MONETARY POLICY ADJUSTMENT AT THE GLOBAL FINANCIAL CRISIS CONSTRAINTS

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Abstract: *The global financial crisis marked a border for central banks, as it raised challenges which constrained them both to extend the range of monetary policy instruments and to redefine their role in the financial system. The present paper aims to identify features of conducting the monetary policy of some central banks, during and after the global financial crisis outbreak. For that purpose, we apply to a comparative analysis between some central banks of European Union (EU), namely Czech National Bank (CNB), National Bank of Hungary (NBH), National Bank of Poland (NBP) and National Bank of Romania (NBR). We also assume that the monetary policy could be characterised through both the challenges faced by the central banks and the type of measures adopted, as a reaction to these challenges. Analysis shows that central banks have different levels of burden, according to domestic condition, and also different "pattern" of monetary policy adjustments, using more or less unconventional or macro-prudential measures. An important conclusion raised from this article refers to the increasing role of these special measures for central banks, which requires defining a new monetary policy framework in the near future.*

Keywords: unconventional measures, macro-prudential instruments, inflation targeting, monetary policy framework

JEL codes: *E52, E58, G01*

1. Introduction

The global financial crisis burst in 2007 has generated a number of challenges for national macroeconomic policies, and central bank is usually the main institution over which the management decisions reflected the burden of financial problems.

In Europe, as it turns out, the global financial crisis worsened after the Lehman Brothers shock (in 2008) by amplifying the already installed uncertainty in the global markets and freezing the interbank market, the main source of liquidity for the banking system. Many European banks, which were dependent on the short-term funding, turned to the financing from the central bank. To manage the liquidity crisis in the interbank market, central banks have reduced more or less aggressively the monetary policy rate, reaching in some cases to the minimum level (*zero lower bound*). Given that it had entered a period of economic slowdown and in the most European Union (EU) countries inflation rate was already at low levels, a passive behaviour of the central bank could generate the risk of deflation, so that many central banks have applied to a series of unconventional measures which meant actually an extension of their traditional function, that of lender of last resort.

Unlike advanced economies, which having a more developed financial system had been directly hit by the global financial crisis, the European emerging countries had been indirectly affected through their connection with the global market, especially with the European market, considering that the financial flows liberalization in these countries and their accession to the European Union (in 2004 and 2007) have engendered increasing investments of foreign banks in the domestic market. This external dependence meant also a weakening of the national financial systems (Criste, 2014), and implicitly a greater burden for central banks. In these countries, the global financial crisis hit the economy by the commercial channel (as a result of economic openness), by the financial channel (as a result of the limited access to the external funding which further harmed the lending activity and generated difficulties to the private external debt service), by the channel of confidence in these economies which determined investors to outflow from this region. For inflation-targeting countries, an additional channel of crisis propagation is the exchange rate channel, through the depreciation of national currencies and higher exchange rate volatility.

2. Literature review

The studies that focus on the role of central banks and monetary policy in managing the global financial crisis effects (Eichengreen et. al, 2011, Borio, 2011) converge to the opinion that after the financial crisis outbreak the monetary authorities have been under strong political pressure to intervene by assuming responsibilities that go beyond their traditional institutional framework. This situation raises the risk of impairing the credibility and independence they enjoyed a long period of time (during the “Great Moderation”). Cecchetti (2013) warned that central banks currently face serious risk of being forced to solve virtually any macroeconomic or financial stability problem, although these institutions cannot solve the structural ones. Besides, such a risk concerns the political pressure exerted on the monetary authority to become a component of the government funding, on the pretext of the financial stability policy.

Shirakawa (2013) considers that the monetary policy function presumes a broader framework which should including both interest rate policy and the lender of last resort policy. Criste and Lupu (2014) highlight that the broadening of the operational framework of this authority by actions performed toward the restoring of the financial system represents a challenge for central banks in the next years.

In order to contribute to the financial stability, central banks from developed countries have applied not only the traditional instruments (policy interest rate, standards open market operations and standing facilities), but also unconventional monetary policy tools for providing further stimulus to the financial system and to the economic activity. Some studies analysis the types of unconventional measures, the features for implementing them (Borio and Disyatat, 2009; Cecioni et al., 2011), while others investigate the general impact and the challenges of that instruments (Shirai, 2014) or the benefits of the short-term effects, underlying also some costs of their application (Williams, 2014), and the limits of these measures (Lenza et al, 2010; Peersman, 2013; IMF, 2013).

