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CENTRE OUEST AFRICAIN DE FORMATION ET D'ETUDES BANCAIRES

THEMATIC STUDY AND NOTES N°02

MONETARY POLICY WITH A NEAR-ZERO FLOOR INTEREST RATE

By Désiré Kouamé KANGA

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September 2021

* I would like to thank all my colleagues at the DRP and other Central Services Departments for their valuable contributions, which have improved the quality of this work. The shortcomings and limitations inherent in this study are not the responsibility of the Central Bank, but of the author alone.

PREAMBLE

The West African Center for Banking Studies and Training (COFEB) is the Central Bank of West African States (BCEAO) entity in charge of capacity-building activities and economic and financial research. Since November 2019, this Regional Center has three (3) Directorates, namely the Directorate in charge of Teaching and Training Programs, the Directorate in charge of Research and Partnerships and the Directorate in charge of Administrative Affairs and Communication, under the responsibility of a General Manager. Through this institutional transformation, the vision of the BCEAO authorities is to make COFEB a renowned center of excellence in training and research at the international level.

Like all central banks, the BCEAO must play a leading role in the process of generating knowledge and disseminating it to the general public and policymakers. This contributes to the transparency process recommended by international standards. In addition, as an economic and financial advisor to governments, it has a duty to inform and raise awareness among national authorities of the new challenges in that area.

Within this framework, several technical studies, based on quantitative methods, are published each year on topics of great interest to WAEMU economies. The *"Thematic Study Notes"* complete the range of research documents produced by the BCEAO. They are intended to stand as research papers in their own right on a topic pertaining to current economic events or drawn from a business process, but which do not necessarily involve major quantitative tools.

Like the Study and Research Papers produced at the BCEAO, *"Thematic Study Notes"* present research findings and the lessons to be drawn from them, with a view to enlightening policymakers on subjects pertaining to current economic and financial affairs or relating to a Central Bank business process.

Ousmane SAMBA MAMADOU,
General Manager of COFEB

A word from the Director

The severity of the 2007 financial and economic crisis led central banks to cut rates to the near-zero lower bound. This phenomenon, known as the liquidity trap, which is synonymous with the ineffectiveness of conventional monetary policy, is relatively rare in economics, and was observed in Japan in the 1990s. Faced with the ineffectiveness of interest-rate policy, the major central banks were forced to resort to exceptional measures, described as unconventional in the sense that they rely on managing their balance sheets rather than their key interest rates (conventional monetary policy). These measures are similar to the lender-of-last-resort role of central banks, with the difference that interventions were aimed at the financial system as a whole and not just at solvent but illiquid institutions).

The outbreak of the COVID-19 pandemic in 2020 once again forced central banks to implement unconventional policy measures. COVID-19 led to a drastic drop in global supply and demand due to disruptions in supply chains, measures taken to contain the spread of the virus (lock-down, social distancing, etc.) and postponements of consumption and capital expenditure. In an environment of weak growth, deflation risk and rock-bottom interest rates in advanced countries, central banks reactivated or ramped up certain unconventional monetary policy measures. Unlike the financial crisis of 2007, when these measures were implemented mainly in advanced countries, this time several central banks in emerging market and developing economy (EMDE) countries resorted to these measures (Fratto et al., 2021).

In this regard, there is a need to gain a better understanding of the various measures taken by central banks due to the increasingly narrow margins for maneuver that characterize conventional monetary policy instruments, and to present the channels through which they are transmitted to the economy, as well as their effectiveness

This Thematic Study and Note is intended to provide an overview of unconventional monetary policies in the context of a near zero lower bound interest rate, and to present the lessons that can be drawn from this for the BCEAO.

Enjoy your reading !

Ndèye Amy NGOM SECK
Director, Research and Partnerships

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INTRODUCTION

The financial crisis of 2007 quickly turned into an economic crisis, with drops in output and inflation (*see Appendix 1, graphs 1A and B*), as well as rising unemployment. The severity of the crisis prompted central banks to lower their rates to near zero (*see Appendix 1, graph 1C*). This phenomenon is quite rare in economics, and has only been previously encountered in Japan in the 1990s. For example, the U.S. Federal Reserve's key interest rate fell from 5.25% in May 2007 to 0.16% in December 2008.

Monetary policy decisions concerning changes in the nominal interest rate affect the economy via the real interest rate, i.e., the difference between the nominal interest rate and inflation expectations. For example, if inflation expectations are solidly anchored at around 2% and the nominal interest rate is 3%, in times of economic slowdown, the central bank could lower its key rate by, say, 1 percentage point so that the real interest rate is 0%, in order to stimulate economic activity.

