourage and promote economic development through efficient utilization of the resources of The Gambia; and (v) Support the general economic policy of the government. This suggests an expanded objectives of CBG mandate aside from the primary responsibility of price stability. However, the status of the CBG do not seem to weight more on inflation as required in IT regime.

As regard to accountability and transparency, the CBG Act of 2018 indicates that the bank has the obligation to release information and announce its monetary policy decisions and other publications⁶. Consequently, the CBG publishes its monetary policy decisions through several channels such as press conference, press release as well as publication of the minutes of meetings on the Bank's website. Other documents such as quarterly bulletin are also produced and published by the CBG. However, the bank holds no obligation to provide testimony on the conduct of monetary policy before the legislature or any other institution. This raises some concerns on accountability, as there is no, *de jure* or *de facto* i.e., any obligation of accountability relative to the

public. Generally, The Gambia partly satisfies the first set of requirements for the adoption of IT framework. The CBG mandate does not clearly give more credence to stability relative to other objectives while the bank does not have an obligation of accountability, *de jure* at least.

b. Macroeconomic Stability

Absence of Fiscal Dominance: absence of fiscal dominance is the first element of macroeconomic stability which implies that government does not rely on central bank financing of its fiscal deficit. The new statutes of the CBG reinforced its autonomy thus, freeing it from the interference of government and other public institutions. Section 41 of the Central bank of The Gambia Act 2018 states that outstanding credit to government shall not at any time exceed ten (10) percent of previous year's tax. This level corresponds to the WAMZ primary convergence criteria. The Act adds that all advances shall be repaid as soon as possible and in any event by the end of the financial year in which they are granted.

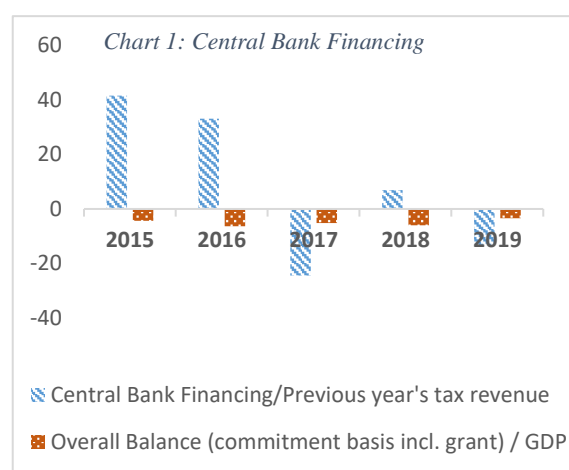


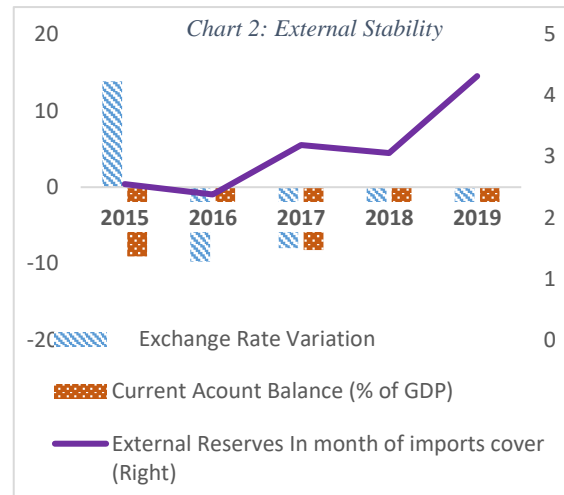
Chart 1 displays the overall balance and central bank financing of deficit for the

⁶ There exists a communication department in the bank.

Gambia over the last five years. The graph indicates a robust performance with respect to central bank financing of the fiscal deficit. From above 30 percent in 2015 and 2016, the indicator dropped to a negative in 2017 and 2019, meaning that the government has a credit balance with the bank. The government of the Gambia seems to rely on the market rather than on *seigniorage* to finance its fiscal deficit. Thus, The Gambia showed a remarkable performance regarding central bank financing as required by the ECOWAS convergence criteria of below 3.0 percent. However, on the fiscal position side, the country has recorded high fiscal deficit (5.0 percent on average) and high public debt (80 percent of GDP on average) over the five years. This raises some concerns on the need for the country to strengthen its fiscal position.

- External Stability

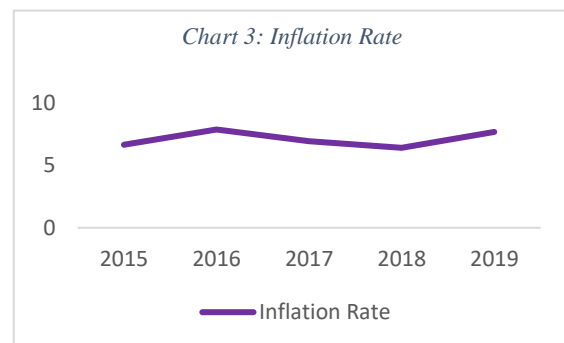
Chart 2 reveals the external stability of The Gambia captured by exchange rate variation, current Balance as percentage of GDP, and external reserved in months of import cover. As explained earlier, an important requirement for IT framework is the stability of the domestic currency, the absence of which could derail the central bank from its focus on both exchange rate and price stability. The Gambia’s current account deficit has significantly improved in recent years to 3.7 percent of GDP, from 9.1 percent of GDP in 2015.



The domestic currency, the *dalasi*, equally, recorded relative stability during the last five (5) years with a variation below 10.0 percent from the US dollar during 2017-2019. Furthermore, the country’s external reserves have been growing in recent years with the reserves level standing above 3.0 months of import cover during the period 2017-2019. Consequently, The Gambia presents a healthy external stability as it satisfies the requirements of the ECOWAS convergence criteria on exchange rate variation and months of imports cover in external reserves.

- Domestic Stability

Chart 3 shows the domestic stability of The Gambia represented by inflation rate.



It suggests low level of inflation rate in The Gambia, as it remained on a single digit

over the last decade. A low or moderate level of inflation rate is desirable prior to announcing an IT framework as the monetary policy regime. The country was able to sustain low and stable price over the years, recording the lowest inflation rate among WAMZ countries over the last two (2) decades.

Impliedly, the CBG showed remarkable macroeconomic stability, as indicated by the absence of fiscal dominance coupled with amazing exchange rate stability. This could enable it to reinforce its credibility if it decides to announce an IT regime. Nevertheless, the country may need to further strengthen its fiscal position through the implementation of a fiscal rule and work towards a sustainable downward trend of its public debt profile.

Financial System Development and Stability

The financial system of The Gambia comprises of commercial banks, microfinance institutions, insurance companies, and foreign exchange bureau. The banking industry consists of twelve (12) banks, eleven (11) of which are conventional banks, and one (1) Islamic bank. There are 11 (eleven) insurance companies, which include two (2) Takaful/Islamic operators while the remaining seven (7) underwrite general insurance or short-term business (non-life) whilst the remaining 2 (two) underwrite life or long-term insurance. The micro-finance sector consists of 66 institutions which are classified as: Village Savings and Credit Associations (VISACAs), Finance Companies (FCs), and Fiduciary Financial Institutions (FFIs). All the financial institution operating in the country are regulated and supervised by the CBG.

Similar to many low-income countries, the Gambia's financial system is dominated by the banking sector.

In terms of stability and financial soundness, the banking system in the Gambia recorded improved performance as the ratio NPL to gross loans was the lowest in the WAMZ showing 7.0 on average, compared to 12.8 on average over the period 2017-2019. In the recent years, the capital adequacy ratio (CAR), has been above the required regional average of 10.0 percent. However, the insurance sector has recorded some difficulties relating to insolvency, and lapses in internal control due to poor management styles. These made the CBG to restructure four (4) of them and withdrew the operating licenses of three (3) others between 2015 and 2019.

By and large, the Gambian financial system has witnessed significant development and stability, above the regional average. Thus, indicating that the CBG may have little challenges of financial stability.

c. Conduct of Monetary Policy

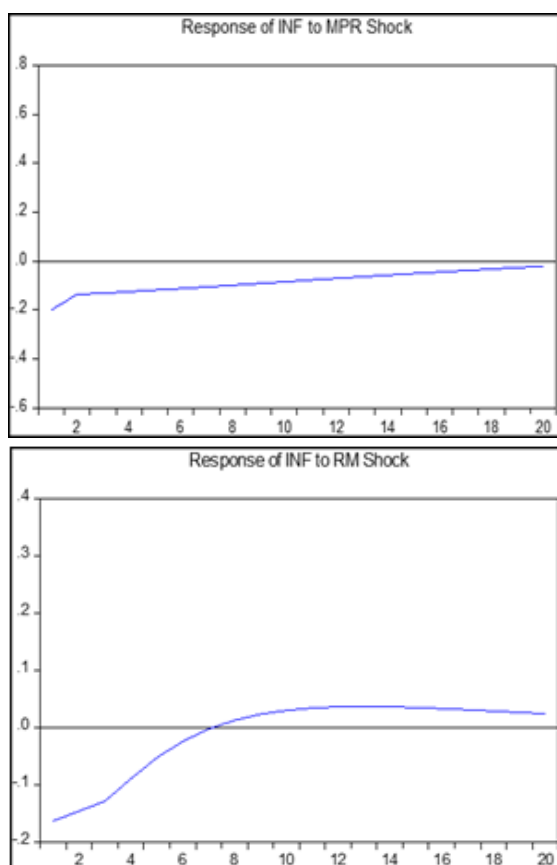
- Instruments and operational target

The CBG uses monetary targeting as the monetary policy framework thus, reserve money is employed as the operating target while broad money serves as the intermediate target, and inflation, the ultimate target. With regard to instruments, the CBG deploy open market operations (OMO), interest rate (MPR), bank reserve requirement, and standing lending (SL) and deposit (SD) facilities. The bank also intervenes weekly in the foreign exchange market to stabilize the domestic currency (dalasi).

- Monetary Policy Transmission:

Chart 4 presents the Impulse Response Function (IRF) for The Gambia. The CBG uses Taylor rule for the conduct of monetary policy. In relation to the effectiveness of the monetary policy transmission, the IRF of the SVAR model for The Gambia show that inflation responds well to MPR than reserve money shocks.

Chart 4: IRFs for the Gambia



More precisely, an unanticipated disturbance of MPR that causes a rise monetary policy rate (MPR) i.e. (tight monetary policy) by 0.5 percent would leads to a contemporaneous drop in inflation by 0.2 percent. However, the impact of the shock vanishes after 20 months. On the other hand, the immediate response of inflation to reserve money (RM) shock that results to a rise in the

change of reserve money (loosening monetary policy) shows a negative response of inflation during the first seven (7) months before transforming to a positive reaction. This situation constitutes a price puzzle meaning that the response of inflation to loosening monetary policy is not satisfactory in the short run. This finding reveals that the CBG can effectively respond using MPR as its instrument rather than the RM, to bring the level of inflation down to the desired target level, at least in the short run.

- Inflation Forecasting Method

The CBG has a macroeconomic and financial database and use the Canonical Quarterly Projection Model as their inflation forecasting model. This is complimented by another model called the near-term forecasting model.