Papadia (2013) approaches the subject of central bank cooperation after the financial crisis outbreak (during the “Great Recession”), asserting its role in mitigating the global financial crisis fallouts. He calls the cooperation between central banks during these critical times as a lesson of applying a global monetary policy.

Galati and Moesner (2011) emphasize that over time (from 1970s) central banks of the emerging countries have a larger propensity of using macro-prudential instruments in order to curb the credit expansion and capital inflows and to influence the liquidity of the banking system.

Numerous empirical studies analyse the way of monetary authorities from different countries reacted in order to deal with the global financial crisis fallouts, but they take into account especially central banks that are important at the global financial and economic level: the US Federal Reserve Bank, the European Central Bank, the Bank of England, the Bank of Japan, the People's Bank of China, which are considered "systemic" banks for the global economy.

The subject developed in this paper extends this field of research by analysing the reaction of some EU central banks, which are candidates to the Eurosystem. Although these central banks have not a global prominence they become relevant at a regional level through their involvement in the European integration process and also through their connection with the European Central Bank.

3. Methodology and Data

The complex activity of central banking implies, besides the monetary policy, other relevant functions like financial system supervision or preserving financial stability, but in this article we focused solely on the monetary policy function.

Defining of the monetary policy applying after the onset of global financial crisis is based on identifying both the challenges facing central banks and the measures taken by them.

We use a comparative analysis between several National Banks from EU countries which has three common features: they belong to the Central and Eastern Europe region; they have the same monetary policy strategy (inflation targeting); they use a flexible exchange rate and they are candidates to the Eurosystem. The analysis is made for an extended period, 2008-2014, supposing that the global financial crisis outbreak has largely changed central banking conditions so as their challenges develop for a longer time. Data and information are collected from Annual Reports of the selected central banks, and also from Statistical National Offices of Czech Republic, Hungary, Poland and Romania.

4. Results

4.1. Central banks challenges

According to the information collected from Annual Reports of the four selected central banks, we identify challenges faced by these institutions during critical time (after Lehman Brothers shock), which are synthesized in Table 1.

Table 1 Challenges of central banks after the global financial crisis outbreak (2008-2013)

Challenges, as central bank's intents	Czech National Bank	National Bank of Romania	National Bank of Poland	National Bank of Hungary
1. Managing inflationary phenomenon				
2. Easing the monetary conditions				
3. Preventing/reducing disturbances in the interbank markets				
4. Improving liquidity transfer in particular financial markets segments				
5. Avoiding/reducing excessive exchange rate fluctuations (reducing the exchange rate risk)				
6. Maintaining the banking system stability				
7. Sustaining/stimulating lending activity to private sector (to companies)				

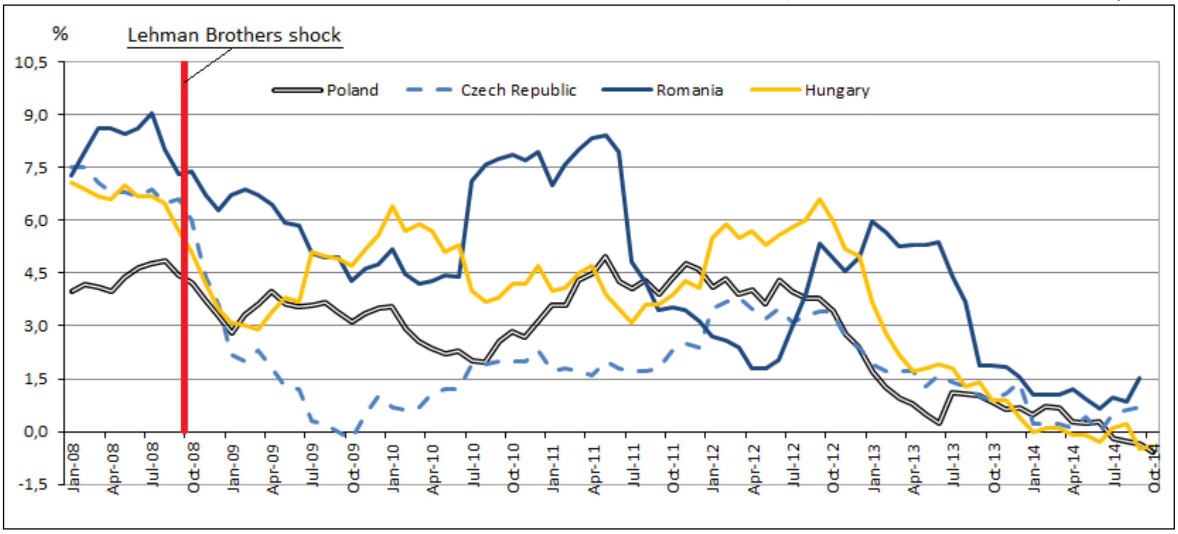
Source: Author's compilation based on information collected from Annual Reports of central banks from Czech Republic, Hungary, Poland and Romania, 2008-2013.

