OPTIMAL MONETARY POLICY: THEORETICAL AND PRACTICAL ASPECTS

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Abstract: *This research approached the defining aspects of an optimal monetary policy framework, able to achieve the objective proposed by the central bank. The ensuring a monetary policy appropriate to the country's economic, financial and legal potential is currently a concern for most central banks that recognize the benefits of optimal monetary policy promotion. The definition of optimal monetary policy was outlined in terms of factors, criteria and associated impacts. The practical aspect of the paper focused on the assessment of the monetary policy framework on the international arena as well as on the one promoted by the National Bank of Moldova. Following the researches carried out, it was concluded that in order to adjust monetary policy to an optimum, the central bank of a particular country should take into account a complex of economic conjuncture, institutional and operational framework. Referring to the best international practices of the central banks in the field of monetary policy, we come with recommendations for the optimization of the monetary policy in the Republic of Moldova.*

Key words: *central bank, inflation, monetary policy, inflation expectations.*
JEL Classification: *E31, E32, E52, E58.*

1. Introduction

The monetary policy plays an indispensable role at the macroeconomic level in terms of ensuring stable and low inflation, able to streamline the resource allocation and income distribution in the economy, thus contributing to economic growth. In the current harsh economic conditions, monetary authorities face the challenge of applying an optimal mix of monetary policy tools and related actions to ensure the objectives of these, contributing to the strengthening of the state general economic policy. It is underlined the benefits of an optimal monetary policy recognized by most central banks, starting from the role of monetary policy within the macroeconomic policy mix and its positive implications for the overall economy, while being properly promoted with the optimal use of the set of tools, actions and strategies. Thus, after the Bank of Canada, "a low, stable and predictable inflation rate [monetary policy] allows [economic agents] to make spending and investment decisions with more confidence, encourages longer-term investment and contributes to sustained job creation and greater productivity: the attributes needed to improve our living standards".

2. Theoretical aspects of an optimal monetary policy

The theoretical and empirical approaches related to optimal monetary policy can be found in Lucas and Stokey (1983) research: the optimal monetary policy in a closed economy with flexible prices and perfect competition consists in setting the nominal interest rate close to zero value, this fact reflects Friedman's rule.

Friedman (1969), conducting a long-term analysis of monetary policy with reference to flexible prices, concluded that the cost of the opportunity to hold money by economic agents should be equal to the social cost of creating additional banknotes, the marginal cost of additional money creation is around zero.

Therefore, the nominal interest rates should be zero. For this purpose, a central bank should look for a deflation rate equal to the real interest rate for government bonds and other safe assets to make the nominal interest rate zero.

Khan and others (2003) studied the issue of optimal monetary policy in models with monopolistic competition against sticky prices and found the need to reduce inflation volatility to zero in the context of price stability, highlighting the objective of monetary policy.

Kydland and Prescott (1977), Barro and Gordon (1983) approached the concept of optimal monetary policy from the perspective of the institutional framework, appreciating the central bank's credibility role on the basis of transparency, accountability and independence. At the same time, they referred to the inconsistency theory, being one of the most important policy issues that resulted from research on rational expectations in macroeconomics. According to this theory, the macroeconomic performance, in the context of dynamic processes, can be improved by a policy change in the future than it is announced today. The lack of credibility implies a lower outcome than the one specific to a situation in which politics would be predictable.

At the same time, the performance of monetary policy is achieved by the independent central banks (Alesina and Summers 1993, Cukierman, 1993, Cukierman, 2006).

The inflation expectations play a crucial role in the monetary policy transmission mechanism as economic agents set prices and wages for fixed periods, and the anchoring of inflation expectations is a primary task for the central bank in order to ensure price stability. Woodford (2001, p. 12) insists that the conditionality of a successful monetary policy is not reflected by the overnight interest rate management, but by the management of inflation expectations, emphasising the role of transparency central bank in the achieving of the monetary policy objective. The theoretical literature on monetary policy outlined the need of communication for the monetary policy efficiency (Blinder, 1998, Woodford, 2001, Bernanke, 2004).

