



Banks and Monetary Policy Transmission in the West African Economic and Monetary Union

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Abstract

This paper aims at examining the role of banks in the transmission of the monetary policy in the West African Economic and Monetary Union (WAEMU). By using a simple theoretical model, this paper shows that improving the quality of institutions and an increase in competition strengthens the transmission of monetary policy while capital requirement behaves like an additional cost to the borrowers. Applying a dynamic panel estimator to a large sample of WAEMU banks, the paper finds that bank lending is sensitive to monetary policy and capital-constrained banks reduce further their lending following a tight monetary policy compared to less capital-constrained banks. Moreover, an improvement

in the quality of institutions seems to strengthen the transmission of monetary policy. Keywords: Capital regulation; Quality of institutions; Monetary policy.

Introduction

To what extent the availability of bank credit depends on the monetary policy? Does this vary depending on the characteristics of the banks and the environment in which they operate? Both questions have been intensively studied in the literature especially in Eurozone (e.g., Angeloni et al., 2003; Ehrmann et al., 2003b; Gambacorta, 2005) and in the United States (e.g., Kashyap & Stein, 1995, 2000; Kashyap et al., 1993, 1996) with less attention to developing countries. These studies lead to two important conclusions. First, the monetary policy influences the credit supply of banks and banks' balance sheets strongly contribute to the transmission of the monetary policy. Second, the structure of the financial system may explain the differences in the transmission of the monetary policy.

Specifically, the bank lending could be strengthened by their level of risk, the quality of institutions and the competition in the banking sector. According to Altunbas et al. (2010), banks with a low level of risk can supply a larger amount of money in a period of monetary policy restriction. In fact, low exposure to risk increases the probability of refinancing on the market, which helps to maintain or even increase the supply of credit. Banks may thus get free from constraints induced by the changing monetary policy and meet the demand for credit. However, such risk-taking behaviour of the banks is obviously not possible in developing countries with poorly developed or inexistent equity markets. Banks, as a company, are supposed to reduce their level of intermediated credit with the level of risk in the economy. The level of risk grows with the political and economic uncertainty. That is why business environment, institutional quality, and political risk will affect the transmission of monetary policy via banks as they do for other micro and macroeconomic indicators (e.g., Gohou & Soumaré, 2012). It will operate via an increase of cost of credit. As mentioned by Mishra et al. (2014), the more unfavourable is the domestic business environment for financial intermediation, the more rapidly intermediation costs increase. In addition, Mishra and Montiel (2013) show that low quality of institutions and low competition in the banking sector reduce the incentive of banks to adjust the cost of credit when the policy rate decreases. Moreover, the absence of any interbank market weakens the transmission of the monetary policy in Africa (Laurens, 2005). Thus, the environment in which banks operate influences their responses to monetary policy shocks. Previous works conducted in the WAEMU region suggested that financial development and banking sector concentration strongly affects the transmission of the monetary policy.

This paper takes the view that the banking system is one key factor of the transmission of monetary policy. It seeks to examine the role of banks in the transmission of the

monetary policy in the West African Economic and Monetary Union (WAEMU) with a focus on capital regulation and institutions. The main objective of this paper is supported by the bank-centric theory. According to that theory, the special response of banks to changes in monetary policy is their lending response. Monetary interventions do something special to banks, and through banks, firms and consumers are also affected. Therefore, the role of the banking sector is central to the transmission of monetary policy. In this respect, two key factors shape the way in which monetary policy works (Kashyap & Stein, 1997). First, the extent to which banks rely on reservable deposit financing and the adjustment of their loan supply schedules following changes in bank reserves. Second, the extent to which some borrowers are bank-dependent and cannot easily offset these drifts in bank loan supply. For these reasons, the analysis of the dynamics of credit activity about changes in monetary policy should consider banks' characteristics as well as the business cycle and the quality of institutions.

This paper focuses on the lending response of banks in the WAEMU region. The primary contribution of the paper is to measure the efficiency of the monetary policy, not from a macroeconomic perspective, but at a micro level. To reach this objective, the paper uses hand-collected bank balance-sheet data unlike the common empirical investigations (e.g., Beguy, 2012; Davoodi et al., 2013; Laurens, 2005; Lungu, 2007; Mishra & Montiel, 2013; Mishra et al., 2012; Nubukpo, 2007; Sacerdoti, 2005).