The bank accepts the reliability of these model in producing satisfactory–inflation projections.

5.2. Guinea

a. Mandate, Accountability and Transparency:

The Central Bank of Guinea (BCRG) derive its mandate on accountability, and transparency from the Bank Act L / 2017/017 / AN enacted-on June 08, 2017 and legislated by the parliament in 2017. It establishes the institutional framework for the conduct of monetary policy of the BCRG where Chapter 2 of the Act clearly states that the main objective of the BCRG is to ensure price stability. Without prejudice to this objective, the Central Bank supports the general economic policy of the Government of the Republic of Guinea to

achieve viable and sustainable economic growth. The BCRG focused on the following activities to achieve its mandate: (i) defining and implementing monetary policy, (ii) ensuring the stability of the banking and financial system, (iii) promoting a functioning financial system and, (iv), ensuring secured payment systems along with effective supervision of the financial sector. Thus, the central bank dwells more on ensuring price stability than output growth and financial stability which are secondary objectives.

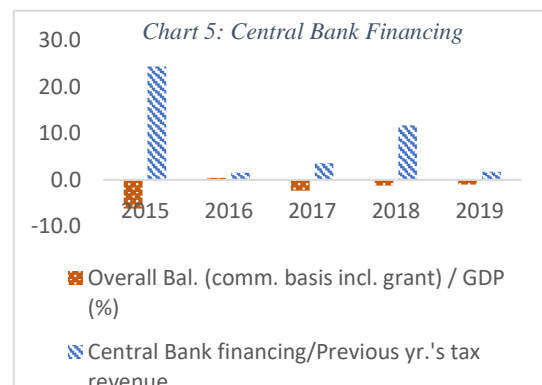
Chapter 6 of the Act refers to transparency and accountability as regards the obligation of the bank in sharing of information and publication. It states that the BCRG should communicate its policies, functions and operations to stakeholders including the legislative body, government, and the public, as defined in the Bank’s Act. It also mandated the BCRG to issue press release at the end of its Monetary Policy Committee and Executive Board meetings. The Bank is further obligated to produce a quarterly bulletin on monetary conditions as well as an annual report, and to also to defend their monetary policy stance before the Parliament at least once a year.

From the discussion above, it can be inferred that a clear mandate is assigned to BCRG with core objective of maintaining price stability while growth and financial stability form the secondary objectives. The BCRG equally has an obligation of ensuring transparency and accountability, as clearly stated in the Bank Act of 2017.

b. Macroeconomic Stability

- Absence of Fiscal Dominance:

Chart 5 shows the fiscal balance of Guinea represented by the level of central bank financing of government deficit over the last five years. As stated earlier, the absence of fiscal dominance constitutes the initial condition for ensuring macroeconomic stability. To this end, the BCRG Act reinforced its autonomy from the government and other public institutions. Article 6 states that the central bank would under no circumstances be subordinated to any government institutions, public workers, or any other person. It also stressed that public institutions, the government, or any other person have obligation to respect the autonomy of the bank, its bodies, and its employees. As regards central bank financing of fiscal deficit which indicates, *de facto*, extent to which the bank is autonomous, Article 36 of the Act stipulated 5.0 per cent of the annual average of fiscal revenue (for the last three financial years preceding the current year and for which the accounts are available) as the total amount of financing to the government and, where applicable, to public bodies and entities.

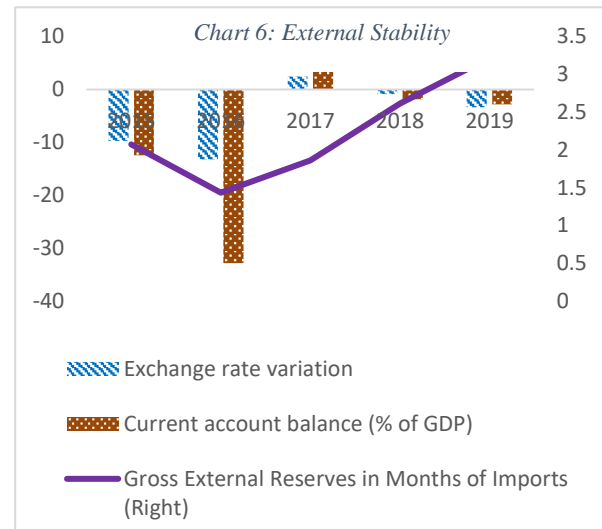


It also specified that the loan should be repayable within a period not exceeding 92 calendars days and is subjected to the Republic of Guinea prevailing market interest rate. Chart 5 revealed a downward trend of less 3.0 percent over the last four years. This has over the years corresponds to the required regional convergence criteria ratio of below 10.0 percent thus implying an absence of fiscal dominance, *de jure* as well as *de facto* in Guinea.

- External Stability

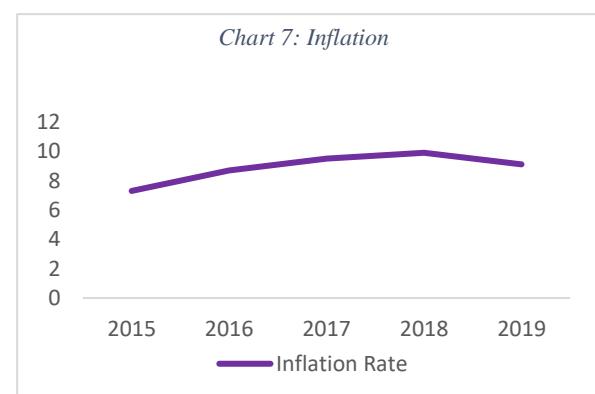
Chart 6 shows the Guinean external stability as it indicates improvement in recent years coming after a large deficit from the period 2015-2016. The current account increased considerably leading to a surplus in 2017 while recording a deficit of below 3.0 percent in 2018-2019.

Likewise, the Guinean currency, GNF, exhibited a relative stability over the last five years as it stood below 10.0 depreciation against the USD. The country's external reserves, on the same note, continued on sustained upward trend of above 3.0 months of import cover in the last three (3) years. Guinea showed an overall favorable external stability trajectory which may be alluded to the performance of the country's current account balance.



- Domestic Stability

Chart 7 shows domestic stability of Guinea denoted by the inflation rate. The country's inflation rate has been fairly low as it continued on a single digit over the last five (5) years. It however, recorded a reversal showing upward swing from 7.3 percent in 2015 to 9.9 percent in 2018, before falling to 9.1 percent the following year.



In terms of macroeconomic stability, Guinea presented satisfactory performance as it also confirmed the absence of fiscal dominance, *in both de jure* and *de facto* in addition to its outstanding fiscal position in recent years. The country's external and domestic stability also presented an interesting picture that could aptly qualifies it as potential migrant to IT framework.

c. Financial System Development and Stability

Guinean financial sector as at end 2019, comprised of 19 banks with one (1) specialized financial institution, 13 insurance companies and 21 Microfinance Institutions. The sector includes 2 leasing companies, 39 bureaux de change and 31 money transfer companies. Similarly, all the financial institutions are under the central bank regulation and supervision, where the banking sector became the dominant player in the Guinean financial system. Its total asset grew to an equivalent of USD 2,989 million in 2019, from USD 2,520 million in 2018 while total deposits rose to a reciprocal value of USD 2,301 million from the USD 1,918 million recorded in the preceding year.

The country has a safe and sound financial sector, as all the banks complied with both the minimum capital requirement and the capital adequacy ratio in 2018 and 2019. The asset quality also improved as NPLs dropped from 9.0 percent recorded in 2017 and 2018 to 8.0 percent of gross loans in 2019. Similarly, the profitability ratio measured by ROA was stable at 2.0 percent over the recent three (3) years though is among the lowest in the WAMZ. The ROE, on the other hand, rose to 23.0 percent in 2018 and 2019, from 17.0 percent in 2017.

There are no major challenges in the sector except the MFI which experienced some difficulties during the period 2015-2019. This arose from issues surrounding insolvency, internal control lapses, and poor management thus making the BCRG to restructure one (1) and withdraw the licenses of eight (8) others.

d. Conduct of Monetary Policy

- Instruments and Operational Target

The BCRG currently adopts monetary targeting as its monetary policy framework where reserve money is used as the operating target, broad money the intermediate target, and inflation the ultimate target. In terms of instruments, the CBG employs open market operations (OMO), interest rate (MPR), bank reserve requirement, and standing lending and deposit facilities. To this end, the Bank has launched a framework for forecasting and active management of weekly bank liquidity. A liquidity Committee was created to analyse conditions in the money market and decide the weekly quantum of intervention by the BCRG. The bank also intervenes weekly in the foreign exchange market for the purpose of stabilizing the GNF.

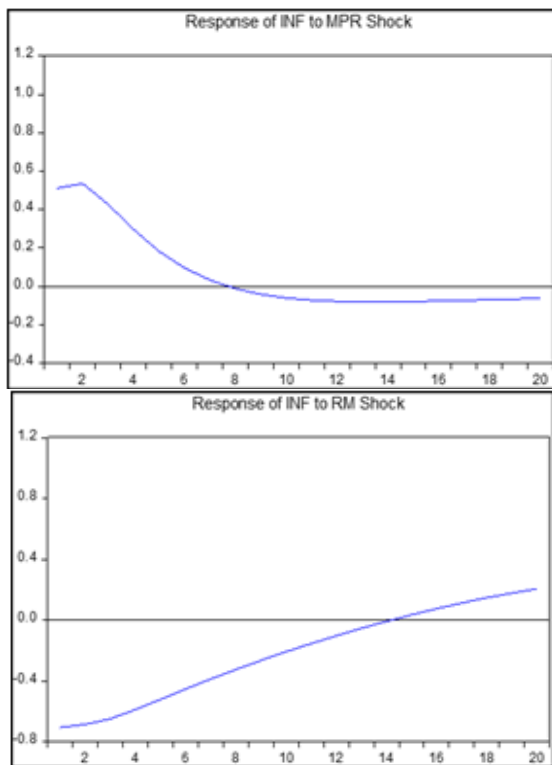
- Monetary Policy Transmission:

Chart 8 presents the estimated results on the effectiveness of the monetary policy transmission using the IRF of the SVAR model for Guinea. The bank's reaction function is not openly described as the BCRG does not follow any formal model such as Taylor rules in the conduct of its monetary policy.

The result revealed that inflation does not respond well to MPR and reserve money shocks which are Guinea's instruments of monetary policy. More precisely, an unanticipated disturbance of MPR by 1.0 percent in the MPR (tight monetary policy) is associated with an immediate rise in inflation by a magnitude of 0.5 percent, and the impact of the shock persist for only 8 months. On the other hand, a rise in reserve money (loosening monetary policy) by 1.8

per cent would lead to contemporaneous negative response from inflation by 0.7 percent and the effect also disappears after 14 months. This outcome also uncovers an inflation puzzle implying that inflation does not effectively responds to monetary policy instruments at least in the short run. This also endorses the need for BCRG to search for effective operating instruments that can robustly respond to monetary policy transmission than the current MPR and RM. Perhaps, this would help the BCRG to contain inflation to the target level, at least in the short run.