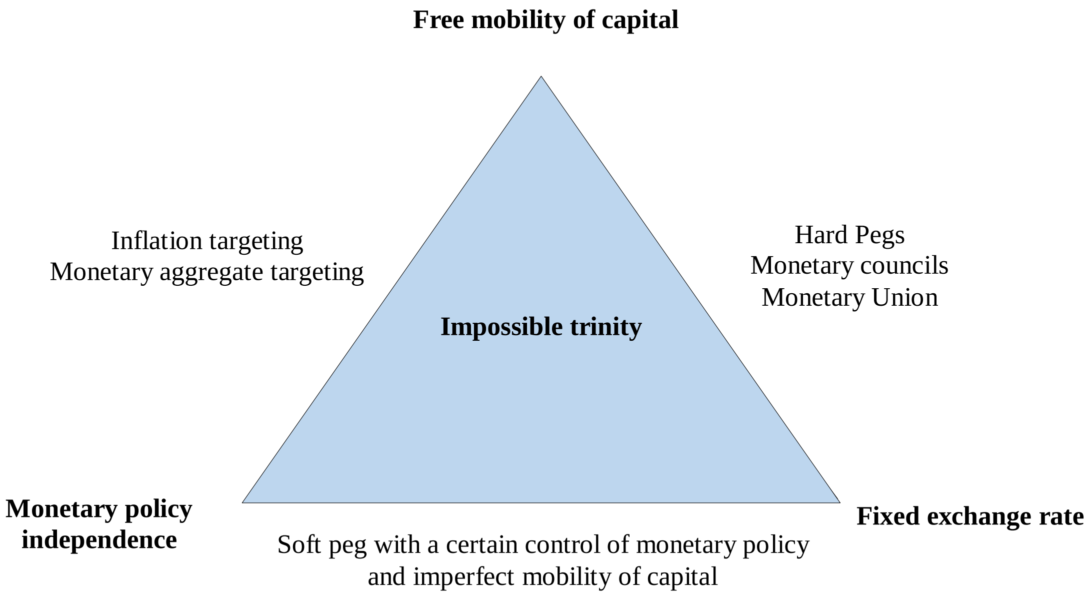
The clarification that price stability is the primary objective of monetary policy in the medium term provides a point for optimal policy decisions and contributes to central bank accountability in achieving this objective. Bernanke and others (1999) and Levin (2014) highlighted the benefits of a clearly defined medium-term objective. The pursuing of multiple monetary policy objectives without identifying the superiority of one of these prejudices the clarity of the central bank's activity and the decision process, and compromises the objective of price stability.

From the above, it is clear that the *optimal monetary policy* has been defined through impact on the background of the institutional framework.

At the same time, an optimal monetary policy must comply with the theoretical criteria, which have been maximized by classical and contemporary economists. In this context, an optimal monetary policy must be based on the *impossible trinity criteria* (Figure 1).

The impossible trinity criteria highlights the problems of monetary policy optimization along with the compromises involved in monetary policy decisions, depending on the monetary policy regimes applied by the central banks. Figure no. 1 shows that the optimal monetary policy is reflected by the impossible simultaneous functionality of the three aspects of monetary policy, expressed by free capital mobility, a fixed exchange rate and an independent monetary policy. In this context, a central bank that implements monetary policy under the inflation targeting and monetary aggregate targeting regime will opt for monetary policy independence and the perfect capital mobility against the fixed exchange rate. The monetary policy regimes related to exchange rate subcategories, such as hard pegs, monetary councils, monetary unions, will choose the perfect capital mobility and a fixed exchange rate to the detriment of monetary policy independence. In this context, the central bank implements monetary policy according to the adopted regime and its associated framework.