The first part of this paper is theoretical. It contributes to put forward a plausible explanation for the lending behaviour of the WAEMU banking sector by considering the regulatory framework and quality of institutions. A simple partial equilibrium model closely related to the works of Gerali et al. (2010) and Mishra et al. (2014) concludes that loan demand depends negatively on the policy rate as highlighted in the literature. Second, improving the quality of institutions and an increase in competition strengthen the transmission of monetary policy. Third, as far as the regulator increases the capital requirement ratio, banks become a capital constraint and therefore decrease lending much further in response to monetary tightening.

The second part of this paper is empirical. It aims at testing specific predictions of the theory, utilizing hand collected panel data for about one hundred banks over a fifteen-year period. This paper uncovers four important findings. First, it finds that bank lending is sensitive to monetary policy. Second, it uncovers that a capital-constrained bank reduces further its lending following a tight monetary policy as compared to a less capital-constrained bank. Capital regulation behaves as additional costs and results in decline in credit. Third, poor quality of institutions weakens the transmission of monetary policy while an improvement in the quality of institutions seems to strengthen it. When the quality of institutions is poor, banks lend to large enterprises and governments (Haselmann & Wachtel, 2010). This greatly reduces the cost of information gathering. In this context, banks are less sensitive to monetary policy. Fourth, monetary policy is less effective for banks with high market power.

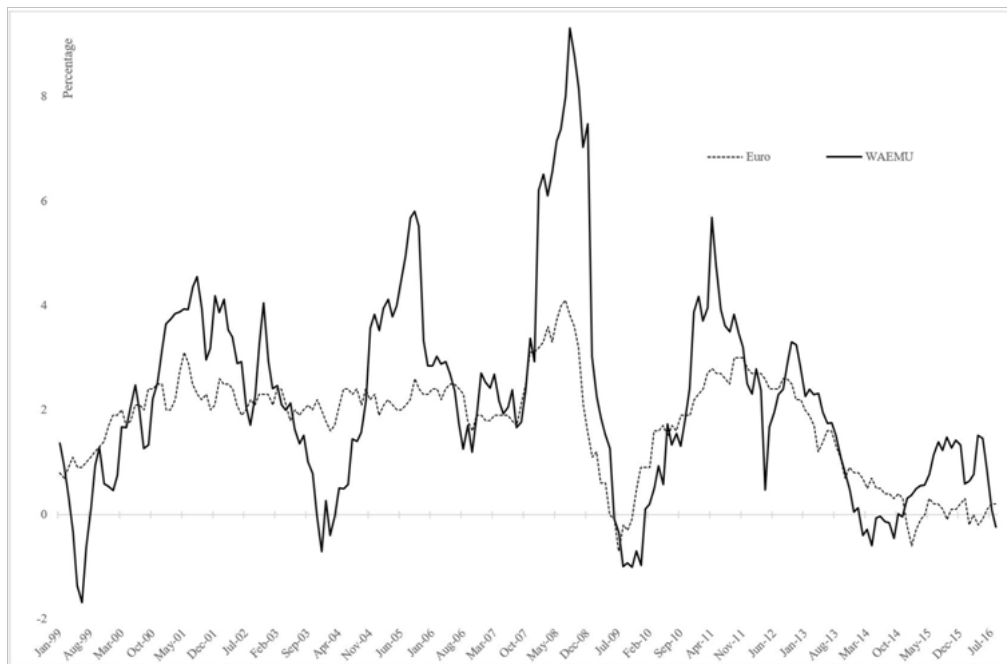
Therefore, high market power leads to an increase in bank lending maybe because of the size of the banking industry of the region.

Monetary policy in the WAEMU region and transmission channels

The WAEMU is a currency union composed of eight countries: Benin, Burkina Faso, Cote d'Ivoire, Guinea-Bissau, Mali, Niger, Senegal, and Togo. These countries share the same currency, CFA Franc, which is pegged to the Euro. The monetary policy is conducted by the Central Bank of West Africa States (BCEAO), which is empowered to take any measures concerning instruments and rules related to the credit policy applicable to credit institutions. These measures include compulsory reserves requirements, the policy rates, and the conditions of the operations made by credit institutions with their clients.

Nevertheless, under a fixed exchange rate regime, capital controls may give some monetary autonomy to a central bank (Farhi & Werning, 2014; Klein & Shambaugh, 2015; Rey, 2016). In the WAEMU region, there are capital controls on all outward capital transfers, except for the amortization of debts and repayment of short-term loans, while inward capital transfers are liberal. Capital mobility is therefore restricted and can lead to monetary policy independence based on theoretical considerations.

Figure 1: Evolution of inflation in WAEMU and Euro area



These graphs show the evolution of inflation on WAEMU region and Euro area. Inflation is computed as annual percentage changes of Harmonized Index of Consumer Prices (HICP). Monthly data come from BCEAO and European Central Bank (ECB) over the period January 1999-August 2016.