In an extreme situation, such as a financial crisis or credit crunch, a negative interest rate may be necessary to prevent a sharp downturn in the economy, since growth and inflation are low. The central bank cannot lower its key rate below zero, however.[1] In such a context, the real interest rate cannot be lower than -2%, even if economic conditions call for a much lower real interest rate. The central bank is therefore no longer in a position to influence financing conditions, at least by means of its interest rate policy or conventional policy. The economy faces a liquidity trap, defined as the central bank's inability to stimulate economic growth by lowering interest rates, since they are at lower bound. The liquidity trap means that conventional monetary policy is ineffective, and it can also generate a "deflationary spiral"[2]. Weak demand and near-zero key interest rates also squeeze profit margins for commercial banks, as demand for credit is low to non-existent.

Faced with the ineffectiveness of interest-rate policy, the major central banks were forced to resort to exceptional measures, described as unconventional in the sense that they relied on managing their balance sheets rather than their key interest rates (conventional monetary policy). Unconventional measures are, above all, emergency measures implemented by central banks.[3]

These measures are described as unconventional because *(i) they do not focus solely on managing short-term interest rates, (ii) the amounts of liquidity injected are considerable (iii) they substantially modify the structure and size of the balance sheets of the central banks, and (iv) their transmission channels may differ from those used by interest rate policy*.

In practice, these measures are similar to the lender-of-last-resort role of central banks, except that interventions are aimed at the financial system as a whole (and not just at solvent but illiquid institutions), particularly due to cross-exposures.

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[1] There are several reasons for this behavior on the part of central banks. In the first place, no rational actor would theoretically buy an asset with a negative nominal return, when simply keeping their money as cash would yield a zero return. Secondly, for technical and, above all, profitability reasons, commercial banks cannot (or can only with difficulty) pass on negative rates on loans to businesses and households; this policy would ultimately mean enriching commercial banks in return for an unchanged level of financing. Finally, negative interest rates cannot be applied to bank deposits, as this could lead to a drying-up of term deposits.

[2] Under such circumstances, if a negative shock were to hit the economy, substantially lowering inflation expectations, the real interest rate would rise. It would stand at 2%, for example, instead of -2% if deflation was expected to stand at 2%. The rise in the real interest rate would weaken demand due to higher financing costs, further lowering inflation expectations, so that demand would drop again, and so on. As a result, the economy would enter a "deflationary spiral", which could lead to a long period of sluggish growth and deflation.

[3] More generally, unconventional measures refer to a very broad set of proposals such as taxes on the holding of monetary assets (Goodhart and Ashworth, 2012), currency depreciation (McCallum, 2000) and general price-level targeting (Jeanne and Svensson, 2007). This Note focuses on the measures implemented from 2008 onwards. Helicopter Money (Couppey-Soubeyran, 2020) will be discussed in subsection 3.3, but digital currency will not be examined.

After just over ten years of implementation, these measures have not been totally abandoned, with the exception of the Fed. Moreover, the advent of the COVID-19 pandemic in 2020 reinforced the use of these measures. COVID-19, initially a health crisis, led to a drastic drop in global supply and demand, due to disruptions in supply chains, measures taken to contain the spread of the virus (lock-down, social distancing, etc.), and postponements of consumption and capital expenditure. The drop in demand was combined with a fall in oil prices, leading to a reduction in inflation. In an environment of low growth, deflation risk, and rock-bottom interest rates in advanced countries, central banks reactivated or ramped up certain unconventional monetary policy measures.

Unlike the financial crisis of 2007, which led to unconventional measures being implemented mainly in advanced countries, this time, several central banks in emerging market and developing economy (EMDE) countries resorted to these measures (Fratto et al., 2021). While most advanced countries had used unconventional measures to deal with the zero interest rate bound (substitutes), most developing countries used them as *complements to their interest rate policy banques centrales, et (iv) leurs canaux de transmission peuvent différer de ceux empruntés par la politique de taux*.

This Note reviews the various measures taken by central banks in the light of the increasingly narrow margins for manoeuvre that characterize conventional monetary policy instruments. It also presents the channels through which these measures are transmitted to the economy, and their effectiveness. Lastly, lessons are drawn for the Central Bank of West African States (BCEAO), in relation to the risk of falling into a liquidity trap.

After the introduction, the Note is divided into four (4) sections. After the introduction, the second section outlines international experience of the effectiveness of unconventional monetary policies, the third presents the measures taken to deal with the near zero lower bound interest rate, the third draws lessons for the BCEAO and the final section concludes.

