INTERNATIONAL MONETARY FUND

IMF Country Report No. 21/50

WEST AFRICAN ECONOMIC AND MONETARY UNION

SELECTED ISSUES

March 2021

This Selected Issues Paper on the West African Economic and Monetary Union regional member countries was prepared by a staff team of the International Monetary Fund as background documentation for the periodic consultation with the member countries. It is based on the information available at the time it was completed on January 25, 2021.

Copies of this report are available to the public from

International Monetary Fund • Publication Services
PO Box 92780 • Washington, D.C. 20090
Telephone: (202) 623-7430 • Fax: (202) 623-7201
E-mail: publications@imf.org Web: http://www.imf.org
Price: $18.00 per printed copy

International Monetary Fund
Washington, D.C.

© 2021 International Monetary Fund

INTERNATIONAL MONETARY FUND

WEST AFRICAN ECONOMIC AND MONETARY UNION

SELECTED ISSUES

January 25, 2021

Approved By
African Department

Prepared Nordine Abidi, Goran Amidzic, Alain Féler, Alexandre Nguyen-Duong, and Hoda Selim, with research assistance provided by Zarina Bentum and Hilary Devine

CONTENTS

WAEMU—INITIAL POLICY RESPONSE TO THE COVID-19 CRISIS _______________ 4

A. Short-Term Health and Economic Impacts of the Pandemic in the WAEMU _____ 4

B. National Fiscal Policy Responses ______________________________ 6

C. Regional Monetary Policy Response ____________________________ 10

D. Regional Regulatory and Supervisory Response ____________________ 12

FIGURES

1. Cumulative COVID-19 Cases in WAEMU and SSA ____________________ 5

2. COVID-19 Related Deaths Across Regions _________________________ 5

3 Real GDP Growth ______________________________________ 5

4. EMBIG Spreads, Jan. 2019–Nov. 2020 ____________________________ 6

5. Overall Fiscal Balance ___________________________________ 6

6. Revision of the 2020 Aggregate Fiscal Deficit Relative to Initial Budget Plans____ 7

7. Fiscal Expenditure and Revenue, 2020 ___________________________ 7

8. Revisions to 2020 Fiscal Balance from Initial Budget Plans ______________ 8

9. Sources of the 2020 Fiscal Balance Revisions from Initial Budget Plans _______ 8

10. Net Financing of Governments' Budget Deficits ____________________ 9

11. Composition of External Emergency Financing in 2020 _______________ 9

12. BCEAO: Monetary Policy Rates_______________________________ 10

13. SSA: Changes in Monetary Policy Rates Between January and November 2020_ 10

TABLES

1. Covid-19 T-Bill Program, 2020 ____ 12
2. Regulatory Capital Requirements ____ 13

THE ECONOMIC AND POLICY IMPLICATIONS FOR THE WAEMU OF INSECURITY IN THE SAHEL ____ 14
A. Origin and Scope of Insecurity in the Sahel ____ 14
B. The Impact of Insecurity on Economic Activity ____ 17
C. Fiscal Impact of Insecurity in WAEMU's Sahel Countries ____ 21
D. Macroeconomic Policy Implications of Insecurity ____ 28
E. Conclusions ____ 29

References ____ 31

FIGURES

1. WAEMU: Terrorism Incidents and Social Unrest in the Sahel, 2011–20 ____ 16
2. WAEMU: Fatalities Linked to Security Incidents ____ 16
3. Mali: Real GDP Growth and Components, 2001–19 ____ 18
4. WAEMU: Real GDP Growth, 2001–19 ____ 18
5. WAEMU: Provinces Including Zones Mainly Afflicted by Ongoing Violence: Area, Population and Night Lights ____ 19
6. WAEMU: Conflict Locations, 2012, 2015, 2018 ____ 19
7. WAEMU: Terrorism, Fiscal Deficit, and Public Debt, 2010–19 ____ 22
8. Mali: Terrorism and Public Finances, 2010–19 ____ 24
9. Burkina Faso: Terrorism and Public Finances, 2010–19 ____ 25
10. Niger: Terrorism and Public Finances, 2010–19 ____ 27

TABLES

1. Impact of Conflict on Night Lights ____ 20
2. Impact of Violent Conflict on Real GDP Growth, 2014–19 ____ 21
3. Impact of Violent Conflict on Fiscal Revenues, 2014–19 ____ 23

ANNEXES

I. Burkina Faso, Mali And Niger; Summary Statistics 2010–19 (Percent of GDP) ____ 33
II. Overview Of Security Systems in The G5-Sahel Countries ____ 34

STRENGTHENING THE REGIONAL FISCAL FRAMEWORK IN THE WAEMU _____ 35

A. Well-Designed and Enforceable Fiscal Rules _____ 35

B. Public Financial Management Reforms _____ 42

C. Some Fiscal Coordination _____ 44

References _____ 47

BOXES

1. Convergence Criteria in Effect Until 2019 _____ 38

2. Public Debt Dynamics and Below-the-Line Operations in the WAEMU over 2012–19 _ 43

TABLE

1. Implementation of Reforms in Public Financial Management, 2019 _____ 44

MODERNIZING THE MONETARY POLICY FRAMEWORK AND ITS TRANSMISSION IN THE WAEMU _____ 48

A. Introduction _____ 48

B. Continuing the Reform of the Monetary Policy Framework _____ 50

C. Improving Monetary Policy Transmission _____ 61

D. Conclusions _____ 70

References _____ 71

BOXES

1. BCEAO's Monetary Policy Instruments and Related Market Rates _____ 51

2. What Are the Macroeconomic Factors Behind the BCEAO Monetary Policy Decisions? _____ 56

3. Bank Heterogeneity and Monetary Policy Transmission _____ 63

FIGURES

1. BCEAO Objectives and Instruments _____ 50

2. BCEAO Policy and Market Interest Rates _____ 51

3. Cross-Country Dispersion of Inflation Rates, 2000–19 _____ 52

4. Real Effective Exchange Rate of SSA and WAEMU _____ 53

5. Simplified Monetary Policy Transmission Mechanisms _____ 62

6. Private Sector Credit-to-GDP Growth in WAEMU and Selected SSA Countries, 2019 __ 66

7. NPLs and CAR for the WAEMU and SSA Median, 2010–19 _____ 66

WAEMU—INITIAL POLICY RESPONSE TO THE COVID-19 CRISIS[1]

1. During the eight years preceding the global Covid-19 pandemic, WAEMU countries recorded strong economic growth supported by broadly sound policies. Real GDP growth exceeded 6 percent (much above the 3.7 percent SSA average) during 2012–19 on the back of robust domestic demand, while inflation remained subdued. This performance was supported by expansionary fiscal and monetary policies until 2016, followed by some monetary tightening and fiscal consolidation, which allowed the aggregate fiscal deficit to decline below the regional convergence criterion of 3 percent of GDP in 2019.

2. The global Covid pandemic halted the WAEMU's strong growth dynamics and led national and regional authorities to significantly relax macroeconomic policies. The weaker global environment together with broad containment and mitigation measures by WAEMU countries are estimated to have a strong contractionary impact on economic activity in 2020, notwithstanding a substantial relaxation of both fiscal and monetary policies and significant additional external financing from donors.

3. This chapter provides an analysis of the early policy response to the unfolding crisis. The analysis aims at documenting the nature and extent of the policy measures taken in the first eight months of the Covid crisis (until November 2020). After documenting the current impact of the crisis on health and economic indicators, the chapter presents the fiscal response by national authorities and the main measures taken by regional authorities in the areas of monetary and financial sector policies.

A. Short-Term Health and Economic Impacts of the Pandemic in the WAEMU

4. Although severe, the health crisis has, so far, been more contained than in other parts of Africa. All WAEMU countries have put in place, relatively early on, mitigation and containment measures, such as quarantine and self-quarantine, border closures, air travel restrictions, restrictions on public gatherings as well as closures of schools, universities and places of worship. In part because of these drastic measures, the Covid-19 virus seems to have spread at a slower pace and with a lower fatality rate in WAEMU countries than in the SSA average (Figures 1 and 2). As of December 2020, the number of cumulative cases represented less than 0.1 percent of the WAEMU's population. That said, many active cases may remain undetected because of constraints on testing capacity, and the true extent of the epidemic could be underreported.

[1] Prepared by Nordine Abidi, Goran Amidzic, Alain Féler, and Hoda Selim. The authors are grateful for comments received from Annalisa Fedelino (AFR) and Luc Eyraud (AFR).

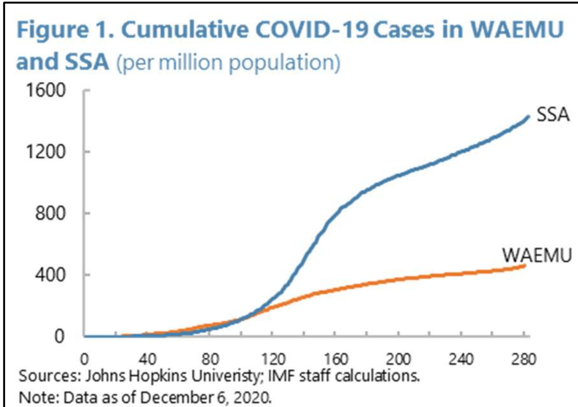


Figure 1. Cumulative COVID-19 Cases in WAEMU and SSA (per million population)

Sources: Johns Hopkins Univeristy; IMF staff calculations.
Note: Data as of December 6, 2020.

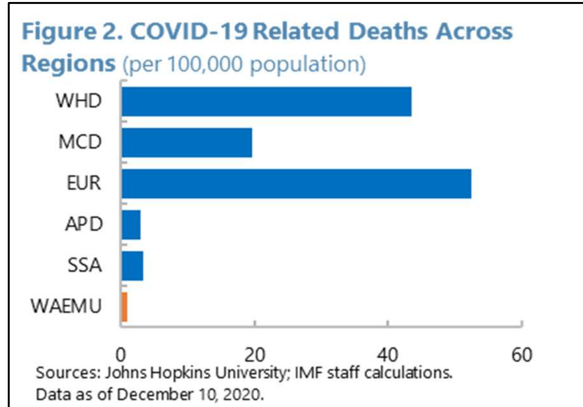


Figure 2. COVID-19 Related Deaths Across Regions (per 100,000 population)

Sources: Johns Hopkins University; IMF staff calculations.
Data as of December 10, 2020.

5. On the economic front, the 8-year growth spell ended abruptly with the Covid pandemic. The WAEMU real GDP growth is expected to have declined sharply to 0.3 percent in 2020, from 6.0 percent in 2019 (Figure 3). This is almost 6 percentage points below the 2020 pre-Covid forecast. Combined with the deterioration of the external environment, the implementation of containment measures from March, in particular lockdowns and border closures, have contributed to a sharp decline in economic activity at the end of the first quarter and during the second quarter of 2020, particularly in the construction, commerce, transportation and hospitality sectors. Some rebound in activity has been underway since the third quarter of 2020, following the easing of containment measures that started in June. The growth deceleration was broadly similar to that observed in other SSA countries, although the WAEMU region started from a higher growth level.

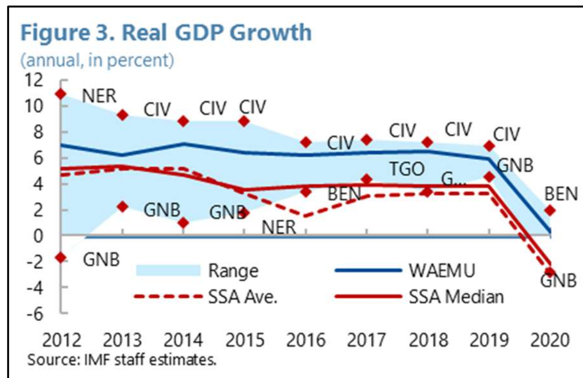
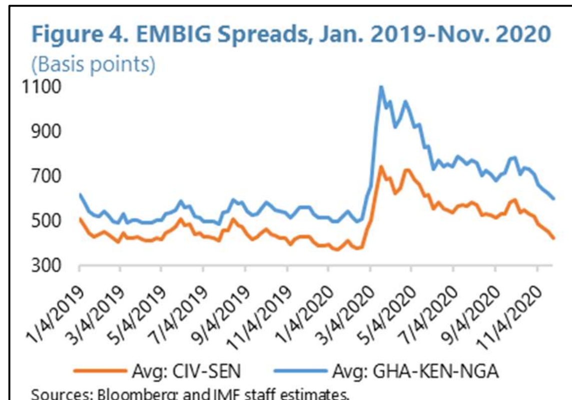


Figure 3. Real GDP Growth
(annual, in percent)

Source: IMF staff estimates.

6. No WAEMU economy is being spared by the Covid-related downturn. The hardest-hit countries are expected to be Burkina Faso, Guinea Bissau, Mali and Senegal, where GDP contractions of respectively 2.8, 2.4, 2.0, and 0.7 percent are projected for 2020. Real GDP in 2020 is expected to be flat in Togo, and to be moderately positive in the other three member-countries. In any event, real per capita GDP growth turned negative in 2020 in all WAEMU countries, for the first time since 2011.

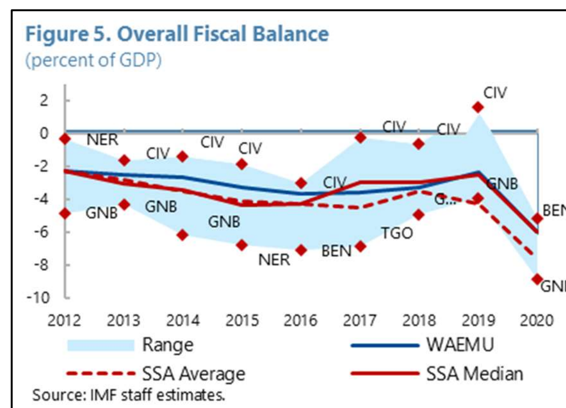
7. The Covid crisis also made access to international financial markets more difficult for the frontier market economies of the union. The repricing of risks caused by the global pandemics initially resulted in a significant widening of spreads on Eurobonds issued by WAEMU sovereigns with access to international capital markets (Benin, Côte d'Ivoire and Senegal), although to a somewhat lesser extent than for other frontier countries in sub-Saharan Africa (Figure 4). That said, Côte d'Ivoire was able to issue a EUR 1 billion eurobond at a historically low rate of 5 percent In November 2020.



B. National Fiscal Policy Responses

8. Fiscal convergence was broadly achieved in 2019 prior to the global Covid outbreak. The reform of the WAEMU's fiscal rule framework in 2015 had set a global fiscal deficit ceiling of 3 percent of GDP to be observed by 2019. This convergence objective was broadly achieved through a reduction of WAEMU's aggregate fiscal deficit from 3.6 percent of GDP in 2016 to 2.3 percent of GDP in 2019, mainly due to improved revenue mobilization by 1.2 percentage points of GDP. Fiscal consolidation, and a better control of below-the-line operations in the second half of the period, slowed down the accumulation of public debt, which reached the equivalent of 44.8 percent of GDP at end-2019.

9. To allow for a swift response to the pandemic emergency, national authorities adopted supplementary 2020 budgets implying a relaxation of the fiscal stance by about 3 percent of GDP. The aggregate fiscal deficit was initially expected to remain below the 3 percent of GDP convergence criterion in 2020. However, to help contain the virus transmission, expand medical capacity and support most vulnerable populations and firms, the WAEMU countries adopted emergency health and economic packages which, combined with cyclical declines in revenue, are expected to raise the aggregate fiscal deficit by about 3½ percentage points of GDP relative to 2019 (Figure 5). The size of the fiscal relaxation is broadly similar to the impulse observed in the rest of the SSA region (see October 2020 *Regional Economic Outlook: Sub-Saharan-Africa*).



10. In this context, the Conference of Heads of States declared a temporary suspension of the WAEMU convergence criteria. In April 2020, the WAEMU's Heads of States adopted a Declaration putting in abeyance the application of the Union's Pact for Convergence, Stability, Growth and Solidarity among member-countries. This suspension applies to all convergence criteria,

including the 3 percent of GDP deficit ceiling and the 70 percent of GDP ceiling on government debt. While noting that the suspension was temporary to address the needs related to the Covid crisis, the Declaration did not specify a time horizon or other condition for reinstating these rules.

11. At the aggregate WAEMU level, the 2020 fiscal relaxation was due, in equal parts, to lower revenues and higher spending. The 2020 fiscal deficit ratio has been revised upward by 3.4 percent of GDP when comparing initial budgetary plans to the most recent projections (Figures 6 and 7). Of this 3.4 percentage points revision, 1.4 percent of GDP is due to the fall in nominal GDP, which mechanically increases the expenditure ratio.[2] The "discretionary" stimulus mainly reflects can higher expenditure (1.2 percent of the pre-Covid GDP) mainly due to new spending on goods, services and transfers (1.1 percentage point of GDP) but also some higher non-discretionary current spending (0.1 percentage point of GDP), with capital spending unchanged in percent of the pre-Covid GDP. On the revenue side, the large shortfall in tax and non-tax revenue ratios (1.2 percentage points of GDP), has been partly compensated by higher external grants (0.5 percentage points of GDP).

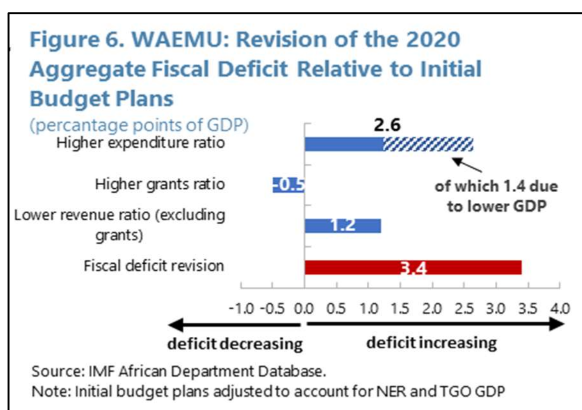


Figure 6. WAEMU: Revision of the 2020 Aggregate Fiscal Deficit Relative to Initial Budget Plans
(percantage points of GDP)

Source: IMF African Department Database.
Note: Initial budget plans adjusted to account for NER and TGO GDP

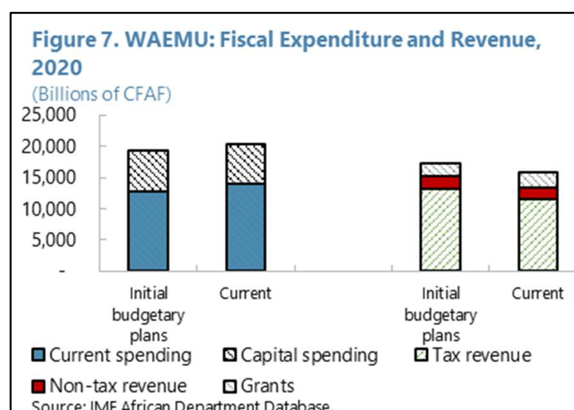


Figure 7. WAEMU: Fiscal Expenditure and Revenue, 2020
(Billions of CFAF)

Source: IMF African Department Database.

13. Nonetheless, the magnitude and composition of the fiscal response varied significantly across WAEMU countries (Figures 8 and 9). The fiscal expansion projected in 2020 relative to what was anticipated prior to the Covid outbreak (based on initial budget plans) is the highest for Togo (4.7 percentage points of GDP) and the lowest for Burkina Faso (2.6 percentage points of GDP). The revenue loss is projected to be particularly large for Mali (-2.7 percentage points of GDP), potentially reflecting revenue losses due to the political turbulence that compounded the shortfalls due to the pandemic. Tax and non-tax revenue losses are also projected to be important in Benin (2.2 percentage points of GDP) as well as in Senegal (1.9 percentage points of GDP). Notwithstanding such projected losses, higher grants equivalent to 2.2 percentage points of GDP have allowed Senegal to finance new discretionary current expenditure of 2.3 percentage points of GDP with marginal capital spending cuts. The anticipated smaller revenue loss by Côte d'Ivoire

[2] The expenditure ratio is corrected for the cycle by freezing the GDP at its pre-Covid crisis estimate. The revenue ratio is not corrected for the cycle. Indeed, assuming a standard elasticity of revenue to GDP of 1, a cyclical decline in GDP should be broadly offset by a cyclical decline in revenues, leaving the ratio unchanged. Therefore, changes in the revenue ratio are attributed to structural factors, including tax policy measures, revenue administration measures, and various forms of relaxation of tax compliance.

(0.4 percentage point of GDP) should help this country increase expenditure the most (2 percentage points of GDP excluding the impact of a lower GDP).

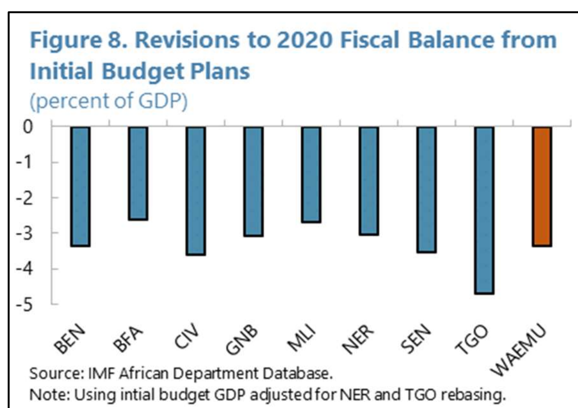


Figure 8. Revisions to 2020 Fiscal Balance from Initial Budget Plans
(percent of GDP)

Source: IMF African Department Database.
Note: Using intial budget GDP adjusted for NER and TGO rebasing.

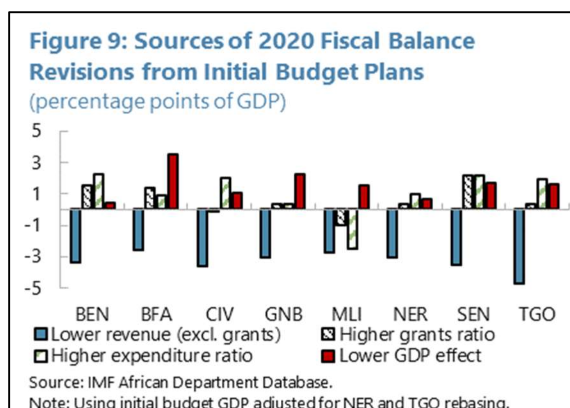


Figure 9: Sources of 2020 Fiscal Balance Revisions from Initial Budget Plans
(percentage points of GDP)

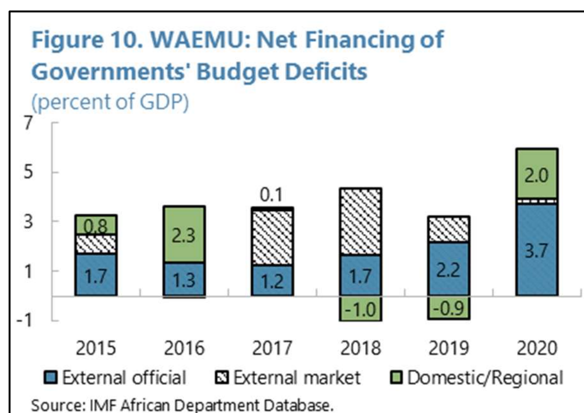
Source: IMF African Department Database.
Note: Using initial budget GDP adjusted for NER and TGO rebasing.

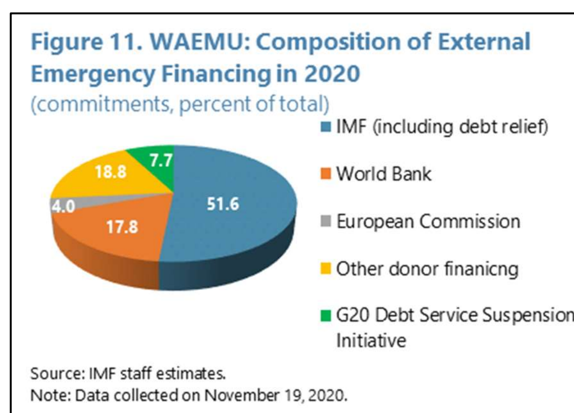
14. Turning to the types of emergency measures, the fiscal packages have primarily focused on i) reinforcing national health systems, ii) supporting vulnerable households, and iii) supporting businesses and protecting jobs. Consistent with the experience of other SSA countries (see October 2020 *Regional Economic Outlook: Sub-Saharan Africa*), the announced fiscal response in the region foresaw that about one quarter of the response measures would be spent on addressing health needs, with the remainder on crisis-related transfers and safeguarding macroeconomic stability. Specific measures adopted in the WAEMU fall in three main categories:

- Health sector reinforcement measures were widespread across all member-countries, albeit adapted to capacity levels of health sectors in each member-country. They comprised monitoring and containing the spread of the pandemic, and strengthening the medical infrastructure, personnel, and communication, including the purchase of medical equipment and the construction of temporary health facilities.
- Provision of social assistance varied greatly and was delivered via mobile money or electronic cash transfers (Togo and Mali) or as in-kind support (i.e. food distribution in Guinea-Bissau and Niger).[3]
- Economic response plans to support businesses included several direct (i.e. subsidies to companies in hard-hit sectors in Côte d'Ivoire) and indirect measures (i.e. temporary tax deferrals for affected businesses in Burkina Faso and Senegal, or guarantee funds in Benin and Mali to incentivized banks to extend credit to SMEs).

[3] In Togo, Novissi (a mobile cash-transfer program) was launched in April 2020 to mitigate the impact of the pandemic on workers in the informal sector. The state grants cover at least 30 percent of the minimum wage, with payouts from CFAF 10,500 ($18) to CFAF 20,000 ($34). The beneficiaries are identified through their voter IDs and receive the grants through mobile money, with a top-up for women. As of December 2020, about 1.4 million individuals have registered and close to 600,000 have received a NOVISSI payment, of which 65 percent are women. While eligibility was relatively unrestricted during the first three months, the grants now target workers in specific districts recording a high coronavirus contagion rate.

15. Higher fiscal deficits in 2020 are estimated to have been almost entirely financed by external financial assistance from donors. The fiscal response was financed through a mix of grants and additional borrowing, equivalent to about 3½ percent of GDP (Figure 10). About 40 percent of the external financing came from the IMF in the form of program augmentations, emergency financing (RCF and RFI) and debt-service relief through the Catastrophe Containment and Relief Trust (CCRT) (Figure 11). As a result, the public debt ratio is expected to have increased further in 2020 and peak at 47.7 percent of GDP in 2021, while it was projected to gradually decline from its peak in 2019 at 46.1 percent of GDP based on pre-Covid budget plans.





16. To catalyze external support, WAEMU country authorities have made commitments to improved transparency and accountability in the use of the funds provided by the international community. Countries have put in place enhanced governance measures to track Covid-related spending. While most member-states have announced that they would conduct independent ex-post audits of crisis-related spending, some have also committed to their publication (i.e. Mali and Niger), in addition to publishing crisis-related procurement contracts (i.e. Benin, Mali, and Senegal) and identifying the companies awarded the contract and their beneficial owners (i.e. Benin, Côte d'Ivoire, Mali, and Senegal). The authorities in Burkina Faso, Niger, Senegal and Togo have set up new mechanisms to monitor expenses executed through the budget, by donors, and in-kind support.[4]

C. Regional Monetary Policy Response

17. Amid limited fiscal space, emergency support has also been provided by the regional central bank. Like in other countries in SSA, the policy response to the Covid crisis also involved a relaxation of monetary policy through a mix of additional liquidity provision and lower interest rates. This accommodative monetary policy package is aimed at addressing initial liquidity shortages and preventing market freezes. In addition, a key feature of central banks' responses during the Covid crisis worldwide has been the widespread deployment of complementary measures to support the

[4] These commitments were taken in the context of emergency financing arrangements provided to WAEMU countries by the IMF in 2020. For example, for Benin, see country report n°. 2020/175.

flow of credit to households and non-financial corporations while enhancing the use of electronic payments.