Figure no. 1. The Mundell-Fleming model and the impossible trinity of the monetary policy framework

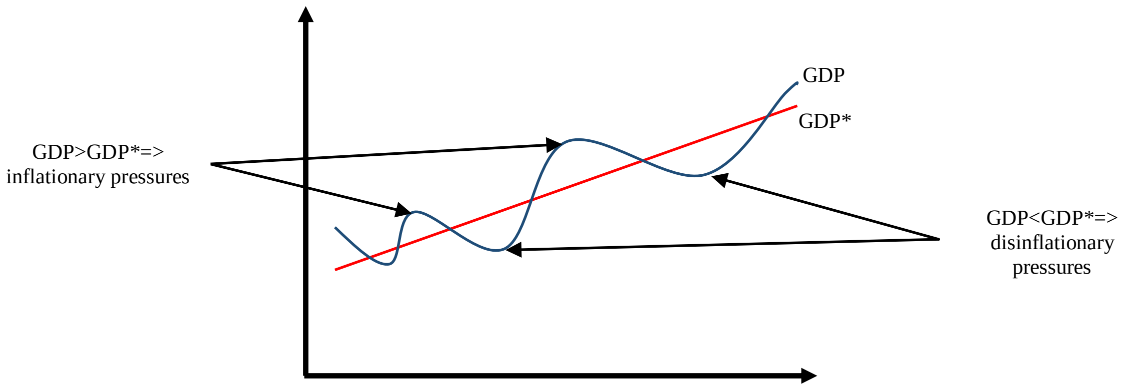


Source: elaborated by authors according to Bearce D., 1967. Monetary Divergence: Domestic Policy Autonomy in the Post-Bretton Woods Era, University of Michigan Press, p. 17.

At the same time, it is necessary to note that the economic conjuncture framework exemplified by the productive and economic potential of the country against the background of economic cycles must be taken into account in finalizing the optimal monetary policy direction. In the context of the deductions associated with the interdependencies between the macroeconomic processes, figure no. 2 shows that in case of the economic boom, the real gross domestic product exceeds its potential level, the inflationary pressures are generated against the background of excess demand, and the productive potential increases in conditions as economic agents operate above their capabilities. In this case, monetary policy intervenes by raising the interest rate, thereby limiting lending and investment. On the other hand, a negative GDP deviation revealed by the recession suggests that the economy is developing at the lower level of the potential, generating disinflationary pressures. Against this backdrop, the monetary policy becomes expansive by lower base rate, stimulating the credit and investment process, and thus helps restore economic equilibrium and economic growth, while pursuing the prevention of falling inflation below the limits imposed by monetary authority. The GDP deviation is often interpreted in the literature as an indicator that quantifies the degree of inflationary pressure in the economy and reflects a correlation between the real economy and inflation.

Another aspect of the economic conjuncture framework is the fiscal policy and other macroeconomic policies of the state. A possible fiscal policy austerity will be reflected in the increased inflationary pressures and, as a consequence, will determine the restrictive nature of monetary policy. Thus, Isărescu (2008) argues, "Without the support of other economic policies, the monetary policy may face difficulties in achieving a low inflation in a sustainable manner. In other words, price stability can be achieved to the detriment of other macroeconomic balances, which is ultimately a self-reversible process."

Figure no. 2. The optimal orientation of monetary policy according to the evolution of economic activity



Source: elaborated by authors

Another macroeconomic conditionality that would affect the monetary policy is the labour market situation. Friedman (1968) and Phelps (1968) admit that there will be a short-term compromise between inflation and unemployment. However, the Phillips curve in long-term is vertical and monetary policy is incapable to stimulate long-term employment. In order to mitigate the inflationary pressures, the central bank promotes a restrictive monetary policy with implications for real output reduction and with repercussions on employment, contributing to the rise in unemployment. This fact reflected in the Phillips's initial curve. According to Phillips's initial curve, the monetary policy was adopted in line with the character of the curve in order to achieve an economy in the direction required by the general policy of the state. The decrease in inflation was due to the increase in unemployment, and vice versa, an increase in inflation was associated with the reduction of the unemployment rate. This theory has played an important role in monetary policy, but monetary theory has considerably evolved with the introduction of inflation expectations alongside the marginal cost.

$$\pi_t = \beta E_t \pi_{t+1} + \mu(rmc_t) \quad (1)$$

The new Keynesian Phillips curve describes a simple relationship between inflation, companies' expectations of future inflation and real marginal costs. The marginal costs are the actual (adjusted for inflation) resources that companies have to spend for production of marginal additional unit of their good or service. According to that curve, the inflation will tend to increase when real marginal costs increase, as firms transfer higher costs in higher prices and expected a rising inflation, as firms are raising their prices today by anticipating prices bigger tomorrow. Therefore, this economic theory defines the indispensable role of inflation expectations in the context of monetary policy optimality and interdependence between macroeconomic indicators.