Comparing the four central banks concerning the challenges facing, it is noticed that the CNB had a narrower range of challenges than the other three central banks. The explanation can be given by the robust position of the banking sector, gained even before 2008, as a net external creditor, with a conservative balance sheet structure, with the lending activity mostly financed by household deposits denominated in national currency. Moreover, the high degree of liquidity of the banking sector has reduced demand for financing banks in the interbank market. The complete domination of local currency lending has significantly reduced the transfer of the currency risk to the private sector given that the national currency would be depreciated (as a result of the financial crisis).

The managing of the inflationary phenomenon was different for the four central banks. While for the CNB the challenge was the undershooting of the inflation target and easing the monetary conditions, for the other three central banks the inflation controlling and the reducing of the inflation expectations were almost constant concerns during this time, although NBP was initially (2008-2010) focused on the monetary easing, given the persistent decreasing of the inflationary pressure in the economy (see Chart 1). These three central banks (NCP, NBH and NBR) have also focused on the mitigating the currency exchange rates volatility and the currency risk, in order to avoid the compromising of the price stability objective, but also given the high share of local bank loans denominated in foreign currency.

Chart 1 Inflation Development in Poland, Czech Republic, Romania and Hungary (2008-2014)

(Consumer Price Index, monthly data)



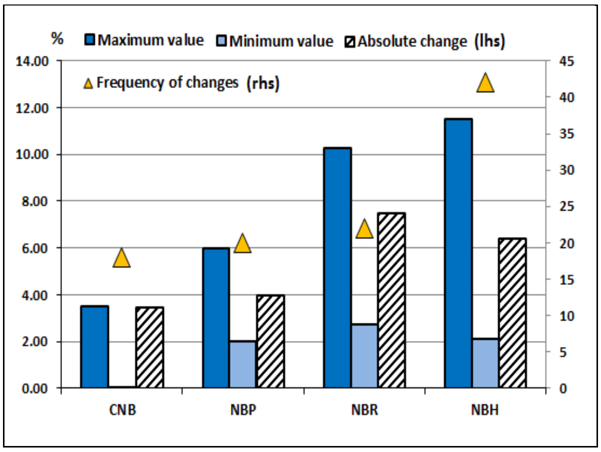
Source: Data form Statistical National Offices of Czech Republic, Hungary, Poland and Romania.

4.2. The monetary policy instruments

The problems of managing inflation phenomenon in Hungary, Poland and Romania are reflected in the way of using the policy rates, which were more frequently changed, especially by the NBH (see Chart 2). Central banks of Poland, Hungary and Romania had to proceed prudently in aggressively reducing the policy interest rates, given the potential risk of a sharp depreciation of the national currencies which could adversely affect the financial stability. This situation was more critical in Hungary and Poland given the higher foreign currency lending to the private sector.

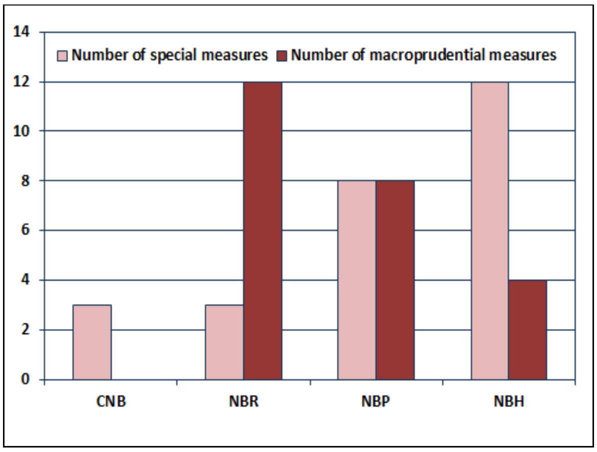
As reflected in the Chart 2, CNB used least frequently the monetary policy interest rate during 2008-2014, as only in 2008-2012 it modified the key interest rate by reducing it significantly, given both the increasing interest rates in the money market and the lack of risks regarding inflationary pressures. As consequence, in November 2012 the key interest rate reached the minimum level.