I. EFFECTIVENESS OF MONETARY POLICY : INTERNATIONAL EXPERIENCES

This section has two objectives. Firstly, it characterizes the unconventional measures implemented by central banks to cope with the near zero lower bound interest rate. Secondly, it presents the instruments used by the major central banks to implement these measures.

Until 2008, the probability of the policy rate nearing a zero lower bound was very low, according to available studies[1] (Amirault and O'Reilly, 2001). In addition, economists felt that its impact on the economy was manageable. The global financial crisis of 2008 called this consensus into question.

1.1 Characteristics of unconventional measures

Unconventional measures can be used either as substitutes for or complements to interest rate policy. Unconventional measures have been implemented when the key interest rate was close to zero in some countries (USA, Canada, UK, Japan) and can be considered as substitutes for interest rate policy (as in the USA and Canada). However, in the Euro zone, unconventional measures have been implemented even though the European Central Bank (ECB) still had room to reduce key interest rates, and developing countries have implemented unconventional measures to cope with the consequences of COVID-19. In this case, unconventional measures are used as a complement to interest rate policy.

Whatever their form, i.e., substitute or complement, unconventional measures are generally aimed at boosting credit to the economy and improving the transmission conditions for monetary policy in times of crisis.

In the implementation of unconventional measures, central bank intervention has gone beyond the framework of the traditional players (banks) to extend to non-banks and non-financial institutions. For example, the Fed was heavily involved in the rescue of the AIG insurance company and undertook certain transactions directly with brokers.

[1] Only Japan, in the mid-1990s, had had its key interest rate at virtually zero for a long period in response to deflation and weak growth. Japan's money market rate had been below 0.6% since November 1995.

Theoretically, unconventional measures can be classified into quantitative policies (increasing the size of central banks' balance sheets while maintaining the average liquidity and risk of their portfolios) and qualitative policies (changing the composition of central bank assets towards less liquid, riskier assets). With the exception of twists[1], central banks have pursued both quantitative and qualitative policies, resulting in an increase in the size of their balance sheets (see graph 1D) and a change in their structure. For example, the size of the Fed's balance sheet increased fivefold between 2006 and 2017.

1.2 Implementing unconventional measures: the experience of some central banks

The unconventional measures implemented after the financial crisis were both quantitative and qualitative. Consequently, in the remainder of this Note, they will be classified according to their nature, namely *(i) liquidity-providing measures using traditional instruments, (ii) measures relating to asset purchases, and (iii) communication to guide interest rate expectations (forward guidance).*

This sub-section analyzes each of the three above-mentioned categories, focusing on the specific objectives assigned to each and the instruments used.

1.2.1 Liquidity-providing operations using traditional instruments

To deal with the magnitude of the financial crisis, central banks readjusted existing liquidity provision frameworks. Traditionally, central banks provide liquidity to the banking sector through open-market operations (interest-rate steering, bank liquidity management, monetary policy guidance) and standing facilities (marginal lending or deposit). However, in response to the crisis, they refinanced non-bank institutions (Fed), broadened the range of assets eligible as collateral (ECB), extended refinancing maturities (ECB, BoE), provided unlimited liquidity at fixed rates (ECB), ensured a supply of foreign currencies *(*currency swaps)[2], and applied negative interest rates (ECB, BoJ, Danmarks Nationalbank or DN, Swedish Riksbank, Swiss National Bank, Hungarian National Bank).

These measures are a response to the zero interest rate bound. Firstly, by broadening the base of assets eligible as collateral, the ECB decided to accept collateral denominated in foreign currencies, which were not eligible for refinancing operations before the crisis.

Secondly, some central banks extended the maturity of their refinancing operations. For example, the ECB extended the maximum maturity of its operations to 48 months, compared with three (3) months before the crisis.

In addition, the ECB provided unlimited liquidity at a fixed rate, in contrast to the fixed-rate or variable-rate pro rata auction carried out before the crisis. In "traditional" refinancing operations, the central bank sets a maximum amount to be distributed among all counterparties. Nevertheless, it changed this approach and decided to service fully the amount of liquidity requested by bidders at the rate it had set. This measure enabled banks to obtain unlimited financing from the window, with a view to supporting their short-term financing.

Finally, several central banks introduced negative interest rate policies[3] to encourage banks to use their reserves for intermediation. The implementation of unconventional measures through the intermediary of the banks led to an excessive accumulation of reserves of the banks with the central bank. The ECB therefore decided to reduce the interest rate on deposit facilities to 0% in July 2012 and then to -0.40% in March 2016. In other words, the

[1] A twist is a transaction whereby the central bank sells securities with short maturities in order to buy an equivalent amount of securities with long maturities.