18. Since the beginning of the Covid-19 crisis, the primary aim of the BCEAO's monetary policy measures has been to prevent liquidity shortages. Before the crisis, the BCEAO provided pre-set amounts of refinancing to banks through auctions against collateral in the form of government securities.[5] Since the Covid-19 financial crisis began, the BCEAO has introduced several monetary policy measures to provide ample liquidity to banks. As witnessed by the lack of financial market pressures, these measures have proven a very efficient way of offsetting liquidity risk by ensuring banks' continued access to liquidity. Average auction rates for central bank refinancing operations declined by about 0.75 percentage points relative to March and are now at an historically low level (Figure 12).

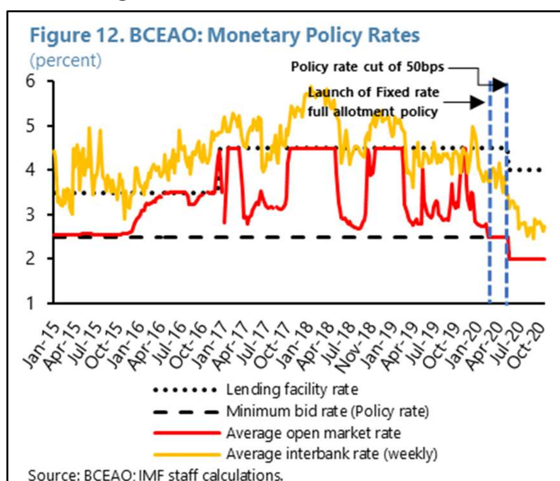


Figure 12. BCEAO: Monetary Policy Rates

- In March, the BCEAO shifted to a fixed-rate full allotment (FRFA) tender procedure for the refinancing auctions. This implied satisfying the market's demand for central bank liquidity in full at a set interest rate.[6] Eligible WAEMU financial institutions have now unlimited access to central bank liquidity at the main refinancing rate, as always subject to adequate collateral and financial soundness. At the time of its introduction, the FRFA policy (where all allocations have been served at the minimum rate) reduced the average rate of refinancing operations by about 25 basis points compared to before the crisis.

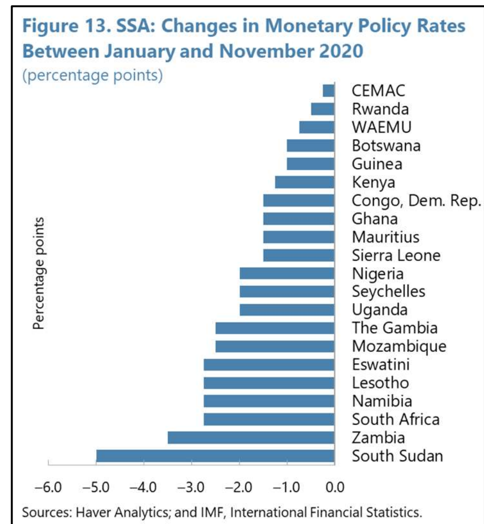


Figure 13. SSA: Changes in Monetary Policy Rates Between January and November 2020

- In June, the BCEAO Monetary Policy Committee also cut by 50 basis points both the ceiling and the floor of the interest rate corridor, to 4 and 2 percent respectively. This may seem limited compared to the rate cuts observed in other SSA countries, but these countries do not operate under a fixed exchange rate regime and the WAEMU policy rate is already one of the lowest in Africa (Figure 13).

---

[5] In the WAEMU, banks could not easily lend or borrow from each other in the interbank market to fulfil their liquidity needs because of the financial fragmentation in the region (IMF, 2018, 2019, 2020).

[6] Previously, the BCEAO auctioned a pre-set amount of central bank liquidity in variable rate tender procedures.

19. Collateral-easing measures were also introduced by the BCEAO to complement its liquidity-providing measures. In March the BCEAO extended the collateral framework for central bank refinancing to include bank loans to prequalified 1,700 private companies. In combination with the other measures, the new collateral framework has contributed to maintaining bank access to ample liquidity at favorable terms and created a supportive environment for them to continue lending to the economy. The collateral-easing measures has enlarged the pool of collateral available for commercial banks and should facilitate the implementation of BCEAO refinancing operations.[7] By acting promptly and decisively, the BCEAO has, so far, avoided a situation in which banks would have experienced an acute shortage of eligible collateral with adverse procyclical feedback effects.

20. Finally, the BCEAO implemented in 2020 the "Covid-19 T-Bill" program with the aim of smoothing WAEMU governments' cashflows and supporting orderly functioning of financial markets. The purpose of the special short-term refinancing window was to help governments meet their immediate financing needs in the first months of the crisis, before the emergency financing of donors is disbursed later in 2020. This program supported market functioning by minimizing the immediate impact of raising additional funding in regional security and money markets. In practice, the program allowed banks to refinance special 3-month "Covid-19 T-Bills" issued in limited amounts by WAEMU member states on the regional financial market with the assistance of the WAEMU's agency in charge of operating and developing the regional market for sovereign security auctions (Agence UEMOA-Titres). The banks were able to submit these T-Bills for refinancing at a special BCEAO window at the prevailing refinancing operations interest rate from the day of their issue and at the latest one month after their acquisition for the remaining term of the security. The "Covid-19 T-Bills" were the only eligible assets on this special window. The program, which was introduced in April-May for a global amount of 1.3 percent of WAEMU GDP, was extended through partial rollovers until the end of 2020 (Table 1).

21. The BCEAO has also introduced measures to promote the use of electronic payments. Since the beginning of the crisis, the WAEMU authorities has encouraged the population to limit physical contact by making more room for the use of digital payments. Several measures were taken with the objective of reducing the costs of electronic money transactions. These included: free nationwide bank money transfers (below a certain threshold); free electronic payments for electricity and water bills via mobile phone; lower commissions paid by retailers for the use of electronic payments; increase the ceiling of electronic wallets; reduction in fees applied to bank transfers; and elimination of fees for cash ATM withdrawal within the GIM network (Groupement Interbancaire Monétique de l'Union Economique et Monétaire Ouest Africaine).

---

[7] As of end-December 2020, private sector claims accounted for 4.3 percent of the collateral portfolio held by the BCEAO

Table 1. WAEMU: Covid-19 T-Bill Program, 2020

	Phase 1			Rollover Phases 2-4 in CFAF bilion					
	(Apr-May) [1]			(Jul-Aug) [1]		(Oct-Nov) [2]		(Nov-Dec) [2]	
	CFAF bln	% of Total	% of GDP	CFAF bln	% of GDP	CFAF bln	% of GDP	CFAF bln	% of GDP
BEN	133.0	11.3	1.5	133.0	1.5	133.0	1.5	133.0	1.5
BFA	80.0	6.8	0.8	50.0	0.5	0.0	0.0	0.0	0.0
CIV	535.0	45.6	1.5	200.0	0.6	300.0	0.8	310.0	0.9
GNB	15.5	1.3	1.9	10.0	1.2	0.0	0.0	0.0	0.0
MLI	88.0	7.5	0.9	55.0	0.5	25.0	0.2	0.0	0.0
NER	110.0	9.4	1.4	100.0	1.3	110.0	1.4	0.0	0.0
SEN	103.0	8.8	0.7	103.1	0.7	103.1	0.7	103.1	0.7
TGO	108.0	9.2	3.2	70.0	2.1	0.0	0.0	0.0	0.0
WAEMU	1,172.5	100.0	1.3	721.1	0.8	671.1	0.7	546.1	0.6

Source: Agence UMOA Titres (AUT).

[1] Three-month maturity.

[2] One-month maturity.

D. Regional Regulatory and Supervisory Response

22. The BCEAO has taken swift and forceful supervisory measures to mitigate procyclicality. As soon as the first containment measures were adopted in the WAEMU, the BCEAO took decisions aimed at further increasing the WAEMU banking sector's capacity to absorb losses and support distressed firms and households, with a view to mitigating procyclicality.

23. The BCEAO has encouraged banks to work with their clients to help them weather the crisis. A new "forbearance" framework was introduced in March 2020 and expired at end-2020. Banks and microfinance institutions were encouraged to accommodate demands from solvent clients with Covid-related repayment difficulties by postponing, for a 3-month renewable period, debt service falling due, without reclassifying such postponed claims as non-performing. For borrowers that were unable to obtain such deferral agreement with their banks without conciliation, the BCEAO set up a monitoring and facilitation structure called "Covid-19 mechanism" which aimed at strengthening the dialogue between firms and their financial intermediaries. As of the end-August 2020 and according to the BCEAO, the total amount of bank loans for which some repayment was deferred was equivalent to 5 percent of bank credit outstanding for the whole of WAEMU.

24. The BCEAO also decided to extend by one year the five-year period for the transition to Basel II/III bank prudential requirements. The transition started in 2018 and was initially supposed to end in 2022. It will now end in 2023 (Table 2). The extra time will help banks rebuild their capital buffers, which are likely to be eroded by potential losses on their assets. Also, the regulatory capital adequacy ratio will remain unchanged at end-2020 from its 2019 level of

9.5 percent, before gradually increasing to 11.5 percent by 2023. This approach was considered more effective than allowing banks to draw down their capital conservation buffer. In addition, in November 2020 and in order to ensure that the WAEMU banking sector continues financing the real economy and has enough capital buffers to absorb losses, the BCEAO took actions to preserve banks' capital resources by temporarily limiting the distribution of dividends (related to 2020 profits) for all banks.

Table 2. WAEMU: Regulatory Capital Requirements

	2018	2019	2020		2021		2022		2023	
In percent			Initial	Revised	Initial	Revised	Initial	Revised	Initial	Revised
Regulatory Risk Weighted CAR	8.6	9.5	10.4	9.5	11.3	10.4	11.5	11.3	11.5	11.5
Minimum	8.0	8.3	8.5	8.3	8.8	8.5	9.0	8.8	9.0	9.0
Conservation buffer	0.6	1.3	1.9	1.3	2.5	1.9	2.5	2.5	2.5	2.5
Memo items										
CAR (Common Equity Tier 1)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
CAR (Tier 1)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0

Source: BCEAO.

25. Nonetheless, regional authorities have not relaxed the prudential and accounting requirements. In line with best practices, the BCEAO has not relaxed its standards, since this would only incentivize excessive risk-taking and encourage banks to hide poor underwriting practices. Regulatory constraints are not supposed to be lifted during crises. Various elements of flexibility are embedded in banking regulation that can be used; buffers that have been built in good times can be used in bad times.

THE ECONOMIC AND POLICY IMPLICATIONS FOR THE WAEMU OF INSECURITY IN THE SAHEL[1]

1. The WAEMU region experienced significant episodes of violent conflicts over the past two decades. During the 2000s, they mainly stemmed from political instability, particularly in Côte d'Ivoire, the WAEMU's economic hub. Niger also suffered from political instability during the same decade culminating in a military coup in 2010. The restoration of peace in Côte d'Ivoire and the election of a democratic government in Niger in 2011 ushered in an era of stronger economic growth throughout the WAEMU until the Covid crisis in early 2020.[2] However, this progress is now coming under threat from the mushrooming conflict in the Sahel, which first emerged in Mali in 2012, grew in intensity there, spread to Burkina Faso from 2014, and exposes Niger to increasingly vicious cross-border attacks. In the context of pervasive corruption, widespread poverty, and high rates of youth unemployment and underemployment, observers fear that, absent stronger actions to stem the violence and address its root causes, the conflict could spread all the way to the coastal countries of West Africa.[3]

2. This chapter analyzes the regional economic impact of the deteriorating security situation and lays out options for economic policy responses. Economically, the conflict and the risk of dislocation of state authority affects growth prospects, development outcomes, and public finances of the afflicted countries, but there are also important potential repercussions for the entire WAEMU. Not only could the conflict spread to other members if not forcefully addressed in Burkina Faso, Mali, and Niger, but there could also be spillovers from the public finances of these three countries on the currency union's shared external stability and exchange rate peg. It therefore takes a coordinated or common policy response to confront insecurity and at the same time preserve macroeconomic stability. Moreover, since spillovers do not stop at the WAEMU's doorstep, success is in the interest of the wider region and beyond. Foreign aid makes it less hard for the WAEMU to square its twin objective of security and macroeconomic stability.

A. Origin and Scope of Insecurity in the Sahel

3. The current security crisis in the Sahel region began with the Tuareg rebellion in Northern Mali in 2012. The independence drive by the rebel group National Movement for the Liberation of Azawad (MNLA) became a rebellion when the collapse of the Gaddafi regime in Libya

---

[1] Prepared by Alain Féler, Martha Woldemichael, and Jiaxiong Yao under the overall guidance of Christoph Klingen. The authors are also grateful for comments received from Annalisa Fedelino (AFR), and Dominique Desruelle (AFR), Luc Eyraud (AFR), the WAEMU Commission and other regional authorities.

[2] The analysis of this Chapter focuses on the situation until end-2019, before the Covid pandemic outbreak that has brought to an abrupt end the near-decade long period of high growth in the WAEMU. It therefore does not cover either event related to the August 2020 coup d'Etat in Mali.

[3] "The geographic focus of terrorist attacks has shifted eastwards from Mali to Burkina Faso and is increasingly threatening West African Coastal States," briefing to the UN Security Council of the Secretary General's Special Representative to West Africa and the Sahel, January 8, 2020.

in 2011 triggered an influx of Tuareg and heavy weaponry, Mali's president was ousted in a military coup in 2012, and the group Ansar Dine joined the fight. Most of Northern Mali fell into rebel hands. They were pushed back when France launched its operation "Serval" in December 2012 and deployed troops. Nonetheless and despite the installation of the 13,000-man-strong UN peacekeeping mission MINUSMA, a newly elected government, and a peace agreement with the rebel groups, state control in Northern Mali remains tenuous and insecurity persists.

4. Insecurity spread to Burkina Faso in late 2014. The home-grown Ansarul Islam movement, the Islamic State in the Greater Sahara, and the Al-Qaeda linked Group to Support Islam and Muslims exploited the circumstances created by the ouster of the president in a popular uprising and long-standing discontent in Northeastern Burkina Faso with the perceived neglect by the central government. They recruited heavily from the discriminated ethnic Fulani minority, which in turn triggered reprisals, vigilante groups were formed, and armed groups became radicalized. Burkina Faso's capital Ouagadougou suffered major attacks in 2016, against a luxury hotel and restaurants, and in 2018, against the military headquarters and the French embassy. Since April 2019, terrorists have targeted churches, undermining Burkina Faso's culture of religious co-existence, and violence has spread from the northern border with Mali to the eastern border region with Niger, making Burkina Faso the "epicenter" of the conflict in the Sahel.

5. Separately, the terror group Boko Haram in Northeastern Nigeria became more and more deadly. Founded in 2002 as a non-violent group seeking to purify Islam, Boko Haram became increasingly radicalized. Government forces successfully fought it at first, but Boko Haram reconstituted itself and by 2014 controlled vast swarths of land in Northeastern Nigeria. It pledged allegiance to the Islamic State in Iraq and the Levant in 2015. While it lost territory in 2019, Boko Haram remains one of the world's deadliest terror groups with incessant attacks in the Lake Chad region, comprising territories in Nigeria, Chad, Cameroon, and Niger.

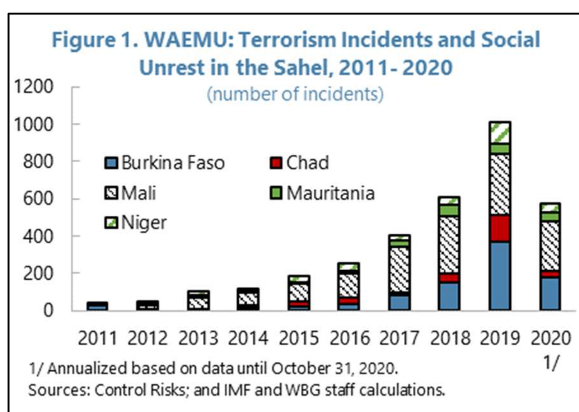
6. Niger is now surrounded by violence. Conflict rages along its porous borders with Mali and Burkina Faso, Boko Haram terrorizes the Lake Chad region, and chaos reigns in Libya to the north. Terrorism has generally not become entrenched in Niger itself, but it suffers increasingly ferocious cross-border incursions. Two attacks on military camps close to the border with Mali in December 2019 and January 2020 left over 150 soldiers dead. The fight against terrorism is further complicated by it being intertwined with other criminal activity, such as the trafficking of drugs, weapons, and migrants along its ancient cross-Saharan trading routes.

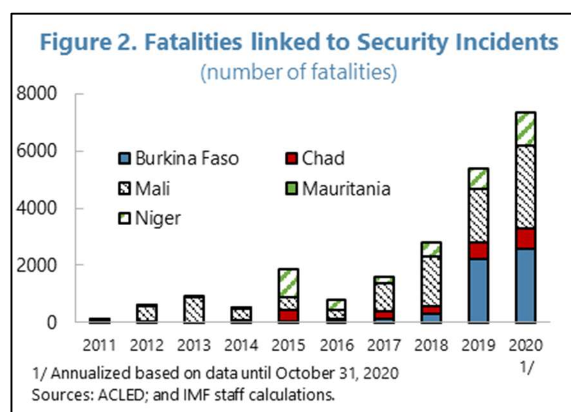
7. The security situation in the Sahel keeps deteriorating rapidly. Terrorist incidents rose 70 percent in 2019 alone to reach 800 in the G5-Sahel countries (Burkina Faso, Chad, Mali, Mauritania, and Niger).[4] Burkina Faso has narrowly overtaken Mali as the country with the worst violence. Niger and Chad each report about one-third of the level recorded in Burkina Faso or Mali.

[4] Incident data are sourced from "Risk Control." This provider defines a terrorist incident as "violent incidents conducted by non-state actors against state or civilian targets to advance an ideological cause by influencing a wider audience, e.g. bombings, assassinations, hostage-taking, attacks using chemical, biological, radiological or nuclear agents (CBRN)."

Mauritania remained largely free of terrorist incidents. Attacks have also become more ferocious, with more victims per incident and the targeting of village chiefs to inflict maximum damage to the social fabric of rural communities.

8. The violence is taking a heavy humanitarian toll on countries already facing multiple challenges, including the Covid pandemic. The Sahel has long been grappling with fragilities, including high poverty levels, inequality and exclusion, climate change, food crises, rapid population growth, and the illicit trafficking of migrants, drugs, and weapons across borders.[5] Fatalities from violent events involving extremist groups have doubled every year since 2015, reaching 5,500 in the G5-Sahel countries in 2019, of which 4,000 occurred in Burkina Faso, Mali, and Niger.[6] There are now 1.1 million internally displaced people and 750,000 refugees in the G5-Sahel countries.[7] Urgent food assistance needs have doubled to 2.4 million people in Burkina Faso, Mali, and Niger.[8] An estimated 2,000 schools are closed in the conflict zones of Burkina Faso, Mali, and Niger, putting 10,500 teachers out of work and interrupting the education of some 400,000 children.[9]





9. Foreign assistance has, so far, not been able to turn the tide. In August 2014, the French "Serval" operation with its mandate for Mali was replaced by the operation "Barkhane," which is tasked with fighting terrorism throughout the Sahel and comprises 4,500 men. In the wake of the January 2020 summit in Pau, France committed 600 additional troops and joint command and control with the G5-Sahel militaries was agreed. Some 800 American military personnel are stationed in Niger for training and intelligence purposes, as well as for operating a newly built drone base, which serves the entire region. European countries provide another 600 men to provide training and there is the mainly African-staffed MINUSMA blue helmets mission. On the civilian side, the Sahel Alliance was launched in July 2017 by France and Germany, with other countries and

[5] In turn, together with pervasive corruption, widespread poverty and high rates of youth unemployment and underemployment is creating fertile ground for terrorist groups to recruit and to sow violence.

[6] According to the Armed Conflict Location and Event Data (ACLED) project. On an annualized basis, during the first 7 months of 2020, fatalities surged by 65 percent while incidents declined by about a third relative to 2019.

[7] According to the UNHCR.

[8] According to the Food Crises Prevention Network and the World Food Program (WFP).

[9] In early 2019, according to UN Security Council, CS/13810, May 2019.

institutions, including the World Bank, subsequently joining. It aims to implement over 800 projects at a cost of €11.6 billion until 2022 to address all current challenges—security, demographic, economic, and social. At the August 2019 Biarritz G7 summit France and Germany announced the Partnership for Security and Stability for the Sahel (P3S), encompassing the countries of the region and their partners in a spirit of shared responsibility. It has yet to be launched. At the Pau Summit in January 2020, the International Coalition for the Sahel was launched by the Heads of State of France, Burkina Faso, Chad, Mali, Mauritania and Niger. The Coalition ambitions to provide a collective response to the challenges of the Sahel region by pooling the work undertaken by the G5 Sahel States and their international partners.

10. Regional initiatives have yet to develop their potential, despite external pledges and regional commitments of substantial new resources. To better tackle the cross-border nature of terrorism, the G5-Sahel Joint Fighting Force was established in July 2017. It is due to include 5,000 military personnel from Burkina Faso, Chad, Mali, Mauritania, and Niger. The necessary €414 million to train and equip it have been pledged, though not fully disbursed as of now, and the force is not yet fully operational. Separately, there is also a Multinational Joint Task Force of the Lake Chad Basin made up by the militaries of Cameroon, Chad, Niger, and Nigeria to fight Boko Haram. The WAEMU has committed US$500 million over 2020-24 to fight terrorism in the region and it announced a first disbursement of US$100 million for the benefit of Burkina Faso, Mali, and Niger. At its December 2019 summit, the ECOWAS adopted an action plan of US$2.3 billion for regional security, including US$1 billion from internal resources. As spending on these initiatives grows and accelerates, adequate controls must be continually implemented to prevent the leakage of donor and internally generated funds, whether to corruption or to mismanagement.

B. The Impact of Insecurity on Economic Activity

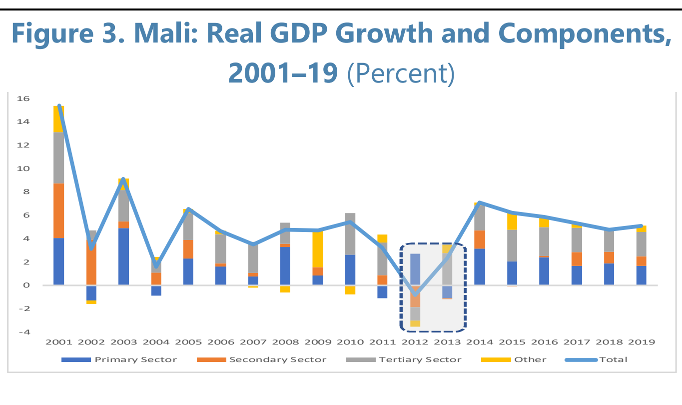
11. Empirical research finds large and persistent adverse growth effects from conflict in sub-Saharan Africa. According to the SSA Regional Economic Outlook (IMF, 2019), annual real GDP growth in the average country with high-intensity conflict is 3.2 percentage points lower than it would have been in the absence of conflict, which translates into a cumulative loss of 15-20 percent in per-capita income for episodes that last five years or longer. Together with the destruction of human and physical capital, conflict reduces growth via lower investment, trade, and productivity.[10] Conflict intensity is the key determining factor for the size of the adverse growth effect, but it also matters whether conflicts afflict a county's commercial hub or just economically peripheral regions. Also, everything else equal, stronger institutions and better fiscal fundamentals seem to have a mitigating effect.[11]

[10] A conflict that claims 29 or more deaths per million of people per month is considered "high intensity."

[11] IMF Sub-Saharan African Regional Economic Outlook: "The Economic Consequences of Conflict", Spring 2019.

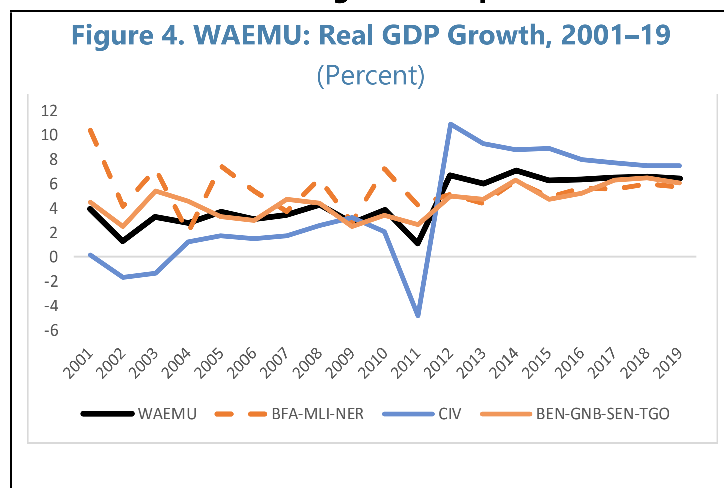
12. As predicted by this empirical research, Mali's economic performance in 2012 and 2013 suffered substantially. GDP contracted by 1.5 percent in 2012, when the military coup destabilized the domestic political situation, insurgents took control of Northern Mali, and half a million people were displaced. In the absence of a legitimate government, donors suspended all budget support and slowed down project aid. Construction, public works, and tourism suffered. But strong performance in gold mining, cotton, and a recovery in agriculture helped soften the blow. In 2013, GDP grew by 2.3 percent, as the normalization of the political situation allowed for the organization of presidential and legislative elections in the second semester and the security situation started to improve following early successes of the French-led military intervention in Northern Mali. The decline of the 2012–13 growth performance to 0.7 percent from 4.3 percent previously appears broadly in line with the estimations for the effect of conflict in sub-Saharan Africa.

Figure 3. Mali: Real GDP Growth and Components, 2001–19 (Percent)



13. In contrast, GDP estimates for Burkina Faso, Mali, and Niger do not point to a significant growth slowdown since 2014 when violence started escalating. During 2014–19, annual real GDP growth averaged 5.7 percent, broadly in line with the growth performance of other WAEMU members, except for Côte d'Ivoire, which rebounded from a decade of political instability and civil war. This points to terrorist-related violence having had a materially smaller growth impact than the estimations for sub-Saharan Africa would suggest.