Chart 8: IRFs for Guinea



Inflation forecasting

The BCRG has put in place an FPAS (Forecasting and Policy Analysis Systems) for its inflation analysis and forecasting framework. The FPAS was developed by the IMF and is globally considered among the “best” monetary policy forecasting and analysis technique currently employed by

central banks. The FPAS is supported by other models such as ARIMA and SVAR.

5.3. Liberia

a. Mandate, Accountability, and Transparency of the Central Bank of Liberia (CBL)

The CBL Act states that the principal objective of the Central Bank of Liberia (CBL) shall be to achieve and maintain domestic price stability in the Liberian economy. Section 3, Sub-section 3, mentioned other objectives of the bank as: seeking to preserve the purchasing power of the national currency; promote internal and external equilibrium in the national economy; encourage the mobilization of domestic and foreign savings and their efficient allocation for productive economic activities. The bank is mandated to also facilitate the emergence of financial and capital markets that are capable of responding to the needs of the national economy. In addition, it is expected to nurture monetary, credit and financial conditions conducive for sustained economic growth and development.

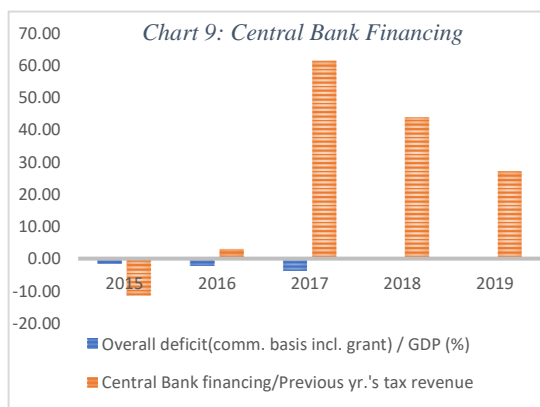
In Accordance with the CBL Act of 1999 Part XI Section 49 Sub-section 1, the Central Bank is required to communicate its conduct of monetary policy and reports the state of economic performance to the government and the national legislature.

Consequently, the Bank prepares various reports on a regular basis for submission to these bodies. With regards to monetary policy decisions, the MPAC meets on a

quarterly basis to set interest rates and transmit these decisions through the Communication Department using press conferences, media releases, and talk shows. The CBL publishes Quarterly Bulletins and makes other periodic publications on a regular basis to inform the public about the state of the economy. This is consistent with the first set of requirements preceding the adoption of IT framework which CBL Act clearly obligate the Bank to transmit its monetary policy decisions.

b. Macroeconomic Stability

- **Absence of Fiscal Dominance:** Chart 9 presents Liberia’s Central Bank financing of fiscal deficit. As mentioned earlier, a central bank deserve some degree of independence to conduct monetary policy by freely selecting the appropriate instruments that would leads to achieving its primary objective. This implies that the bank should be freed from fiscal dominance meaning fiscal policy considerations should not dictate monetary policy (Debelle *et al.*, 1998). In the case of Liberia, Central Bank financing of fiscal deficit (fiscal dominance) has been one of its major challenges over the last three (3) years.



In effect, as shown in Chart 9, financing of fiscal deficit by the CBL grow exponentially from below 3.0 percent in 2016 to a peak of 61.3 percent in 2017 which is 600.0 percent above the ECOWAS convergence criteria level of 10.0 percent of tax revenue. It however, came down to 40 per cent in 2018 and continued on the downward trend to about 25 per cent in 2019 though remarkable but unsustainable given the ECOWAS convergence criteria. Interestingly the overall fiscal deficit was remarkable during the 2017 which stood at 3.8 per cent despite the general election that took place during the period. The country is expected to leverage on its partnership program with the IMF through the Extended Credit Facility (ECF) agreement to keep central bank financing to a reasonable level perhaps with strict enforcement through legislation.

- External Stability

Another important requirement for inflation targeting is the willingness and ability of the monetary authorities to focus more on inflation targeting than other macroeconomic indicators, such as; wages, level of employment, or exchange rate. For example, a country that subordinates its monetary policy to exchange rate objective by having a fixed rate regime may find it difficult to operate an inflation targeting framework specifically in countries with unrestricted movements of capital such as Liberia. Stakeholder in this case does not enjoy government guarantee that subduing inflation would form its core objective relative to exchange rate target or vice versa, thus, neither policy will enjoy the credibility needed for success (Debelle, Masson, Savastano, & Sharma, 1998).

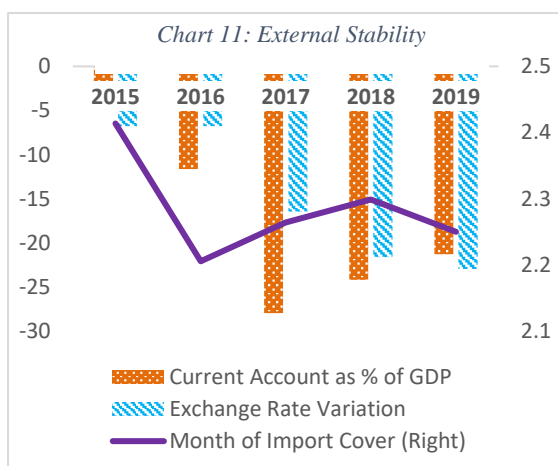
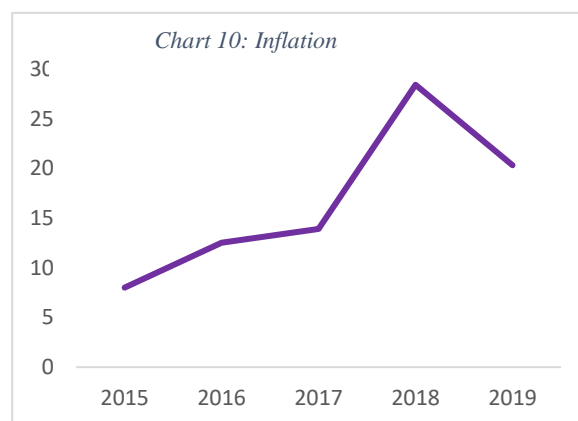


Chart 10 displays the external position of Liberia. It revealed that the current account deficit as a percent of GDP is relatively high. Although it has witnessed declining trend over the last three (3) years, to 21.3 percent in 2019, as against 24.1 percent and 27.9 percent in 2018 and 2017, respectively. Analysis of the exchange rate, on the other hand, showed steady depreciation of the Liberian dollar against the United States dollar between 2015 and 2019, oscillating from 6.8 percent to a peak of 27.9 percent in 2017 and 22.9 percent in 2019. This variation may be unsustainable when compared with the ECOWAS criteria of 10.0 percent. In addition, the country's external reserve for 2015, 2018 and 2019 was below-the threshold of three months of import cover, as required by the regional convergence criteria. This performance could be associated with factors such as: decline in the country's primary exports, slump in remittance and drastic cuts in inflows from grants. Altogether, the external position of Liberia has presented a challenging picture thus, motivating the need for the country to strengthen its external stability in the short to medium term.

- Domestic Stability

Chart 11 presents the domestic stability of Liberia as represented by inflation rate. The sole priority of every central bank is to maintain low and stable price level. Regrettably, inflation rate in Liberia has risen from a single digit in 2015 to a peak of 28.4 percent in 2018, before declining to 20.3 percent at the end of 2019.



The increase in the rate of inflation can be attributed mainly to the pass-through effect of the exchange rate which has deteriorated sharply during the same period. Similar to its external position, the domestic stability remains a challenge for Liberia, as the single digit inflation target seems unattainable in the short to medium term. The country could however, reverse the situation if it undertakes resilient fiscal and monetary policy measures such as ending the dual currency regime, and effective implementation of the agreement on capping the central bank financing of fiscal deficit.

c. Financial System Development and Stability

Liberia's financial system consists of 9 commercial banks, 14 insurance companies, 17 non-deposit-taking microfinance institutions, one deposit-taking microfinance institution, one development finance institution, 12 Rural Community Financial Institutions, 152 forex bureaus, 120 credit unions, 1,268 village savings and loans association (VSLA). Although the commercial banks are fewer than other financial institutions, the banking system dominates the financial system of the country. The financial system is regulated and supervised by the CBL as the banking system is relatively stable, safe and sound amidst the challenging economic conditions. The sector accounts for over 80.0 percent of the total assets of the financial system. The industry recorded a Capital Adequacy Ratio (CAR) of 27.5 percent, which is way above the minimum regulatory requirement of 10.0 percent, representing an increase of 0.2 percentage points from the 2018. It also registered a total stock of liquid assets valuing L\$199.9 billion in 2019 compared to L\$158.9 billion in 2018. However, NPL remained high, from 16.0 percent of gross loan in 2017 to 17.0 percent in 2019, which is equally above the regional average.

d. Conduct of Monetary Policy Instruments and Operational Target

- Instruments and Operational Target

In 2019, the CBL migrated from exchange rate targeting to monetary targeting as its policy framework. Prior to adopting monetary targeting, the Bank operates a dual currency (US dollar and Liberian

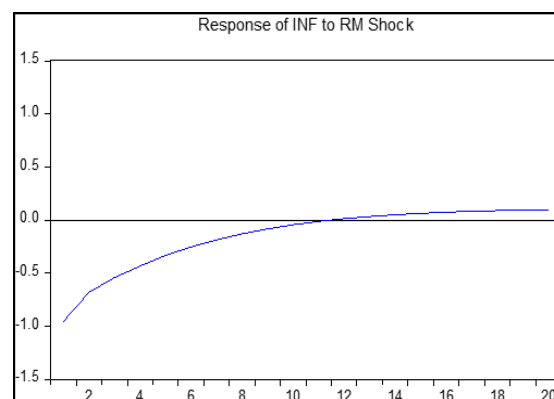
dollar). The CBL deploy instruments such as the RRR, foreign exchange auction, monetary policy rate and Open Market Operation. Other instruments that were introduced during the exchange rate targeting regime, include SDF, SCF, CBL indexed bills, and Intra-Day Facility. These are aimed at complementing the forex auctioning system and stem the intense foreign exchange volatility. The Bank adopts reserve money as its operational target, while exchange rate is the intermediate target, and price stability as its ultimate target.

- Monetary Policy Transmission:

Chart 12 shows the IRF for Liberia using reserve money shock. Similar to Guinea, the CBL reaction function remains uncertain as the CBL does not seem to follow a particular monetary policy rule such as Taylor rule operated by the CBG.

As regard to the effectiveness of its monetary policy transmission, the country, however, does not have a long series of MPR as a monetary policy instrument.

Chart 12: IRF for Liberia



The response of inflation to reserve money (RM) shock showed that an upswing in reserve money (loosening monetary policy)

by 6.0 percent leads to instantaneous negative response of inflation by 1.0 percent and the effect vanishes after 10 months. This also suggests an inflation puzzle implying that inflation does not effectively respond to monetary policy action in Liberia. It also signals that the CBL may be confronted with frail response to monetary shocks as the RM appeared to be ineffective monetary policy tool. The use of MPR by the bank which started in 2019 might help the bank to uncover more influential operating instruments that would subdue inflation to the desired target at least in the short run than the RM currently deployed.