[2] Foreign currency contributions (swaps) are made between central banks, as regulations do not allow central banks to provide liquidity to foreign banks established in their monetary jurisdictions. Foreign exchange swaps are not unconventional measures per se, since such arrangements existed prior to the crisis, including one between the Fed and the ECB in 2001. Certainly, the exceptional and widespread nature of the crisis can make them appear to have an unconventional aspect.

[3] There is some debate as to whether a negative rate should be classified as an unconventional measure, since the interest rate is an instrument controlled by the central bank (see Pfister and Sahuc (2020) for a discussion).

central bank was taxing banks' deposits to encourage them to utilize their resources, either by lending them to businesses or investing them in interest-bearing securities. Other central banks (Denmark, Hungary, Japan, Norway, Sweden, Switzerland) followed a similar approach.

1.2.2 Asset purchase transactions

The measure most used by central banks during the global financial crisis and the COVID-19 pandemic was the massive purchase of securities. The Fed resumed asset purchases in the wake of the COVID-19 pandemic to restore the proper functioning of the Treasury and mortgage-backed securities markets (which were dysfunctional during the pandemic) and, *in fine,* ensure the transmission of monetary policy to influence financing conditions. The portfolio of assets held by the Fed thus increased from $3.9 trillion to $6.6 trillion between mid-March and December 2020.

Similarly, the ECB initiated seven purchase programs for covered bonds, government bonds, private-sector bonds and asset-backed securities between 2009 and 2016. Initially worth €600 billion at its launch in March 2020, the Pandemic Emergency Purchasing Program (PEPP) was re-evaluated at €1.850 trillion in December 2020.

The various asset purchase programs reassured banks and investors that they would not be faced with a liquidity constraint (Ugai, 2007). They also provided a guarantee to investors that the central bank would continue its easing policies.

While asset purchases were made only by advanced countries after the financial crisis, emerging and developing countries initiated asset purchase programs to cope with the COVID-19 pandemic. At least 50 asset purchase programs were initiated in 27 emerging and developing countries between March and August 2020 for a target amount[2] of $129,146 billion (Fratto et al., 2020). According to the same source, approximately two-thirds of these programs were based on a fixed or maximum purchase amount (e.g. Bolivia, Ethiopia, Ghana, Iceland, India, Mauritius, Mexico and Thailand). Other countries (Angola, Colombia, Costa Rica and Hungary) targeted amounts adjusted to market conditions and/or the economic outlook.

Most of the securities purchase programs initiated after the 2007 financial crisis took place on secondary markets and do not, a priori, constitute direct financing of the budget deficit[3]. However, during the COVID-19 crisis, the Fed, the BoE, the Central Bank of New Zealand and some central banks in emerging and developing countries (Poland, Indonesia and Mauritius) made asset purchases to finance public spending induced by the health crisis.

Monetary financing of the deficit can potentially call into question the independence of the central bank. This is why the monetary authorities have emphasized the temporary and ad hoc nature of the measures taken.

1.2.3 Central bank communication strategies

The financial crisis and the zero interest rate constraint led central banks to announce their intentions regarding key interest rates in a more systematic and pronounced way, known as forward guidance. Although communication in itself was nothing new, the systematic nature of forward-looking information on monetary policy makes forward guidance an additional tool for central bankers. By providing specific information on the central bank's monetary policy intentions, forward guidance aims to push inflation expectations beyond the central bank's target in order to allow the real interest rate to fall and stimulate the economy (Eggertsson and Woodford, 2003).

[2] The data on targeted amounts is more complete than that on actual purchases.

[3] Monetary financing or *debt monetization* takes place when a country increases its spending by creating money to finance it. In practice, the central bank can either buy government bonds or make a direct advance to the government to finance its budget.

Two forms of forward guidance have been proposed (Campbell et al., 2012), namely the *Odyssean*, in which the central bank publicly commits to a future action, and the *Delphic approach*, in which the central bank makes a forecast of macroeconomic performance and likely monetary policy actions. The first form is more restrictive than the second, as it exposes the central bank to issues of time inconsistency. Thus, the central bank could be tempted to reverse its decision if expectations fail to materialize, which could damage its credibility. That is why this form is not used very often (Moessner et al., 2017).

In practice, central banks' communication strategies have combined both forms, and have adjusted in line with the intensity of the financial crisis (Pfister and Sahuc, 2020). Central banks' intentions have been presented qualitatively in the following terms: interest rates would remain low "*for some time*" (Fed in December 2008) or "*for an extended period*" (Fed in March 2009 and ECB in June 2013), without committing to a specific timetable. Finally, some central banks have conditioned their future actions on "thresholds" for macroeconomic variables such as unemployment and inflation. For example, in December 2012, the Fed decided to continue its accommodative monetary policy as long as (i) the unemployment rate was above 6.5%, (ii) inflation forecasts over one to two years did not exceed the long-term target of 2% by half a percentage point, and (iii) longer-term inflation expectations remained well anchored.