Figure 4. WAEMU: Real GDP Growth, 2001–19 (Percent)



14. The seemingly muted impact of violence on the GDPs of Burkina Faso, Mali, and Niger could be due to the concentration of security incidents in regions of relatively low economic activity. Incidents have mainly taken the form of sporadic terrorist attacks along the borders of Burkina Faso, Mali, and Niger, often in desert regions. Specifically: (i) the northern parts of the border provinces "Sahel," "Centre Nord," and "Nord" in Burkina Faso, as well as the "Centre Est" province bordering Benin; (ii) the provinces "Gao," "Kidal," and "Mopti" in Mali; and (iii) in Niger along the borders with Mali in the provinces "Tahoua" and "Tillabéry," as well as in the "Diffa" region

near Lake Chad in the Southeast. While accounting for a large part of the countries' territories, relatively low population density and economic activity disproportionately concentrated in subsistence farming, their economic weight is bound to be much lower. In the absence of subnational data on economic activity, regional economic activity is measured by night-light intensity.[12] On this basis, the conflict areas account for 9, 4, and 13 percent of the national GDP in Burkina Faso, Mali and Niger, respectively.[13]

Figure 5. WAEMU: Provinces Including Zones Mainly Afflicted by Ongoing Violence: Area, Population and Night Lights

(Percent of National Data)

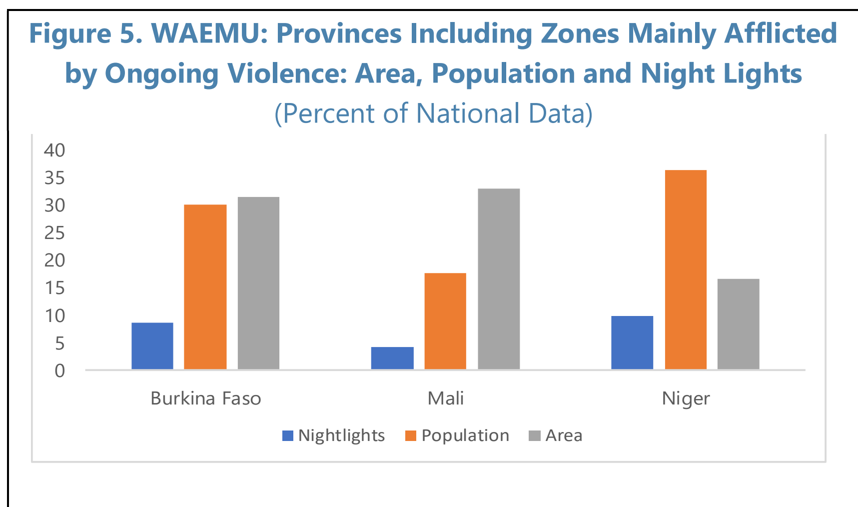
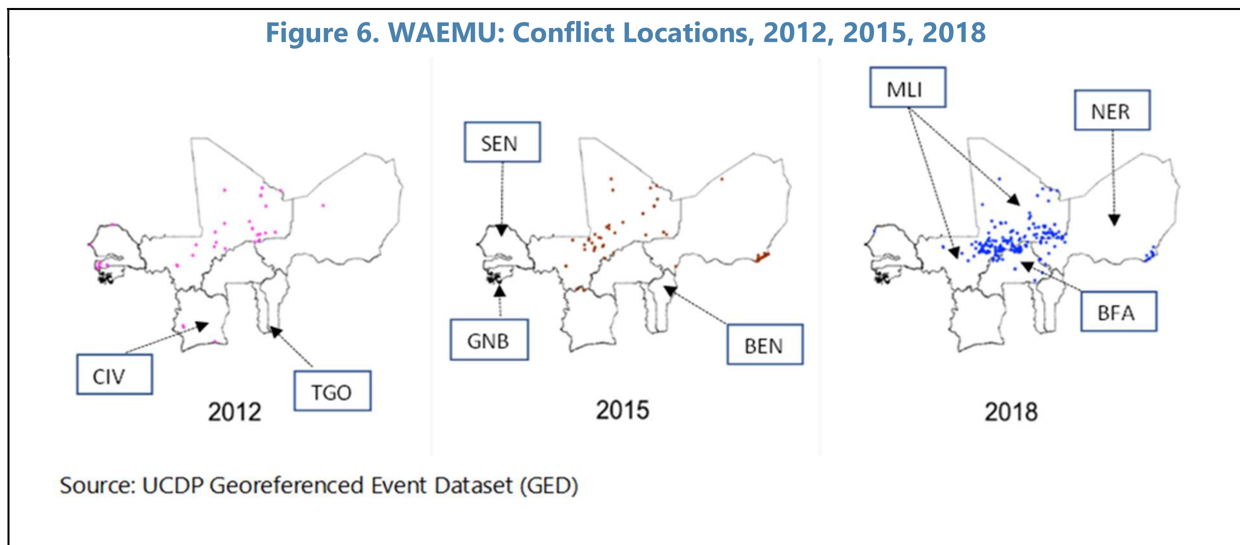


Figure 6. WAEMU: Conflict Locations, 2012, 2015, 2018



Source: UCDP Georeferenced Event Dataset (GED)

[12] For some research finding showing that night-light intensity is a good proxy for real GDP, see Henderson, Storeygard and Weil, 2012. The independent nature of night-light intensity means that this measure of economic activity is less susceptible to systematic measurement error. It is also a useful variable for conflict cases, when data on economic activity is unavailable or unreliable.

[13] Livelihood zoning maps and reports from USAID provide also useful information on the spatial distribution of economic activity in Burkina Faso, Mali and Niger.

15. Econometric analysis clarifies that the surge in violence does have a statistically significant and detrimental impact on growth in the afflicted regions but that it is quantitatively much smaller than in sub-Saharan Africa on average. An estimation tailored to the WAEMU region shows a significant effect of conflict intensity on night-light growth. A conflict causing 7 fatalities per million of population in one month is estimated to reduce annual night lights by about 0.13 percent, equivalent to 0.06 percent of annual GDP.[14] For 79 fatalities per million, the negative growth effect comes to an estimated 0.7 percent of annual GDP . Estimations for all of sub-Saharan Africa or the world find an effect of violence on economic activity more than two times stronger than in the WAEMU. This may reflect non-linearities in the association between conflict intensity and economic activity. For all its dramatic consequences, the conflict in the WAEMU is far below the intensity of full-fledged civil wars that other parts of Africa and the world had to endure over the years.

Table 1. WAEMU: Impact of Conflict on Night Lights

VARIABLES	Night Lights Growth		
	World	SSA	WAEMU
Deaths per 1000 people	-0.312 **	-0.411 ***	-0.182 ***
Robust standard error	(0.130)	(0.141)	(0.057)
Control variables			
Night Lights (lag)			
Country x Time Fixed Effects			
State/Province Fixed Effects			
Observations	179,681	41,481	4,835
R-squared	0.539	0.490	0.503
No of States/Provinces	2,948	615	71

*** p < 0.01; ** p < 0.05; * p < 0.1;

16. The concentration of the conflict in the economically weaker areas of Burkina Faso, Mali, and Niger, together with its relatively low intensity make for an overall limited growth impact, consistent with the evolution of the macroeconomic headline numbers. Using the economic-impact coefficient derived from the customized WAEMU regression and adding up the regional effects yields a cumulative real GDP loss of between 0.5 and 1.4 percent for the three countries, depending on whether population or night-light weights are used in the aggregation over regions. The corresponding output loss for the WAEMU as a whole comes to between 0.1 and 0.4 percent of GDP.

17. That said, the toll on economic activity could easily escalate if violence is not expeditiously contained and rolled back. First, the growth effect for the three countries would become much stronger if violence were to creep closer to the centers of economic activity. Second, the situation would altogether change for the worse if violence spread to more WAEMU counties, particularly the economic heavyweights Côte d'Ivoire and Senegal. Third, if the violence were to escalate further in Burkina Faso, Mali, and Niger, the relatively weak association with economic activity observed in the rest of the WAEMU so far could increase substantially. Fourth, violence could have long-term effects on economic development because of the disruptions it causes to education and health care. Finally, the dynamic effects of sustained violence are not yet fully understood and may not be sufficiently captured in the regressions.

[14] The impact on night-light growth is obtained by multiplying the estimated coefficient for the change in night growth per thousand fatalities (-0.182) by the conflict density (7 per million or .007 per thousand fatalities).

Table 2. WAEMU: Impact of Violent Conflict on Real GDP Growth, 2014–19

	2014	2015	2016	2017	2018	2019	2014-19 (avg)	2014-19 (cum)
(Regions weighted by population shares)								
WAEMU	0.0	0.0	0.0	0.0	-0.1	-0.2	-0.1	-0.4
BFA-MLI-NER	0.0	-0.1	-0.1	-0.1	-0.3	-0.8	-0.2	-1.4
BFA	0.0	0.0	0.0	0.0	-0.1	-1.1	-0.2	-1.1
MLI	-0.1	-0.1	-0.1	-0.3	-0.6	-0.9	-0.3	-2.1
NER	0.0	-0.2	-0.1	-0.1	-0.1	-0.4	-0.2	-1.0
Other WAEMU	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(Regions weighted by night-light shares)								
WAEMU	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.1
BFA-MLI-NER	0.0	-0.1	-0.1	-0.1	-0.1	-0.2	-0.1	-0.5
BFA	0.0	0.0	0.0	0.0	0.0	-0.5	-0.1	-0.6
MLI	0.0	0.0	0.0	-0.1	-0.1	0.0	0.0	-0.3
NER	0.0	-0.2	-0.1	-0.1	-0.1	0.0	-0.1	-0.6
Other WAEMU	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Sources: ACLED; and IMF staff estimates.

C. Fiscal Impact of Insecurity in WAEMU's Sahel Countries

18. The conflict puts multiple pressures on the public finances of the afflicted countries. The most direct effect comes from the necessary increase of budgetary outlays for the military, the national guard, the gendarmery, and the police to confront the security challenge. Fiscal revenue collection could also be disrupted. These pressures could be attenuated to the extent that donors provide more aid and governments manage to implement revenue measures. Otherwise they are bound to crowd out other spending or increase fiscal deficits. Room to let deficits rise is limited—for the WAEMU as a whole they have just been brought down from the high levels in the mid-2010s to underwrite the currency union's external stability.

19. The budgetary burden of increased security spending is high. Security spending has rightly been a top priority in the WAEMU Sahel countries, as security is a prerequisite for achieving development and social objectives. From the onset of insecurity until end-2019, military spending has roughly doubled, equivalent to an increase of 2 percent of GDP (equivalent to about US$850 million). This weighs heavily on the public finances of countries that face challenges in mobilizing domestic revenues.

20. The worsening security situation in Burkina Faso, Mali, and Niger has hampered domestic revenue mobilization efforts, albeit only to a limited extent until 2019. Terrorism can erode the tax base and weaken the efficiency of tax administration through physical destruction of businesses (Ndikumana, 2011). While some researchers identify material adverse effects of conflict on the revenue-to-GDP ratio (IMF, 2019), other studies find only a marginal impact (Cevik and Ricco, 2015) or no statistically significant effect at all (Gupta et al., 2004). In the Sahel, one would expect the loss of state control in some areas, disruptions to cross-border trade, increased smuggling, and the collapse of the tourism industry to all weigh on revenue mobilization. Since most of these channels play into reduced economic activity, applying the GDP loss derived in the previous section to countries' revenue-to-GDP ratio gives a rough estimate of the revenue loss. With the output loss

so far limited, the revenue loss is also small, ranging from 0.1 to 0.4 percent of GDP cumulatively for the period 2014–19, depending on the country and the weighing of the afflicted regions within them. That said, just as with the growth impact, the revenue loss could be magnitudes higher if the conflict was further prolonged, spread to the economic centers of the three countries, or started to afflict other WAEMU countries.

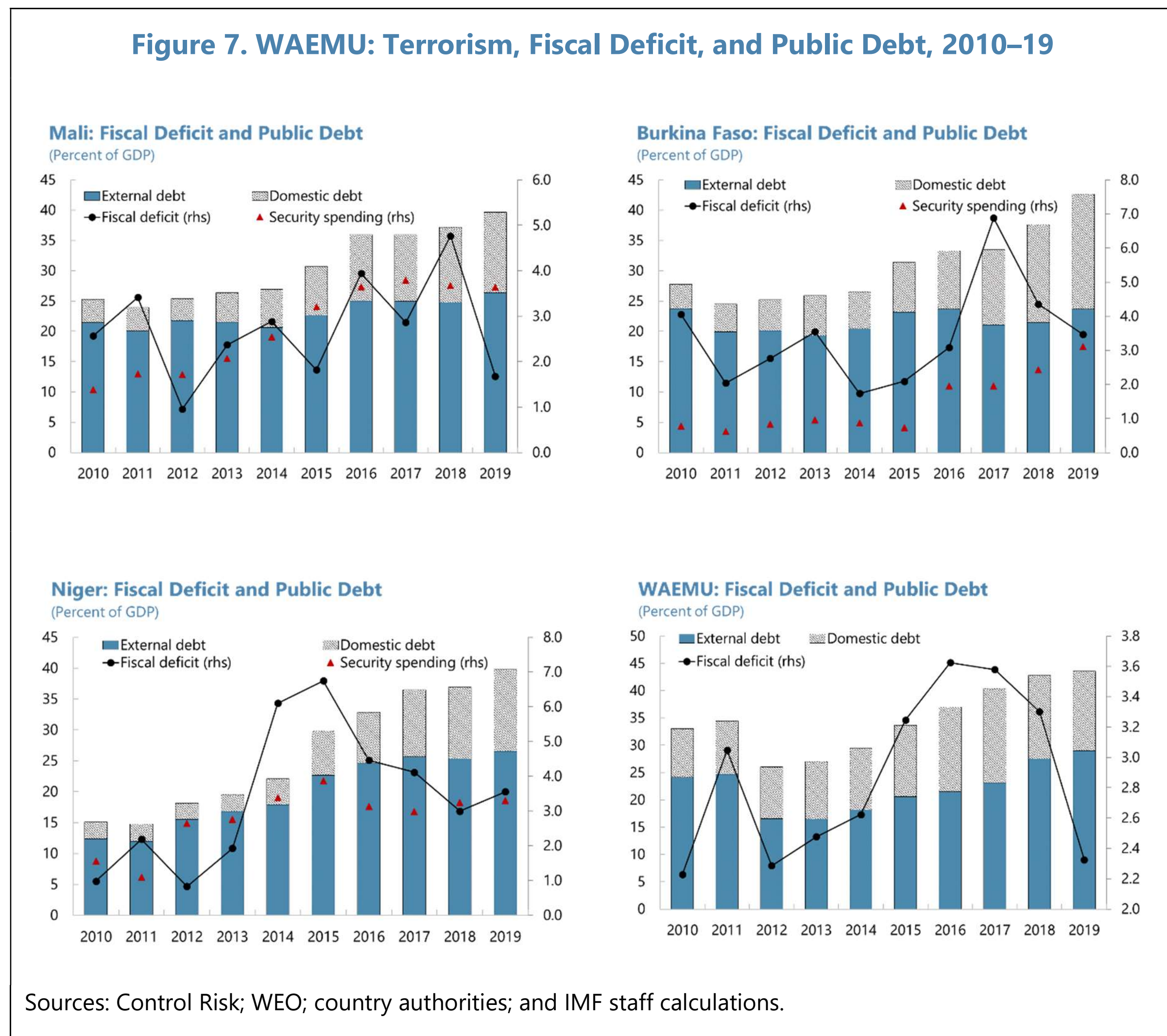


Figure 7. WAEMU: Terrorism, Fiscal Deficit, and Public Debt, 2010–19

Sources: Control Risk; WEO; country authorities; and IMF staff calculations.

Table 3. WAEMU: Impact of Violent Conflict on Fiscal Revenues, 2014–19
(Percentage points of GDP)

	2014	2015	2016	2017	2018	2019	2014-19 (avg)	2014-19 (cum)
			(Regions weighted by population shares)					
WAEMU	0.00	0.00	0.00	-0.01	-0.01	-0.04	-0.01	-0.06
BFA-MLI-NER	-0.01	-0.02	-0.01	-0.02	-0.04	-0.16	-0.04	-0.25
BFA	0.00	0.00	0.00	0.00	-0.01	-0.22	-0.04	-0.22
MLI	-0.02	-0.02	-0.01	-0.05	-0.08	-0.18	-0.06	-0.35
NER	0.00	-0.04	-0.02	-0.02	-0.02	-0.06	-0.03	-0.15
Other WAEMU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			(Regions weighted by night-light shares)					
WAEMU	0.00	0.00	0.00	0.00	0.00	-0.01	0.00	-0.02
BFA-MLI-NER	0.00	-0.01	-0.01	-0.01	-0.01	-0.03	-0.01	-0.08
BFA	0.00	0.00	0.00	0.00	-0.01	-0.10	-0.02	-0.11
MLI	0.00	-0.01	0.00	-0.01	-0.02	0.00	-0.01	-0.04
NER	0.00	-0.04	-0.02	-0.01	-0.01	0.00	-0.02	-0.09
Other WAEMU	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Sources: ACLED; and IMF staff calculations.

21. Evidence on whether the rise in security spending has already crowded out other spending seems mixed, but there are clear risks going forward. Non-security spending has fluctuated over the years. It is difficult to establish a clear trend and the lack of good data on spending broken down by economic function makes it even more challenging to discern the evolution of social and development spending. However, clearly, other spending could have been higher in the absence of the rise in security outlays. Any additional aid or additionally mobilized domestic revenue could have been spent on development rather than having to be plowed into security spending. It is also clear that crowding would be hard to avoid if an escalating security crisis, a let-up in foreign aid, or a setback in domestic revenue mobilization were to put further pressures on public finances.

22. The diverse conflict history, economic situation, and internal and external policy responses in Burkina Faso, Mali, and Niger warrant a more detailed country-specific analysis. Annex I provides a data summary.

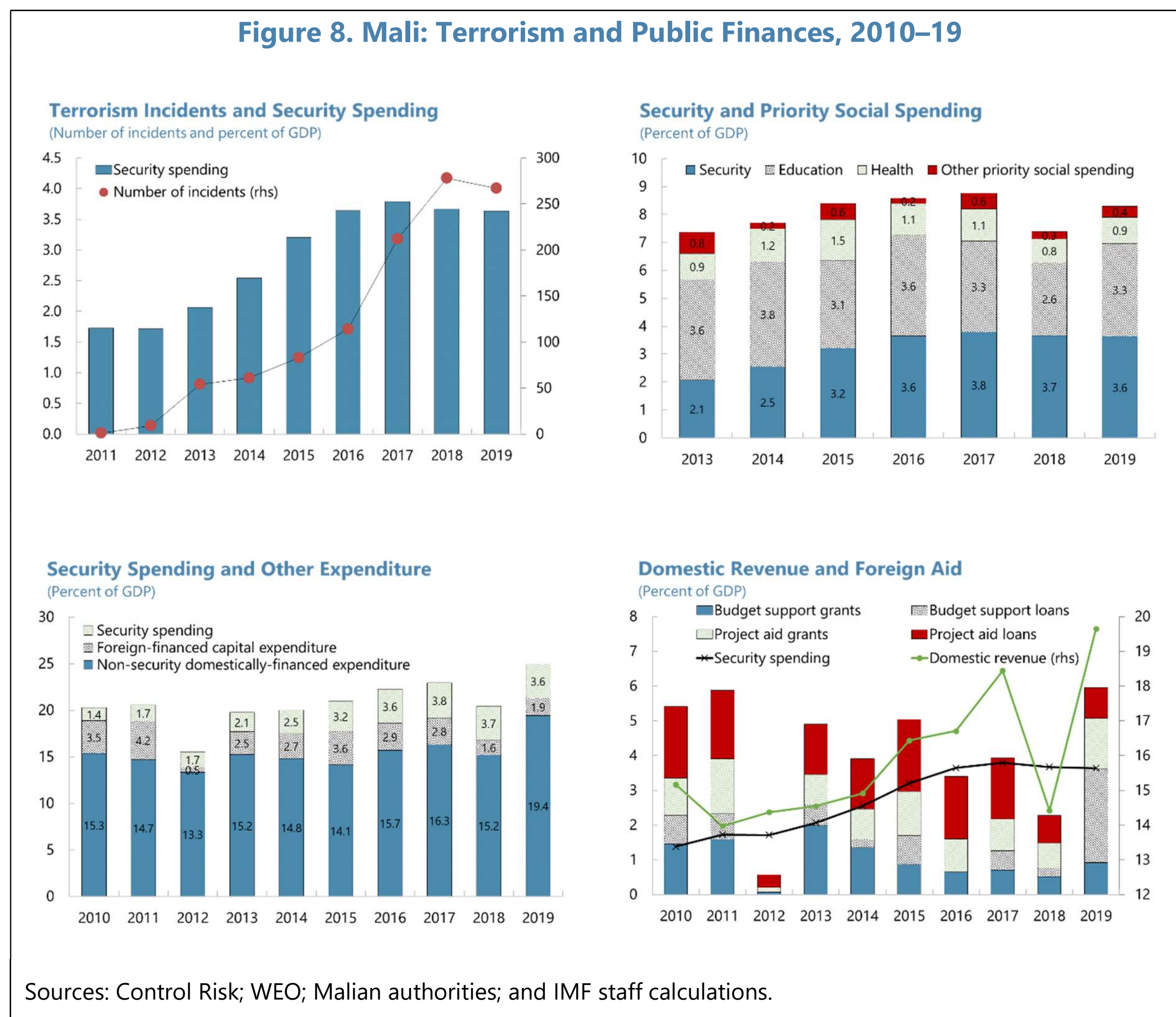
Mali

23. Mali was the first Sahel country confronted with a rapidly deteriorating security situation and escalating security spending needs. Since the Tuareg rebellion in 2012, security incidents rose exponentially through 2018 before receding marginally in 2019 to 267. The French military intervention provided crucial relief, but domestic security spending also had to be ramped up from 1.7 percent of GDP before the outbreak of violence to 3.7 percent of GDP in recent years.

24. In the absence of higher foreign aid, fiscal deficits rose until a sharp reversal in 2019. Foreign aid has generally not been rising over the period. Since the Tuareg rebellion coincided with a military coup, aid was almost entirely suspended in 2012, and when it was restored the year after,

it remained below pre-violence levels through 2018. The fiscal deficit rose sharply from some 3 percent of GDP before the conflict to 4.8 percent of GDP in 2018. A reversal occurred in 2019 when foreign aid was doubled to 6 percent of GDP and the fiscal deficit declined to 1.7 percent of GDP. Compared to the pre-violence period, foreign aid is now about the same. In the end it was domestic revenue mobilization that prevented the deficit from rising despite the rise in security spending.

Figure 8. Mali: Terrorism and Public Finances, 2010–19



Sources: Control Risk; WEO; Malian authorities; and IMF staff calculations.

25. There is evidence of intermittent but not systematic crowding out of non-security spending. Non-security spending suffered setback from the suspension of aid in 2012 and from the initial ramping up of security spending in 2014 and 2015. However, it tended to revert back to pre-conflict levels in the intervening years and surpassed them in 2019. Focusing more narrowly on priority social spending, one observes a reduction in their share of total spending throughout until a bounce back in 2019.

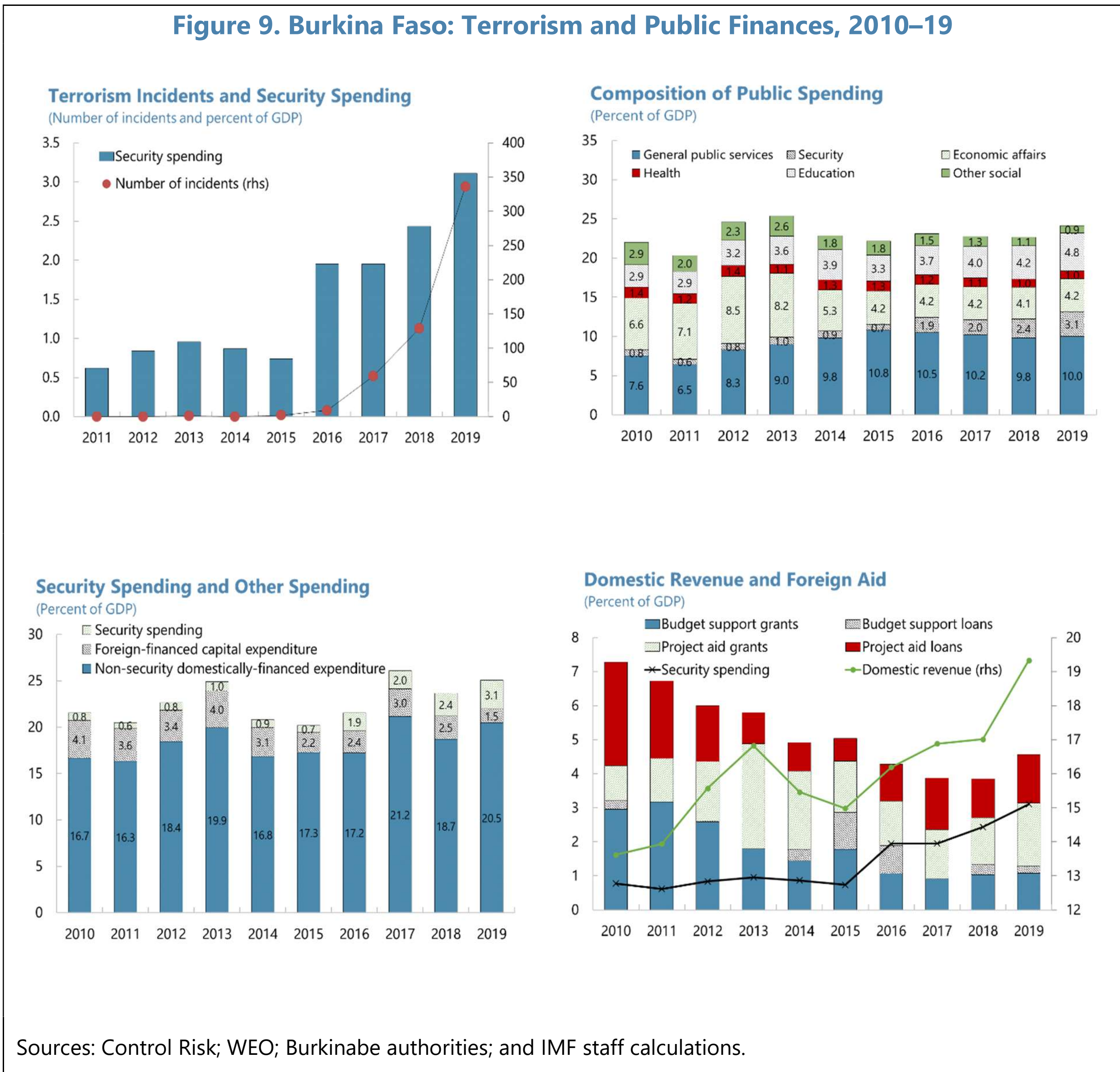
26. Mali's experience highlights the crucial role of foreign aid and domestic revenue mobilization. Without the restoration of aid in 2019, it would have been difficult to square high

security spending with fiscal consolidation and the protection of other spending. Looking at the entire period from the early 2010s to 2019 and abstracting from the annual fluctuations of aid, it was mainly domestic revenue mobilization that protected the fiscal bottom line and non-security spending in the face of escalating security outlays.

Burkina Faso

27. In Burkina Faso, security incidents and military spending rose sharply from 2016. Security spending had long been very modest but was ramped up quickly from just 0.8 percent of GDP in 2015 to 3.1 percent of GDP in 2019.

Figure 9. Burkina Faso: Terrorism and Public Finances, 2010–19



Sources: Control Risk; WEO; Burkinabe authorities; and IMF staff calculations.

28. An initial burst of the fiscal deficit was mostly reversed, due to revenue mobilization and a normalization of non-security spending. The deficit surged from 2.1 percent of GDP in 2015 to 6.9 percent of GDP in 2017 as both security and non-security spending rose sharply. By 2019, it had been brought back to 3.5 percent of GDP as non-security spending normalized and the government succeeded in mobilizing additional domestic revenue. Foreign aid did not provide relief. Indeed, it remains lower than in 2015. At 4.6 percent of GDP, it is also lower than in Mali and Niger.

29. Security spending seems not to have crowded out social spending. The ratio of domestically-financed non-security spending to GDP was slightly higher in 2019 that it was in 2015, the year before security spending was ramped up. The ratio of social spending to GDP remained also unchanged.

30. The Burkinabe experience underscores the importance of public spending efficiency and domestic revenue mobilization. With donor support declining despite the rising needs to spend on security, the onus was on Burkina Faso's own efforts to keep public finances on an even keel—reversing an initial run-away in non-security spending and mobilizing more domestic revenues. As some of the additional revenues in 2019 are temporary, public finances will likely continue to face challenges.