- **Inflation Forecasting**

The CBL employs Short Term Inflation Forecasting (STIF) model, ARIMA and VAR to forecast inflation both in the short and the long run. The three models are set at precision level of not more than plus or minus 10 percent of the inflation rate.

In general, Liberia's migration to IT framework would require persuasive economic reforms to stabilize the country's economy in the short to medium run. Most of the preconditions such as the absence of fiscal dominance, the external and domestic stability as well as the effectiveness of the monetary policy transmission does not seem to be under the control of the monetary authorities as shown in the review period. However, the country could improve its position through the ECF of 2018 and other regional commitments aimed at supporting the government toward sustainable economic growth.

5.4. Nigeria

a. Mandate, Accountability and Transparency of the CBN

The 2007 CBN Act provide adequate and precise mandate for the CBN, which are clearly captured as: (i) Ensure monetary and price stability; (ii) Issue legal tender currency in Nigeria; (iii) Maintain external reserves to safeguard the international value of the legal tender currency; (iv) Promote sound financial system in Nigeria; and (v) Act as banker and provide economic and financial advice to the Federal Government.

While price stability is listed as the core objective assigned to the CBN, the mandate does not indicate the supremacy of price stability over other objectives.

Regarding accountability and transparency, in consistence with many central banks around the world, the CBN has made several efforts to improve its transparency and accountability. The CBN, at certain instances brief members of the national assembly on monetary policy stance and decisions, as well as other issues that affect the economy. Furthermore, section 33 of the CBN 2007 Act, empowers the Bank to require or share information with persons and institutions concerning matters that affects the economy. Similarly, section 35 of the 2007 CBN Act obligates the bank to publish its monetary policy rate. Consequently, the Bank releases information to the public using various media platforms on the economic situation and future prospects of the economy for the purpose of policy guidance. The CBN also issue statement after each MPC meetings that explains the Committee's policy decision and reports on the personal

statements and the votes of each member of the committee.

b. Macroeconomic Stability

As stated earlier, the main objective of the CBN monetary policy is to maintain price stability. The three prices that monetary policy focuses on are consumer prices, exchange rate, and interest rate. The CBN is empowered to ensure a stable external value of the domestic currency hence its exchange rate policy is tied to the price stability objective.

- Absence of Fiscal dominance

The CBN Act No. 24, of 1991, which repealed the CBN Act of 1958, marked the beginning of the independence of the Bank. The Bank's discretionary powers that were restrictive from 1968 were relaxed in 1991. The Nigerian Authorities restored some aspects of the lost autonomy following global trend in central banks. The 1991 Act requires the Governor of the Bank to report directly to the Office of the President, rather than the Federal Ministry of Finance. The enactment of the CBN Act with the Banks and Other Financial Institutions Act (BOFIA), both of 1991, provided a landmark development and entrusted the Bank with the operational autonomy to discharge its mandate. Thereafter, additional amendments such as the 1993 amendment confers more powers on the CBN to demand for disclosure of information from any person or institution. The CBN Act, 2007 assigned broader operational autonomy on the CBN in conformity with international best practices. The independence refers to the Bank's autonomy to determine the best way of achieving its policy goals including the types of instruments it would deploy

towards the attainment of its objectives. Section 1(3) of CBN Act 2007 stipulates that the Bank shall be an independent body in the discharge of its functions.

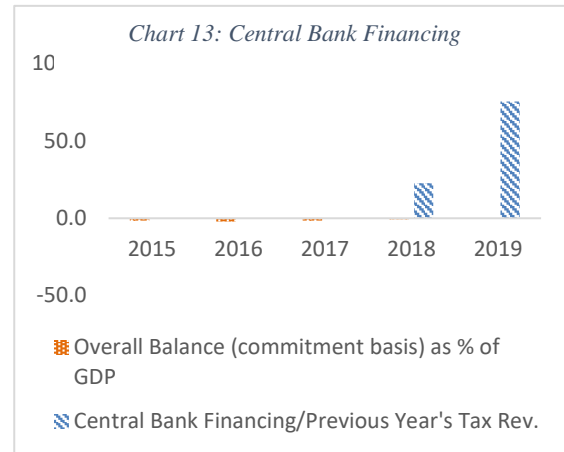


Figure 13 showed the overall balance as percentage of GDP, and central bank financing to the fiscal deficit as a ratio of tax revenue of the previous year Section 1 sub-section 3 of the CBN Act 2007 allows the Bank to finance government budget deficit but not exceeding five percent of the previous year's actual revenue of the Federal Government. As shown in the chart, Nigeria has impressive record of low fiscal deficit at an average of 1.2 percent of GDP over the last five years. This is so because the government follows a fiscal rule which states that fiscal deficit should not exceed 5.0 percent.

Despite the remarkable fiscal discipline observed by Nigeria, the central bank financing (as a ratio of the last year of tax revenue) rose significantly reaching 75.5 percent in 2019. This perhaps indicate the presence of a *de facto*, fiscal dominance in the country.

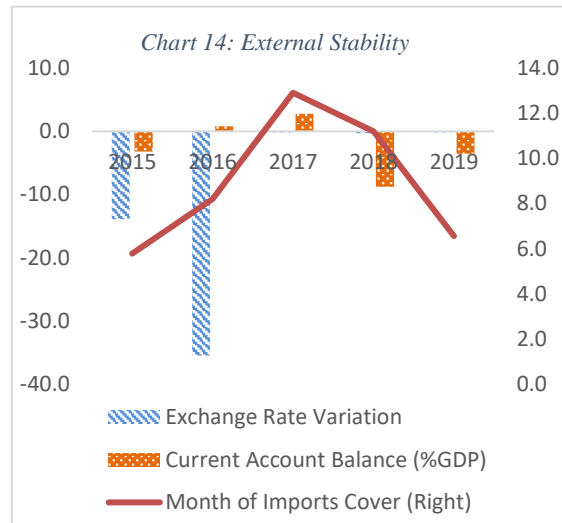
Notwithstanding the large interventions by the CBN in financing the fiscal deficit during the last two years (2018-2019), there is a likelihood that the country would bring it down to an appreciable level within the shortest period. In fact, further addition to the monetary policy measures, is the fiscal/monetary policy coordination unit created for the purpose of regular high-level interactions between the fiscal and monetary authorities. This collaboration and coordination will hopefully help in reducing fiscal surprises. These disruptions often emerge by way of debt issuance, and spontaneous expenditure by the fiscal authorities which often affect domestic liquidity and impedes the achievement of macroeconomic objectives.

- External Stability:

A well-structured monetary policy implementation framework needs to recognize the importance of stable exchange rate in its broad objectives of price stability. This is so because movements in interest rates have an associated impact on exchange rate movement.

Chart 14 indicates Nigeria’s external stability represented by exchange rate variation; external reserve measured by months of import cover. Over recent years (2015-2019), the Nigerian economy recorded remarkable and sustainable performance in its external position. Chart

14, showed on average, the current account balance stood below 3.0 percent of GDP during the period under review while the exchange rate, after a large depreciation in 2015 and 2016, remained stable as its value fell by less than 0.5 percent between 2017 through 2019.



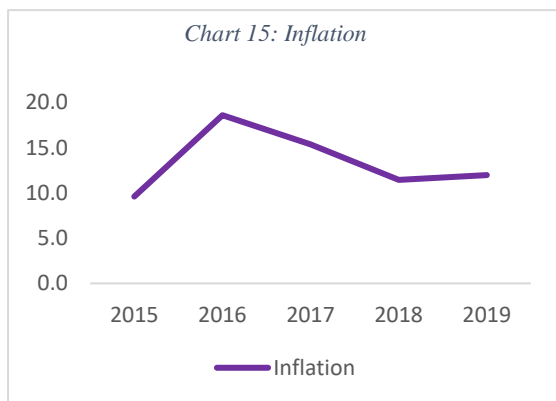
Similarly, the country’s external reserves, despite its significant decline compared to previous years, still stood above 5.0 months of imports of cover. This notable performance could be explained by the fact that foreign exchange interventions has become an integral part of monetary policy operations of the CBN aimed at achieving desired monetary policy goals. The CBN often intervenes in the foreign exchange market to provide conducive economic growth and stabilize the domestic currency. Factors including expectations, speculative activities, and fiscal policy actions such as the statutory monthly Federal allocation to the three tiers of government (FAAC) also drive exchange rate movements in Nigeria thereby creating demand pressure.

- Domestic Stability:

Chart 15 presents the domestic stability of Nigeria denoted by inflation rate. The monetary and price stability objective

derived from the CBN’s mandate also include the provision of optimal liquidity to the Nigerian economy for sustainable non-inflationary economic growth and employment. Over the years, the Bank has endeavored to keep inflation at a single digit and create a non-inflationary environment for sustainable economic growth and development. Consequently, inflation has significantly declined in recent years but remained above the single digit threshold of the convergence criteria. As shown in Chart 15, inflation declined from a peak of 18.6 percent in 2016 to 12.0 percent in 2019 though it appeared to be on the uptick again.

c. Financial System Development and Stability



The Structure of the Nigerian Financial System

The Nigerian financial system as at end 2019 comprised 29 deposit money banks (DMBs), of which 8 DMBs hold international license, 11 had national license while 3 had regional license, and 4 financial holding companies in operation. As regards Other Finance Institutions (OFI), there were 912 microfinance banks (MFBs), 89 finance companies (FCs), 57 Insurance companies comprising 28 non-life companies, 14 life companies, 13

composites, and 5,300 Bureaus de Change (BDCs). Other non-bank financial institutions operating in the Nigerian financial system include discount houses, finance companies, stockbrokers, issuing houses, and insurance companies, among others.

In terms of financial stability, the Central Bank has not restructured any financial institution in recent years, but new entities have sprung up through mergers and acquisitions. However, several financial institutions have had their licenses revoked between 2015 and 2019 for reasons that include insolvency, voluntary liquidation, failed recapitalization as well as cessation of operations. Amongst the affected institutions were 138 microfinance banks, 22 finance companies and 5 primary mortgage banks.