The aspects related to the *operational framework* contribute to the defining of a monetary policy through impact, and its optimality depends on the degree of adjustment and development of the transmission mechanism of the monetary policy decisions, the applied monetary policy instruments, used forecast model. At the same time, the character of monetary policy depend on the explicit definition of a nominal anchor, either the monetary aggregate or the inflation rate or the exchange rate according to the applied monetary policy regime.

From the above, it was concluded that in the literature of speciality is not explicit definition of optimal monetary policy. In this context, it was outlined the defining aspects of an optimal monetary policy through factors, impact and criteria taking as a reference the economic conjuncture, institutional and operational framework at the level of a state (Table no. 1). It should be mentioned that the evolution of inflation and, implicitly, the character of monetary policy also depends on external factors, external economic potential, external monetary conditions, as well as international prices for oil and raw materials, especially for the countries importing them.

Table no. 1. The defining of the optimal monetary policy concept taking as a benchmark the economic conjuncture, institutional and operational framework

	Optimal monetary policy through:		
	Factors	**Impact**	**Criteria**
Economic conjuncture	1. Domestic economic potential; 2. Fiscal policy and other macroeconomic policy; 3. Labor market.		Impossible trinity
Institutional framework – critical for central bank credibility		1. Well-defined the objective of monetary policy; 2. Central bank independence; 3. Transparency and communication of central bank; 4. Central bank responsibility.	
Operational framework		1. Set nominal anchor; 2. Transmission mechanism of monetary policy; 3. Monetary policy instruments; 4. Developed forecast model.	

Source: elaborated by authors

3. The evaluation of the optimal monetary policy framework from the perspective of international experience

In this research, there were proposed the tasks of assessing the institutional framework of monetary policy from the point of view of achieving the objectives of the best performing central banks in the field of monetary policy, being considered the benchmark for the bank credibility and predictability.

The international experience (Table no. 2) has confirmed the possibility of pursuing multiple monetary policy objectives, although the literature of speciality disputes this practice, in the measure that these objectives are in competition. Thus, the objectives of price stability and high level of employment could be complementary rather than competing, so there is not political compromise between the objectives of price stability and the maximum employment, the so-called double mandate operated by the Federal Reserve System (Mishkin, 2007).

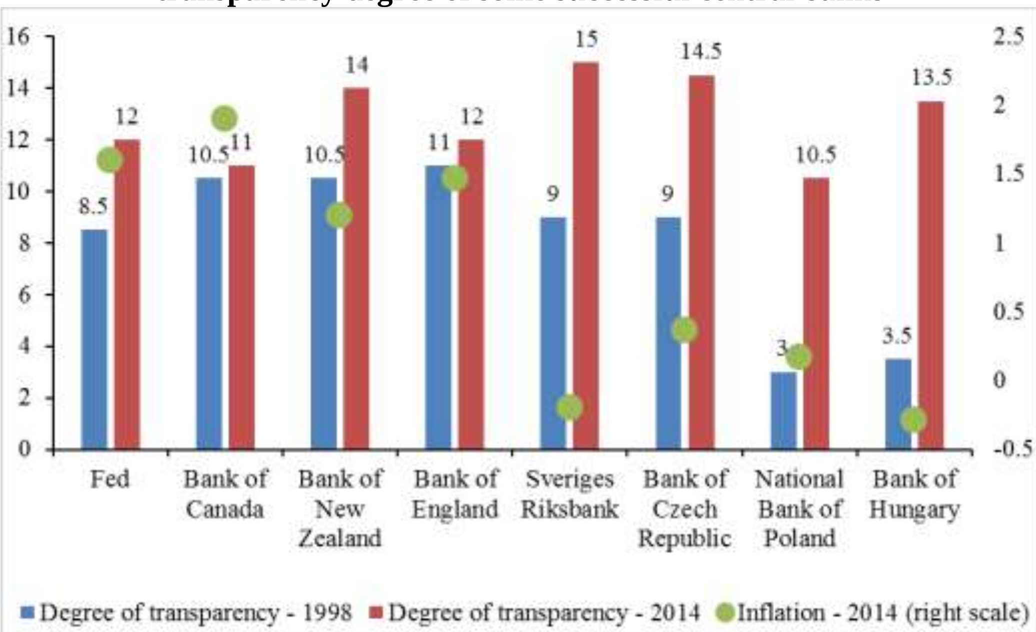
Table no. 2. The monetary policy objectives pursued by the central banks as of March 2018