Niger

31. Niger ramped up security spending early on and before security incidents had escalated. Niger reacted early to the Tuareg insurrection in neighboring Mali and substantially increased security spending in 2012 and then again in 2014 and 2015. It now stands at 3.3 percent of GDP, compared to 1.1 percent in 2011. Niger initially managed to contain the number of incidents well. With the spread of violence to the border with Burkina Faso, the number of incidents rose sharply in 2019, though at 103, they remain at about one third of the level seen in Burkina Faso or Mali.

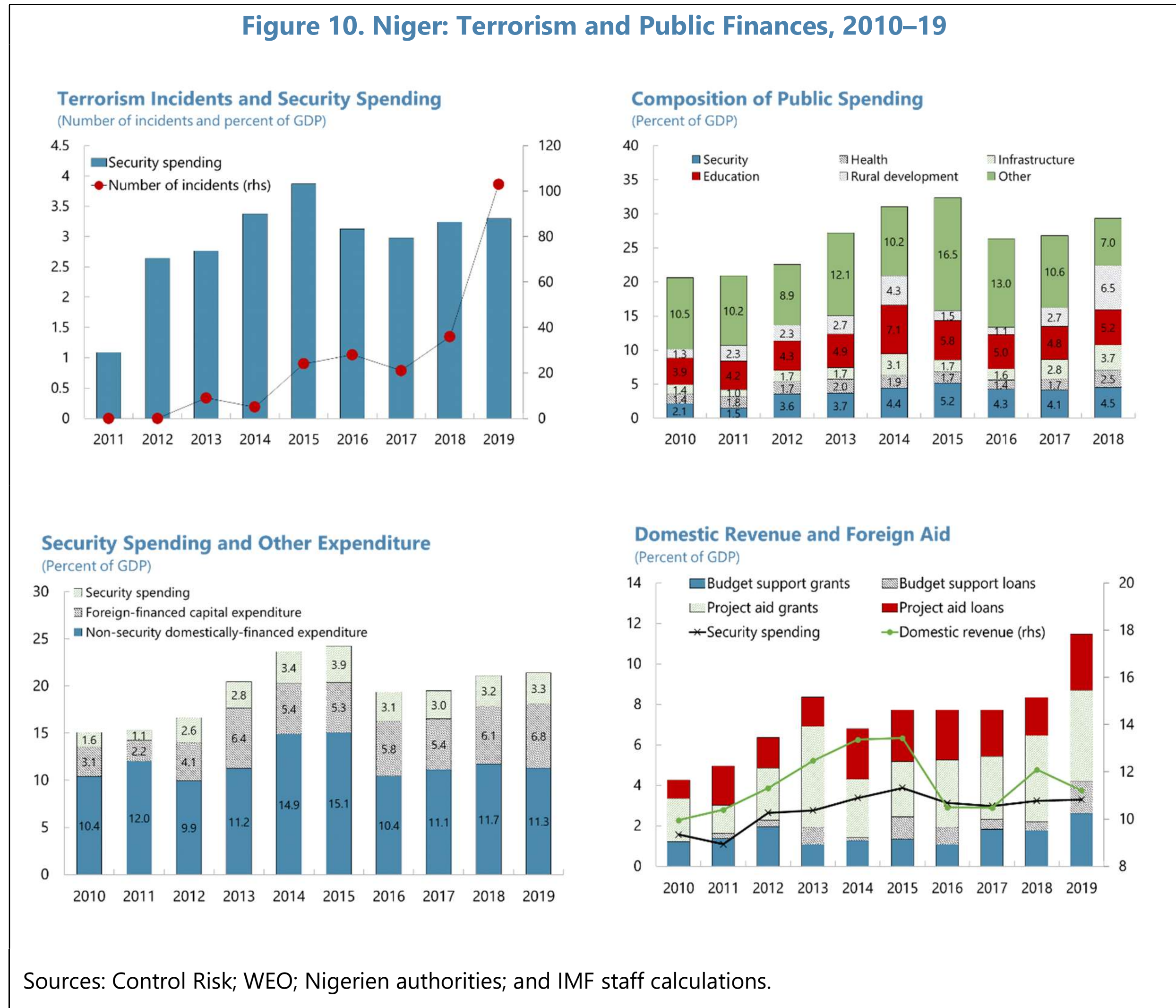
32. The fiscal deficit rose sharply through the middle of the decade but was subsequently brought back to pre-violence levels. Security and non-security domestically-financed spending were equally responsible for pushing the deficit from 2.2 percent of GDP in 2011 to a peak of 6.7 percent of GDP in 2015. Since then, normalization of domestically-financed non-security expenditures and a pronounced step-up in foreign aid reduced the fiscal deficit to 3.6 percent of GDP in 2019. As opposed to Burkina Faso and Mali, foreign aid is much larger and increased much more during the conflict period. Total aid increased from 4.9 percent of GDP in 2011 to 11.5 percent of GDP in 2019. Within aid, budget support grants increased from 1.4 percent of GDP to 2.6 percent of GDP—an augmentation on the same order of magnitude as the rise in security spending. Niger also managed to mobilize additional domestic revenues. Foreign loan-financed investment was up by a similar amount.

33. There is little evidence suggesting that security spending crowded out non-security spending. Domestically-financed non-security spending fluctuated greatly over the years and, while it temporarily fell in 2012 with the first step-increase in security spending, it now stands as a percent

of GDP close to the ratio seen before the violence started. In addition, foreign-financed investment expanded strongly over the period, leaving total non-security spending in 2019 substantially higher than it was in 2011.

34. Niger's experience highlights the mitigating role of foreign aid. The pronounced rise especially in budget grants allowed Niger to accommodate rising outlays for security. Unlike Burkina Faso and Mali, it allowed Niger to channel the additional domestic revenues that it managed to mobilize into additional non-security spending.

Figure 10. Niger: Terrorism and Public Finances, 2010–19



Sources: Control Risk; WEO; Nigerien authorities; and IMF staff calculations.

D. Macroeconomic Policy Implications of Insecurity

35. The ongoing surge in violence in the Sahel may be viewed as a durable and large shock, with potentially substantial adverse spillover effects to the WAEMU. Extremist violence has surged across border regions of the Sahel in the last few years despite all the efforts deployed against such violence by the governments of afflicted countries with significant foreign assistance. There is also some risk that if not sufficiently circumscribed, the current violence surge could spread

southward and thus adversely affect regions and sectors with much larger weight in overall economic activity in a greater number of WAEMU member-countries.

36. A collective response involving all stakeholders is needed to address security shocks while limiting risks of macroeconomic instability. Security is a public good, both at the national, regional and more global levels. A persistent insecurity shock in some WAEMU countries could have significant and large contagion effects for all members of the union, but also for other parts of the world, for instance through migration pressures and terrorism threats. All potentially involved stakeholders (including other WAEMU countries, donors and international financial institutions (IFIs)) should play their parts in addressing such a shock, through policies appropriately tailored to their circumstances, responsibilities and comparative advantage. Directly afflicted countries bear the ultimate responsibility to adjust to the persistent shock, but their adjustment could be smoothed through an appropriate degree of solidarity from other members of the WAEMU as well as from the international community. Regional institutions also have a critical role. For example, strengthened risk-based AML/CFT supervision on the part of the Banking Commission would help to prevent and detect certain forms of terrorist financing – and of the pervasive corruption that plays into terrorists' hands.

37. Countries directly afflicted by durable shocks, including because of insecurity, should ultimately make necessary policy adjustments. Given the scaling-up of security spending they eventually have to adjust through a combination of higher revenue, as well as improved spending efficiency and prioritization, although a durable increase in external support would help (See below). While challenging in the context of a security crisis, improvements in fiscal transparency and public financial management (PFM) as well as in AML/CFT regimes at the national level and risk-based AML/CFT supervision at the regional level will also be critical to ensure that the scaling-up of the security budget is consistent with best practices and does not result in losses owing to corruption, mismanagement, or wasteful spending. Meanwhile, putting in place strong regulations to guide emergency procedures should be an immediate priority. In addition, afflicted countries should increase the strategic orientation and quality of their security spending while raising governance standards and improving data provision for their security sector. The conduct of security expenditure reviews, and some regional guidance on common data standards could help in this regard.

38. Regional solidarity from other WAEMU members could ease the magnitude and pace of adjustment in afflicted countries. In the short term, this could help prevent rising security spending in front-line countries from crowding out investment and social expenditure in these countries. Such solidarity among union members could in principle be achieved through a differentiated pace of convergence towards the WAEMU's fiscal deficit rule or the pooling of national budget resources.

- If the three frontline countries of Burkina Faso, Mali, and Niger cannot mobilize sufficient grant financing, consideration could be given to allowing their fiscal deficits to converge more slowly toward the 3 percent of GDP regional ceiling. This fiscal flexibility would need to be supported by full adherence to fiscal consolidation efforts by other member countries, in order to prevent a

depletion of external reserves and limit potential tensions on the regional bond market. The upcoming review of the regional fiscal framework (scheduled for 2021) could provide an opportunity to agree on differentiated convergence paths and anchor different deadlines towards the 3 percent of GDP deficit target, depending on countries' exposure to security shocks.[15]

- Regional solidarity could also be achieved through the pooling of national budget resources and transfers from this common pool to the countries subject to security shocks. WAEMU countries recently took decisions in this direction to fight terrorism. In early December 2019, WAEMU Heads of States decided to create a "Regional Fund" to finance actions against insecurity in the region. This Regional Fund shall be managed by the WAEMU Commission and support member countries' security actions through grants. It is not yet clear however whether it will be financed from member-countries' contributions or from dedicated taxes, or whether it will have authority to borrow. A total equivalent to US$500 million has been pledged for the new Fund over five years, with a first tranche of US$100 million for the immediate benefit of Burkina Faso, Mali, and Niger. If actually disbursed, this first tranche would allow the governments of the three beneficiary countries to increase spending by about 0.25 percent of their GDP.

39. Scaled-up external financial and technical assistance to afflicted countries could make a substantial difference. A larger envelope provided by the international community would ease spending trade-offs and, if financed at highly-concessional terms, would not much affect the sustainability of public debt. The mix between budget support and project aid may also be worth reexamining. Project aid is important to alleviate the acute suffering of afflicted populations, strengthen or re-establish state presence, and provide economic opportunities. Budget support gives quick financial relief that governments can allocate to their top priorities, including security itself. Depending on country circumstances including the strength of public financial management and governance frameworks, the acute security challenges could have tilted the optimal balance of foreign aid in favor of budget support. In addition, the international community could back countries in conflict through increased technical assistance that helps them mobilize domestic revenues and make the most of limited resources. A stronger case for scaling up of technical assistance could be made for countries classified as "fragile states". In this regard, the security-focused public expenditure reviews to be conducted by the World Bank in the Sahel countries are a promising initiative.

E. Conclusions

40. The deteriorating security situation in the Sahel poses grave risks for the WAEMU. The military efforts by the front-line states Burkina Faso, Mali, and Niger and external partners have not yet turned the tide. Terrorism incidents rose steeply in 2019. Fatalities caused by such incidents have

[15] This proposal would apply to the convergence phase, that is the transition period before the fiscal deficit rule becomes binding. Another, possibly complementary, option would be to introduce an escape clause for security shocks attached to the fiscal deficit rule, once this rule is in effect. This option could be complicated to implement, because of the difficulty to isolate and measure the impact of security shocks on fiscal deficits (both on revenue and spending).

surged in 2020 and their ever-higher humanitarian toll has been compounded by the Covid crisis. Should the bulwark in the Sahel crumble, the consequences would be dire not only for the afflicted countries but the entire WAEMU region.

41. As to the economic fallout from the security crisis, the negative effect on economic activity has so far been limited, but this could quickly change. Economic research typically finds that conflicts reduce GDP growth substantially. Such a negative effect can also be established for the three afflicted WAEMU countries, but its magnitude is much smaller. This seems due to the intensity of the conflict not having reached the level of full-blown civil wars that drive much of the results in the economic literature. Also, the conflict in the Sahel is mostly playing out in peripheral regions where economic activity is low to begin with. While this is somewhat comforting, it also means that the negative effect on growth could become more pronounced if the conflict spread to the centers of economic activity or if its intensity escalated further.

42. The main economic impact of the violence is on public expenditure. As the growth effect is limited, so is the effect on fiscal revenues. But on the expenditure side, outlays for security have roughly doubled in the three WAEMU Sahel countries from 1-2 percent of GDP to 4-5 percent of GDP—a heavy burden on countries with limited revenues. Stepped-up revenue mobilization and, in the case of Niger, rising external aid brought fiscal deficits back down again after an initial deterioration. They also helped avoid a systematic crowding out of non-security spending. That said, in the absence of the conflict these additional resources could have been utilized for badly needed development and social protection.

43. The economic implications of the security crisis give rise to difficult trade-offs. On the one hand, solid public finances in the WAEMU are the linchpin for external stability and the exchange rate peg. On the other hand, it could be challenging for the front-line states to keep fiscal deficits low. They have broadly managed so far, but it may be difficult going forward if security spending needs to be ratcheted up further, if foreign aid was to falter, if some of the revenue mobilization was based on temporary measures, and, most importantly, if a further increase in violence marred economic activity and revenue collection.

44. The interlinkages between the WAEMU countries call for a regional collective response, supplementing efforts by the afflicted countries themselves and support from development partners. It is in the collective interest to contain a potentially catastrophic further spread of the violence within the region. It is also in the collective interest to protect external stability and the exchange rate peg. Without prejudice to national efforts regarding revenue mobilization, PFM reforms, fiscal transparency, and spending quality, and much needed aid from development partners, preferably in the form of budget grants, the region could for example consider differentiating the pace of convergence towards the regional deficit ceiling (between countries affected or not by security shocks) or the deployment of common resources to address the security challenge. These would be temporary arrangements to give afflicted countries more time to achieve the adjustment that is ultimately needed when faced with long-lasting adverse shocks. The urgency of the security crisis puts a premium on quick decisions and solutions that can be implemented expeditiously.

References

Arnold N. et alii, 2018, " A Central Fiscal Stabilization Capacity for the Euro Area", IMF Staff Discussion Note.

Bisca P., 2019 "Can Peace Be affordable; Lessons from Security Sector Expenditure Reviews in West Africa", Institute for Security Studies (ISS).

Cevik, S. and J. Ricco. 2015. "Fiscal Consequences of Terrorism," IMF Working Paper, WP/15/225.

Diop. A. N., 2019. "Vulnerability of Economies Facing Terrorism: Case of the Countries of the Sahel Belt", Journal of Economics and Development Studies.

Egoume Ph. and Nayo A., 2011, "Feeling the Elephant's Weight: Impact of Côte d'Ivoire's Crisis on WAEMU Trade", IMF Working Paper

Furceri D. and Zdzienicka A., 2013, "The Euro Area Crisis: Need for a Supranational Fiscal Risk Sharing Mechanism?"

Gupta S., Clements B., Bhattacharya R., Chakravarti S., 2004. "Fiscal Consequences of Armed Conflict and Terrorism in Low- and Middle-income Countries", European Journal of Political Economy.

International Monetary Fund (IMF). 2012 "WAEMU", Staff Report on Common Policies for Member Countries

International Monetary Fund (IMF). 2018 "Security Challenges" Fig. 1, Staff Report for the 2018 Art. IV consultation with Burkina Faso

International Monetary Fund (IMF). 201x "Security Challenges" Fig. 1, Selected Issues Paper for the 201x Art. IV consultation with Mali

International Monetary Fund (IMF). 2019 "Economic Impact of Security Tensions", Annex III to Staff Report for the 2019 Art. IV consultation with Niger.

International Monetary Fund (IMF). 2019 "The Economic Consequences of Conflict", Regional Economic Outlook for Sub-Saharan Africa.

International Monetary Fund (IMF). 2020. "First Review under the Extended Credit Facility Arrangement, Request for a Waiver of Non-Observance of a Performance Criterion and Modification of Performance Criteria".

International Monetary Fund (IMF). 2019. "Online Annex – The Economic Consequences of Conflicts" Background Paper.

International Monetary Fund (IMF). 2019. "Sub-Saharan Africa Regional Economic Outlook Chapter 2 – The Economic Consequences of Conflicts".

International Monetary Fund (IMF). 2018. " The Cost of Insecurity". Selected Issues Paper, Mali.

International Monetary Fund and World Bank Group (2019). Security in the Sahel: Implications for Development and Macroeconomic Policies. August.

Institute for Economics and Peace, 2018, "The Economic Value of Peace – Measuring the Global Economic Impact of Violence and Conflict".

International Crisis Group, 2019, « The Risk of Jihadist Contagion in West Africa", Briefing No 149.

Jenkinson, G. 2019. "Security Expenditure and Fiscal Adjustment – The Case of Burkina Faso".

Le Roux P. 2019, "Responding to the Rise in Violent Extremism in the Sahel", Africa Security Brief No36, Africa Center for Strategic Studies.

Mlachila M. and alii, 2019, "The Impact of Conflict and Political Instability on Banking Crises in Developing Countries".

Ndikumana, L., 2001. Fiscal Policy, Conflict, and Reconstruction in Burundi and Rwanda. WIDER Discussion Paper No. 2001/62. World Institute for Development Economics Research, United Nations University, Helsinki.

OECD. 2003 "La Crise Ivoirienne et son Impact Régional », Afrique Contemporaine - 2003/2 No 206.

UNDP. 2011 "The Conflict in Côte d'Ivoire and its Effect on West African Countries".

UN Economic Commission for Africa, 2017, "Conflict in the Sahel Region and the Developmental Consequences".

UNICEF, 2019, "Education under Threat in Central and West Africa".

Annex I. Burkina Faso, Mali and Niger; Summary Statistics 2010–19 (Percent of GDP)

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Mali										
Total revenue excl. grants	15.2	14.0	14.4	14.5	14.9	16.4	16.7	18.4	14.4	19.6
Public expenditure	20.3	20.6	15.5	19.8	20.0	20.9	22.2	22.9	20.4	24.9
Security spending	1.4	1.7	1.7	2.1	2.5	3.2	3.6	3.8	3.7	3.6
Foreign-financed capital expenditure	3.5	4.2	0.5	2.5	2.7	3.6	2.9	2.8	1.6	1.9
Non-security domestically-financed expenditure	15.3	14.7	13.3	15.2	14.8	14.1	15.7	16.3	15.2	19.4
Overall balance, WAEMU anchor	-2.6	-3.4	-1.0	-2.4	-2.9	-1.8	-3.9	-2.9	-4.8	-1.7
Public debt	25.3	24.0	25.4	26.4	26.9	30.7	36.0	36.0	37.7	40.5
External debt	21.4	20.1	21.8	21.5	20.6	22.6	25.0	25.0	24.7	26.4
Domestic debt	3.8	3.9	3.6	4.9	6.3	8.0	11.0	11.0	12.5	13.3
Foreign aid, percent of GDP	5.4	5.9	0.6	4.9	3.9	5.0	3.4	3.9	2.2	5.9
Budget support	2.3	2.3	0.1	2.6	1.6	1.7	0.6	1.3	0.7	3.6
of which: grants	1.4	1.6	0.1	2.0	1.4	0.9	0.6	0.7	0.5	0.9
of which: loans	0.8	0.7	0.0	0.6	0.2	0.8	0.0	0.6	0.2	2.7
Project aid	3.1	3.6	0.5	2.3	2.3	3.3	2.7	2.7	1.5	2.3
of which: grants	1.1	1.6	0.1	0.9	0.9	1.3	0.9	0.9	0.7	1.4
of which: loans	2.1	2.0	0.4	1.5	1.5	2.1	1.8	1.8	0.8	0.9
Terrorism incidents		1	9	54	61	83	114	212	278	267
Burkina Faso										
Total revenue excl. grants	13.6	13.9	15.6	16.8	15.5	15.0	16.2	16.9	17.0	19.3
Public expenditure	21.5	20.5	22.7	24.9	20.8	20.2	21.5	26.1	23.6	25.1
Security spending	0.8	0.6	0.8	1.0	0.9	0.7	1.9	2.0	2.4	3.1
Foreign-financed capital expenditure	4.1	3.6	3.4	4.0	3.1	2.2	2.4	3.0	2.5	1.5
Non-security domestically-financed expenditure	16.7	16.3	18.4	19.9	16.8	17.3	17.2	21.2	18.7	20.5
Overall balance, WAEMU anchor	-4.1	-2.0	-2.8	-3.5	-1.7	-2.1	-3.1	-6.9	-4.4	-3.5
Public debt	27.8	24.5	25.2	25.9	26.6	31.4	33.3	33.5	37.7	42.7
External debt	23.7	19.9	20.1	19.3	20.5	23.2	23.7	21.1	21.5	23.7
Domestic debt	4.0	4.6	5.1	6.6	6.1	8.2	9.6	12.4	16.2	19.0
Foreign aid, percent of GDP	7.3	6.7	6.0	5.8	4.9	5.0	4.3	3.9	3.8	4.6
Budget support	3.2	3.2	2.6	1.8	1.8	2.9	1.9	0.9	1.3	1.3
of which: grants	3.0	3.2	2.6	1.8	1.4	1.8	1.1	0.9	1.0	1.1
of which: loans	0.3	0.0	0.0	0.0	0.3	1.1	0.8	0.0	0.3	0.2
Project aid	4.1	3.6	3.4	4.0	3.1	2.2	2.4	3.0	2.5	3.3
of which: grants	1.0	1.3	1.7	3.1	2.3	1.5	1.3	1.5	1.4	1.9
of which: loans	3.1	2.3	1.6	0.9	0.8	0.7	1.1	1.5	1.1	1.4
Terrorism incidents		0	0	1	0	2	9	59	129	336
Niger										
Total revenue excl. grants	10.0	10.4	11.3	12.5	13.4	13.4	10.5	10.5	12.1	11.5
Public expenditure	15.1	15.3	16.6	20.4	23.6	24.2	19.4	19.5	21.1	21.4
Security spending	1.6	1.1	2.6	2.8	3.4	3.9	3.1	3.0	3.2	3.3
Foreign-financed capital expenditure	4.3	3.0	5.5	8.6	7.1	7.0	7.9	7.4	8.5	9.9
Non-security domestically-financed expenditure	10.4	12.0	9.9	11.2	14.9	15.1	10.4	11.1	11.7	11.3
Overall balance, WAEMU anchor	-1.0	-2.2	-0.8	-1.9	-6.1	-6.7	-4.5	-4.1	-3.0	-3.6
Public debt	15.1	14.7	18.1	19.6	22.1	29.9	32.8	36.5	36.9	39.8
External debt	12.3	12.0	15.5	16.8	17.9	22.7	24.7	25.7	25.3	26.5
Domestic debt	2.7	2.8	2.6	2.7	4.2	7.2	8.2	10.8	11.6	13.3
Foreign aid, percent of GDP	4.3	4.9	6.4	8.4	6.8	7.7	7.7	7.7	8.3	11.5
Budget support	1.2	1.6	2.3	1.9	1.4	2.4	1.9	2.3	2.2	4.2
of which: grants	1.2	1.4	1.9	1.1	1.3	1.3	1.1	1.8	1.8	2.6
of which: loans	0.0	0.3	0.3	0.9	0.1	1.1	0.9	0.5	0.4	1.6
Project aid	3.0	3.3	4.1	6.4	5.4	5.3	5.8	5.4	6.1	7.3
of which: grants	2.1	1.4	2.6	5.0	2.9	2.7	3.3	3.1	4.3	4.5
of which: loans	0.9	1.9	1.5	1.5	2.5	2.6	2.5	2.3	1.9	2.8
Terrorism incidents		0	0	9	5	24	28	21	36	103

Sources: IMF African Department Database; Controls Risks; IMF staff calculations.

Annex II. Overview of Security Systems in the G5-Sahel Countries

Burkina Faso has a security force totaling 47,000 persons. The security forces in Burkina Faso comprise the defense forces (27,000), the gendarmerie (5,219), and the police (15,000).

Chad has a total security force of 30,000-40,000 persons. The national defense comprises the National Army (Ground Forces, Air Force, National Gendarmerie, and National and Nomadic Guard of Chad) (25-30,000)[1] Public order and safety is ensured by the gendarmerie, the national police (5,000-7,000),[2, 3] and the national and nomadic guard.

Mali has a total security force of 27,000. The Malian security forces consist of the National Defense (13,000), the National Guard (3,000), the gendarmerie (4,000), and the police (6,000).

Mauritania has a total security force of 21,000. The Mauritanian security forces are composed of the Army (15,000), the Navy (620), the Airforce (250), the gendarmerie (3,000), the National Guard (2,250), and the National Police (4,600).

Niger has a total security force of 43,000 persons.[4] The security forces in Niger comprise the Army (19,000 persons), the gendarmerie (7,200 persons), the National Guard (9,000), and the police (8,100).

[1] Globalfirepower.com and www.securityassistance.org and ISS.

[2] http://french.china.org.cn/foreign/txt/2014-06/11/content_32629144.htm.

[3] A census was conducted in 2014 and followed by the recruitment of about 2,000. Another census was undertaken in 2018 to better control the wage bill.

[4] Niger, 2017 Security Public Expenditure Review update.

STRENGTHENING THE REGIONAL FISCAL FRAMEWORK IN THE WAEMU[1]

1. Fiscal discipline and fiscal coordination are essential for the smooth and efficient functioning of a currency union, especially when the common currency is pegged. The fiscal stance of one member of the union can impact other members' fiscal positions through various channels, including trade and contagion effects. If countries do not internalize the impact of their fiscal actions on others, distortions may arise—for instance, the risk premium on regional bond market may rise. These fiscal spillovers can be particularly problematic under a fixed exchange rate, since fiscal indiscipline can deplete international reserves and jeopardize the peg.

2. International experience shows that three types of fiscal institutions can effectively support fiscal discipline in a currency union—common fiscal rules, shared public financial management systems and coordination mechanisms for decentralized fiscal policies. These institutions constitute the three pillars of the fiscal foundation of the union. All currency unions and federations rely on them, although to various degrees.

3. The WAEMU fiscal framework, which has recently been suspended due to the COVID-19 pandemic, is undergoing a review in 2021. Faced with the strong deterioration of the fiscal outlook, the WAEMU Heads of States adopted a Declaration in April 2020 suspending temporarily the application of the Union's Pact for Convergence, Stability, Growth and Solidarity among its member-countries. This suspension exempts the authorities from abiding with the fiscal rules, including the 3 percent of GDP deficit ceiling, to allow member-countries to respond to the Covid-19 crisis. The suspension of the convergence criteria provides an opportunity to evaluate the framework and rethink some of its components. A review of the framework and the convergence path is being conducted by the Commission, which will submit proposals of reform to the WAEMU Council of Ministers. To contribute to the debate on the reform, this paper assesses the effectiveness of the WAEMU fiscal framework along the three pillars mentioned above.[2] This paper is not exhaustive and focuses on the design and implementation of the most critical fiscal criteria (fiscal rule and debt rule), leaving aside other important criteria (on taxes and wages) as well as non-fiscal ones (inflation).

A. Well-Designed and Enforceable Fiscal Rules

4. A system of fiscal rules can facilitate fiscal coordination among member states and enforce fiscal prudence. Rules are more effective in constraining deficits when two general

[1] Prepared by Alexandre Nguyen-Duong and Hoda Selim (both AFR). This paper builds on an earlier unpublished version of the paper written by Luc Eyraud (AFR). The paper was presented at a FAD seminar and has benefited from comments by colleagues from the WAEMU country teams and FAD colleagues. The authors are also grateful for comments received from Annalisa Fedelino (AFR), Dominique Desruelle (AFR), the WAEMU Commission and other regional authorities.