Conduct of Monetary Policy

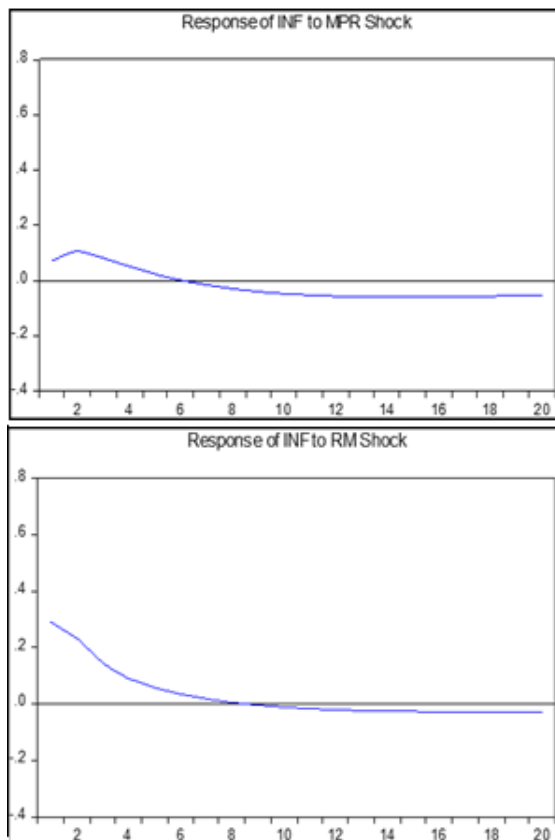
- Instruments and Operational Targets

Since its inception, the CBN has adopted two major monetary policy frameworks. From 1958 – 1974, the Bank adopted an exchange rate targeting as its monetary policy framework. However, the Bank migrated to monetary targeting (1974 – To Date) mainly due to the growing level of economic activities in the country. Nevertheless, the broad objectives of Nigeria’s monetary policy frameworks revolved around the maintenance of price stability and non-inflationary growth. It also include maintaining a healthy balance of payments position; reduction in the level of unemployment; and increased savings and credit flow to the priority sectors of the economy.

- **Monetary Policy Transmission:**

Chart 16 shows the IRF for Nigeria using reserve money and MPR shocks. It revealed that the CBN reaction function does not indicate the use of any formal monetary policy tool such as the Taylor rule.

Chart 16: IRFs for Nigeria



The results indicate that a permanent shock that induces a rise in the MPR by 0.4 percent is associated with an immediate increase in inflation during the first two (2) quarters and followed by a permanent fall of inflation. In addition, the response to inflation seems to be weak around 0.1 percent for all horizons. Similarly and in consistent with the conventional wisdom, a reserve money disturbance associated with a positive growth in reserve money by 9.0

percent leads to 0.3 percent initial increase in inflation rate. The effect of the shock is however, not permanent as it vanishes eight (8) months after the shock. This portrays RM as efficient monetary policy transmission channel compared to the MPR which reacts with some lags.

- **Inflation Forecasting**

The CBN uses DSGE and SARIMAX models in forecasting inflation which gives the bank reliable inflation forecasts at least in the short run.

5.5. Sierra Leone

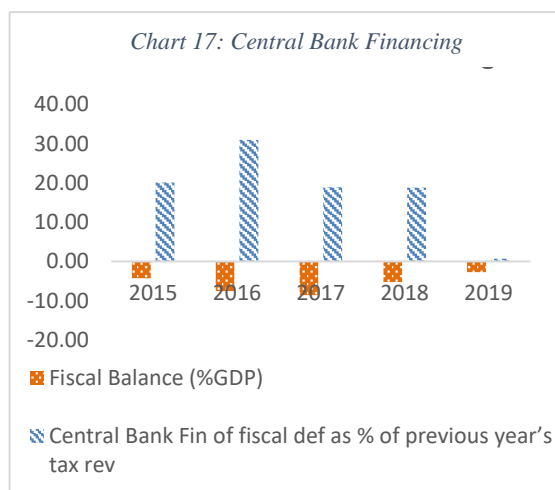
a. Mandate, Accountability and Transparency of the Bank

The objectives of Bank of Sierra Leone as spelt out in the Bank of Sierra Leone Act 2000 include: (i) the promotion of monetary stability and a sound financial structure; (ii) the maintenance of the internal and external values of the Leone; (iii) the promotion of credit and exchange conditions conducive to balanced growth of the economy; (iv) the issuing and distribution of notes and currency in the country and (v) the formulation and implementation of monetary policy. This clearly indicates that the BSL's Act of 2000 does not list explicitly price stability among the objective of the BSL. Even though the BSL could have proxied price stability as monetary stability, given their probable significant correlation, there is need to clearly and explicitly outline price stability as the main objectives the BSL, if the country wishes to consider adopting IT as its monetary policy framework.

b. Macroeconomic Stability

- Absence of Fiscal Dominance

Chart 17 presents the Central Bank of Liberia's financing of fiscal deficit. As an established monetary authority, Bank of Sierra Leone uses monetary policy to influence and maintain price stability. The BSL Act 2000 allows the Bank to finance government budget deficit... *de facto*. Sierra Leone has witnessed a relatively high fiscal deficit over recent years above 5.0 percent on average between 2015 and 2019 which peaked at around 28 per cent in 2016 (Chart 17).

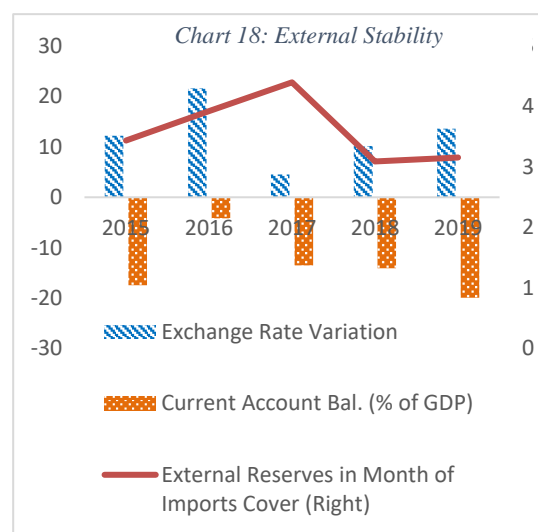


This is above the regional criteria of 3.0 percent. It, however, begin to decline standing at a deficit of 2.7 percent in 2019, as compared to a deficit of 8.6 percent and 5.2 percent in 2017 and 2018, respectively. The fiscal authorities rely on the central bank for financing of significant portion of its deficit. In effect, the central bank financing of the fiscal deficit has been close to 20.0 percent of tax revenue, on average during the period 2015-2019. However, it is worthy to note the correlation between fiscal deficit and central bank financing in 2019, as it captured concomitant fall of

fiscal deficit to 2.7 percent followed by 0.7 per cent dropped in fiscal deficit financing from more than 18.0 percent in both 2017 and 2018. Thus, the country needs to continually improve on its fiscal position and sustain the level recorded in 2019 in order to prevent any need for the BSL to adopt an accommodative monetary policy. This could be obtained through the adoption of a fiscal rule that limit government fiscal deficit.

External Stability

Chart 18 reports the Sierra Leon's external position which indicates deterioration in recent years.



The current account deficit rose to 20.0 percent in 2019, from 14.1 percent and 13.5 percent in 2018 and 2017, respectively. Similarly, the country's domestic currency (Leone) also experienced huge depreciation against the US dollar weakening by 12.4 percent on average in the periods 2015-2019. The depreciation of the Leone was larger during the last two years and was beyond the regional convergence criteria of 10.0 percent as it stood at 13.6 percent and 10.2 percent in 2018 and 2019,

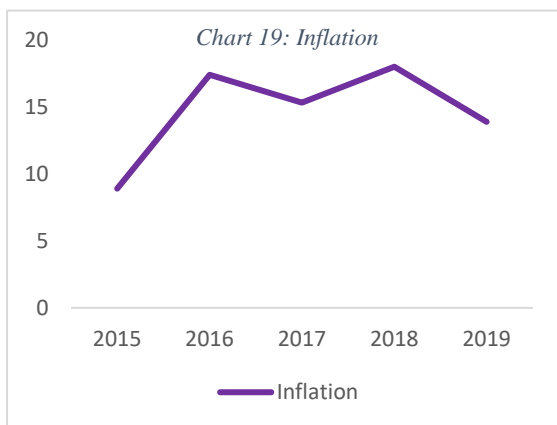
respectively, compared to 4.5 percent in 2016. However, the country's reserves stood above the convergence requirement of 3.0 months of imports cover during the period 2015-2019.

The BSL introduced a system of foreign exchange auction in February 2000. The sectors opened to the auction are banks, oil companies, manufacturing industries and general imports. This weekly foreign exchange

auction has continued to serve as a regular source of foreign exchange and also complements other sources with intent of supporting private sector imports.

- Domestic Stability

Chart 19 highlights the domestic stability of Sierra Leone represented by inflation rate. Similar to the external stability, domestic stability has also been a challenge to Sierra Leone over recent years as inflation recorded double digit during the period 2015-2019. This was mainly due to factors such as increase in food prices, the pass-through effects of depreciation of the exchange rate and liberalization of petroleum prices (WAMI 2018). However, inflation significantly declined to 13.9 percent in 2019 which is the lowest since 2015.



c. Financial System Development and Stability

There are twelve (12) commercial banks operating in Sierra Leone with 10 of them having foreign participation and they are all headquartered in Freetown. The total number of MFIs was 209 as at 2019 and consists of 2 Finance Houses, 4 deposit institutions, and 28 credit-taking institutions. There are also 17 Rural

Community Banks, 28 Credit Unions, and Financial Service Association while the total number of licensed Bureaus in December 2019 stood at Seventy-one (71).

On the performance of the financial sector in Sierra Leone, the average capital of deposit taking institutions increased by 4.01 percentage points from 22.9 in 2018 to 26.9 percent in 2019. On the other hand, the ratio of non-performing loans (NPL) to gross loan decreased by 3.7 percentage points from 10.5 in 2018 to 6.7 percent in 2019. On the other part, profitability indicators recorded marginal improvement as ROA increased from 3.7 percent in 2018 to 3.8 percent in 2019, while ROE increased from 18.9 percent in 2018 to 19.2 percent in 2019. However, liquidity indicator measured by liquid assets to total assets marginally declined by 0.51 percentage point from 21.4 percent in 2018 to 20.9 percent in 2019. The asset quality of credit taking institutions measured by non-performing loans to gross loans declined by 0.9 percentage point from 4.7 percent in 2018 to 3.7 percent in 2019. Similarly, liquid assets to total assets fell to 9.3 percent in 2019 from the 9.9 percent recorded in the preceding year.

d. Conduct of Monetary Policy

- Instruments and Operational Target

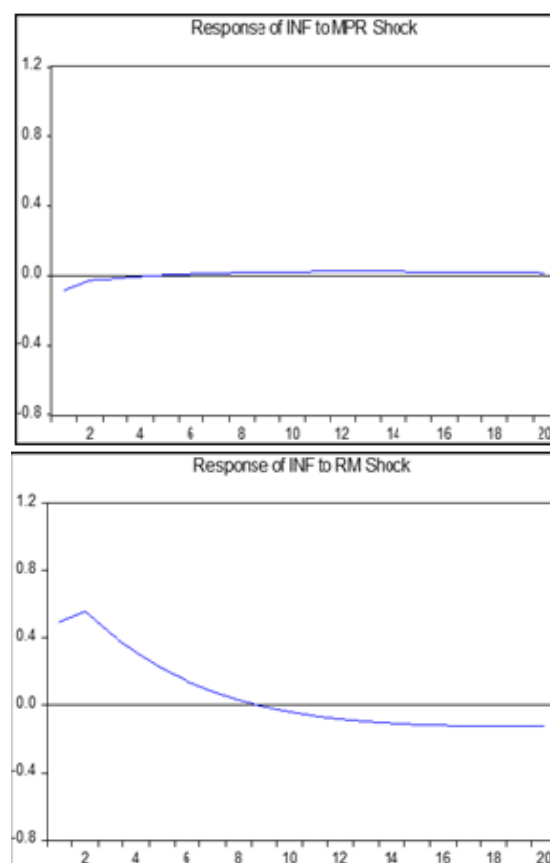
Sierra Leone also employs monetary targeting framework in the conduct of its monetary policy. The framework requires a stable and predictable relationship between money demand and its determinants given the fact that the broad monetary aggregate (M2) is the intermediate target of the monetary targeting framework.