During the COVID-19 crisis, the Fed explicitly stated that rates would remain low "*until labor market conditions have reached levels consistent with full employment, inflation is above 2%, and inflation projections indicate that this trend will continue for some time*".

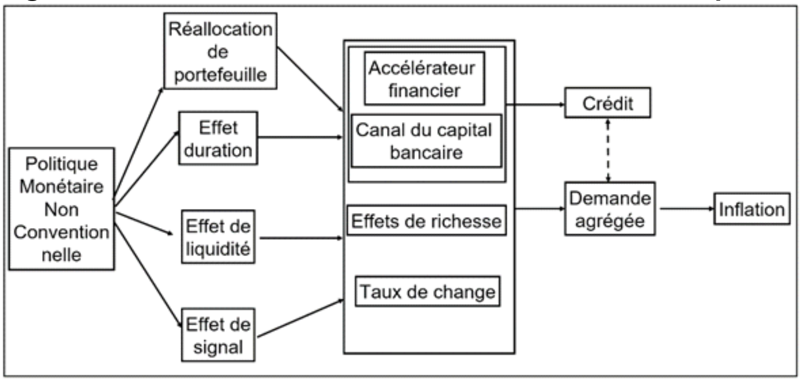
II. EFFECTIVENESS OF MEASURES TAKEN TO COPE WHEN INTEREST RATES HIT THE FLOOR

The previous section showed some of the measures taken by central banks to deal with the zero bound on nominal interest rates. These measures raise two questions. The first is to identify the mechanisms by which these measures affect the economy. The second is the relevance of these measures. The aim here is to evaluate the measures in terms of macroeconomic and financial variables. This section attempts to answer both questions. Lastly, it outlines some of the limitations of these measures.

2.1 Probable transmission channels for unconventional measures

Overall, unconventional measures can ease financing conditions and boost credit activity through four channels, as shown in diagram 1. Firstly, massive asset purchases were intended to open up the flow of transactions on the markets targeted by these purchases, resulting in a drop in risk premiums which had ballooned at the height of the crisis *(liquidity effect*). Secondly, unconventional measures were to lead to a reallocation of investor portfolios. The massive purchase of risk-free assets drives up their prices and lowers their yield. The result is a reduction in the level of interest rates on new issues of securities, and an incentive for investors to turn to other, more available and lucrative assets, the demand for which will also lower the expected yield. Banks are also encouraged to lend to businesses *(portfolio reallocation effect*). Thirdly, interest-rate risk is reduced when the central bank undertakes to keep its key rates low for a long time *(duration effect*). Fourthly, unconventional measures should restore confidence. By buying assets, including medium-quality ones, central banks reassure investors and encourage them to follow suit. These last two effects are intended to reduce risk premiums. Consequently, provided there is a demand for financing, by lowering financing costs, these measures should stimulate aggregate demand, aided by the depreciation of the exchange rate.

Diagram 1: Transmission channels for unconventional policies



Source : Kanga (2017)

Diagram : Unconventional monetary policy Portfolio reallocation Duration effect Liquidity effect Signal effect Financial accelerator Bank capital transmission channel Wealth effects Exchange rates Credit Aggregate demand Inflation).

2.2 Effects of unconventional measures

A near-consensus on the relevance and effectiveness of the unconventional measures implemented by central banks was observed in the context of near-zero nominal interest rates following the financial crisis. Overall, the measures were fairly effective in preventing further financial difficulties, restoring the functioning of financial markets and easing financing conditions. They may have had beneficial effects on economic growth, inflation and unemployment, although the macroeconomic effects of the measures are difficult to assess.

Studies by Bailey et al. (2020) and Neely and Karson (2021) conclude that unconventional measures helped to ease financing conditions after the policy rate hit the floor. Specifically, asset purchase programs and the guiding of actors' expectations had a major impact on bond yields (both public and private) via their effects on risk premiums *(liquidity effects*). Negative interest rates were also effective in lowering bond yields. These measures led to a rise in asset prices, which in turn drove down interest rates (lending rates, long rates).

It should be noted that the scale of the effects of non-conventional measures remains modest in light of the value of the operations. Moreover, the impact of these policies on the volume of credit to non-financial companies (NFCs) remain limited. The measures have resulted in increases in bank reserves, probably due to flagging demand and/or the reluctance of banks to lend in times of uncertainty.