[2] This paper expands on the analysis of the WAEMU fiscal framework conducted in Hitaj (2013), Basdevant and others (2015) and Féler and Simard (2019).

conditions are met (Eyraud and others, 2018). First, their design should be well thought-through. Poorly designed rules, such as procyclical rules or rules that are not sufficiently precise, can be self-defeating. Second, rules are more effective when they are supported by strong enforcement mechanisms. The next sections explore these two issues separately. Any fiscal rule revision should take into account its implications on individual countries, from the points of view of fiscal sustainability, economic stabilization, simplicity, operational guidance, resilience, and ease of monitoring and enforcement (IMF 2018b).

Fiscal Rules Design

5. Well-designed rules can help build and preserve fiscal space. Not all rules are born equal. Some rule designs perform better than others when it comes to containing the deficit bias. To assess a fiscal framework, it is generally convenient to separate two types of rules: the debt anchor and the operational rule (see definition in IMF, 2018b). The WAEMU framework currently includes a debt ceiling of 70 percent of GDP as well as an operational rule capping the fiscal deficit at 3 percent of GDP.

6. The ceiling of the debt anchor could be made consistent with the ceiling of the deficit rule. All WAEMU countries have to comply with a debt ceiling of 70 percent of GDP. The threshold of this rule is not based on a quantitative analysis or concept of debt distress.[3] A lower ceiling may be appropriate to (i) secure debt sustainability and prevent countries from falling into high risk of debt distress; (ii) incorporate sufficient buffers to absorb shocks to the public sector's balance sheet; and (iii) reflect the ongoing shift towards non-concessional financing. Reflecting these principles, IMF (2019) argued that lowering the debt ceiling to 60 percent of GDP would be more consistent with preventing most WAEMU member countries from falling into higher risk of public debt distress. A calibration based on the consistency between the debt and the deficit rules would suggest an even lower ceiling. For instance, assuming that potential nominal GDP grows at 6 percent at the steady state in the WAEMU, a deficit of 3 percent of GDP would bring gradually the debt ratio towards 50-60 percent of GDP (depending on the size of the below-the-line operations).[4]

7. Although alternative operational rules exist, none seems clearly superior to the 3 percent deficit ceiling at the moment. The WAEMU framework includes a rule capping the nominal deficit below 3 percent of GDP as part of the convergence criteria (Box 1).[5] International experience with nominal deficit ceilings is mixed. Such rules are easy to communicate to the public, but they often lead to a procyclical fiscal stance and, perhaps more importantly, a drift of public

[3] See discussion on how to calibrate fiscal rules in IMF (2018a).

[4] For consistency purposes, the ceilings of the debt and deficit ceilings need to be linked (IMF, 2018a). In the European Union, for instance, a link existed at the creation of the framework: the 60 percent debt rule and 3 percent deficit ceiling were linked under the assumption of 5 percent nominal medium-term growth (60*5=3). In the WAEMU, this long-term consistency relationship between fiscal deficit and debt rules would imply that debt would converge towards 43 percent of GDP, assuming nominal potential GDP growth of 7 percent and a deficit ceiling of 3 percent of GDP (43*7=3). If below-the-line operations of 1 percent of GDP per year (historical average) are added to the deficit, debt would converge towards about 60 percent of GDP.

[5] Article 7 of Additional Act no. 01/2015/CM/UEMOA.

debt. To address this problem, alternative operational rules could be considered. A shift to a structural balance rule (SBR), as currently envisaged by WAEMU legislations during the stability phase, could be problematic. SBRs have had a poor track record in countries using them. The main reason is that countries tend to overestimate potential output and underestimate the output gap; therefore, SBRs tend to allow excessive spending. In addition, these rules can be complicated to implement—even more so in developing and emerging economies, where it is very difficult to measure the business cycle due to supply shocks and catch-up processes. Another option is to introduce an expenditure rule, which can achieve a broadly similar degree of stabilization with a smaller bias (Eyraud and others, 2018). Of course, the devil is in the details and expenditure rules should also be carefully selected (some are better than others). A drawback of the expenditure rule is that, unless it takes into account possible revenue measures, it may discourage revenue mobilization and be excessively restrictive. Taking all these issues in consideration, maintaining the 3 percent deficit ceiling (unadjusted for the business cycle) seems to be the most appropriate decision at the moment.

8. There are also benefits in maintaining a uniform fiscal deficit rule across WAEMU countries. Some WAEMU countries, namely Senegal and Niger, have recently discovered natural resources and they are both likely to enter the production phases in a few years. This discovery will expose these two economies (including their fiscal policy) to the volatility of the commodity price cycle and emphasize the need to save part of the commodity revenues for future generations. Therefore, a natural question is whether the fiscal framework should depart from the current model where the fiscal deficit ceiling is similar across all countries and introduce differentiated rules for commodity exporters versus importers. Although tempting on the paper, this differentiation would be very complex to implement and potentially risky. First, there is little historical precedent to rules differentiation within a currency union. This would probably make fiscal coordination and monitoring even more complicated than today. And, even most importantly, rules for commodity exporters like the structural budget balance rule incorporating both the economic and commodity price cycles, have a very mixed track record. They are very difficult to calibrate precisely (not least because they usually require to estimate the elusive amount of the country's net wealth, including resource wealth), can induce high volatility of spending (due to difficulties in separating temporary and permanent commodity price shocks), and may lead to excess spending (since countries are tempted of spending more today, anticipating possibly higher commodity revenues tomorrow).

Box 1. Convergence Criteria in Effect Until 2019

On January 19, 2015, the WAEMU Heads of States adopted a new set of convergence criteria to be met by 2019.[1] Additionally, the reform requires the gradual reduction of arrears towards their complete elimination by end-2019.

In the legislation, the convergence phase was intended to end in 2019 followed by a stability phase. During the convergence phase, member countries were expected to continuously improve their performance towards observing the convergence criteria. If, by end-2019, a least half of WAEMU's member countries accounting for at least 65 percent of the regional GDP had not yet sustainably met all first-order criteria, the convergence phase could be extended by one year.[2]

Under the stability phase, the 2015 reform considers the possibility of shifting to a structural deficit rule in replacement of the 3 percent of GDP nominal deficit ceiling. A specific methodology has not yet been specified to make this concept operational. Other criteria that may replace those defined for the convergence phase are not specified either.

Violation of first-order criteria by member countries may lead to the WAEMU Council expressly calling for corrective measures through issuance of directives and possibly sanctions. On the other hand, the non-observance of second-order criteria cannot by itself lead regional authorities to formally require non-compliant governments to take corrective measures.

At end-2019, the first-order convergence criteria were met at the regional (aggregate) level but not at the level of each individual country. According to the assessment of the WAEMU Commission as of November 2019, compliance was observed at the regional level, with an aggregate fiscal deficit estimated by the Commission at 2.3 percent of GDP, public debt at 44.8 percent of GDP and CPI inflation close to zero at end-2019. All WAEMU countries met the debt and inflation criteria. As for the two second-order criteria, neither of them was met at the regional level. At end-2019, only Senegal met the criterion on wages and salaries, according to the Commission. All countries breached the revenue criterion.

First-order criteria of the convergence phase	Ceiling/Floor
Overall fiscal balance (grants included) to nominal GDP	≥ -3 percent
Average consumer price inflation per year	≤ 3 percent
Total debt to nominal GDP	≤ 70 percent
Second-order criteria of the convergence phase	**Ceiling/Floor**
Wages and salaries to tax revenue	≤ 35 percent
Tax revenue to nominal GDP	≥ 20 percent

[1] Additional Act no. 01/2015/ CCEG/UEMOA.

[2] Regional convergence is achieved if at least half of the member countries accounting for at least 65 percent of the regional GDP have not sustainably met all "first order" criteria.

Fiscal Rules Enforcement

9. **To make rules effective, specific enforcement mechanisms need to be in place**. Many rules look good on paper but are not complied with. Compliance is greatly enhanced when three types of mechanisms are in place: an independent entity monitoring the rule; escape clauses for authorized deviations from the rule; and correction mechanisms as well as sanctions for unauthorized deviations.

Rule Monitoring

10. Rules need to be monitored and enforced by a strong institution immune to political interferences. Under the WAEMU framework, the Commission publishes two reports, which are examined in June and December of each year by the Council of Ministers. The June report assesses members' macroeconomic performance, including with respect to the first-order and second-order convergence criteria for the previous year, and on this basis reviews macroeconomic objectives for the current year. The December report focuses on the budget law and on forward looking five-year convergence plans that member countries must submit by end-October at the latest. Strengthening the independent enforcer role of the Commission may require an increase in its capacity and a rebalancing of power vis-à-vis the Council of Ministers. This would likely require amending the WAEMU Treaty, which may be long and complex. It is worth noting that the latter issue has been, to some extent, addressed in the European Union by changing the voting rule system and adopting a reversed qualified majority rule, which gives more power to the European Commission in imposing sanctions.

Escape Clauses (in case of authorized deviations)

11. In general, escape clauses allow some flexibility in the use of the rules while still preserving the credibility of the framework. Fiscal rules must be sufficiently flexible to manage unexpected economic or other large shocks. In special circumstances, the activation of the rule's escape clauses can allow for a temporary deterioration of the fiscal position. Their use should also involve a well-specified and transparent process to preserve the credibility of the framework. The flexibility allowed by the activation of the escape clause should not be at the cost of excessive discretion that would undermine the medium-term return to the fiscal rule. Country experiences show that, to be credible and effective, escape clauses need to be precisely defined to cover events that are truly outside the government's control (IMF, 2009). A well-defined escape clause should therefore specify: (i) a limited and clearly defined set of events triggering the action of the clause, (ii) the authority responsible for activating it, (iii) the timeline and procedures to revert to the rule, (iv) an effective control mechanism; and (v) a good communication strategy (IMF, 2020).

12. The recent suspension of the convergence criteria in the WAEMU seems justified in the present crisis but highlights the need to better specify the escape clauses. In April 2020, the WAEMU Heads of States of the adopted a Declaration suspending temporarily the application of the Union's Pact for Convergence, Stability, Growth and Solidarity among its member-countries. Suspending the application of WAEMU's fiscal rules will allow member-countries to raise their overall fiscal deficit temporarily in response to the COVID-19 crisis, which is fully justified given the fiscal pressures coming from the revenue shortfalls and the need to respond to the health and economic crisis. The Declaration highlights that the suspension was temporary and encourages member states to implement fiscal policies that would allow them to resume fiscal consolidation after the crisis (WAEMU, 2020). However, the suspension did not occur in reference to an escape clause, and it did not specify a specific timeline and procedures to revert to the rule.

13. The triggers of the escape clauses could be defined more precisely in the WAEMU framework. Under the WAEMU framework, the Commission can propose to the Council of Ministers the activation of escape clauses when a country faces exceptional circumstances;[6] in this case, the obligation to comply with first-order criteria can be temporarily lifted.[7] The Commission can also propose a directive accompanying the activation in which the terms, such as the size and the duration of the deviation, can be defined. The member government is then required to propose a set of corrective measures within 30 days to comply with the directive.[8] However, the circumstances covered by the escape clauses are relatively vague (only described as "exceptional circumstances"), although regulation 11/99/CM/UEMOA has provided some criteria related to government revenues and real GDP. Additionally, there is no guidance on the design of the measures that would resume compliance with the rule and end the activation of the escape clause. Without well-designed escape clauses, there is a clear risk that rules be put in abeyance following large shocks, or countries resort to ad hoc measures to accommodate them.

14. The WAEMU would benefit from introducing more specific escape clauses for exceptional events like severe economic downturns or natural disasters. These two types of escape clauses are quite common in fiscal rules systems around the word and can be defined with some degree of precision and quantified triggers. Vague escape clauses like "emergency situation" or "public calamities" should be avoided because they could allow too much discretion. Escape clauses for epidemic or security shocks may also be questionable to the extent that such situations may not constitute exceptional events in the case of WAEMU countries and would require adjusting the fiscal stance rather than deviating repeatedly from fiscal targets. Also, estimating the impact of security and health shocks on the fiscal balance could be very complex, given their wide-ranging effects on both government spending and revenue.

15. The flexibility offered by an escape clause would also be strengthened by a well-designed communication strategy outlining the process to return to the rule. The Declaration suspending the deficit ceiling did not indicate a time frame as to when consolidation would resume and how long it would take to re-attain the convergence criteria. To further preserve the credibility of the fiscal framework and lock in past gains of fiscal convergence, it would be important to provide specific indication on how long the rule will be suspended and what will be the medium-term adjustment to be applied to revert to the fiscal rule. This process would ensure full transparency in order to preserve the credibility of the fiscal framework. To the extent possible, future announcements should make explicit references to the triggers of the escape clauses, the expected size and duration of the deviation and the advised path to return to the 3 percent ceiling (IMF, 2020).

[6] Article 71 of WAEMU 2003 Modified Treaty.

[7] In the convergence phase, there are three first-order convergence criteria. Of the three criteria, the fiscal deficit and debt ceilings can only be tested *de facto*. The third criterion on the inflation ceiling is not fully under the control of the member countries, as it depends on the regional monetary policy stance and the exchange rate arrangement.

[8] Article 73 of WAEMU 2003 Modified Treaty.

Correction Mechanisms (in case of unauthorized deviations)

16. More specificity and guidance are also needed for correction mechanisms. They correspond to a formal set of measures that aim to specify a path back to compliance following a breach or a projected breach. They can be useful to avoid permanent drifting of public debt and to defend the peg. *In the convergence phase,* a breach of a first-order criterion requires the country to implement corrective measures that are cleared by the Commission and approved by the Council of Ministers.[9] When a country already complies with all first-order criteria but the Commission considers its national convergence plan to be inadequate and the breach to be likely in the future (Commission's December reports), it recommends to the Council of Ministers to request the member government to resubmit an appropriately revised plan within 30 days.[10] A member's compliance with this requirement is assessed in the June report of the following year. *In the stability phase,* corrective measures are required by the Council of Ministers when there is a breach of the first-order criteria observed by the Commission, but only recommendations are issued for projected breaches. In both the convergence and stability phases, failure to implement appropriate corrective measures could lead to sanctions imposed by the Council of Ministers. Overall, the current correction mechanisms framework (for both actual and expected deviations) is vague and lacks guidance—in particular, it does not cover the pace of correction, risks, milestones and deadlines, supervisory requirements, and economic cost.

17. The sanction system could be made more effective by increasing reputational costs (for unauthorized deviations). During the WAEMU framework's convergence phase, national fiscal deficits are deemed excessive when they fail to converge continuously down towards the 3 percent of GDP ceiling. Article 74 of WAEMU's Modified Treaty provides that member countries which fail to propose and execute appropriate corrective measures for excessive fiscal deficits may be liable to sanctions of declarative or financial nature. These are (i) the publication of a statement by the Council of Ministers, possibly accompanied by additional information on the situation of the member state facing sanctions, (ii) the publicly announced withdrawal of any positive measures that may have benefited the member state, (iii) the recommendation to the West African Development Bank to review its policy of interventions in favor of the member state, and (iv) the suspension of the union assistance to the member state. However, these foreseen sanctions, which are mostly of a financial nature, lack credibility and may be counter-productive (because the loss in resources worsens the fiscal position of countries in breach). In practice, financial sanctions have never been applied in the WAEMU. International experience shows that reputational sanctions are, in general, more effective, at least in Europe (Eyraud and others, 2018). The WAEMU framework provides for relatively weak reputation sanctions (publication of the situation of the country and the publicly announced withdrawal of any positive measures). A more effective way of raising reputational costs would be to set up fiscal councils. But experience shows that, to have material impact, fiscal councils need to be home-grown—this would imply creating eight national councils in the WAEMU. In countries with limited human and financial capacity, one possibility would be to associate these

[9] Article 18-22 of Additional Act no. 01/2015/CCEG/UEMOA.

[10] Article 18 of Additional Act no. 01/2015/CCEG/UEMOA.

national councils with existing independent institutions (IMF, 2013). For instance, some responsibilities for rule monitoring and enforcement could be devolved to national BCEAO offices, which are already well staffed and independent. Another option could be to create a single regional fiscal council, which would be tasked with assessing the fiscal policy and compliance with rules of all member states.

B. Public Financial Management Reforms

18. The second pillar is a sound framework for public financial management (PFM). PFM deals with the rules and regulations related to the government's management of the budget in its various phases—formulation, approval, and execution. It describes the set of processes and procedures that cover all aspects of public expenditure management. Having in place inappropriate budgetary processes can cause unsustainable increases in expenditure and unbudgeted liabilities. Poor or nonexistent financial information, which can result from unrealistic projections of economic growth or nondisclosure of fiscal risks, can undermine government finances.

19. Developing a sound PFM system is particularly important in the WAEMU. In recent years, budget deficits have not been the only driver of rising public debt in the WAEMU (Feler and Simard, 2019 and Versailles, 2018). In some countries, the deficit ratio has gone down while the debt ratio has kept increasing. This disconnect between deficit and debt is partly due to "below-the-line operations"—for instance: extrabudgetary spending, quasi-fiscal operations, pre-financing schemes, recapitalization of underperforming SOEs, and mis-recording of government arrears (Box 2). These operations partly reflect dysfunctions of the PFM system. Thus, to ensure that the 3 percent deficit rule remains an effective tool to constrain the debt trajectory, upgrading the PFM system should be a priority.

20. The WAEMU framework provides guidance to member states on PFM reforms. A set of directives issued in 2009 aimed at harmonizing the presentation of fiscal statistics across member countries according to the GFSM 2001 standards; strengthening accountability of public expenditure by fostering the transition to results-based budgeting and clarifying the responsibility lines; and buttressing internal financial controls over budgetary execution. These directives cover most aspects of the PFM agenda, but do not provide guidance on fiscal risk management.

21. However, implementation of the WAEMU directives on PFM reforms has been mixed, both across member states and reform areas. Member states were expected to transpose the directives into national legislation according to a set timetable, but there have been delays. The 2019 evaluation on PFM by the Commission[11] highlights a wide heterogeneity on progress across PFM areas: improving the presentation of fiscal accounts seems relatively advanced, but the adoption of laws to improve internal expenditure controls and transparency of accounts has lagged behind (Text Table 1).

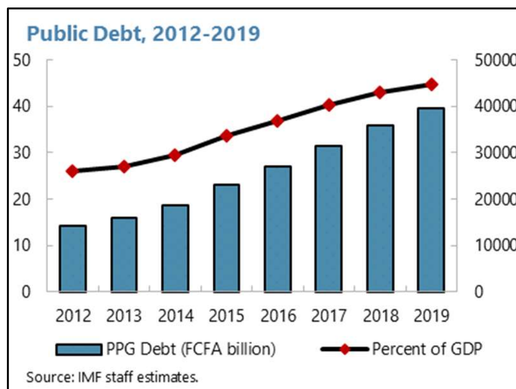
22. To contain below-the-line operations, strengthening PFM is a superior option to

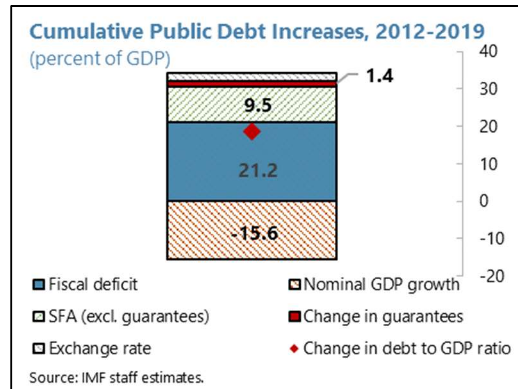
[11] The Commission conducted an assessment on PFM reforms implementation for all WAEMU countries in 2019.

introducing an additional fiscal rule on debt accumulation. If the deficit is not the main driver of debt, one could envisage a new fiscal rule applying to debt accumulation rather than the fiscal deficit. However, the experience of European countries with the debt reduction benchmark (also known as 1/20th debt rule) shows that this type of rule is difficult to implement, creates conflicts with other rules, fosters procyclicality, and causes confusion, since debt should play the role of a medium-term anchor, not a short-term operational target.

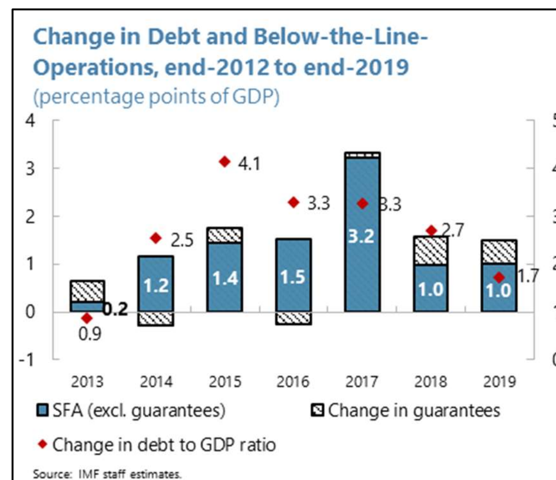
Box 2. Public Debt Dynamics and Below-the-Line Operations in the WAEMU over 2012–19

WAEMU public debt has increased significantly since 2012. The debt-to-GDP ratio increased by about 18 percentage points of GDP between end-2012 and end-2019 and is currently estimated at above 44 percent of GDP. An accounting decomposition of the main drivers shows that about two-thirds of the debt increase was due to cumulated fiscal deficits, while about a third arose from cumulative stock-flow adjustments (SFA) (abstracting from automatic debt dynamics of growth and exchange rate). [1]





Stock-flow adjustments peaked in 2017. SFA averaged about 1.4 percent of GDP per year between 2013 and 2019. This means that the debt ratio increased by this amount every year, on average, because of below-the-line operations outside the budget. The peak in SFA in 2017 (3.2 percent of GDP at the WAEMU level) was due to a one-off operation related to the expansion of the debt perimeter in Senegal, but have stabilized afterwards at 1 percent of GDP. An analysis of country-specific factors confirms that, between 2013 and 2019, below-the-line operations were particularly large in Togo (2.3 percent of GDP on average), Senegal (2.2 percent of GDP) and to a lesser extent Benin and Côte d'Ivoire (1.4 percent of GDP).



Below-the-line operations reflect a mix of sound and poor budget management practices. While the arrears clearance in Côte d'Ivoire in 2018 and the extension of the debt perimeter in Senegal in 2017 are consistent with best PFM standards, some of the SFA also reflected off-budget spending, such as prefinancing schemes in Benin, Togo and Senegal as well as treasury financing of persistent deficits of SOEs in Senegal.

[1] Government guarantees on the debt of SOEs increase public debt but do not generate a financing need per so for the central government.

Box 2. Public Debt Dynamics and Below-the-Line Operations in the WAEMU over 2012–19 (concluded)

The consistent underestimation of stock-flow adjustments is also the main factor behind forecast errors on debt projections. The debt ratio increased by about 16 percentage points of GDP between end-2012 and end-2019, while, at the time of the WEO October 2014 submission the debt ratio was projected by staff to increase slightly (by 2 percent of GDP) over the same period. An analysis of the sources of the forecast errors shows that errors came mostly from an underestimation of SFA.

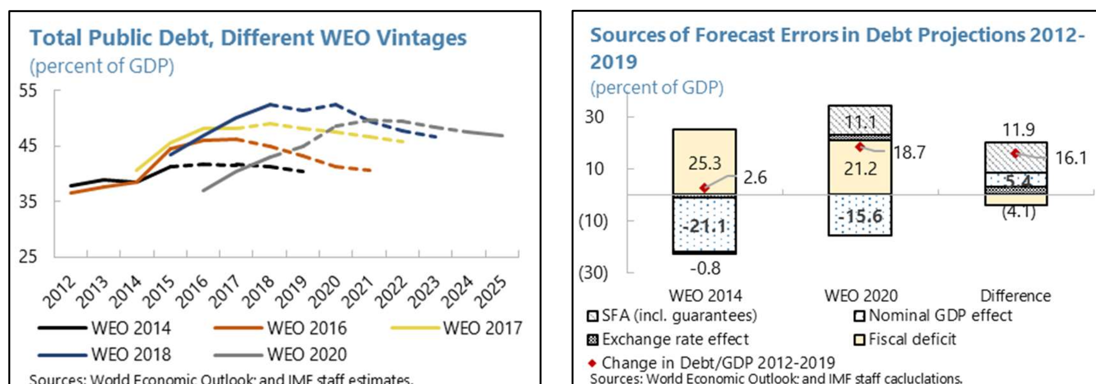


Table 1. WAEMU: Implementation of Reforms in Public Financial Management, 2019[1]

(Percent completion)

Directives	Benin	Burkina Faso	Côte d'Ivoire	Guinea Bissau	Mali	Niger	Senegal	Togo
No. 01/2009/CM/UEMOA on **Transparency Code**	57	71	86	59	64	75	86	69
No. 06/2009/CM/UEMOA on **Framework Budget Law**	89	94	68	8	82	71	68	63
No. 07/2009/CM/UEMOA on **General Regulations of Public Accounting**	95	89	89	0	99	81	95	74
No. 08/2009/CM/UEMOA on **Common Budget Nomenclature**	100	100	100	92	100	100	100	100
No. 09/2009/CM/UEMOA on **Accountancy Plan**	58	47	79	50	64	53	59	56
No. 10/2009/CM/UEMOA on **Fiscal Statistics**	40	35	47	34	33	26	40	18

Source: WAEMU Commission

[1] Red: percent completion under 40 percent; Orange: percent completion between 40 percent and 80 percent; Green: percent completion above 80 percent.

C. Some Fiscal Coordination

23. The third pillar of fiscal discipline in a currency union is the introduction of explicit coordination mechanisms. They pertain to various areas of public finances—tax, spending, and financing. Their purpose is to prompt countries to take into consideration the effect of their policy actions on other member states. Without coordination, cross-country spillovers could lead to inadequate national policies. For instance, countries may underinvest in expenditure programs that

benefit other countries of the union.

24. There is a case for enhancing tax coordination in the WAEMU. Excessive tax competition among union members to attract or retain businesses and wealthy residents can have negative consequences. This may induce neighbors to retaliate and offer even larger tax cuts. This type of competition is suboptimal if it induces a race-to-the-bottom in terms of ever larger targeted tax breaks that decrease government revenue without providing a comparative advantage to any jurisdiction. The framework of tax coordination in the WAEMU is one of the most advanced in the world *de jure*, but remains in many areas ineffective *de facto,* partly because some directives are not well implemented by member states (Mansour and Rota-Graziosi, 2013; Diakité and others, 2017 and World Bank, 2019). In addition, some regional tax directives may need to be revised to give priority to curbing the use of tax incentives through investment and sectoral codes as well as raising minimum rates of excises. Finally, the regional framework governing tax policy coordination could be strengthened by effective monitoring and sanctioning mechanisms.

25. The Council of Ministers adopted a regional action plan to increase revenue mobilization in June 2019.[12] The path to reach the second-order convergence criterion on tax revenue has been generally uncertain. Consequently, the Commission was tasked by the Council of Ministers to design a regional action plan to help countries reach the convergence criterion on tax revenue and increase fiscal space for investment spending. The action plan aims at improving and standardizing VAT collection, excise duty, and direct tax collection. It also defines actions to improve collaboration and coordination by reducing tax competition among union members and strengthening information exchange and digitalization efforts. According to the plan, all actions must be completed by either national authorities or the Commission by end-2020.