The empirical literature suggests three approaches to test the monetary autonomy under fixed exchange rate regime including the inflation differential between the two regions, and the sensitivity of the local interest rate to the foreign rate. Figure 1 shows the evolution of regional inflations in the WAEMU and the Euro area. Inflation in the WAEMU is much volatile and higher than inflation in the Euro area. The WAEMU-euro inflation deviation lies between -2.71 and +5.88 percentage points. The large differences of inflation occur between April and December 2008 and are mainly due to the surge in oil prices. These deviations may justify an interest rate differential between the two regions because of exogenous shocks (oil for example) that may affect the WAEMU economies, even though inflation in WAEMU is highly sensitive to WAEMU-specific shocks (Kireyev, 2015).

Furthermore, Kireyev (2015) conducts econometric tests and found no cointegration between the ECB and BCEAO rates; that the BCEAO can set its nominal interest rate (Frankel et al., 2004). Hence, the BCEAO can conduct its own monetary policy. First, the WAEMU controls the international capital flows. Second, there are deviations between WAEMU-euro inflation rates. Third, the ability to set nominal interest rates in the WAMEU region is not sensitive to the changes in the Euro area rates. These reasons make an interesting case for studying the monetary transmission mechanisms in the WAEMU.

To conduct monetary policy, the BCEAO uses two main instruments: interest rates and reserve requirements. The central bank sets two interest rates: the minimum bid rate and the maximum lending rate. The minimum bid rate refers to the minimum interest rate at which counterparties may place their bids and the maximum lending rate is the rate on the marginal lending facility, which offers overnight credit to banks. Since the restructuring of the banking sector in 2004-2005, the central bank has increased the usage of market mechanisms by establishing open market operations allowing liquidity injection in the banking sector. The liquidity injection contributes to steer the interest rate and has been helpful to deal with a structural liquidity shortage of small and fragile banks that have limited access to funding in narrow and segmented interbank market. Finally, the BCEAO sets reserve requirements ratios. Before December 16th, 2010, the reserve requirements ratios varied from country to country to address country-specific problems. These ratios have been unified and set to 7% on December 16th, 2010 and then to 5% on March 15th, 2012.

Consequently, monetary policy conducted by the BCEAO is expected, in the short and medium term, to affect inflation, output, and employment through five channels

namely exchange rate, credit, asset prices, expectations, and interest rate. Due to the features of the financial structure of member states of the WAEMU, all these channels cannot properly work. The exchange rate channel is not applicable under fixed exchange rate regime. The other four channels can only be operational if the money market, the interbank market, the debt, and the equity markets are fully operational. Unfortunately, as documented by Kireyev (2015), these markets are struggling to play their full role. First, the money market is almost restricted to liquidity injections of the BCEAO. Therefore, the average rate in this market is not representative of the market conditions in the regional banking system and gives very few options to the expectations channel to be fully functional because this channel relies on the public's perception of monetary policy signal. Second, the interbank market is narrow and segmented with borrowing (or lending) less than 2% of the total banks' lending. Third, the debt market is limited to government bonds, T-bills, and debt securities of private companies with a market capitalization under 2% of regional Gross Domestic Product (GDP) in 2014. Therefore, the central bank cannot fully influence the governments' borrowing costs because of the absence of a secondary debt market. Fourth, the stock market is very shallow with less than 40 listed companies, whose capitalization is barely 10% of GDP in 2014. Accordingly, the asset price channel cannot work: the central bank has a very limited influence on short-term T-bills' rates and this impact does not translate into the long-term rates on government bonds.

As a result, only credit channel seems relatively active. This channel allows the central bank to affect the volume of banks' lending. Cuts in the policy rate, liquidity injection and reduction in the reserve requirements increase bank's free liquidity. With this additional liquidity, banks can increase their volume of loans and decrease the lending rate. This policy action can attract borrowers, increases loan demand, and allow borrowers to expand their consumption or investment. The current paper is limited to the effect of policy rate on bank lending.

Even if the credit channel seems to be dominant, however, the efficiency and reliability of the monetary transmission depends on the characteristics of the banks and the quality of institutions of the country. First, banks are the main source of the private sector financing because the financial markets are underdeveloped in African countries. Thus, a decline in the interest rate should boost credit activity while a restrictive monetary policy may reduce it. However, in the presence of a highly concentrated banking system, as it is the case in the developing countries, a decrease in the policy rate is reflected in the margin of the bank rather than in the volume of credit (Kourelis & Cottarelli, 1994).