According to Pfister and Sahuc (2020), by modifying asset prices, unconventional measures help to reduce the cost of capital and boost investment. Provided there is a demand for financing, these policies should stimulate aggregate demand, thereby helping to create inflation expectations and reduce unemployment. An increase in the size of the central bank's balance sheet has been shown to boost output and inflation, and reduce unemployment. Debortoli et al. (2020) and Lhuissier et al. (2020) conclude that a low-rate environment does not hinder the monetary transmission mechanism. The effects of monetary policy on activity and prices remain similar between the normal regime *(positive interest rate*) and the low interest rate regime *(floor interest rate*).

2.3 Limits of unconventional measures

Despite the usefulness of unconventional measures, their effects remain modest in relation to the amounts of liquidity injected. Indeed, unconventional measures are less effective when deflationary pressures are entrenched (cf. Japan's experience). When the yield curve[1] is

[1] The yield curve is a graphical representation of the yields (interest rates) of bonds from the same issuer according to their maturity, from shortest to longest. The gradient of the yield curve gives an idea of future variations in interest rates and economic activity. There are three main types of yield curve: normal (rising curve), inverted (falling curve) and flat.

already flat and close to zero, quantitative easing and forward guidance have a limited impact on lowering yields. Negative interest rates may serve as a complementary instrument, but their effects on bank profitability are not yet well known. Existing studies nevertheless indicate that negative rates are not disastrous for the banking sector (Bikker and Vervliet, 2018; Boungou, 2020), said sector having adjusted its practices to cope with the situation (Klein, 2020).

In addition, the effects of unconventional measures on growth, unemployment and inflation creation are slow. Moreover, in the euro zone, they have been less effective where needs were comparatively greatest, despite the ECB's asymmetrical response.

On the other hand, the provision of liquidity may lead to greater risk-taking by banks through speculation, which would lead to instability in the financial system and generate further crises (Shin, 2009).

Finally, the implementation of unconventional measures has often given rise to moral hazard problems, which would explain their mixed effects. Banks have decided to hold more reserves instead of using the injected liquidity to increase lending activity (Shleifer and Vishny, 2010), either due to absent and/or sluggish demand, or because of a desire on the part of banks to hold liquidity reserves. This observation has prompted some economists to suggest a "direct transfer" from the central bank to the governments and the private sector to accounts opened within its departments (Couppey-Soubeyran, 2020) or *"helicopter money"* (Galí, 2020). The aim is to increase aggregate demand and achieve a multiplier effect on GDP that would be greater than that of conventional monetary policies. These transfers improve the transmission of monetary policy, and the expected multiplier effect on economic activity is equivalent to that obtained through a tax cut.

Opponents, however, believe that the direct distribution of money to economic operators for no consideration is inefficient. In fact, helicopter money has already been put into practice implicitly. When a State, for example, makes a transfer to households (direct transfer or partial unemployment financing) and issues bonds to finance the transfer, then the central bank buys the bonds, this is equivalent to a situation where the central bank gives money directly to the households (Artus, 2020).

III. WHAT LESSONS CAN BE DRAWN FOR THE BCEAO?

3.1 Economic crises and BCEAO special measures

In response to the COVID-19 pandemic, the BCEAO implemented measures described as*"special".*[1] In order to mitigate the adverse consequences of the pandemic, the BCEAO Monetary Policy Committee decided, at its meeting on June 22, 2020, to support the stimulus plans put in place by the States. Accordingly, key interest rates were cut by 50 basis points. The minimum interest rate for bidding on calls for tenders for injection of liquidities were lowered from 2.50% to 2.00% and the marginal lending rate was lowered from 4.50% to 4.00%. The decision came into force on June 24, 2020. In addition, the Monetary Policy Committee noted that the status of mandatory reserves held by the banks remained comfortable. On this basis, it decided to maintain the minimum reserve ratio applicable to banks in the Union unchanged at 3.0%.

In addition to communicating on these measures through the statements of the Monetary Policy Committee, the Central Bank decided to (i) increase the resources made available to banks, to enable them to maintain and increase financing of the economy. In this respect, an initial increase of 340 billion was made to the amount that the Central Bank grants to banks each week, bringing it to 4,750 billion; and (ii) broaden the range of mechanisms available to banks to access Central Bank refinancing. In addition to this increase in March 2020, the measure has now been extended to meet all the needs expressed by Credit Institutions on the one-week window.

[1] BCEAO, https://www.bceao.int/fr/communique-presse/communique-de-la-banque-centrale-des-etats-de-lafrique-de-louest-bceao

In this context, the BCEAO has taken the initiative of listing 1,700 private companies whose bills were not previously accepted in its portfolio. This action will enable banks to access additional resources of 1,050 billion and the businesses concerned to negotiate and benefit from better terms for their loans.