Chart 2 Central Banks using monetary policy rates[1)]



Source: Data from web sites of the Czech National Bank, National Bank of Hungary, National Bank of Poland and National Bank of Romania.

Chart 3 The prominence of using additional monetary policy instruments[2)]



Source: Annual Reports 2008-2013 of Czech National Bank, National Bank of Hungary, National Bank of Poland and National Bank of Romania.

Notes: 1) The maximum and minimum values of policy rate during Sept.2008-Oct. 2014; the absolute change means the differences regarding the value of policy rate between September2008 and October 2014; the frequency of changes means the number of changes of policy rate made by National Bank during Sept.2008-Oct. 2014; 2) The number of special and macro-prudential measures - according to data from Table 2.

During 2008-2013, the analysed central banks have extended the monetary policy tools in order to respond to the specific challenges of the global financial crisis spread, using special (unconventional and macro-prudential) instruments, as depicted in Table 2.

Table 2 Reactions of the selected central banks at the global financial crisis challenges (2008-2013)

Years	Unconventional monetary measures	Macro-prudential measures
	Czech National Bank	
008- 012	- extraordinary liquidity-providing repo operations aimed at supporting the functioning of the government bond market - FX swaps	
013	- exchange rate currency as additional instrument for monetary policy	
	National Bank of Hungary	
008- 2009	- FX swaps (cooperation with European Central Bank) - two-week and six-month loan tenders - auctions to purchase government securities - broadening the range of eligible collaterals	
009	- FX swaps (cooperation with Swiss National Bank) - converting the net current and capital transfers from EU in the FX market	
010	- EUR/HUF swaps - flexible minimum reserve system - publication of a liquidity forecast for the banking system - National Bank's mortgage bond purchase programme - introduction of the HUFONIA swap	- reducing the reserve ratio - LTV and DTI limits for FX mortgages (more stringent for foreign currency loans than for domestic currency loans) - FX lending ceiling: ban on foreign exchange mortgage lending
011		
012		
013	- Funding for Growth Scheme (refinancing loans and currency swaps)	
	National Bank of Poland	

Years	Unconventional monetary measures	Macro-prudential measures
008- 010	- repo operations for longer periods (under the *Confidence Package)* - expanding the range of acceptable assets as collateral for National Bank refinancing operations - expanding the scope of acceptable collateral in refinancing loans by foreign currency deposits - decreasing the value of collateral as compared to the amount of the credit obtained by commercial banks from NBP by the marginal lending facility - FX swaps (cooperation with Swiss National Bank and European Central Bank) - providing the banking sector with longer-term liquidity (up to 6 months) - allowing rollover (renewal of the credit with the same collateral) - NBP bonds redemption before maturity (under the Confidence Package)	- more stringent DTI ratios for foreign currency-denominated loans to unhedged borrowers - DTI limits for newly extended FX mortgage loans - Recommendation S (II): banks which advance foreign currency-denominated loans should furnish their clients with reliable information on how they use foreign-exchange spread and of its impact on the loan cost; loan agreements should contain precise provisions on specifics of the loans; clients are allowed to change the method of repaying FX-indexed loans and repay them in the indexing currency. - restrictions on profits - reducing reserve requirements
011- 2012		- increasing the risk weights for foreign currency-denominated retail exposures - more stringent LTV and DTI for foreign currency loans
National Bank of Romania		
008- 2009	- repo transactions through auction procedures at fixed rates - FX swaps - reducing the maturity of standard deposit-taking operations	- more stringent LTV and DTI for foreign currency loans than for domestic currency loans - increasing the capital adequacy ratio for individual banks - power for NBR to forbid or contain profit distribution until the financial standing is improved - reducing the reserve requirement on domestic currency liabilities (two times) -- reducing the reserve requirements on foreign currency liabilities (three times) - reducing the reserve requirements on foreign currency liabilities with maturity of less than 2 years
010- 2011		- higher risks weights or capital requirements - setting specific maximum LTV levels for housing purposes, differentiated by currency and type of loan - reducing the reserve requirements on foreign currency liabilities with maturity of less than 2 years - removing reserve requirements for deposits with residual maturities over 2 years which have been rolled over
012		- introducing IFRS provisioning

Source: Annual Reports 2008-2013 of Czech National Bank, National Bank of Hungary, National Bank of Poland and National Bank of Romania.

The unconventional measures are those extra-measures used both for managing the liquidity in the banking sector in order to reduce the financial deterioration especially in the first phase of global financial crisis in Europe (2008-2010), and for stimulating the credit activity to the private sector (to companies), especially in the second phase of the crisis, for economic recovery.