26. Another area where coordination is beneficial in a currency union is the management of large idiosyncratic shocks with contagion effects. An example of such shocks is an epidemic like the Ebola outbreak or security shocks (see previous SIP on "The Economic and Policy Implications for the WAEMU of Insecurity in the Sahel"). Large idiosyncratic shocks can have spillover effects. For instance, if the policy response of a country affected by an epidemic is insufficient, this epidemic can spread and lead to cross-border migrations, raising the budgetary cost for other member states. To address this issue, two main approaches could be considered.

- *Compensate temporary deviations from the rules in countries affected by shocks with additional fiscal efforts in countries that are not impacted*. The first approach is to use the rules' escape clauses (provided that they are well defined) to allow member states hit by a large shock to benefit from a temporary relaxation of the rules. At the same time, unaffected countries would have to make extra efforts to ensure that the aggregate fiscal stance of the union remains unchanged. However, this option may be difficult to implement, both from an operational and political point of view. It may be complicated to quantify how much deviation should be allowed to reflect the extent of spillovers. Also, while affected countries would make (legitimate) use of the provision, nonaffected countries may face little incentives to do extra efforts, resulting in a

[12] Decision no. 02/CM/2019/UEMOA.

looser aggregate stance. Finally, this approach may impair the credibility of the overall rule system (since a rule is, by definition, a lasting constraint that is not expected to change too often).

- *Work towards a small union budget*. Another approach would be to mutualize risks through a small and targeted common budget, which could be deployed as health emergency allocations in this particular case. This is difficult to achieve and perhaps a more medium-term endeavor. As of now, the WAEMU budget is very tiny, representing only 0.2 percent of the region GDP (CFAF 152 billion in 2019). By comparison, the European Union budget amounts to 1 percent of EU GDP.

References

Basdevant, O., P. Imam, T. Kinda, H. Nguyen, and A. Zdzienicka, 2015, "Strengthening the West African Economic and Monetary Union. The Role of Fiscal and Market Institutions in Economic Stabilization," IMF African Department Paper.

Diakite, M., J.-F. Brun, S. Diarra, N. Ary Tanimoune, 2017, "The effects of tax coordination on the tax revenue mobilization in West African Economic and Monetary Union (WAEMU)" Working Papers 201712, CERDI.

Eyraud, L., X. Debrun, A. Hodge, V. Lledo, and C. Pattillo, 2018, "Second-Generation Fiscal Rules: Balancing Simplicity, Flexibility, and Enforceability," IMF Staff Discussion Note SDN/18/04.

Féler, A., and D. Simard, 2019, "The WAEMU Surveillance Framework: Reforms to Foster Public Debt Sustainability", Selected Issues Paper of IMF Country Report 19/91.

IMF, 2020. "Fiscal Rules, Escape Clauses, and Large Shocks." Special Series on Fiscal Policies to Respond to COVID-19. International Monetary Fund, Washington, DC.

IMF, 2018a, "How to Calibrate Fiscal Rules? A Primer." Fiscal Affairs Department How-To Note 8, International Monetary Fund, Washington, DC.

IMF, 2018b, "How to Select Fiscal Rules? A Primer." Fiscal Affairs Department How-To Note 9, International Monetary Fund, Washington, DC.

IMF 2017, "Review of the Debt Sustainability Framework for Low Income Countries", International Monetary Fund, Washington, DC.

IMF, 2013, "The Functions and Impact of Fiscal Councils", International Monetary Fund, Washington, DC.

IMF, 2009, "Fiscal Rules–Anchoring Expectations for Sustainable Public Finances." IMF Policy Paper.

Hitaj, E., 2013, "Fiscal Discipline in the WAEMU: Rules and Markets," Annex to the 2013 WAEMU Staff Report on Common Policies for Member Countries, IMF Country Report No. 13/92

Mansour, M., and G. Rota-Graziosi, 2013, "Tax Coordination, Tax Competition, and Revenue Mobilization in the West African Economic and Monetary Union," IMF Working Paper WP/13/163.

Versailles, Bruno. 2018. "Sources of Fiscal Risks in WAEMY Countries." Selected Issues Paper of IMF Country Report 18/107.

WAEMU. 2020. "Declaration of the Conference of the Heads of State and Government on the Pact for the Convergence, Stability and Solidarity." April, 28 2020. WAEMU. Available on http://www.uemoa.int/fr/declaration-de-la-conference-des-chefs-d-etat-et-de-gouvernement-sur-le-pacte-de-convergence-de

World Bank, 2019. "Étude sur la Fiscalité en Afrique de l'Ouest: Rapport de Synthèse - Options de Réforme dans une Perspective sous-Régionale." International Bank for Reconstruction and Development/The World Bank.

MODERNIZING THE MONETARY POLICY FRAMEWORK AND ITS TRANSMISSION IN THE WAEMU[1]

A. Introduction

1. **Over the last decade, the Banque Centrale des Etats de l'Afrique de l'Ouest (BCEAO) has modernized its monetary policy framework (MPF) with a view to better anchoring inflation and promoting macroeconomic stability.**[2] Following a key set of reforms in 2010, the institutional framework for WAEMU monetary policy has been revamped. The new framework introduced changes to the BCEAO's decision-making bodies, revised the objectives of monetary policy, and ushered a larger set of operational tools (Kireyev, 2016). In addition to aligning WAEMU regulations and prudential supervision to international standards,[3] these reforms have greatly improved the conduct of monetary policy and overall supported macroeconomic and exchange rate stability in the WAEMU.

2. **Similar reforms of monetary policy are taking place in African frontier economies with the aim of incorporating the key features of modern MPFs: accountability, transparency and forward-looking stance (IMF, 2015a).** National legislations in many African countries, such as Kenya, Uganda, Ghana and Rwanda, have granted operational independence to their central banks, which in turn mitigated political pressure on policy decisions (Berg and others, 2015). By strengthening their analytical capacity and communication practices, some central banks throughout Sub-Saharan Africa (SSA) have become more accountable and transparent.

3. **More recently, a reform of the monetary arrangements with France has been announced at end-2019.** This reform comprises three main components: (i) a future change in the name of the currency CFA franc to ECO; (ii) the end of the requirement to deposit at least half of the foreign exchange reserves in the "operations account" of the French Treasury, in addition to the closure of this account; and (iii) the withdrawal of the French representatives from the decision-making bodies of the BCEAO.[4] At the same time, the following principles of the monetary arrangements remain unchanged: (i) the convertibility of the CFAF franc into euro at a fixed parity; and (ii) the unlimited guarantee of convertibility of CFA franc into euro by France.

---

[1] Prepared by Nordine Abidi (MCM) and Goran Amidzic (AFR). The paper benefited from insightful comments of Luc Eyraud (AFR), Annalisa Fedelino (AFR), and Dominique Desruelle (AFR). In addition, the authors would like to thank Simon Gray (MCM), Romain Veyrune (MCM), Alain Féler (AFR), Kelly Eckhold (MCM), Sebastian Boitreaud (World Bank), and Sonia Cattarinussi Iacovella (World Bank) for thoughtful discussions on the topic. The authors are also grateful for comments received from the BCEAO and the CREPMF.

[2] The BCEAO is the central bank of the WAEMU—a currency union comprising Benin, Burkina Faso, Côte d'Ivoire, Guinea-Bissau, Mali, Niger, Senegal, and Togo.

[3] WAEMU adopted Basel II and III standards simultaneously in 2016 and began their implementation in 2018.

[4] Before the reform, France had one vote out of 15 at the BCEAO's MPC, and one vote out of 10 at the board of directors.

4. The Covid-19 crisis has created further impetus for the reform of monetary policy and its adaptation to the challenges posed by the pandemic. Several measures have been taken to allow the BCEAO to better satisfy banks' demand for liquidity and mitigate the negative impact of the pandemic on economic activity.[5] These include: (i) the shift to a full allotment strategy at a fixed rate (the minimum monetary policy rate) in March 2020, thereby allowing banks to satisfy their liquidity needs fully at a rate lower than before the crisis; (ii) a 50 basis point cut in the ceiling and floor of the interest rate corridor in June 200; (iii) the launch of a special 3-month refinancing window at a fixed rate for limited amounts of 3-month "Covid-19 T-Bills" to be issued by each WAEMU sovereign to help meet immediate funding needs related to the pandemic; (iv) the extension of the collateral framework to access central bank refinancing to include bank loans to prequalified 1,700 private companies; and (v) new measures to promote the use of electronic payments.

5. This paper takes stock of the progress achieved by the BCEAO in the past decade, analyzes the outstanding challenges for monetary policy, and proposes options to move the reform agenda forward. For analytical and presentation purposes, the paper separates two main dimensions of monetary policy related to the framework and the transmission. By "*framework*", the paper refers to the set of central bank's monetary policy objectives as well as the instruments at its disposal to achieve these objectives. By "*transmission*", the paper denotes how changes in monetary policy instruments impact other interest rates in the economy as well as key financial and real variables such as credit, inflation, output and employment. Moreover, when addressing the outstanding challenges, the paper suggests reforms at two different time horizons: those that could be achieved in the short-term (1-3 years) and others whose implementation could be planned over the medium-term (3-5 years at least).

6. The remainder of this paper is structured as follows. Section B focuses on the monetary policy framework. It provides a brief overview of the reforms that have taken place since 2010. It also analyzes the BCEAO policy reaction function, highlights the framework's vulnerabilities, and gauges how it could be further strengthened. Section C discusses the main aspects of the monetary policy transmission mechanism across the WAEMU, identifies its strengths and weaknesses, and proposes a set of reforms to improve its effectiveness. Section D concludes with general policy considerations.

B. Continuing the Reform of the Monetary Policy Framework

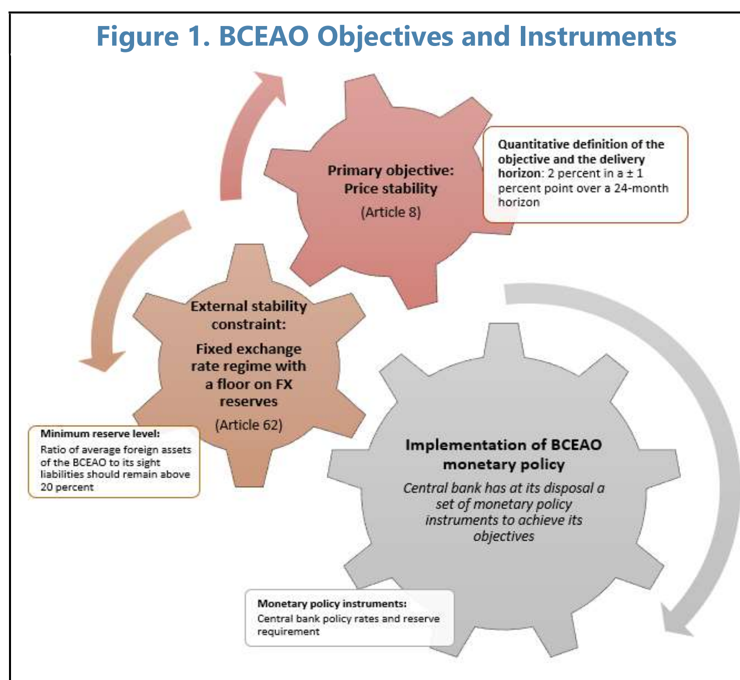
7. This section presents and assesses the monetary framework of the WAEMU, highlighting its important contribution to macroeconomic stability in the region. The first subsection shows that the current framework has been successful in maintaining economic and exchange rate stability, and the BCEAO has made significant efforts in the past decade to modernize it. However, several challenges remain (second sub-section), calling for concerted efforts on part of the regional central bank and WAEMU member states (third sub-section).

[5] An extensive discussion of the BCEAO responses in the context of the Covid-19 crisis can be found in an accompanying SIP: "WAEMU policy responses in the context of the Covid-19". In this paper, we will mainly discuss the monetary policy in the WAEMU before the Covid-19 crisis.

An Overview of the WAEMU Monetary Policy Framework

8. The BCEAO statutes set price stability as the primary objective of monetary policy (Figure 1). As indicated in Article 8 of the BCEAO statutes, the *primary* objective of monetary policy is price stability, which is defined as an inflation rate of 2 percent in a ± 1 percent point over a 24-month horizon. In addition to price stability, the BCEAO's statutes identifies two *secondary* objectives—the support of sound and sustainable economic growth (Article 8) and the pursuit of member countries' integration in the economic union "without prejudice to objectives assigned to it" (Article 62).[6]

Figure 1. BCEAO Objectives and Instruments



9. In addition, the BCEAO operates under a fixed exchange rate regime and sets a minimum threshold for its level of foreign exchange reserves. The central bank issues the CFA Franc (CFAF)—expected to be replaced by the ECO in the future—as the legal tender in the WAEMU, which is officially pegged to the euro. Article 76 of the BCEAO statutes specifies a minimum threshold for its level of FX reserves, below which the monetary policy stance would need to be reassessed and remedial actions would have to be taken. Specifically, the BCEAO should not let the monthly average of foreign exchange reserves fall below 20 percent of its sight liabilities (banknotes in circulation and deposits at the central bank) for three consecutive months. However, exchange rate stability is not a de jure objective of monetary policy.[7]

10. The WAEMU region maintains capital controls on most outward capital transactions. Controls and restrictions on capital transactions with non-WAEMU residents apply to the acquisitions of real or physical assets outside the currency union (BCEAO, 2017).[8] The mechanisms of capital controls are comparable across members and administered jointly by the national ministries of finance and the BCEAO. In general, prior approval by the ministry of finance is required for virtually all outward capital transfers, except for the amortization of debts and repayment of short-

[6] The Article 62 is included in the "Statuts de la Banque Centrale des Etats de l'Afrique de l'Ouest. ".

[7] In the view of the BCEAO, the FX reserves floor operates as a constraint rather than an objective in the conduct of its monetary policy.

[8] There are no controls on current transactions within the WAEMU.

term loans.[9] Capital transactions between WAEMU countries are unrestricted.

11. Turning to the BCEAO's monetary *policy instruments*, the current framework aims at steering the interbank interest rate (which is the operational target) close to the policy rate (Figure 2). The *policy rate* is the minimum bid rate of its 7-day refinancing operations, which reflects the central bank's policy stance. The BCEAO also imposes a *reserve requirement*, which must be maintained on average over one month. It operates weekly and monthly open market operations to keep short-term rates close to the policy rate. The BCEAO aims at steering the weekly interbank interest rate, its *operational target*, within the lending facility rate and the minimum bid rate, which act as the ceiling and the floor of the corridor (see Box 1 for a summary of the BCEAO's monetary policy instruments).[10]

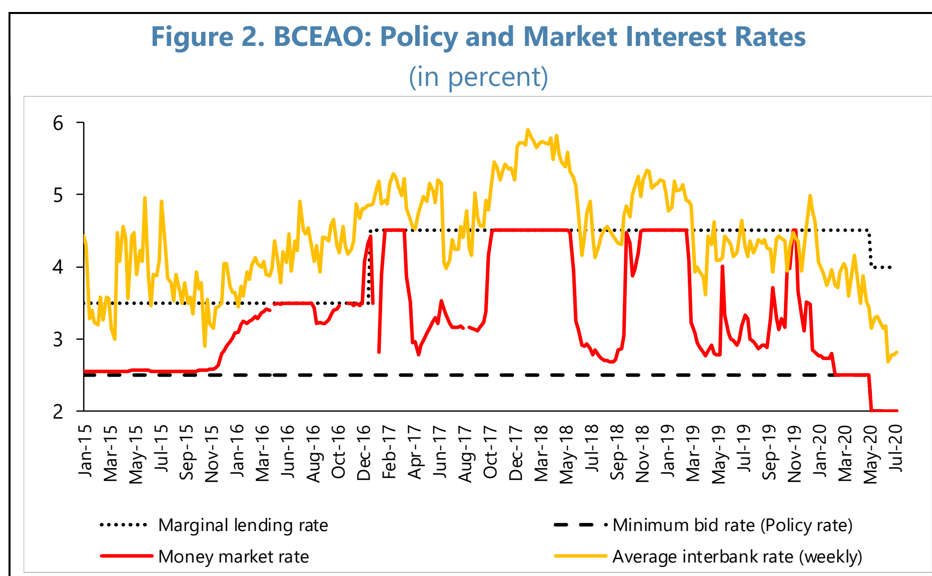


Figure 2. BCEAO: Policy and Market Interest Rates
(in percent)

Box 1. BCEAO's Monetary Policy Instruments and Related Market Rates

Policy interest rates:

The **minimum bid rate** (*taux minimum de soumission*) is the minimum rate at which commercial banks can submit their bids for liquidity at weekly liquidity auctions conducted by the BCEAO. It is the main policy rate. Regular weekly refinancing operations are also complemented by liquidity-providing long-term refinancing operations in FCFA with a one-month maturity at the minimum bid rate.

The **maximum (or marginal) lending rate** (*taux du guichet de prêt marginal*) is the maximum policy rate at which banks can borrow liquidity from the BCEAO outside auctions for one or seven days against appropriate collateral. It comprises an upper-bound limit and is currently set at 200 basis points above the minimum bid rate. Thus, it sets a ceiling to the auction rates—there is no incentive for banks to bid

[9] Outward capital transfers require the authorization from the ministry of finance, except in the case of (1) amortization of debts and repayment of short-term loans granted to finance industrial and commercial operations, (2) payments required on foreign exchange derivatives transactions or on raw material or commodity derivatives transactions, and (3) transfers of the proceeds of liquidated investments or the sale of foreign securities by nonresidents of the WAEMU zone. Capital receipts from non-WAEMU countries, however, are generally permitted.

[10] On the role of the interbank market rate as operational target, see BCEAO (2013).

Box 1. BCEAO's Monetary Policy Instruments and Related Market Rates (concluded)

at a rate above the marginal rate, since they can always resort to this standing facility instead of bidding for liquidity in weekly auctions.

Reserve requirements:

The **reserve requirement ratio** is calculated as a share of banks' deposits, short-term credit, and gross external assets. The BCEAO sets reserve requirements and uses them mainly as a monetary policy instrument and as a tool of prudential regulation (Kireyev, 2016).

Market interest rates:

The **money market rate** (*taux marginal*) is the marginal rate of liquidity injections set by multiple rate auctions. In a liquidity-providing reverse transaction by variable rate tender, the BCEAO serves the bids with the highest rates first until the supply is exhausted. The marginal rate is the rate of the last auction served in the list. Bids at the money market rate are prorated.

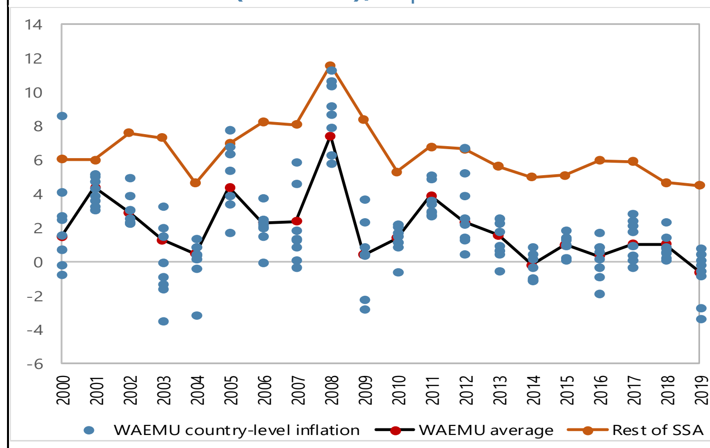
The **average weighted rate** (*taux moyen pondéré*) is defined as the weighted average rate across bids served during an auction.

The **interbank rate** (*taux interbancaire*) is set in the interbank market and refers to the rate of interest charged on short-term loans made between the WAEMU banks. It is uncollateralized and reflects various maturities (daily, weekly, monthly). This rate is used by the BCEAO as its operational target. In a well-functioning money market, the interbank rate will lie within the corridor defined by the minimum bid rate and maximum lending rate.

Preliminary Assessment and Ongoing Reforms

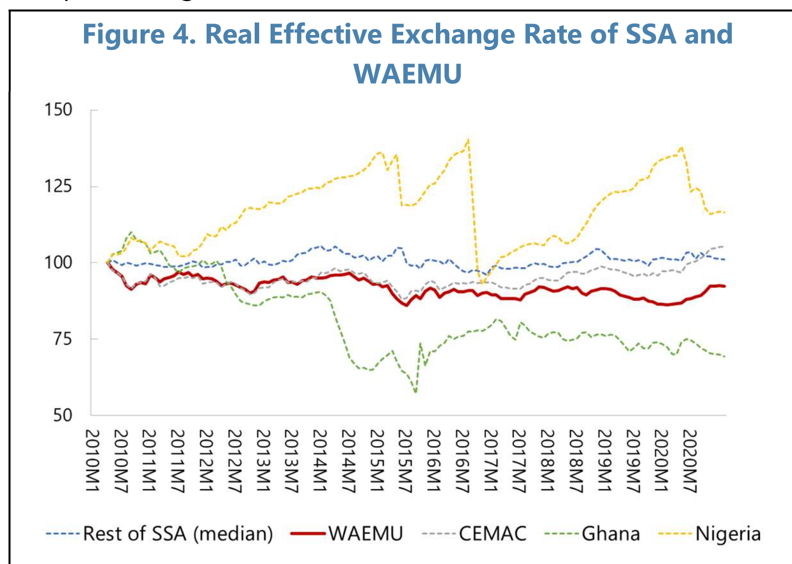
12. The monetary framework has served the WAEMU region well over the past 25 years by fostering economic and exchange rate stability. The framework is seen as one of the main factors behind the strong performance of WAEMU countries in terms of price and external stability compared to the rest of SSA. Since 1999, the average inflation in the WAEMU hovered around 2 percent a year, compared to a median of more than 6 percent across the rest of SSA (Figure 3). Inflation volatility—as measured by the standard deviation of year-to-year changes—has also been very moderate, especially given the volatility of terms of trade. Furthermore, the WAEMU framework has largely insulated the region from currency crises and countries have seldom been subject to currency attacks, the main exception being the prolonged period of stress that led to the 1994 devaluation. Overall, the combination of stable nominal exchange rate and very low inflation in the WAEMU has contributed to a gradual depreciation of the real effective exchange rate (REER) in the

Figure 3. Cross-country Dispersion of Inflation Rates (2000–19), in percent



past decade. This contrasts with the evolution observed in other SSA countries, where the REER has, on average, mildly appreciated over the period (Figure 4). In addition, low inflation and stable currency partly explain the relatively low external borrowing costs for WAEMU sovereigns in recent years: spread paid on Eurobonds issued by governments have been, for comparable maturities, in the range of 3.9 percent for the two established WAEMU issuers (Côte d'Ivoire and Senegal), compared to median values of 5.3 percent in other frontier markets in SSA, including Ghana (5.6 percent), Kenya (4.4), and Nigeria (5.3 percent), between 2017 and 2019.

Figure 4. Real Effective Exchange Rate of SSA and WAEMU



13. Focusing on the more recent past, the BCEAO has continued to take significant steps to modernize its MPF in 2010. Following the introduction of a new WAEMU treaty in 2010, and subsequent revisions of its statutes, the BCEAO clarified its objectives and institutional rules, in addition to enhancing its technical capacities. These reforms have allowed the BCEAO's current framework to feature many of the *de jure* characteristics of a modern MPF (Kireyev, 2016).

- **Objectives:** In line with the IMF principles for effective monetary policy (IMF, 2015a), the BCEAO established price stability as the main objective of its monetary policy in 2010. It has also made the support of sound and sustainable growth and the integration in the economic union as its secondary objectives. Finally, it specified a floor for foreign exchange reserves that could trigger monetary policy interventions. When the level of foreign exchange reserves is well above this floor, BCEAO monetary policy has all the flexibility to achieve its objectives of price stability (main objective) and of supporting economic activity.[11]

- **Institutional rules:** The 2010 reforms also revised the governing structure of the BCEAO. Since then, the main decision bodies include the governor, the Monetary Policy Committee (MPC), the board of directors, the audit committee, and the national credit councils, with one council in each member state of the WAEMU. Simultaneously, to strengthen its financial supervision, a financial stability committee, headed by the governor and comprising mainly regulators (banking commission, social security regulator, insurance regulator, and the capital market authority) was also put in place.

[11] From an operational viewpoint, the BCEAO does not fix an exchange rate target. The exchange rate regime is decided by the WAEMU Council of Ministers and the BCEAO is required to conduct its monetary policy in accordance with the regime exchange rate in force. The BCEAO monetary management is however constrained by the minimum threshold of its FX reserves (Article 62 of the WAEMU Treaty).

- **Technical capacity:** The BCEAO has gradually improved its models for inflation forecasting, which now allows it to identify the components of inflation under the control of monetary policy instruments. In addition, the central bank prepares a comprehensive macroeconomic framework (covering the real, fiscal, monetary, and external sectors) on an annual basis. The framework is used to inform decisions of the MPC and helps identify key challenges (pertaining to inflation and growth) that the region may face in the upcoming year.

14. In the context of the Covid-19 crisis, the BCEAO monetary policy framework has been adapted to provide ample liquidity to commercial banks and prevent any financial market disruption. Before the crisis, the BCEAO provided a pre-set amount of financing to banks through auctions at variable rates in which banks put up collateral in the form of government securities to guarantee the loans.[12] Since March 2020, the BCEAO has introduced several monetary policy measures with the aim of supporting banks and the economy.[13] Key amongst these was the decision to shift to a 'fixed-rate full allotment' (FRFA) tender procedure in the BCEAO monetary policy operations, which implies satisfying the market's demand for central bank liquidity in full at a given fixed interest rate, conditional on adequate collateral provisioning and counterparties' financial soundness. The FRFA has proven a very efficient way of mitigating the liquidity risk in the WAEMU financial markets by ensuring that commercial banks have continued and sufficient access to central bank liquidity at a fixed rate.

Outstanding Challenges

15. Despite these reforms, the modernization of the BCEAO's monetary policy framework remains a difficult endeavor, as in many other developing and emerging economies. As discussed in IMF (2015a), the reform of monetary policy frameworks in these countries is a multifaceted effort, which tries to address weaknesses in several dimensions: prevalence of multiple and sometimes conflicting monetary policy objectives; liquidity management systems; central bank accountability and transparency; organizational structures and other operational capacities. This section identifies four areas where the BCEAO framework could benefit from further strengthening—some of these are already partly addressed by ongoing reforms.

16. First, policy trade-offs can arise from the fact that the BCEAO has to take into account both external and internal stability. While price stability is the main objective of the BCEAO's monetary policy, exchange rate stability and the maintenance of the peg are essential considerations as well. The importance of reserves in the decisions of the central bank is evidenced by an econometric analysis of the BCEAO policy reaction function (Box 2). The results show that a loss of foreign exchange reserves makes monetary policy tightening more likely.[14] Thus, the external constraint can create policy trade-offs: while achievable simultaneously during periods of benign economic and market conditions, in the face of shocks, monetary policy decisions might have to

---

[12] A multiple rate auction (American auction) means that the auction pays different interest rates on individual bids.

[13] https://www.bceao.int/fr/Covid-19

[14] These findings confirm previous research on the role of FX reserves for BCEAO monetary policy decisions (Shortland, A., and D. Stasavage, 2004; Gray, 2011; Caporale and others, 2018; Brandao-Marques and others, 2020).

strike compromises between the goals of internal and external stability. For instance, a sudden loss of foreign exchange reserves may lead to a tightening of monetary policy stance at the time when inflation is still far below the 2 percent medium-term objective. Similarly, the fixed exchange rate could exert downward pressure on aggregate inflation rendering the BCEAO's price stability objective more difficult to achieve (at least in an environment where inflation is very low in the euro area).