Other measures focused on the issuance of public securities, with a rescheduled timetable on the regional financial market, and raising awareness of the use of resources available through the special window for refinancing loans to small and medium-sized enterprises (SMEs/SMIs). 25 billion was also allocated to the West African Development Bank's (BOAD) subsidy fund to enable it to grant interest rate subsidies and increase the amount of concessional loans to States to finance urgent investment and capital expenditure as part of the fight against the pandemic.

It should also be noted that these response measures were aimed at limiting the impact of the COVID-19 crisis on the Union's production apparatus, while the stimulus action was designed to strengthen the economic recovery. These include the structuring of Support and Resilience Bonds (SRBs) and the setting up of a “Support and Resilience Window”.

A retrospective on the impact of these measures, in coordination with fiscal policy measures for households and businesses, shows positive results. From an IMF forecast of 0.3% real GDP growth for the Union in 2020, economic growth came out at 1.5% with a stable inflation rate.

3.2. A few lessons for the BCEAO

In February 2021, the BCEAO's main key interest rate was 2%, and the eight-quarter inflation forecast made in December 2020 was 1.8%.[1] This information indicates that BCEAO should not ignore the threat posed by the zero bound. If the trend continues and the crisis persists, the Central Bank will be forced to lower its key rate even further. The current real interest rate is 0.2% and cannot fall below -1.8% if the key interest rate is zero and inflation expectations are 1.8%.

In practice, two groups of factors can influence the probability of nominal interest rates hitting the zero lower bound (Lavoie and Murchison, 2007): the average level of interest rates and the volatility of these rates. In the first instance, the risk of hitting the zero bound is higher if the expected inflation rate is low, since there is little scope for lowering the real interest rate. Under these conditions, it is in the Monetary Authority's interest to push inflation expectations towards, or even beyond, the target for a certain period of time, to allow the real interest rate to fall and revive the economy. In the West African Economic and Monetary Union (WAEMU), inflation forecasts, used as a proxy for inflation expectations, appear optimistic. If these expectations are firmly anchored at 2%, the risk of deflation is very low, which would limit the negative effects of the zero bound.

In addition, the BCEAO's communication strategy provides clear indications as to the future direction of monetary policy, namely, to adopt the forward guidance used by central banks in advanced countries. In this vein, the press release from the Monetary Policy Committee meeting held on March 3, 2021 states that "*in the months ahead, the BCEAO will continue to implement a monetary policy that ensures price stability, while supporting a return to strong growth*".

Secondly, the magnitude of the shocks affecting the economy could lead to a drastic cut in nominal rates, which could accelerate the rate hitting zero. Changes in the nominal rate are passed on not only to the real rate, but also to the long-term rate, according to expectations theory. Woodford (1999) therefore recommends that central banks make a credible commitment to a monetary policy characterized by a certain degree of inertia towards the past. In practice, central banks may adopt price-level targeting, as opposed to inflation targeting.[2] In

[1] These statistics are taken from press release No. 01/2021 of the ordinary meeting of the BCEAO Monetary Policy Committee held on March 3, 2021, by videoconference.

[2] The difference between inflation targeting and price-level targeting relates to action taken in response to unanticipated shocks to inflation. When the price level is the target, such shocks lead to corrective measures

that case, the central bank strives to bring the price level, and not its variation, back to a set value or path.

Finally, unconventional measures are also tools that the BCEAO can use to avoid the zero lower bound. The BCEAO has already anticipated the problem the floor rate can pose by implementing exceptional measures[1] early on in the COVID-19 pandemic, following the example of other emerging and developing countries. Unconventional measures, while attractive, need to be well calibrated (in terms of the choice of instruments and amounts, as well as an *a priori* examination of transmission channels) if they are to have a significant impact on the economy, given the structure of our economies.

to bring the price level back towards the target. Conversely, when inflation is on target, such shocks are considered to be "past errors", so the central bank's action will be to ensure that inflation evolves in line with the target set. In technical terms, the trajectory of the price level can be radically altered (presence of a unit root) when inflation is the target, as opposed to price-level targeting.

[1] See https://www.bceao.int/fr/Covid-19 for the BCEAO's response to COVID-19 (accessed 16/03/2021).

CONCLUSION

Until 2008, the zero bound was a mere theoretical curiosity, except in Japan. Perceptions have changed radically, to the point where key interest rates have hit record lows in the US, the euro zone and the United Kingdom.

This Note explores the monetary policy measures implemented to address this situation, their relevance, and their effectiveness. Lessons have been drawn as to their implications for WAEMU.