As it is shown in Chart 2, there are differences between the four central banks regarding the using of these measures. Unlike CNB or NBR, which applied such tools to a lesser extent, NBP, and mainly NBH, used a larger rage of special measures. By the *"Confidence Package"* (a set of special measures), BNP aimed at both mitigating the tensions building up in the domestic financial markets and the difficulty of banks in obtaining financing in the domestic and foreign currencies. Another set of measures applied from 2009 was the *"Pact for the Growth of Lending in Poland"*, in order to ease the restrictions of lending for companies, but also to prevent the disturbances in the interbank market.

The special measures were more intensively used by NBH and were focused on supporting the foreign currency and forint liquidity of domestic banks. One of the important measures of NBH refers to the cooperation with other central banks (European Central Bank and Swiss National Bank) in order to support the foreign exchange liquidity of credit institutions by FX swaps, but also some measures for stimulating lending to small and medium enterprises.

Czech National Bank has a different pattern of intervention, similar to central banks from developed countries, because it has already reached the lower level of policy interest rate since the end of 2012. In this condition, of *zero lower bound*, CNB set the exchange rate as an additional instrument for relaxing the monetary conditions (in November 2013). The koruna exchange rate is not a new monetary policy tool, but the novelty consists in the purpose of using it - to fulfil the inflation target when the policy interest rate is near zero. That decision is based on some characteristics of the domestic economy including a high level of liquidity in the banking sector, low level of long-term government bond yields. The size of the economy (Czech Republic is a small open one), and the balance sheets with no FX mismatches make efficient the central bank intervention in the FX market.

Macro-prudential policies were already applied before the global financial crisis in Poland, Romania and Hungary, in order to address the excessive foreign exchange lending to households, and they were more intensively and extensively used after 2008, especially in Romania and Poland (see Chart 3) due to the increasing level of risks regarding the foreign currency lending. Generally speaking, there are three types of macro-prudential measures for influencing: the credit activity, the liquidity level, and the capital level. According to data presented in Table 2, the NBH has focused on the first two measures, while the NBP and NBR have used all types of macro-prudential measures.

NBR, having an active conduit in managing the excessive growth of foreign currency lending, even before 2008, continued to have such a conduit, but it focused less on the unconventional measures, compared with the NBH and NBP. By an intensive using of macro-prudential measures, NBR aimed not only to create the conditions for lending resumption to the private sector and to avoid excessive volatility of the exchange rate, but also to compensate for the lack of appropriate (countercyclical) fiscal policy.

On the opposite side, CNB has not applied macro-prudential measures during 2008-2013, being more involved in the risk prevention than in dealing with global financial crisis effects. CNB have a different path than the other three central banks, as the internal conditions are different, too: stable developments of the domestic environment, with banks not depending on the interbank or external funding, with low levels of debt in terms of both the public and the private sector, and also with financial assets that were stable, with no significant volatility.

5. Some concluding remarks

Central banks of Czech Republic, Hungary, Poland and Romania have been more or less overburden by the global financial stability challenges and they have reacted by intensively using monetary policy rates, but also by extending the range of monetary policy instruments with unconventional and macro-prudential tools, as a new monetary policy framework. Although this is a typical pattern of reaction for a central bank in times of stress, there are differences concerning the nuance of using these instruments, underlying the flexibility of this new monetary policy framework.

We notice that the unconventional monetary policy measures have been implemented by central banks regardless the policy interest rate level. Theoretically, it is supposed that unconventional instruments are central bank's interventions entailed by the limited conventional monetary policy (when the policy interest rates is at the minimum level - zero lower bound), but practically those measures have been largely applied by National Bank of Poland and National Bank of Hungary, although their key interest rates were higher.

The macro-prudential measures applied during 2008-2013 were intensively used by those central banks with some experience in this regard. Poland, Romania and, to a lesser extent, Hungary have also used these instruments before the global financial crisis outbreak as a way of dealing with the massive financial inflows which have stressed the retail credit market. This is a common feature for those countries which have confronted with massive capital inflows and investments in the domestic banking system.

Going beyond these particular observations, two main general remarks could be stood out. Firstly, the enlargement of the range for monetary policy tools, as a new operational framework reaffirms the need for a change regarding the central bank's responsibility concerning the financial stability objective. Secondly, applying the new monetary policy framework could serve as a test for the central bank "credibility level", so far as the using of these special measures contributes to the restoring of the financial system.

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