17. Second, fiscal developments across WAEMU countries seems to play a role in monetary policy decisions, like in other emerging and developing countries. The results of Box 2 also suggest that the BCEAO's policy rate decisions are sensitive to fiscal variables such as the debt-to-GDP ratio. This issue is widespread in many developing and emerging countries, where growth is, to a large extent, driven by the public sector, and monetary policy cannot disregard fiscal developments.[15] The influence of fiscal developments on monetary policy decisions is accentuated when, like in the WAEMU, commercial banks hold large portfolios of government bonds. In this case, the central bank may be reluctant to raise policy rates and tighten refinancing offered to banks, since this may aggravate liquidity risks in the banking sector.[16] Nonetheless, given the limitations of the data and the lack of statistical significance of the estimates under some specifications, results should be taken with caution.

18. Third, the interbank rate does not act systematically as a credible "operational target", as envisaged in the WAEMU framework. In ideal monetary frameworks, the interbank rate, which is the main operational indicator of monetary policy, is supposed to remain within the corridor defined by the main policy rates. This permits the monetary authorities to steer financing conditions, influence the overall level of economic activity, and ensure that the inflation target is reached. Nevertheless, in the WAEMU, like many other emerging and developing economies, the interbank rate has remained outside the corridor two thirds of the time since 2014.[17] There are, at least, three main reasons explaining this phenomenon.

- First, the two main markets for banks to obtain liquidity—the refinancing windows of the central bank and the interbank market—are not perfect substitutes. As a result, deviations between the central bank and interbank rates are the norm rather than the exception.[18] This lack of

[15] Since the Global Financial Crisis of 2008, Ahmed and others (2019) have found that a higher ratio of public debt to GDP is associated with lower policy interest rates in advanced economies. Within the WAEMU context, Kireyev (2016) describes theoretical and practical argument for fiscal-monetary policy coordination, and calls for a coherent framework which would allow the WAEMU Commission and the BCEAO to align and mutually reinforce their so-far largely autonomous efforts in the implementation of their fiscal and monetary policies. Similarly, Hitaj and Onder (2013) underline the need to improve the design of the fiscal rules, which would better reflect the recognition that the fiscal policy of member states needs to be consistent with the monetary policy of the union.

[16] Government bonds are relatively illiquid in the WAEMU and cannot be easily sold at short notice without banks incurring losses.

[17] Contrary to the European Central Bank (ECB), the BCEAO operates half of a monetary policy corridor as it has not introduced yet a deposit facility. Indeed, for banks with access to the ECB standing facilities, the short-term interest rate fluctuates between the rate of the deposit facility (i.e. lower bound of the corridor) and the marginal lending facility (upper bound of the corridor).

[18] If the two markets were perfect substitutes, banks could always get refinancing from the marginal lending facility; and the marginal lending rate, which is the upper limit of the corridor, would also cap the interbank market rate.

substitutability is due to several factors that *de jure* or *de facto* exclude some banks from accessing BCEAO refinancing. For example, access to central bank financing is never automatic—some banks are not eligible counterparties, and borrowing limits (depending on the equity of the bank) and collateral requirements are imposed by the BCEAO on its facilities (both for auctions and marginal lending facility).

- Second, there can be excess demand on the shallow and segmented interbank market which explains why the interbank rate lies regularly above (not just outside) the corridor.[19] For instance, banks' demand for liquidity has a large precautionary motive in the WAEMU, with banks opting to keep high excess reserves at the BCEAO when they cannot find sound and well-capitalized bank counterparties. Liquid banks are often unwilling to lend their surpluses to illiquid (or perceived to be less liquid) banks.
- Third, because the secondary market for WAEMU public debt securities is illiquid and shallow, there is no true yield curve benchmark. It is, therefore, difficult to identify what the risk-free interest rates are, and for the private sector to set the risk premium, including on the interbank market.

19. Fourth, there is room for the BCEAO to continue enhancing its analytical capacity to manage its operations. While the BCEAO has considerably developed its toolkit for analyzing and monitoring domestic and external stability risks, especially after the reforms of 2010, the authorities could make a more systematic use of macroeconomic models to perform scenario analysis, counterfactual exercises, and explain policy decisions. Such model-based analysis, which is widespread in the research and policy agenda of central banks in advanced economies, could be carried out more frequently by the BCEAO in its publications. This could be particularly important in the context of the Covid crisis in order to assess the effect of measures introduced by the BCEAO. In addition, there is currently no published survey of inflation expectations by market players and institutions at various time horizons. This type of survey is used by central banks around the world to better inform policymaking, strengthen the forward-looking direction of decisions, and facilitate communication with the public.

Box 2. What Are the Macroeconomic Factors Behind the BCEAO Monetary Policy Decisions?

Several approaches have been suggested in the literature to analyze monetary policy decisions under a fixed exchange regime. The first approach, suggested by Veyrune (2007), relies on testing a cointegration relationship between reserve money (RM) and net foreign assets (NFA) of the central bank. The second approach is based on assessing the deviations of inflation, as the main target of monetary policy, in the country of interest from the country of the peg. Finally, the third approach views monetary policy independence as the ability of countries to set their own nominal policy interest rates (Frankel et al., 2004), which implies testing the sensitivity of the local interest rate to the foreign rate (Kiriyev, 2016).

In this box, we use an alternative and more direct approach that estimates directly the factors behind the changes of the BCEAO policy rate decisions. Specifically, we use a Multinomial Probit Model (MPM) to estimate the probability that the BCEAO cuts interest rates, increases rates, or holds them constant in any given year depending on changes in variables such as inflation or the output gap. Our approach may be considered as enhancing the estimation of

[19] These liquidity pressures and excess demand have several sources, including perceptions of counterparty risk on the market, the prevalence of intragroup lending or the fact that the interbank market is mostly unsecured.

Box 2. What Are the Macroeconomic Factors Behind the BCEAO Monetary Policy Decisions? (concluded)

traditional Taylor rules (Chevapatrakul et al., 2001; BCEAO, 2013) since we take into account the fact that central banks in practice modify their policy rates in discrete steps (usually of at least 25 basis points), rather than as a continuous variable.

We examine how the BCEAO policy rate has responded to domestic inflation rates and to the output gap, as is common practice in estimates of interest rate rules for OECD countries. In addition, we consider whether the BCEAO authorities also respond to variables that may also play a role in monetary policymaking in developing or emerging countries with fixed exchange rate regimes. These include the share of foreign reserves and fiscal variables such as debt-to-GDP ratio. Extending interest rate rules in this manner has also been considered by BCEAO (2013), Shortland et al (2014), and Aron and Muellbauer (2000) for the case of South Africa.
While the level of the BCEAO's discount rate (taux du guichet de prêt marginal) has varied significantly from 1989–2018, its changes have tended to occur in large discrete jumps. Over the last 30 years, the BCEAO changed rates on fifteen occasions, decreasing rates ten times, and increasing them in five instances. Table 1 reports the results of our MPM estimates where we include a vector of explanatory variables defined at WAEMU level (aggregate output gap, inflation gap, FX reserves ratio) that are likely to be correlated with interest rate changes (BCEAO, 2013). The output gap is estimated using the Hodrick-Prescott (HP) filter approach and inflation gap is defined as the current inflation minus the medium-term objective of 2 percent.[1]

Table 1 shows that the coefficients on the level of WAEMU inflation and the output gap are not statistically significant. Nonetheless, column (4) suggests that lower FX reserves are associated with a higher likelihood of rate hikes. In other words, losses of FX reserves make monetary policy tightening more likely. Our results corroborate those of the BCEAO (2013). Interestingly, the findings also reveal some asymmetry in terms of policy decisions, that is, the BCEAO does not necessarily
cut the policy rate when FX reserve are increasing.

Table 1. Estimating Probability of a Change in the BCEAO's Policy Rate: Impact of FX Reserves

	cut	hike	cut	hike
$\pi - \pi^*$	0.012	-0.010	0.019	0.006
	(0.031)	(0.038)	(0.031)	(0.042)
$y - y^*$	1.091	0.159	1.096	0.471
	(-2.068)	(2.272)	(1.999)	(2.432)
FX reserves ratio			-2.615	-8.188***
			(2.415)	(-3.132)
Observations	29	29	29	29

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

We next estimate an extended the BCEAO's reaction function where the policy interest rate also potentially responds to the debt-to-GDP ratio. The findings presented in Table 2 show that the coefficients on WAEMU inflation and output gap remain broadly similar and insignificant. However, the debt-to-GDP ratio is a significant predictor of the BCEAO's policy rate changes—high levels of public debt make monetary policy tightening less likely confirming the empirical results in the existing literature for emerging and low-income countries (Shortland, A., and D. Stasavage, 20044); Gray, 2011; Caporale and others, 2018; Brandao-Marques and others, 2020).). The results are robust and broadly similar if we replace debt-to-GDP variable by the share of external sovereign debt. These findings must nonetheless be interpreted with cautious because: (i) adding the FX reserves diminishes the significance of the estimated coefficients and (ii) the short sample length.

Table 2. Estimating Probability of a Change in the BCEAO's Policy Rate: Impact of Fiscal Balance

	cut	hike	cut	hike
$\pi - \pi^*$	0.014	-0.007	0.017	0.006
	(0.030)	(0.048)	(0.032)	(0.043)
$y - y^*$	0.998	0.211	1.023	0.466
	(-1.963)	(-2.486)	(-2.032)	(2.470)
Debt to GDP	-0.003	-0.012*	0.003	0.001
	(0.005)	(-0.006)	(-0.008)	(0.009)
FX reserves ratio			-3.773	-8.586*
			(3.560)	(4.48)
Observations	29	29	29	29

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

[1] There are a few limitations pertaining to this analysis: (i) coverage of periods of regime change, (ii) use of HP filter, and (iii) data limitations. With regards to the first limitation, the analysis cannot be conducted over sub-periods due to the small number of observations. However, there are clear regime changes over the period. During the sub-period 1989-2009, the BCEAO did not intervene very actively in the monetary market, whereas the second sub-period 2010-2019 corresponds to the entry into force of the institutional reform of 2010, which overhauled the monetary policy framework and introduced more active management of bank liquidity. Consequently, the specification of the BCEAO's reaction function should be taken with caution since the behavior could be quite different over these two sub-periods (BCEAO, 2013). As for the use of HP filter, the choice of this approach was driven by simplicity and transparency reasons (Drehmann and Yetman, 2018). Finally, due to data constraints, the specification of the model uses contemporary output gap and inflation gap, thus restricting the forward-looking aspect of monetary policy.

Options for Further Strengthening the Monetary Policy Framework

20. A more explicit acknowledgement of the external constraint and possible trade-offs could better anchor expectations and strengthen credibility. The fixed exchange rate vis-a-vis the euro raises specific challenges for monetary policy formulation in the short and medium terms.

- In the *short term*, the importance of the peg and the reserve trajectory could be further clarified in the BCEAO communication. Currently, the BCEAO rarely discusses publicly policy trade-offs nor does it mention the external constraint in press releases and reports on monetary policy. Therefore, the BCEAO could enhance its communication by providing more information about its policy reaction function and future monetary policy intentions, based on its assessment of the outlook for price, output, and external stability. The Moroccan central bank, which operated, until recently, under a fixed exchange rate regime and capital controls, illustrates, through its communication, how monetary decisions can be mapped with policy objectives. For instance, the press release of June 2015 discussed expected inflation as the main reason to maintain policy rates unchanged, while the communiqué of December 2019 emphasized the additional role of foreign exchange reserves for keeping policy rates unchanged. Regarding the discussion of trade-offs, the U.S. Federal Reserve, which has a dual mandate of price stability and unemployment, presents some of its policies with diagrams to explain to the public how its decisions fare relative to the two objectives and the complementarity between the two objectives.[20]
- In the *medium term*, given the decision of the authorities to maintain the fixed exchange rate in the foreseeable future, it will be important for the BCEAO to adapt the protection of the peg to future developments of the balance of payments, including greater trade integration and possibly a gradual liberalization of the capital account. More cross-border capital flows related to trade or capital transactions may increase upward and downward pressures on the exchange rate, which may call for active foreign exchange interventions on the part of the BCEAO. As such, the BCEAO could consider strengthening its technical capacity in this area. Indeed, international best practices suggest official foreign exchange intervention that took place within a transparent, well-communicated, and rule-based framework allowed central banks to better deploy their reserves to counter unfavorable exchange rate developments (IMF, 2018; Kuersteiner and others, 2016; Montoro and Ortiz, 2016). In addition, it is possible that in an environment with more capital flows, maintaining the peg could require more rigorous alignment of domestic policy rates with the ones of the anchor currency union.

21. To strengthen independence and accountability, several reforms of the central bank governance and operations could be considered. To be effective, central banks should benefit from full operational independence to pursue their goals, within the context of clear accountability to the government and the public. In particular, there should be a clear separation between fiscal and monetary policies.

[20] For the illustration of the U.S. Fed's interpretation of its dual mandate objectives, see https://www.chicagofed.org/research/dual-mandate/dual-mandate

- In the *short term*, the appointment process and the tenure for the BCEAO governing bodies could be further aligned with international best practices. As discussed in IMF (2015b), these best practices include: (i) issuing a legislation that would codify the institutional and organization setup, (ii) ensuring that senior central bank officials have reasonably long terms of office, which are not linked to the political cycle, and (iii) establishing clear rules covering the circumstances for removal from office. By comparison, the BCEAO's governor is appointed by the Conference of Heads of State and Government of WAEMU for a renewable six-year term, while deputy governors are appointed by the Council of Ministers of WAEMU for a renewable five-year term. Similar to the European Central Bank, the terms of appointment for the governor and vice-governors could be extended and made non-renewable. In addition, the statutes could be revised to explicitly detail the circumstances and actions that would lead to the removal of senior central bank officials from office.
- In the *medium term,* the best guarantee of independence for a central bank is fiscal discipline, since this reduces the temptation of governments to pressure the monetary authorities. Reforms to foster fiscal discipline could include a review of the regional fiscal framework (to enhance its effectiveness and enforcement[21]) as well as measures ensuring that commercial banks discriminate better across sovereign risks. On the latter, the BCEAO could strengthen its collateral framework for the refinancing operations by better differentiating (through different haircuts) sovereign securities pledged as collateral by banks. In turn, this would reduce banks' incentives to hold government bonds with relatively higher credit risk. To achieve this, the BCEAO could, for instance, follow the example of the ECB, which has developed a market-based collateral framework that calibrates collateral haircuts based on liquidity and credit risks (ECB, 2017). The Bank of Central African States (BEAC) has also started to introduce similar reforms to its collateral framework in 2018. Broadening the BEAC's collateral framework and diversifying the eligible collateral pool away from excessive exposure to sovereign risk is seen as crucial to: (i) better protect the BEAC's balance sheet, (ii) mitigate procyclicality of the new collateral framework, and (iii) encourage bank lending to the productive sectors of local economies. In addition, these reforms have led to greater market discipline and improved transparency of public debt management.

22. To ensure that the operational target of monetary policy is credible and effectively used, a way forward could be to continue to deepen the interbank market and, possibly, develop new benchmark rates. In practice, this will require actions to increase incentives for banks to enter the interbank market as well as efforts to better measure financial conditions on this market.

- In the *short term*, given the difficulties to deepen the unsecured interbank market, the authorities could put the onus on developing the secured segment of the intermarket market. To this aim, the repo legal framework could be better aligned with international best practices—for instance, by facilitating the use of enforceable legal agreement along the lines of the Global

[21] For further information, please refer to the Selected Issues Paper "Strengthening the Regional Fiscal Framework in WAEMU".

Master Repurchase Agreement (GMRA).[22] This would incentivize cash-rich banks with restrictive investment policies as well as non-bank counterparties to increase their transactions with banks beyond those taking place at the intra-group level.

- Over the *medium term*, given the limitations of the interbank rate as operational target, the BCEAO could develop alternative robust benchmark rates based on granular transactions in the interbank market for very short-term maturities. This would ensure that the interbank rates (at various maturities) reflect the market conditions across WAEMU, while anchoring the short end of the yield curve. In turn, this would also provide information about expected future policy rates and other macroeconomic fundamentals. By way of illustration, the Reserve Bank of India developed in 2015 robust benchmark rates for the interbank market by offering term repos, facilitating the development of interest rate derivatives, and linking open-market operations (OMOs) solely to liquidity management (IMF 2015b). The BCEAO has computed a new reference rate that excludes the counterparties not eligible for its refinancing operations in the calculation method. This reference rate is now the one on which the operational strategy of the BCEAO is based.[23]

23. The enhancement of the BCEAO's technical capacities could partly focus on strengthening the macro-modeling expertise. Building adequate forecasting and analytical capacities is an essential element for supporting sound monetary policy analysis. Although the BCEAO has been making continuous, and significant, strides to enhance its analytical capacities over the past decade, international experience shows that strengthening central bank analytical capacity is likely to be a continuous part of—and not a prerequisite for—the central bank modernization process (IMF 2015a).

- In the *short term*, BCEAO could expand its expertise in the use of advanced analytical tools. For instance, the BCEAO could strengthen its analytical capacities in formulation of monetary policy. The BCEAO has already included in its strategic plan the development of a forecasting and policy analysis systems (FPAS) model. The model has been developed and is now being validated.[24] The FPAS framework, successfully introduced by the Central Bank of Kenya in 2013, is currently used as an important forward-looking input to assess the impact of the current monetary policy stance on the main economic variables. Also, the BCEAO could develop a comprehensive survey of professional forecasters (SPF) with the aim of collecting information on the expected rates of inflation, real GDP growth and unemployment in the WAEMU at several horizons, ranging from the current year to the longer term. In turn, expectations could be reported not only as point forecasts, but also as probability distributions, providing a quantitative assessment of risk and uncertainty.[25] Finally, in the context of the Covid-19 crisis

[22] GMRA is a model legal agreement designed for parties transacting repos and is published by the International Capital Market Association (ICMA).

[23] The reference rate has fluctuated since the second half of 2019, within the corridor formed by the minimum rate for submission to calls for tenders and the rate of the marginal lending window.

[24] The BCEAO has also computed quarterly GDP according to the supply and demand perspectives, and developed inflation forecasting models.

[25] So far, the "Note Mensuelle de Conjuncture Economique dans les Pays de l'UEMOA" does not include a broad set of professional forecasters, while the information on inflation expectations is limited.

and the use of non-standard monetary policy measures by frontier and emerging markets, the BCEAO could develop contingency plans and evaluate both the benefits and costs of such policies in the region.

- Over the *medium term*, the BCEAO could advance its model-based capacity to inform its monetary policy decisions. To better gauge the impact of its monetary policy decision across the currency union, the BCEAO could usefully develop a multi-country model, which would allow to (i) account for the relationships among key macroeconomic variables in a systematic manner; (ii) provide input to the complex process of macroeconomic forecasting; and (iii) improve the conduct of scenario analyses and policy simulations. This was successfully done by the ECB in 2019 (ECB, 2019).

C. Improving Monetary Policy Transmission

24. This section assesses the effectiveness of monetary policy transmission in the WAEMU. It highlights the fact that several monetary policy transmission channels are not fully operational. This complicates policy formulation and limits the effectiveness of monetary policy decisions.

An Overview of the WAEMU Monetary Policy Transmission

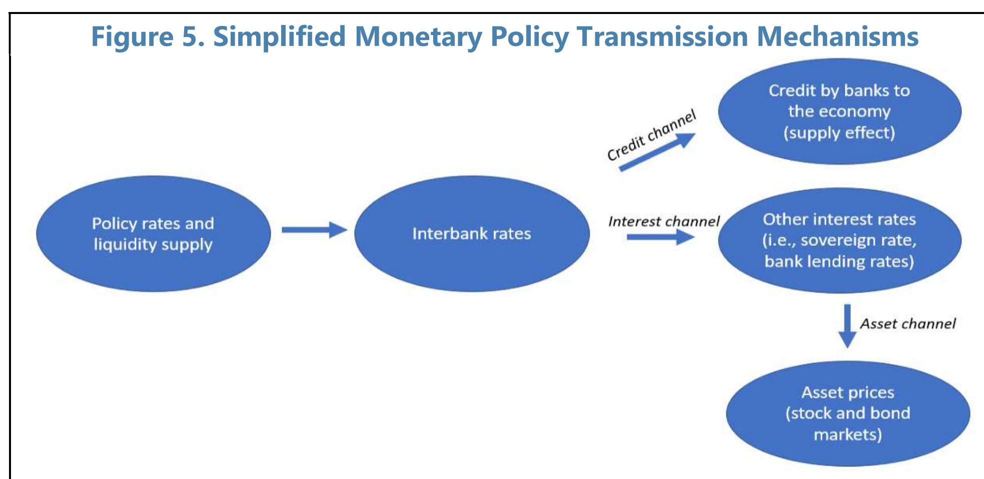
25. The empirical literature shows that the transmission of the BCEAO's monetary policy to WAEMU countries remains limited. Monetary policy decisions are expected, in the short and medium term, to affect inflation, output and employment through several transmission channels (Figure 5). In the WAEMU, however, the empirical literature has found that the transmission of monetary policy is relatively weak, and varies greatly across countries (Kireyev, 2016). When it comes to the relationship between policy rates and other short and long-term interest rates in the economy, Kireyev (2015, 2016) finds a limited influence of monetary decisions. Other papers that have looked at the effect of policy rates on key macroeconomic variables (inflation and output) in the WAEMU also point to the same result (Nubukpo, 2002; Kanga, 2020). In addition, the literature shows that the effect of monetary policy is highly heterogeneous in the region. For instance, Kireyev (2014, 2016) finds that the link from the BCEAO policy rates to overall inflation can be reliably tracked only in Benin, Senegal, and Togo.

26. Turning to the channels of transmission, a consensus seems to emerge around the idea that the most important ones in the WAEMU are the credit and interest rate channels. Focusing on the credit channel, empirical studies have tested how the central bank affects the volume of banks' lending. Estimates suggest that an increase in 100 basis points in the BCEAO's policy reduces WAEMU private credit growth by about 3 percentage points one quarter later and by 4 percentage points (cumulative) after one year (IMF, 2015).[26] Other research papers show that the interest rate channel operates in the WAEMU alongside the credit channel (BCEAO, 2015 and

[26] In the absence of the exchange rate channel, all other channels of monetary policy transmission (through the volume of credit, interest rates, asset prices, and expectations) can in principle be active. However, the literature has shown that shallow financial markets and interest rate rigidities have impeded the transmission of monetary policy signals and the link from the BCEAO's policy actions to market interest rates and macroeconomic variables.

Bationo, 2015).[27]

Figure 5. Simplified Monetary Policy Transmission Mechanisms



27. Most developing countries face similar obstacles in the transmission of monetary policy. Many studies applying to developing and emerging economies point to limited effectiveness of monetary policy (Mishra and Montiel, 2013, Davoodi, Dixit, and Pinter, 2013, Laurens, 2005, Mishra, Montiel, and Spilimbergo, 2012, Nubukpo, 2007; Sacerdoti, 2005). Possible explanations include: (i) the lack of financial deepening; (ii) prevalent supply shocks (i.e., droughts and conflicts) that affect inflation and (iii) fiscal dominance. Overall, the weak and unreliable transmission of monetary policy to the economy in developing and emerging economies has limited the scope for monetary policy to serve as a key policy tool for macroeconomic stabilization (Berg and others, 2018).

28. To complement this literature, a novel analysis, using bank-level data on borrowing and lending activities, suggests that monetary policy has a significant effect on banks' investment and funding decisions in the WAEMU. By using WAEMU bank-level data from 2015–18, which covers more than 95 percent of the region's total banking sector, we analyze whether sudden and unexpected tightening of the BCEAO's monetary policy affects banks' behavior in terms of sovereign security holdings, interbank market borrowing and lending to the private sector (Box 3). Difference-in-differences estimates suggest that the effects are strong, statistically significant and vary substantially across bank characteristics such as size and capital adequacy ratio. This result is broadly consistent with the rest of the literature—it confirms that the credit channel is partly effective. In the wake of an unexpected and sudden monetary policy tightening, it seems that small and weakly capitalized banks reduced their holding of government securities (i.e. reduction of the carry-trade activities) while simultaneously lowering their supply of credit to the private sector. During this episode, the interbank market was partly revived and accessible to the well-capitalized banks.

[27] Bationo (2015) confirms the existence of two main transmission channels, namely the interbank rate channel and the credit channel using structural VAR models on quarterly data. The findings also show that the effects of WAEMU interest rates on inflation and investment are small and significant.

Box 3. Bank Heterogeneity and Monetary Policy Transmission

Some policymakers and researchers think that transmission mechanism of monetary policy in low-income and developing countries (LIDCs) is weak or even non-existent (Berg et al., 2018). Pioneered by Mishra and Montiel (2013), the literature argues that the impulses responses to monetary policy shocks derived from structural VARs, the tool of choice for identifying the effects of monetary policy shocks, are typically weak and statistically insignificant in LIDCs. However, this may reflect difficulties in applying standard approaches to LIDCs, rather than a lack of underlying transmission. Data challenges, including short sample lengths and measurement errors, in addition to frequent policy regime change, can greatly reduce the power of VARs to uncover the monetary transmission mechanism.

We assess the WAEMU transmission mechanism by looking at the effects of a sudden and unexpected tightening of the BCEAO's monetary policy through changes in liquidity supply of the central bank. To do so, we apply a version of "narrative approach" developed by Romer and Romer (1989) to identify the effects of monetary policy along with the insights from the differences-in-differences literature (Bertrand et al. 2004, Roberts and Whited, 2013). Using bank-level panel data from 2015 to 2018,[2] we proceed in three steps. First, we separate WAEMU' banks along two dimensions: capital adequacy ratio (CAR) and size (based on the bank's total assets). Based on this separation, we then construct four different sets of banks (i.e. systemic and weakly capitalized, non-systemic and weakly capitalized, etc.). Finally, we estimate the effects of the BCEAO's monetary policy shock on these four groups. The baseline empirical strategy relies on the following specification:

$$Y_{b,c,t} = \alpha_c + \sum_{l\in\{0,1\}}\sum_{k\in\{0,1\}}\left[(CAR_{b,t} = l) \cap (Systemic_{b,t} = k)\right] * MP_t^{shock} + \gamma X_{b,c,t} + u_{b,c,t}$$

Where $Y_{b,c,t}$ represents alternatively the (i) sovereign securities, (ii) loans to the private sector and (iii) borrowing in the interbank market, expressed as a percentage of the bank *b* total assets. MP^{shock} is a dummy variable which is equal to 1 after the monetary shock of December 2016, when the BCEAO tightened monetary policy by expanding the corridor between the minimum bid rate for the open market refinancing operations and the credit facility rate by 200 basis points, and announcing that the recourse to its lending facility will be capped at twice banks' capital. *CAR* and *Systemic* are dummy variables which turn to 1 if the amount of bank capital (or total assets) is lower than the median value in the current year.[1] α_c corresponds to the country fixed effects and $X_{b,c,t}$ is a vector of bank-level characteristics (i.e. liquidity ratio, cost efficiency ratio, the BCEAO's credit). We use robust standard errors to allow for the correlation across error terms.

Results of Table 3 (column 2) suggest that banks have reduced their exposures to government securities following the tightening of monetary policy post-2016, compared to the control group comprising systemic and well-capitalized banks. The effect is statistically significant and more pronounced for small banks that are weakly capitalized. Put differently, the BCEAO monetary policy shock seems to have curbed the carry-trade behavior for some of these banks.