Generally,central banks have resorted to unconventional measures when unable to lower key rates further. The measures have included liquidity injections, massive asset purchases, and intensive communication.

These measures are transmitted to the economy, first and foremost, through expectations. The effects of unconventional measures are less predictable and weaker than those of conventional policies, because their effectiveness relies on the creation of expectations. The effects obtained remain below target with respect to the amounts of liquidity injected. In particular, the effects of unconventional measures on growth, unemployment and inflation have been slow, even though they raised asset prices, reduced risk and liquidity premiums, and lowered long-term interest rates.

Unconventional measures must remain part of the central bank toolbox, as they can provide crucial relief in the event of a severe crisis pushing economies towards the zero bound. The COVID-19 pandemic is a case in point. In practice, monetary authorities should make efforts to monitor inflation expectations, while implementing policies tailored to the needs of their economies, especially in a monetary union such as WAEMU.

However, they are not always effective, especially if the central bank lacks credibility and fails to change the expectations of economic operators. It would therefore be useful to think about how to reduce the likelihood of a sub-zero lower bound constraint, for example, by raising the inflation target to leave more room for conventional cuts in nominal interest rates, by adopting price-level targeting rather than inflation targeting, or by promoting structural reforms to stimulate growth (fiscal policy beyond the central bank's mandate). And so in fact, unconventional monetary policies are not a solution to the indebtedness of countries, but may play a part in increasing it.

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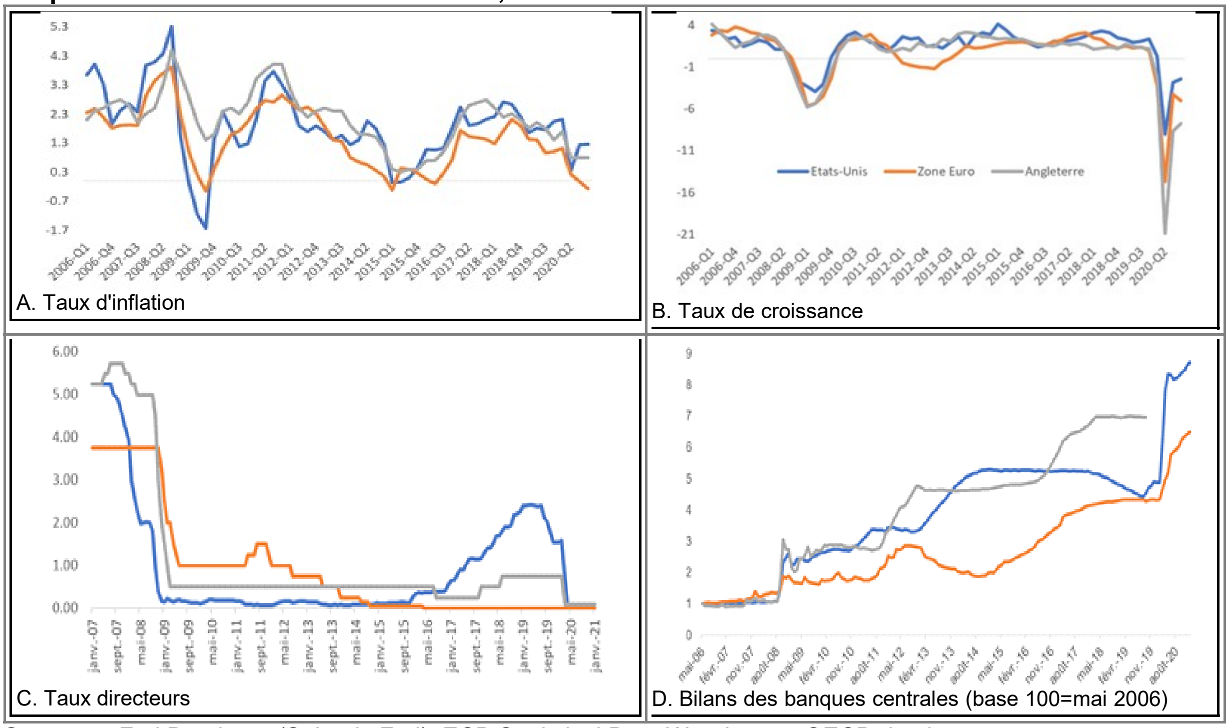
Appendix 1

Graph 1: Selected indicators for the US, euro zone and UK



A. Taux d'inflation

B. Taux de croissance

C. Taux directeurs

D. Bilans des banques centrales (base 100=mai 2006)

Sources : Fed Database (St Louis Fed), ECB Statistical Data Warehouse, OECD database

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