The country has experienced several reforms since the adoption of the structural adjustment programme (SAP) in order to facilitate a competitive and efficient financial sector to support development of the economy. These reforms included the adoption of a floating exchange rate regime, liberalization of interest rates and trade, elimination of price controls, removal of some foreign exchange controls and adoption of indirect controls of monetary policy based on market-related instruments. The adoption of these reforms has significantly changed the environment in which monetary policy operates.

- **Monetary Policy Transmission:** Chart 20 presents the IRF from the SVAR for Sierra Leone. Similar, to some countries in the WAMZ, the bank's reaction function does not seem to follow any rule such as Taylor rule.

As regard to the effectiveness of the monetary policy transmission, the IRF of the SVAR model for Sierra Leone shows that inflation responds well to reserve money than MPR shocks.

Chart 20: IRFs for Sierra Leone



Thus, a tightening monetary policy using the MPR leads to a decrease in inflation rate while a loosening monetary policy through a rise in RM indicates an upswing in inflation. In fact, an unanticipated disturbance that led to a 0.6 percent growth in the MPR induces a contemporaneous drop in the inflation rate by 0.1 percent, with the impact lasting two (2) months. Likewise, a positive shock that is manifested by a rise in RM by 4.0 percent is associated with an immediate increase in inflation rate by 0.5 percent, with the effects dying after eight (8) quarters. These results suggest that, while both instruments indicate effective response to inflation, RM, appeared to have overriding effect compared to MPR in terms of reaction function. The findings revealed that inflation rate responds well to both

instruments, i.e. MPR and RM, as predicted by the theory, even though the response of inflation to MPR disturbance is very weak and limited to only 2 months.

- **Inflation Forecasting**

The BSL uses ARIMA and VAR models in forecasting inflation.

6.0 The Ghanaian Experience

6.1. Requisites for Inflation Targeting in Ghana: Pre and Post Implementation

a. Instrument Independence

Prior to the official adoption of IT in 2007, BOG was granted operational independence under the Bank of Ghana Act 2002 (Act 612). Section 3 (1) states that: “the primary objective of BOG is to maintain stability in the general level of prices”. Clause 2 of the same section sets a clear tone on functional independence of the bank which states that “without prejudice to the above, the Bank shall support the general economic policy of the Government, promote economic growth, ensure effective and efficient operation of banking and credit systems in the country, with independence of instructions from the Government or any other authority”. Section 27 of the Act established a 7 member Monetary Policy Committee (MPC)⁷ responsible for the formulation of monetary policy of the bank. However, there have been an amendment to the original Act known as Bank of Ghana

⁷ Members of the MPC made up of; The Governor, 2 Deputy Governors, Heads of Research and Banking including 2 external members appointed by the Minister of Finance. The aspect of appointing the external members was amended in the Bank - Bank of Ghana (Amendment)

(Amendment) Act, 2016 (918) which recognized the nexus of macro-financial interplay and as such duly captured financial stability as one of the objectives of the BOG.⁸ With these provisions, it could be concluded with relativity that the BOG enjoys independence of instruments thus, implying that it has the freedom to set policy rates without interference from government.

b. Fiscal dominance

Fiscal dominance is one of the major challenges confronting central banks in their pursuit of effective monetary policy programs. A study by Bawumia, (2008), revealed an average of 6.5 percent of GDP fiscal deficit figure for Ghana during the period 1996 to 2000. On its part, *seignorage* revenue recorded a figure of 2.5 percent ratio of GDP for the same period (relative to an average of 2.1 percent of GDP during 1991 to 1995. At the initial stages of adopting IT, the Bank of Ghana Act 2002 capped the central bank advances to the government at 10.00 percent of the current year’s total revenue.

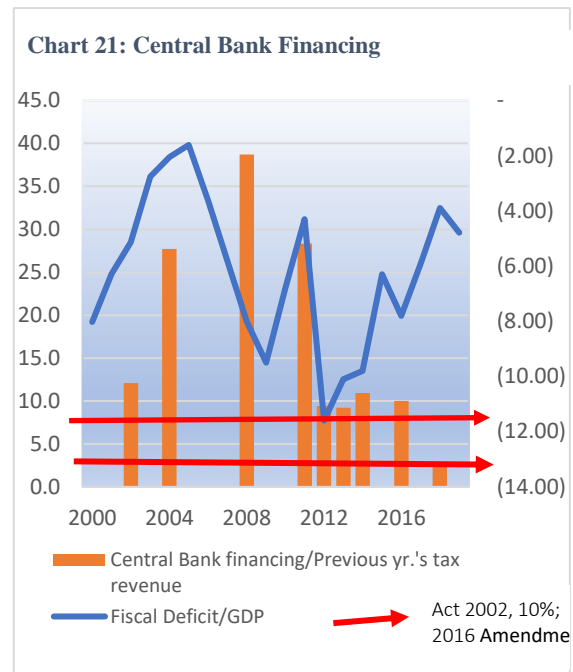
Chart 21 illustrates the dynamics of fiscal dominance and implementation of IT in Ghana. It indicated that the fiscal authorities borrowed only once from the BOG in 2003 up to the official adoption of IT in 2007. Instructively, Ghana was under an IMF program during 2001 to 2006, perhaps, this quasi-fiscal monitoring assisted the country in its fiscal consolidation efforts. Its fiscal deficit fell from 6.3 percent in 2001 to about 1.6

ACT, 2016 (Act 918), which gave the authority of appointment to the external Board Members of the bank

⁸ Financial stability as an objective was conspicuously missing in Act 2002.

percent in 2005 only to shoot-up to 27.7 percent in 2007, the year of their general election. The overall balance (including grants)/GDP for the period averaged 3.2 percent, while the highest deficit for the period was 5.8 percent in 2007 and began to deteriorate after 2007 owing largely to uncertainties and political budget cycles. The Global Financial Crisis coincided with the Ghanaian 2008 election resulting in spike of central bank financing rising to 38.7 percent⁹. Domestic power challenges coupled with global commodity price crunch played a role in sustained central bank financing from 2011 to 2016.¹⁰ The fiscal deficit in 2012 was GHS 8.7 billion, in percentage terms representing 11.6 percent of GDP. Central bank financing marginally rose to 10.9 percent in 2014 which is slightly above the 10.0 threshold of the convergence criteria. The IMF programme in 2015 assisted in curtailing central bank financing and this led to a zero financing in 2015. The Amendment Act 2016 anchored the amount of central bank financing of government deficit to the previous year's tax revenue and not current year as stipulated in the Bank of Ghana Act 2002. The 2016 Act was commended for cutting the borrowing limit to 5.0, and this was further complemented by the Fiscal Responsibility Act, 2018. The Act mandates the government to prune the annual budget deficit to 5.0 percent of GDP and maintain a positive primary balance.

c. Financial sector



As stressed earlier, a sound financial system is key to the attainment of the objective of an IT framework. The Ghanaian banking sector underwent various reforms prior and post-implementation period of IT, notably the launching of FINSAP in the late 1980s. By the 2000s, the government introduced Financial Sector Strategic Plan I (FINSSP I) in 2003, with the main aim of instituting regulatory regime; and ensuring the competitiveness of Ghana's financial institutions.

Table 1 revealed the average efficiency and stability of the Ghanaian banking sector prior to the adoption of IT was relatively safer compared to some 'inflation targeters' (Iters) such as Brazil, Chile, Czech Republic, Israel and Poland. Similar to other low income countries (in terms of financial deepness) Ghana have a narrow

⁹ Central bank financing took place on 9 occasions for the past 20 years, most of which happened during election years and periods of external/domestic shocks. There was zero financing from central bank in 2006 and 2007 respectively. Similar spikes on election years were seen in 2012 (9.4 percent) and 2016 (10.0 percent), breaches of

Act 2002 occurred in 2011 (28.3 percent) principally as a result of public wage increases in the single spine salary structure.

¹⁰ Zero financing in 2015, 2017 and 2019. 2018 financing was within the BOG Amendment Act 2016 (2002)

banking system as reflected in the private credit to GDP ratio and total assets to GDP ratio of 7.5 and 15.1 percent relative to average of 47.8 and 57.4 percent for emerging Iters.

The second part of the financial sector reforms, FINSSP II was launched in 2012 in order to broadly consolidate, deepen and expand the achievements of FINSSP I (MOFEP, 2012). The policy thrust at

inception, was to grow the banks and positioned them to lead the forefront of development across the sectors of the economy. The policy changes were largely motivated by developments in the economy which required a proactive response in terms of reform, modernizing, and adequate capitalization of the banks. As expected, these reforms greatly enhanced the financial system soundness development and as revealed in Table 1.

Table 1: Financial Soundness Indicators

| IT Targeter | Year of Adoption | Private Credit to GDP% | | Total Assets to GDP% | | ¹¹ ROA (After Tax %) | | ¹² ROE (After Tax %) | | ¹³ NPLS% | | ¹⁴ CAR% | |
|-----------------------|------------------|------------------------|--------|----------------------|--------|---------------------------------|--------|---------------------------------|--------|---------------------|--------|--------------------|--------|
| | | Pre * | Post * | Pre * | Post * | Pre * | Post * | Pre * | Post * | Pre * | Post * | Pre * | Post * |
| Brazil | Jun-99 | 33.9 | 44.7 | 56.3 | 80.5 | 0.6 | 1.5 | 7.9 | 16.0 | 9.1 | 3.6 | 15.0 | 17.4 |
| Chile | Sep-99 | 53.0 | 67.4 | 54.1 | 69.3 | 1.5 | 1.4 | 17.5 | 17.3 | 1.6 | 1.7 | 13.1 | 13.3 |
| Czech Republic | Dec-97 | 55.3 | 41.9 | 59.8 | 56.7 | (0.4) | 1.4 | (4.0) | 16.7 | 23.9 | 5.2 | 14.2 | 14.6 |
| Israel | Jun-97 | 63.3 | 77.0 | 78.7 | 86.3 | 0.6 | 0.6 | 9.6 | 9.0 | 8.6 | 2.2 | 9.3 | 12.5 |
| Poland | Sep-98 | 20.5 | 40.7 | 30.0 | 55.7 | 1.5 | 0.8 | 16.2 | 7.1 | 13.1 | 8.1 | 12.6 | 14.1 |
| South Africa | Feb-00 | 60.6 | 66.0 | 65.7 | 74.9 | 1.7 | 1.1 | 12.1 | 16.2 | 4.5 | 3.2 | 12.0 | 13.8 |
| Average for Emerg. | | 47.8 | 56.3 | 57.4 | 70.6 | 0.9 | 1.1 | 9.9 | 13.7 | 10.1 | 4.0 | 12.7 | 14.3 |
| Ghana*** | May-07 | 5.1 | 14.8 | 9.6 | 24.2 | 6.0 | 4.3 | 66.6 | 23.2 | 14.8 | 13.8 | 12.9 | 17.6 |

* 1996 to 2000*** Pre Ghana is 2000 to 2001: Post Ghana is 2007 to 2018

Source: Global Financial Indicators: World Bank

6.2. Inflation Targeting in Practice in Ghana

The determination and the announcement of inflation target varies from country to country. In Ghana, the central government collaborates with the central bank to set the

target as this partnership helps in promoting synergy between the two institutions and thus, enhance the credibility of its monetary policy. The BOG officially targets the CPI, however, it considers core inflation in making final decision on policy rates.