Column (1) also suggests that small and weakly capitalized banks reduced more of their loans to the private sector, while column (3) shows that borrowing in the interbank markets was more constrained for the set of weakly capitalized banks, irrespective of their size. As we have used the historical narrative and argued that the monetary policy shock was a surprise, results cannot be definitive, and more research should be done on the change of WAEMU banks' behavior after the late 2016. The results are consistent with the view that while liquidity rationing can have positive effects on the reduction of carry-trade behavior, adverse effects on the private sector might also occur, especially on its ability to borrow from commercial banks—an important contributor of financial development and growth.

Table 3: Determinants of Monetary Policy Transmission

VARIABLES	(1) Private Loans/Total Assets	(2) Government Securities / Total Assets	(3) Interbank borrowing / Total Funding
[(CAR=0)∩(Systemic=0)]*MP	-0.246*	-0.217*	-0.080**
	(-0.125)	(-0.092)	(-0.03)
[(CAR=1)∩(Systemic=0)]*MP	-0.169	-0.142*	-0.004
	(-0.109)	(-0.063)	(-0.014)
[(CAR=0)∩(Systemic=1)]*MP	-0.161	-0.182*	-0.077**
	(-0.112)	(-0.077)	(-0.026)
Country FEs	YES	YES	YES
Observations	446	445	394
R-squared	0.873	0.611	0.437

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

[1] The bank size is defined at the country level. The benchmark group is composed of banks highly capitalized and of systemic importance.
[2] For every year, the dataset almost encompasses the entire WAEMU banking sector. For instance, in 2017, the bank-level panel data covers 119 of the 121 banks operating in the WAEMU (as of June 30, 2017). These financial institutions have a total balance sheet of 31.965 CFAF billion or 49.53percent of the WAEMU's GDP.

Challenges in Monetary Policy Transmission

29. The BCEAO's monetary transmission is impaired by the shallow and segmented interbank market. Despite the recent increase in volumes, interbank market transactions remain small[28] and often limited to intra-group transactions and counterparties excluded from the BCEAO's refinancing operations (IMF, 2018). In the WAEMU, many banks do not get liquidity from the interbank market but from the refinancing windows of the BCEAO and keep large reserves at the central bank to meet their liquidity needs (IMF, 2018).[29] In addition, the fact that the interbank rate is not systematically used as a benchmark by commercial banks to price loans (as discussed in paragraph 16) also impairs the transmission. Some banks seem to rely on the average auction rate to assess financial conditions. However, this rate is an imperfect benchmark—it does not display much volatility and has often been stuck at the ceiling of the corridor (Figure 2). Its informational content is clearly lower than the one that would be provided by a well-functioning interbank rate.

30. In addition, illiquid secondary market for public debt and small equity markets limit the ability of the central bank's decisions to affect asset prices. Regarding *public debt*, the sovereign secondary markets remain shallow lacking both depth and liquidity. The turnover ratio for securities issued through auctions is relatively low (IMF, 2018).[30] Compared to Zambia, Kenya and Nigeria, no WAEMU country is included in the African Bond Markets Index of Bloomberg (AfDB/AFMI), which takes into account the market structure and liquidity of secondary markets for public debt. One of the reasons behind the lack of liquidity of the market is that the WAEMU's sovereign debt issuances are currently supervised and deposited in two separate market clusters (syndication and auction) (IMF, 2018).[31] The absence of fungibility between types of public debt issuances coupled with the narrow institutional investor base have contributed to the shallowness and the illiquidity of the secondary debt markets. In addition, the current system of primary dealers (Spécialistes en Valeurs du Trésor or SVT) does not give them sufficient incentives to become true market makers, partly because they lack privileged access to primary issuances and to central bank liquidity. Therefore, they do not play the role of distributors of securities issued on the primary market and do not activate the secondary market. Regarding the *stock market*[32], the number of

[28] The outstanding amount was of CFAF 615 billion (0.8 percent of WAEMU GDP) at the end of 2018 compared to CFAF 556.2 billion (0.7 percent of GDP) at the end of 2017.

[29] Given the segmentation of the interbank market, some banks have been relying on BCEAO refinancing, in the form of short-term (seven-day) loans, to finance longer-maturity government securities purchases. This exposes commercial banks to roll-over and duration risks.

[30] In 2019, the volume of transactions in the secondary market for the WAEMU sovereign bonds issued through auctions varied between 8 and 23 percent of total stock of outstanding sovereign bonds issued in this cluster.

[31] Although regional regulations require that government bills and bonds be auctioned on the primary market, some Treasury bonds are still issued by syndication. Treasury bill and Treasury bond auctions are carried out for each member country at the national branches of the BCEAO. Corporate and other types of non-sovereign bonds are issued via syndication to market participants, while stock initial public offerings are auctioned by the clearing and settlement house. All quotations are made by the regional stock market BRVM (see below).

[32] The BRVM acts as the regional stock exchange for the eight member countries in the WAEMU region. The BRVM is supervised by the Capital Market Authority (Conseil Regional de l'Epargne Publique et des Marches Financiers, referred to as CREPMF, its French acronym).

companies listed on the regional stock exchange BRVM (Bourse Régionale des Valeurs Mobilières) has increased slowly, from 37 in early 2013 to 46 in the late 2019, as new listings merely offset the number of companies taken off the list.[33] While market capitalization increased from 4.3 percent of GDP in 2002 to around 12 percent of GDP in 2018, it remains among the smallest in Africa, very far from the levels of Morocco or South Africa (52 and 235 percent of GDP in 2018, respectively).

31. Several structural factors also impair the banks' ability to provide more loans to the private sector across the WAEMU, thus, inhibiting the credit channel. At 25.1 percent of GDP in 2019, private credit in the WAEMU is above the SSA average but still lags many emerging markets, including South Africa (66.5 percent of GDP) (Figure 6). The credit channel is still constrained by several factors. First, banks' balance sheets exhibit certain vulnerabilities (Kanga, 2014, Kireyev, 2016). WAEMU banks remain subject to relatively high concentration, credit and liquidity risks (Figure 7). At end-2019, credit to the five largest borrowers exceeded 83 percent of the regional banking sector's risk-weighted assets. In addition, non-performing loans (NPLs) were elevated, at 11.4 percent of total loans. Bank portfolio concentration in sovereign bonds creates liquidity risks and possible crowding-out of the private sector.[34] Second, structural factors hinder credit provision, such as weak legal and judicial frameworks, and a lack of collateral. On the latter, the narrow coverage of land registries may render the collateral framework less efficient in the WAEMU. In addition, although the OHADA's Uniform Act on Secured Transactions[35] in 2010 broadened the range of assets that can be used as guarantees for customers and the range of obligations that can be secured, these new collateral instruments are not reflected in the prudential rules applicable to WAEMU's banking sector (IFC 2018). This generates disincentives for banks to use the new collateral arrangements.[36] Third, asymmetries of information between banks and customers remain prevalent, as in many developing countries with undeveloped credit bureaus. In recent years, improvements have taken place to enact a uniform credit reporting law governing all eight-member states and establish new credit bureaus with information sharing across countries. However, the coverage and exchange of information being collected by these bureaus remain limited (especially regarding legacy loans) in some countries, which limits their use by banks.

[33] Only six shares make up more than 50 percent of the capitalization on the BRVM. They include two telecommunication companies (Sonatel of Senegal and Onatel of Burkina Faso) and four banks (Coris of Burkina Faso, ETI of Togo, Ecobank CI, and SGBCI of Côte d'Ivoire). Sonatel alone makes up 33 percent of market capitalization. For more information, please refer to http://www.brvm.org/sites/default/files/boc_20181002.pdf.

[34] Banks' reliance on BCEAO refinancing was equivalent to about 40 percent of their sovereign bonds' exposure at end-2019 (down from a peak of 60 percent in end-2016).

[35] Acte Uniforme révisé portant Organisation des Sûretés (AUS) adopted by the Organisation pour l'Harmonisation en Afrique du Droit des Affaires (OHADA).

[36] This is because new OHADA rules for pledges are not acknowledged by obsolete prudential rules. As a result, such pledges are not considered when computing ratios of capital over risky assets net of collaterals.

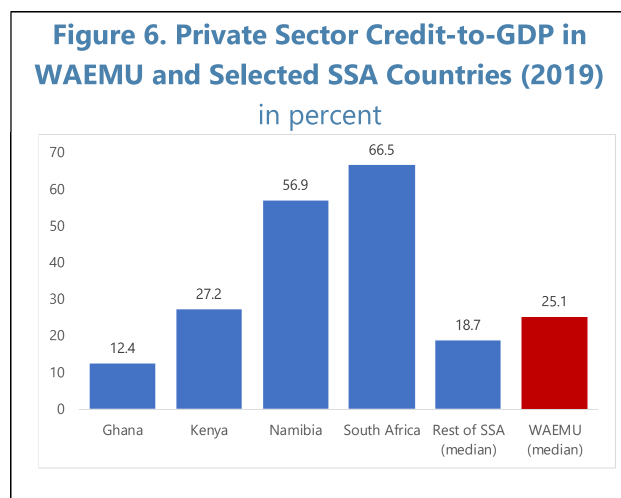


Figure 6. Private Sector Credit-to-GDP in WAEMU and Selected SSA Countries (2019)
in percent

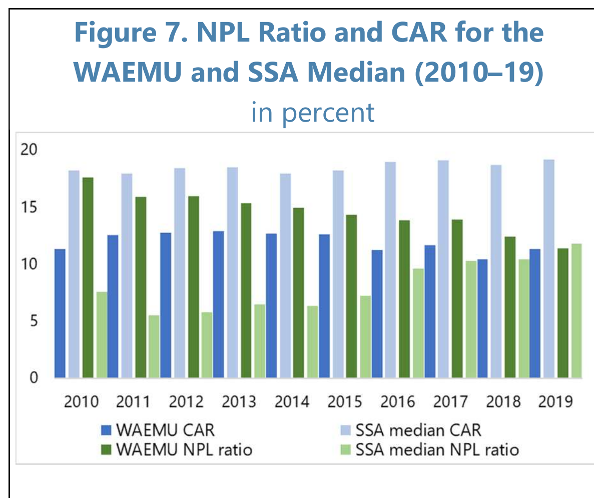


Figure 7. NPL Ratio and CAR for the WAEMU and SSA Median (2010–19)
in percent

Enhancing Transmission Mechanisms

32. To improve monetary policy implementation, the BCEAO should continue to deepen and improve the functioning of all the markets involved in monetary policy transmission. These markets are the interbank, debt, equity and private credit markets.

33. Deepening the interbank market is key to ensure that the interbank rate functions as a benchmark for other interest rates in the economy. The priority should be to foster greater interbank transactions by increasing transparency among market participants while ensuring that the interbank rate is representative of the market conditions.

- In the *short term*, to encourage greater volume of interbank transactions and increase confidence among market participants, balance sheets of WAEMU's commercial banks should continue to be strengthened while improving banks' data reporting practices. The WAEMU financial regulator should ensure banks' adherence to the Basel II/III principles. Moreover, for banks to use the interbank rate as a benchmark for the pricing of other financial instruments (i.e., loans), the BCEAO should develop robust benchmark rates based on granular transactions in the interbank market for very short-term maturities, using more data from the payment system STAR-UEMOA.[37] For example, the ECB changed its benchmark interbank rate in October 2019 using granular data from their own payment system Target-2.[38]
- Over the *medium term*, concerted efforts should be invested to foster secured interbank transactions (as discussed in paragraph 19) and introduce new actors on this interbank market. Improving collateral valuation to be used in interbank markets is essential to promote secured transactions (Nyborg, 2017). It is also important to develop a framework for national governments to invest their excess cash in the interbank market through the Agence UMOA-Titres.

[37] STAR-UEMOA is the WAEMU region's real-time gross settlement system, intended for transactions of systemic scope (particularly large sums).

[38] Target-2 is the real-time gross settlement (RTGS) system owned and operated by the Eurosystem.

34. Deepening WAEMU financial markets (including secondary market for public debt and stock market) could activate the dormant asset price channel. One of the most important elements in the development of financial markets in developing and emerging economies is the regular issuance of fungible government debt and active secondary market trading (IMF, 2020). In their absence, the local currency yield curve (used to price assets) is difficult to develop, thus undermining the role of asset price channel of monetary policy. At the same time, expanding the institutional investor base and nurturing foreign investors participation in regional stock markets are important priorities, as these actors can act as conduits of good standards, increase market liquidity, and provide transaction counterparties in otherwise one-sided markets.

- In the *short term*, a more active secondary market for public debt, including through better coordination and fungibility between adjudication and syndication modes of issuance[39], a more proactive communication of member states about their annual borrowing plans, and more transparency on banks' bilateral sovereign loans, is essential to enhance monetary policy transmission. It is also important to transform the role of the SVTs into true market makers by giving them privileged access to the primary market (making them the sole distributors of the issued government securities) as well as special access to BCEAO liquidity. The latter could prompt them to activate the secondary market, including by producing continuous price quotations, which should be centralized in a platform accessible to all market participants. To develop the region's stock market, the WAEMU regulatory bodies could enhance the regulations that protect investors and reinforce discipline on equity markets. For example, in 2017 Morocco introduced reforms to strengthen investor protection rights and introduced more stringent rules on broker licensing and sanctions. Recent cases of Ponzi schemes in the WAEMU have eroded investors' confidence, highlighting the need to align accounting, auditing and reporting practices of financial service providers with international standards.[40] Moreover, while the CREPMF does not have the power to impose criminal sanctions, it does have the power to impose monetary penalties, administrative sanctions and disciplinary sanctions. Following the example of the French stock market regulator (Autorité des Marchés Financiers), the CREPMF could reinforce its credibility by publishing online the names of wrongdoers, the description of their misconduct, as well as the resulting sanctions.
- Over the *medium term*, one of the priorities could be to develop pricing models for assets, even in a context of illiquid markets. For instance, a synthetic pricing model[41] for government bonds could be introduced and used as a reference point to improve trading volumes in secondary markets for public debt. This is essential to obtain robust yield curves and to price sovereign

[39] The WAEMU debt management offices should be encouraged to favor adjudication as the primary mode of issuance of public debt due to its merits (e.g., transparency, costs, and market discipline) compared to the syndication.

[40] https://www.brvm.org/fr/mediacentre/actualites/la-brvm-une-bourse-africaine-au-fort-potentiel

[41] This is a model-based methodology for the pricing of marketable collateral where market prices are unavailable (Nyborg, 2017). As an example, see the Common Eurosystem Pricing Hub. In the current circumstances, illiquid government bonds appear to be *de facto* priced at par over their lifetime, with coupons almost indistinguishable from yields. Synthetic pricing could also act as a reference point for repo market pricing and activity. While such an initiative would take time to finalize and will also involve development costs, these costs could be partly covered by primary dealers and counterparts.

risks. Moreover, it is also vital for sovereign securities to be issued through a typical bullet structure in both segments of the regional market. While this structure has been generalized on the adjudication segment of the market, bonds issued through syndication usually carry an amortizing structure, often with a grace period. This amortizing structure is an additional impediment to the development of a secondary bond market, making trading and pricing of government bonds difficult.

35. Regarding the credit channel, banks' ability and incentives to provide loans could be strengthened by reducing asymmetry of information with customers, continuing to strengthen banks' balance sheets, and foresting financial inclusion. Expanding banks' activities is a broad objective that goes beyond monetary policy transmission and requires wide-ranging reforms in supervision and resolution. While many of these reforms should be addressed by national governments, the BCEAO can play an important role in coordinating this process, along with the Banking Commission. This will be all the more important during and in the aftermath of the Covid-19 crisis.

- In the *short term*, the priority should be to reduce credit risk and asymmetry of information by continuing to improve the capacity and coverage of national land registries and credit bureaus, in addition to enhancing the region's collateral framework. Regarding land registries, WAEMU countries could strengthen registration and valuation of movable and immovable property, while ensuring that registration and related fees are kept low.[42] In addition, allocating more resources to computerize land registration, pursue the nation-wide coverage, digitize large stocks of data, and automate procedures to reduce processing delays and enhance security would improve market transparency. Second, asymmetry of information could be reduced by continuing to strengthen WAEMU's credit bureaus. In this regard, national authorities could require their financial intermediaries to provide reliable and comprehensive information on a timely basis to credit bureaus, including for legacy loans. Improving the coverage and quality of credit information will call for the removal of the consent clause requiring banks to seek permission of their borrowers when sharing information. Third, to strengthen the region's collateral framework for banks' customers, a coordination mechanism between the BCEAO and OHADA could be established to align the region's prudential rules with OHADA's collateral standards (IFC 2018). In addition, upgrading national-level data sources, especially regarding statistics in the financial (collaterals) and judiciary (insolvency resolution) sectors, could greatly improve OHADA's monitoring efforts in these areas.
- Over the *medium term*, strengthening the banking sector resilience, by reinforcing supervisory and resolution frameworks, as well as enhancing financial inclusion policies will be key to boost the credit channel. Outstanding bank weaknesses that constrain credit supply, such as capital shortfalls, should be addressed in a proactive and gradual manner. The phasing and effective enforcement of the new prudential rules aligned with Basel II/III principles offers the opportunity

[42] Current charges are a significant hindrance to property registration, reducing the availability and usage of collateral for financial transactions (IFC 2018).

to consolidate banks' balance sheets and address vulnerabilities.[43] Moreover, strengthening crisis management and bank resolution frameworks could help resolve nonviable banks in an orderly manner. Finally, the BCEAO should continue advancing their technical capacity in banks' stress testing (IMF, 2018).

D. Conclusions

36. Over the last decade, the BCEAO has modernized considerably its monetary policy framework. Several key reforms were introduced in 2010 to revise the objectives and operational tools for monetary policy and enhance the governance of the central bank. The reform momentum has continued with the announcement of the reform of monetary arrangements in December 2019 and with the adaptation of the framework to the challenges posed by the Covid-19 crisis in 2020.

37. The framework has served the WAEMU region well by contributing to economic and exchange rate stability. The region has benefited from a stable exchange rate, low inflation, relatively low external borrowing costs and a depreciation of its real effective exchange rate. The monetary policy framework has also allowed the BCEAO to respond swiftly, forcefully and efficiently to the Covid-19 crisis. Several monetary policy measures have been taken to better steer short-term interest rates, manage the liquidity situation in the market and signal the monetary policy stance.

38. As the economic environment transforms and WAEMU countries move to frontier market status, the framework needs to keep evolving. The paper identifies outstanding challenges in both the design of the framework and the transmission of monetary policy:

- Regarding the design, the multiplicity of de facto policy objectives and constraints (stabilizing inflation, maintaining the peg and taking into account fiscal developments) can create complex trade-offs, communication challenges, and possible infringements to monetary policy independence. Obstacles to the conduct of monetary policy also include a lack of credible operational target and capacity constraints.
- Regarding the transmission, the main problem seems to be the lack of depth and liquidity of the main markets underlying the transmission, including the interbank market, the secondary market for public debt, and other asset markets. In addition, the credit channel is inhibited by structural problems affecting banks, including asymmetries of information with customers (partly addressed by new credit bureaus) and imperfect access to or lack of collateral.

39. Going forward, the BCEAO should continue reforming its framework with a view to strengthening further its transparency and independence, in line with international best practices. In the short term, the focus could be on clarifying the communication of the various objectives and trade-offs, continuing the institutional reforms of governing bodies, and making the interbank rate a true operating target for monetary policy . Medium-term reforms could include

[43] In 2018, the implementation of Basel II/III principles led to the revision of WAEMU banks' chart of accounts, which, among others, now requires the region's banks to write off losses on nonperforming loans from their books after five years.

establishing a framework to conduct foreign exchange interventions, creating incentives for banks to better discriminate across sovereign risks, and making a more systematic use of macroeconomic models.

40. Monetary policy effectiveness could be improved through multipronged actions tackling all channels of transmission. There is no silver bullet. Deepening and improving the functioning of the interbank, debt and equity markets should be at the core of this strategy and this is probably a long-term endeavor, which should be complemented by continued efforts to strengthen banks' balance sheets. Measures that could be considered include developing robust interbank benchmark rates; improving the capacity and coverage of national land registries and credit bureaus; and strengthening the collateral framework for refinancing operations.

References

Ahmed R., J. Aizenman and Y. Jinjarak, 2019, Inflation and Exchange Rate Targeting Challenges Under Fiscal Dominance, NBER Working Paper, No. 25996, June 2019, Revised in March 2020.

Aron, Janine, and John Muellbauer, 2000, Personal and Corporate Saving in South Africa, World Bank Economic Review, Vol. 14 (September), pp. 509–44.

Bationo Bassambié, La transmission de la politique monétaire dans une Union monétaire : cas de l'Union Monétaire Ouest Africaine (UMOA), 2015

Bertrand, M., E. Duflo, and Sendhil Mullainathan. 2004. How Much Should We Trust Differences-in-Differences Estimates? Quarterly Journal of Economics 119:249–75.

BCEAO, 2013, Détermination du niveau cible pour le taux interbancaire dans l'UEMOA. BCEAO, 2013, Estimation d'une fonction de réaction pour la Banque Centrale des Etats de l'Afrique de l'Ouest.

BCEAO, 2017, Impact des chocs des taux d'intérêts de la BCEAO sur l'évolution de l'inflation dans la zone UMOA : implications pour la poursuite d'un objectif de « stabilité des prix » BCEAO, 2017, Analyse en réseaux de l'intégration du marché interbancaire dans l'UEMOA

Berg, Andrew, Stephen O'Connell, Catherine Pattillo, Rafael Portillo, and D. Filiz Unsal, 2015, Monetary Policy Issues in Sub-Saharan Africa, The Oxford Handbook of Africa and Economics: Policies and Practices, Oxford University Press.

Brandao-Marques Luis, Gaston Gelos, Thomas Harjes, Ratna Sahay, and Yi Xue, 2020, "Monetary Policy Transmission in Emerging Markets and Developing Economies", IMF Working Paper 20/35, Washington, D.C.

Caporale Guglielmo Maria, Mohamad Husam, Helmib Abdurrahman, Nazif Çatik, Faek Menla Alid, and Coşkun Akdeniz (2018), "Monetary policy rules in emerging countries: Is there an augmented nonlinear taylor rule?", Economic Modelling, Volume 72, June 2018, Pages 306-319

Chevapatrakul, Thanaset, Paul Mizen, and Tae-Hwan Kim (2001) "Using Rules to Make Monetary Policy: The Predictive Performance of Taylor Rules Versus Alternatives for the United Kingdom 1992-2001"

Davoodi, H. R., S. Dixit, and G. Pinter 2013, "Monetary Transmission Mechanism in the East African Community: An Empirical Investigation", IMF Working Paper, WP/13/39.

Drehmann Mathias and James Yetman, 2018, "Why you should use the Hodrick-Prescott filter – at least to generate credit gaps", BIS Working Papers, No 744.ECB, 2017, The Eurosystem collateral framework explained, Occasional Paper Series, No 189 / May 2017

European Central Bank, 2017, "The Eurosystem collateral framework explained", Occasional Paper Series No.189, May 2017

European Central Bank, 2019, "Introducing ECB-BASE: The blueprint of the new ECB semi-structural model for the euro area", Working Paper Series, No. 2315, September 2019

Frankel, Jeffrey, and Shang-Jin Wei (2004), “Managing Macroeconomic Crises: Policy Lessons,” Chapter 7, in Economic Volatility and Crises: A Policy-Oriented Guide, edited by Joshua Aizenman and Brian Pinto, World Bank, Washington DC, 2004.

Gray, Simon. 2011. “Central Bank Balances and Reserve Requirements.” IMF Working Paper 11/36, Washington, D.C.

Hitaj, Ermal, and Kursat Onder, 2013, Fiscal Discipline in WAEMU: Rules, Institutions, and Markets, IMF Working Paper 13/216, Washington, D.C.

IFC, OHADA Secretariat, 2018, An Impact Assessment of OHADA Reforms: Uniform Acts on Commercial, Company, Secured Transactions, and Insolvency, Washington, D.C.

IMF, 2015a, Evolving Monetary Policy Frameworks in Low-Income and Other Developing Countries – Staff Report, Washington, D.C.

IMF, 2015b, Evolving Monetary Policy Frameworks in Low-Income and Other Developing Countries – Background Paper: Country Experiences, Washington, D.C.

IMF, 2018, Foreign Exchange Intervention in Inflation Targeters in Latin America, Washington, D.C.

IMF, 2020, Staff Note for the G20 International Financial Architecture Working Group: Recent Development on Local Currency Bond Markets in Emerging Economies, January 2020, Washington, D.C.

Kanga, Désiré, Victor Murinde, Issouf Soumaré, 2020, "Capital, risk and profitability of WAEMU banks: Does bank ownership matter?", Journal of Banking & Finance, Volume 114

Kireyev, Alexei, 2015, How to Improve the Effectiveness of Monetary Policy in the West African Economic and Monetary union, IMF Working Papers 15/99, Washington, D.C.

Kireyev, Alexei, 2016, Building Integrated Economies in West Africa: Lessons in Managing Growth, Inclusiveness, and Volatility. Washington, D.C.

Kuersteiner, Guido M., David C. Phillips, and Mauricio Villamizar. 2016. “The Effects of Foreign Exchange Intervention: Evidence from a Rule-Based Policy in Colombia.” Borradores de Economía 964, Banco de la República, Bogotá

Laurens, Bernard. (2005). Monetary Policy Implementation at Different Stages of Market Development. International Monetary Fund, IMF Occasional Papers.

Mishra, P. and Montiel, P. (2013). How Effective Is Monetary Transmission in Developing Countries? A Survey of the Empirical Evidence. Economic Systems, 37 (2), 187–216

Mishra, P, P. Montiel, and A. Spilimbergo, 2012, “Monetary Transmission in Low-Income Countries: Effectiveness and Policy Implications,” IMF Economic Review IMF, Vol. 60, Issue 2, pp. 270–302.

Montoro Carlos, and Marco Ortiz. 2016. “Foreign Exchange Intervention and Monetary Policy Design: A Market Microstructure Analysis.” Working Paper Series, DT.N. 2016–008, Central Bank of Peru

Nubukpo, 2001, L'impact de la variation des taux d'intérêt directeurs de la BCEAO sur l'inflation et la croissance dans l'UMOA [The impact of a variation in key interest rates of the BCEAO on inflation and growth in the WAMU] (in French). Document d'Etude et de Recherche, DER/01/07, BCEAO.

Nubukpo, K. K., "L'efficacité de la Politique Monétaire en Situation d'Incertitude et d'Extraversion: Le Cas de l'Union Économique et Monétaire Ouest Africaine (UEMOA) ", The European Journal of Development Research, Volume 19, Issue 3, September 2007, pp. 480–495.

Nyborg, Kjell G., 2017. "Central bank collateral frameworks," Journal of Banking & Finance, Elsevier, vol. 76(C), pages 198-214.

Roberts, Michael, Toni Whited, 2012, Endogeneity in Empirical Corporate Finance, SSRN Electronic Journal,

Romer, Christina D. and David H. Romer (1989), "Does Monetary Policy Matter? A New Test in the Spirit of Friedman and Schwartz," in: Blanchard, Olivier J. and Stanley Fischer, eds., NBER Macroeconomics Annual 1989 (Cambridge: MIT), 121-70.

Sacerdoti, E. 2005. "Access to Bank Credit in Sub-Saharan Africa." Working Paper WP/05/166, International Monetary Fund, Washington.Shortland and Stasavage, 2004

Shortland, A., and D. Stasavage, 2004, "What Determines the Monetary Policy in the Franc Zone? Estimating a Reaction Function for the BCEAO," Journal of African Economies, Vol. 13, No. 4, pp. 518–35.

Veyrune, R., 2007, Fixed Exchange Rates and the Autonomy of Monetary Policy: the Franc Zone Case, IMF Working Paper 07/34 (Washington: International Monetary Fund).