Second, we can disentangle the effects of the monetary policy transmission on credit supply and demand by considering the banking sector characteristics. In fact, a change in credit resulting from a restrictive monetary policy may be due to the credit demand or supply. Banks may decide to reduce their credit supply in response to a

restrictive policy, for example, by increasing the lending rate because of liquidity or capital constraints (Gambacorta, 2005; Hosono, 2006; Leveuge, 2005, among others). However, firms can change their financing options bypassing the banking sector so that the credit may increase after a restrictive policy. In the case of developing countries, it would result in increasing the credit requested from the informal sector (Aryeetey, 2002).

Third, if the quality of institutions leads to an increase in the cost of credit, banks can reduce the credit supply to weaken the transmission of monetary policy (Mishra et al., 2014; Ndikumana, 2016). Indeed, the weak institutions (Sacerdoti, 2005) combine with past crisis and low demand (Beguy, 2012) rise the demand for excess reserve. As a result, banks have less incentive to adjust the cost of credit (Mishra & Montiel, 2013) and increase lending. This effect is much more important when the banking sector is non-competitive.

Fourth, the regulatory framework influences the capital of bank and therefore their credit supply. The effect of the monetary policy is stronger for under-capitalized, small, and less liquid banks (Kashyap & Stein, 2000; Kishan & Opiela, 2000). Under-capitalized banks are less able to collect deposits to either maintain or increase their credit supply during monetary restriction. Indeed, banks are subject to interest-rate risk (Gambacorta & Mistrulli, 2004) and so, if they do not have sufficient capital, and if raising additional funds is costly, they reduce the loans due to the fear of not meeting the regulatory capital ratio. The mechanism of bank capital relies on a gap between the maturity of assets and liabilities of the bank and not only the equity capital. However, even if the capital of a bank is more than the required capital, a bank could limit its loan portfolio extension to reduce the risk of capital deficiency in the future (Van den Heuvel, 2006). Therefore, the regulatory framework plays an important role via banks' balance-sheets.

Conclusion and policy implications

It has been suggested that an increase in capital adequacy ratio reduces the ability of banks to lend, particularly if they decide to hold more capital. In developing countries, this behaviour may be strengthened by the low quality of institutions and the concentration of the banking sector. Altogether, these factors may impair the transmission of monetary policy.

This paper introduces a simple partial equilibrium model based on adjustment and intermediation costs to analyse the effects of monetary policy on bank lending. The upshots are as follows. First, loan demand depends negatively on the policy rate. Second, improving the quality of institutions and an increase in competition strengthen the transmission of monetary policy. Third, as far as the regulator increases

the capital requirement ratio, banks become capital constraint and therefore decrease lending much further in response to monetary tightening.

The estimation of an econometric model based on hand collected data of banks for the WAEMU region confirms these results. In particular, this paper finds that bank lending is sensitive to monetary policy. In addition, a capital-constrained bank reduces further its lending following a tight monetary policy as compared to a less capital-constrained bank. Furthermore, low quality of institutions weaken the transmission of monetary policy while an improvement in the quality of institutions seems to strengthen it. Finally, monetary policy is less effective for banks with high market power.

These theoretical and empirical results are consistent with the growing literature on the effects of (capital) regulation on lending (Berrospide et al., 2017; Cerutti et al., 2017; Ongena et al., 2013; Van den Heuvel, 2006; among others). This literature suggests that a tightening of capital leads to shifts in lending. In addition, the results are consistent with another strand of the literature which shows that the less capitalized banks accelerate the transmission of monetary policy (Kashyap & Stein, 2000; Kishan & Opiela, 2000; Leveuge, 2005; among others). Finally, the findings are related to the literature which supports that poor quality of institutions weakens the transmission of the monetary policy pass-through (Mishra & Montiel, 2013; Mishra et al., 2014; among others).

Regarding policy implications, the results entail that policy makers in the WAEMU region have substantial room to affect bank lending. In fact, a tight monetary policy decreases bank lending. It means that the Central Bank could decrease the policy rate to boost bank lending. From 1998 to 2012, the policy rate varied between 4% to 6%. The Central Bank decided to decrease the policy rate in early 2013 *to boost the recovery of the Union's economic activity* by stimulating lending. Moreover, the WAEMU bank regulatory authorities must bear in mind that the increase in minimum capital affects bank lending and can, therefore, affect bank profitability. Finally, there is also a message for governments of WAEMU's member states and international donors. As stated by Andrianova et al. (2015), *very weak legal systems deter banks from lending, but mediocre ones do not. Reaching the international average is an appropriate goal for Africa and incremental steps towards this goal can be beneficial*. Likewise, improving business environment in some countries of the region is encouraging.

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