¹¹ ROA – Return on Assets : This is a ratio of Net Profit after tax to Total Assets

¹² ROE- Return on Equity: This is a ratio of Net Profit after tax to total equity

¹³ NPL- Non-Performing Loans: It measures the proportion of loans which are not performing relative to gross loans

¹⁴ CAR- Capital Adequacy Ratio: Adjusted Capital to Risk Weighted Assets of the banking sector

The Ghanaian MPC consists of seven (7) members¹⁵ who meet every other month (bi-monthly) and is chaired by the Governor. The 3 days meeting is to allow members to have a deeper insight on developments in the domestic economy and the inflation outlook. The first 2 days usually involve presentations by relevant departments of the BOG¹⁶. It includes various economic and financial indicators after which, a conditional inflation forecast is made to the Committee. The Committee then takes a decision after exhaustive deliberations on the policy rate by a vote on equality basis and each give his/her written reasons for their choice of a policy rate.

The BOG adopts forecasting and policy analysis system (FPAS) comprising of semi-structural rational expectation macroeconomic model balanced with the desired empirical properties of New Keynesian model. The Bank's Macro model for the FPAS consist of four equations, namely an aggregate demand curve, a Phillips curve, an exchange rate equation, and monetary policy rule. These models are used to examine the dynamic interactions of four key macroeconomic variables, namely output, inflation, exchange rate, and short-term nominal interest rate. The Bank also deploys other forecasting tools including the Auto-Regressive (AR) Process framework, and the Error Correction Model (ECM) (BOG 2020).

The BOG promotes transparency and accountability by making available, all relevant information that would guide the public to anchor inflation expectations within the target band. A day to the official announcement of the policy rate, BOG publishes the MPC 'Data Pack' consisting of a summary of macro-financial data used during the MPC meetings. This generates discussions and assumptions of stakeholders in the media and academia on the possible rate the BOG would consider and announced by the Governor (BOG 2020). In addition, the BOG holds press briefings at the end of every meeting to explain its monetary policy decisions. The BOG also accounts to the legislature at least twice a year, and on exceptional instances the parliament summons the Governor to appear before the Finance Committee to give updates regarding price and financial stability. All the above-mentioned activities are aimed at enhancing the transparency and accountability of the central bank to the people of Ghana (BOG, 2020).

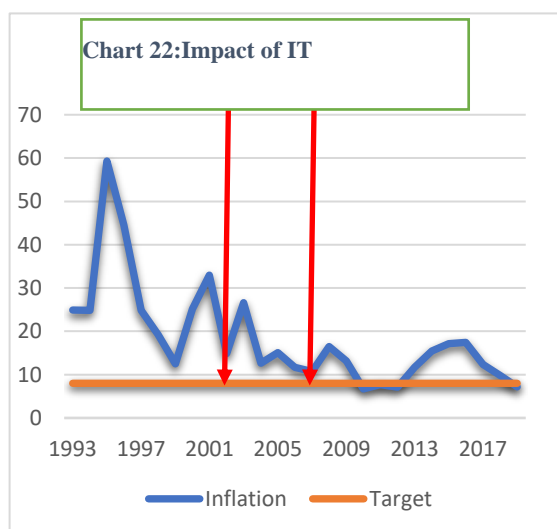
The monetary policy operation of the BOG is interest-rate oriented using four main instruments which are: Repo Operations, Open Market Operations (14-day and 56-day on a weekly basis), Term Deposit (7-Day) and Reserve Requirements.

6.3. Impact of IT in monetary policy effectiveness

15 The members of the Committee are the Governor, the First and Second Deputy Governors; the Head of the Department responsible for economic research of the Bank; the Head of the Department responsible for Treasury operations of the Bank; and two external members – not employees of the Bank and appointed by the Board – with knowledge and experience, which is relevant to the functions of the Monetary Policy Committee

16 Some of the presentations include: Global economic outlook and Ghana's external sector developments; Fiscal developments; Monetary and financial developments; Financial stability reports (Banking sector, Non-banks and credit conditions surveys); Real sector developments (including the composite indicator of economic index, business and consumer confidence surveys); and Inflation outlook and developments including inflation forecast.

Chart 22 shows the impact of inflation targeting. It demonstrates that the implementation of IT in Ghana has considerably helped in subduing inflation, even though the target has been missed most of the times. The average inflation rate during the period 1993 to 2001 was 29.8 percent however, 1995 had the highest inflation average of 59.3¹⁷ percent and by 1999 it decelerated to 12.3 percent only to spike again to 33.0 percent in 2001. Inflation averaged 16.8 percent from 2002 to 2006 at the initial adoption of IT. The jump in 2003 may be attributable to external oil price shocks along with the deregulation of the pricing of petroleum products (Bawumia 2008).



However, inflation rate trended towards the target after the adoption of IT for example, between 2010, and 2012, inflation rate dropped below the target at 7.1 percent on average. These gains were reversed in the face of the pared-down commodity prices shocks in 2014-2016 which resulted in fiscal slippages. This contributed to a mild increase in the inflation rate during the period and later reverted to 7.2 percent in

¹⁷ End period inflation in 1995 was 70.8 percent.

2019. Since the adoption of IT regime, inflation has generally been on a downward trend declining more than twice as much relative to the monetary targeting period.

Chart 23: IRFs for Ghana

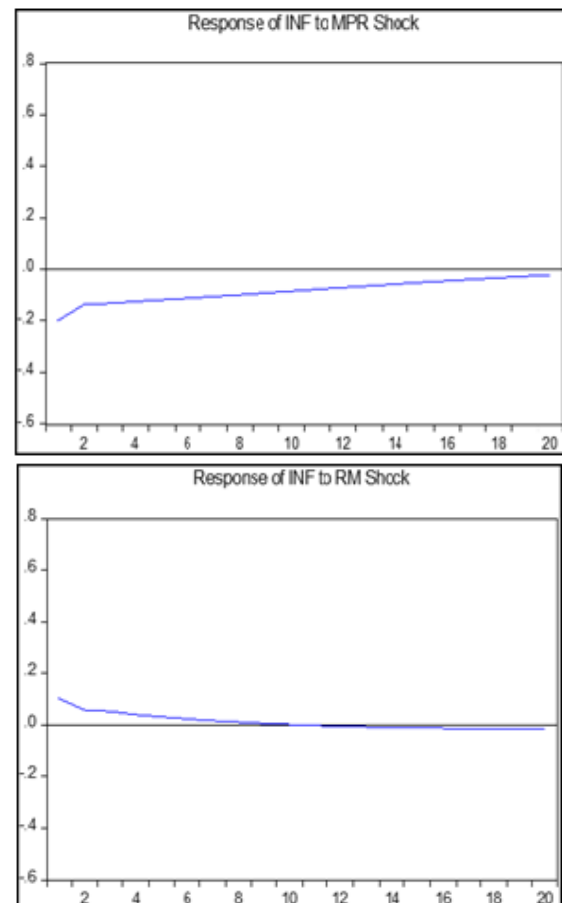


Chart 23 presents the IRF for Ghana suggesting a downward trajectory and reduced volatilities were observed in other variables such as lending rates, MPR and yield curves (See Appendix). The lending rates dropped from an average of 36.1 percent at the early period of IT adoption to 27.2 percent post official implementation.¹⁸ Similarly, the empirical findings as shown in Chart 22 indicates that

¹⁸ End period variables considered.

the application of IT could have improved the monetary policy transmission of Ghana.

The IRFs above show that a monetary policy shock resulting to a rise in both the instruments i.e. the MPR and reserve money is associated with the expected response to inflation. This is so as tightening of monetary policy using the MPR leads to a decrease in inflation rate while loosening of monetary policy through a rise in RM indicates a rise in inflation. In fact, an unanticipated disturbance that leads to a 0.5 percent rise in the MPR would also results in instantaneous fall in inflation rate by 0.2 percent, with the impact lasting more than a year and half. Likewise, a positive shock that is manifested by a rise in RM by 6.0 percent induces a contemporaneous increase in the inflation rate by 0.1 percent, with the effects dissolving after two (2) quarters. These results suggest that, while both instruments showed favorable responses to inflation. Nevertheless, MPR in Ghana appeared to be more effective relative to RM in terms of reaction function.

7.0 Conclusion and Policy Implications

The objective of this paper is to assess WAMZ member countries' readiness to adopt inflation targeting as their monetary policy framework and to gain from Ghana's experience who has since 2007, adopted IT framework. All the remaining WAMZ countries (The Gambia, Guinea, Liberia, Nigeria, and Sierra Leone) utilize monetary targeting as their monetary policy framework. It is also important to note that there is an implicit target of a single digit inflation that all countries need to maintain under the ECOWAS convergence criteria. In recent past, IT has globally become a dominant monetary policy framework across central banks where remarkable

improvement in monetary regime have been reported in many countries that adopted it. In addition, the Authority of Heads of States at its 55th Summit in Abuja (Nigeria) in June 2019 endorsed IT as the explicit monetary policy framework for the WAMZ member states under the ECOWAS single currency program.

The global policy implication is that countries could move into an IT transition period by: (i) improving and sustaining their macroeconomic and financial environment, (ii) strengthening their reaction function and monetary policy transmission through a forward-looking and interest-rate based operating framework, and (iii) ensuring the effectiveness of their methodology for inflation forecasting. Consequently, individual WAMZ countries may consider the following policy implication:

The Gambia, there is a need to upgrade and improve on the first set of conditions, which are related to the mandate of transparency and accountability. The country showed a remarkable outlook on instrument independence and macroeconomic stability, while the financial system has been resilient in recent years. However, the country needs to improve its fiscal position as both fiscal deficit and public debt remained high and above the regional threshold. Furthermore, our results from the SVAR revealed that inflation responds more significantly to MPR than reserve money in the Gambia. It was also discovered that the CBG use two (2) inflation forecasting models. Overall, the Gambia could be considered as meeting the major requirements for adopting IT as a monetary framework.

Guinea, the Act of 2017 provides the BCRG with categorical mandate of maintaining price stability as the core and sole primary objective. This makes the bank accountable for its monetary policy decisions with an obligation of transparency and accountability. On the issue of macroeconomic stability, evidence revealed complete independence of the bank due to the absence of fiscal dominance, *de facto* and *de jure*, coupled with a remarkable fiscal position. Likewise, the country's external and domestic stability improved during the period under review. In recent years, the country's financial system has remained healthy and resilient without recording any major difficulties in the banking industry. The Bank has recently deployed FPAS for its monetary policy framework. However, the IRF from our estimated SVAR do not show satisfactory reactions of inflation to MPR and RM shocks. This suggests that there is need for the BCRG to develop an effective reaction function in order to make the monetary policy transmission more effective as this appears to be the foremost challenge to the adoption of IT framework in Guinea.

Liberia, the CBL Act of 1999 underscored domestic price stability the primary objective of the bank while accountability and transparency are also mandatory. We observed the presence of instrument independence as the government does not interfere in setting the CBL monetary policy rate. However, the country has over the recent years encountered major challenges in terms of macroeconomic stability as the central bank financing of the fiscal deficit, the external stability as well as the domestic stability drifted during the review period. On the monetary policy

transmission mechanism, the results showed that reserve money instruments do not seem to be effective. Generally, there are major challenges for the CBL that requires robust economic reforms which would help in stabilizing the economic conditions of the country as well as the effectiveness of monetary policy before migrating to IT framework.

Nigeria, the CBN Act of 2007 made price stability the core mandate of the bank as it has strived to improve its transparency and accountability over time. The CBN has equally achieved the instrument independence as it has the freedom to set out its monetary policy instruments without government interference. However, the country experiences some challenges on the domestic side as inflation generally remained at double-digit band while resilience and soundness in the Nigerian financial system had improved during the review period. In terms of monetary policy transmission, inflation seems to respond well to reserve money than the MPR shocks. In general, there is need for Nigeria to further improve its domestic stability and restore its footprint on absence of fiscal dominance prior to adopting IT framework.

Sierra Leone, the Act of 2000 does not explicitly outline price stability as the objectives of the BSL, - this is a key requisite prior to the adoption of IT framework. Likewise, there is evidence of the existence of fiscal dominance as the fiscal deficit remained generally high and a large part of it in recent years, was financed by the central bank. Both external and domestic stability deteriorated with the exchange rate depreciating by more than 10.0 percent on average and inflation remaining at double digit band. The

monetary policy transmission mechanism displayed the expected response of inflation to reserve money shocks thus, suggesting the presence of an effective reaction function by the bank. Overall, the main challenge for adopting IT framework in Sierra Leone is macroeconomic stability.

Ghana: The experience of Ghana is quite revealing as the country went through some challenges in consistently meeting the targeted inflation rate since their adoption of IT framework in 2007. Similar to many of its peer group, Ghana has been exposed to external shocks including commodities and other economic shocks. On the same token, the country also exhibited discernable records of fiscal dominance and significant public debt. Perhaps, due to

fiscal policy challenges, the country struggled to regularly subdue inflation rate to the desirable band of 8 ± 2 percent. The main lesson from Ghana's experience is that IT framework, similar to other monetary policy framework, would be more effective in the absence of *de facto* fiscal dominance and unsustainable fiscal slippages. Despite the challenges faced by the country, our estimated results showed that its monetary policy transmission was effective. In addition, the Ghanaian experience suggests that IT framework could help in strengthening the synergy between the monetary and fiscal authorities.

APPENDIXES

Appendix A: Monetary Policy Framework of WAMZ Member Countries

| COUNTRY | THE GAMBIA | GHANA | GUINEA | LIBERIA ¹⁹ | NIGERIA | SIERRA LEONE |
|--|---|---|---|---|--|--|
| Policy Framework | Monetary Aggregate Targeting | Inflation-targeting | Monetary Aggregate Targeting | Monetary Aggregate Targeting | Monetary Aggregate Targeting | Monetary Aggregate Targeting |
| Primary Objective | Price Stability | Price Stability | Price Stability | Price Stability | Price Stability | Price Stability |
| Operational Target | Reserve Money | Monetary Policy Rate | Reserve Money | Reserve Money | Reserve Money | Reserve Money |
| Intermediate Target | Broad Money | Short-term Interbank rate and annual Inflation target | Broad Money | Broad Money | Broad Money and short-term interbank rate. | Broad Money |
| Ultimate Target | Price Stability | Explicit Medium CPI inflation rate of (8%+/-2) | Price Stability | Price Stability | Price Stability | Price Stability |
| Monetary Operations Instruments | Open market operations, Reserve Requirement and Rediscount facility | Open market operations, Reserve Requirement and Standing Deposit and Lending Facility | Open market operations, Reserve Requirement and Rediscount Facility | Open market operations, Reserve Requirement and Rediscount Facility | Open market operations, Cash Reserve Requirement and forex Net Open Position and Liquidity Ratio | Open market operations, Reserve Requirement, Rediscount facility |

Source: WAMI and WAMZ central banks

¹⁹ Liberia adopted monetary targeting in 2018 as it was operating under exchange rate targeting prior 2018

Appendix B: Evolution of Inflation and other nominal variables prior and post IT in Ghana



Appendix C: Data Properties and Empirical Strategy of the SVAR

We estimated a vector autoregression model using three (3) endogenous variables, namely inflation, real exchange rate and a monetary policy variable. The monetary policy rate used is the monetary policy rate (MPR) and reserve money (RM). Thus, we estimated two (2) SVAR model with each of the two (2) policy variable, except for Liberia which was estimated using only the RM variable as the country does not have a long series of MPR. We computed real exchange rate using the following standard approach, i.e. $Q_t = S_t * P_t^*/P_t$, where S_t and P_t^* are the nominal exchange rate (proxied by nominal exchange rate vis a vis US dollar) and foreign prices (proxied by US CPI). Since US Dollar is the dominant foreign currency used in all countries for trade, US CPI constitutes a good proxy for foreign prices and nominal exchange rate. The two (2) variables real exchange rate and reserve money are taken in log differenced, to ensure their stationarity and the stability of the estimated system.

We sourced our data from WAMI and the respective central banks, except for US CPI which was sourced from OECD Stat. While all WAMZ countries have output among their objective, we could not use that variable in our model due to the absence of real GDP in high frequency. Ghana and Nigeria are the only two WAMZ countries having quarterly GDP, but the two countries started computing it recently.

We use monthly data spanning 2008m1 – 2019m12, due to data constraint, except for Sierra Leone whose data covers 2011m1-2019m12, as the country started using MPR in 2011.

Thus, our model consists of VAR system of three (3) variables in element of vector $x_t = [p_t, q_t, n_t]'$ where p_t inflation rate is, q_t corresponds to the real exchange rate and n_t as the monetary policy/nominal variable (either the MPR or RM).

The SVAR model can be specified as follows:

$$\Delta X_t = b + \sum_{j=1}^p R_j \Delta X_{t-j} + \mu_t,$$

With ΔX_t being the covariance stationary vector representing the three (3) variables, b is the vector of constants and R a matrix valued polynomial, while p represents an optimal lag selected using some information criteria to make μ_t a vector of white noise innovations. This model can be rewritten in its VMA reduced form, as follow:

$$\Delta X_t = R(L)^{-1} \mu_t = F(L) \mu_t$$

$$\Delta Z_t \equiv F(L) \mu_t = A(L) \varepsilon_t$$

Where: F a 3*3 matrix in lag polynomial L and $E(\mu_t \mu_t') = \Omega_\mu \neq I_3$ but $(0) = I_3$; A a 3 * 3 matrix and $\varepsilon_t = [\varepsilon_t^p \varepsilon_t^q \varepsilon_t^n]'$ is a vector of structural disturbances namely: real demand shock, real exchange shock, and policy shock, respectively.

Finally, the structure of the model, at the steady state, including the restrictions, is as followed:

$$\begin{bmatrix} p \\ q \\ n \end{bmatrix} = \begin{bmatrix} A(0)_{11} & 0 & 0 \\ A(0)_{21} & A(0)_{22} & 0 \\ A(0)_{31} & A(0)_{32} & A(0)_{33} \end{bmatrix} \begin{bmatrix} \varepsilon^p \\ \varepsilon^q \\ \varepsilon^n \end{bmatrix}$$

We impose our restrictions on the long-run (steady-state) impact matrix, following Blanchard and Quah (1989), extended by Clarida and Gali (1994). The restrictions states that policy/nominal shocks can affect real variables only in the short run and consequently cannot impact the real

economy in the long run, thus $A(0)_{13} = A(0)_{23} = 0$. These restrictions are equally consistent with Bernanke and Blinder (1992) who indicated that monetary policy variables affect endogenous real variables

with lags. Furthermore, an exchange rate shock can affect global demand, but the impact dies out in the short run, that means $A(0)_{12} = 0$.

Appendix D: List and Sources of Variables

| Methodology | Variables | Sources |
|--------------|---|--|
| Quantitative | (1) Effective Conduct of Monetary Policy: <ul style="list-style-type: none"> ✓ Inflation ✓ Real Exchange Rate ✓ Monetary Policy rate ✓ Reserve Money | Central Banks Monthly data series (2015- 2019), except Liberia |
| Qualitative | (2) Mandate, Transparency and the Accountability of Central Banks (3) Macroeconomic Stability (4) Financial System Stability | Central Banks through a Survey in which questionnaires were issued |

Appendix E: ECOWAS Convergence Criteria

| Primary Criteria | Criteria |
|---|----------|
| 1. Inflation Rate (End Period) | <10%* |
| 2. Fiscal Deficit incl. Grants (% GDP) | ≤ 3% |
| 3. Central Bank Financing Fiscal Deficit (% Fisc Rev N-1) | < 10% |
| 4. Gross External Reserves (Months of Imports) | ≥ 3 |
| Secondary Criteria | |
| 1. Exchange rate variation (%) | ±10% |
| 2. Public Debt (% GDP) | < 70% |

Appendix F: Monetary Policy Framework of WAMZ Member Countries

| COUNTRY | THE GAMBIA | GHANA | GUINEA | LIBERIA ²⁰ | NIGERIA | SIERRA LEONE |
|--|---|---|---|---|--|--|
| Policy Framework | Monetary Aggregate Targeting | Inflation-targeting | Monetary Aggregate Targeting | Monetary Aggregate Targeting | Monetary Aggregate Targeting | Monetary Aggregate Targeting |
| Primary Objective | Price Stability | Price Stability | Price Stability | Price Stability | Price Stability | Price Stability |
| Operational Target | Reserve Money | Monetary Policy Rate | Reserve Money | Reserve Money | Reserve Money | Reserve Money |
| Intermediate Target | Broad Money | Short-term Interbank rate and annual Inflation target | Broad Money | Broad Money | Broad Money and short-term interbank rate. | Broad Money |
| Ultimate Target | Price Stability | Explicit Medium CPI inflation rate of (8%+/-2) | Price Stability | Price Stability | Price Stability | Price Stability |
| Monetary Operations Instruments | Open market operations, Reserve Requirement and Rediscount facility | Open market operations, Reserve Requirement and Standing Deposit and Lending Facility | Open market operations, Reserve Requirement and Rediscount Facility | Open market operations, Reserve Requirement and Rediscount Facility | Open market operations, Cash Reserve Requirement and forex Net Open Position and Liquidity Ratio | Open market operations, Reserve Requirement, Rediscount facility |

Source: WAMI and WAMZ central banks

²⁰ Liberia adopted monetary targeting in 2018 as it was operating under exchange rate targeting prior 2018

References

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