The monetary authority	Objectives
Federal Reserve System (USA)	Price stability, full employment, moderate long-term interest rates.
Bank of Canada	Preserving the value of money by maintaining low and stable inflation.
Bank of England	Monetary stability due to stable prices and confidence in the currency.
Bundesbank (Germany)	Price stability (the Eurosystem's main objective under the Treaty on the Functioning of the European Union).
Bank of Japan	Price stability, thus contributing to the sustainable development of the national economy.
European Central Bank	1. Maintaining price stability (Art. 127 (1) of the Treaty on the Functioning of the European Union) 2. Without prejudice the objective of price stability, the Eurosystem also supports the general economic policies of the Union. These include full employment and balanced economic growth.
Sveriges Riksbank	Maintaining price stability.
Bank of Czech Republic	1. Maintaining price stability; 2. Maintaining financial stability; 3. Supports the general economic policy of the state and of the European Union.
Bank of Hungary	1. Ensuring and maintaining price stability; 2. Supports the state's economic policy.

Source: Developed by authors based on the legal status of Central Banks published on the official sites of the respective banks.

Table no. 2 outlines the importance of the objective of ensuring and maintaining price stability for most successful states in the field of monetary policy.

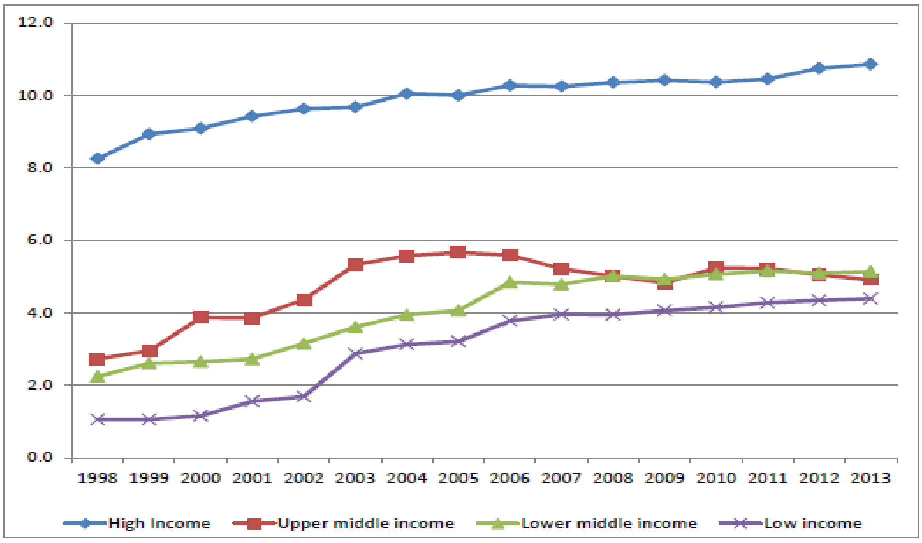
Figure no. 3. The optimality of monetary policy from the perspective of the transparency degree of some successful central banks



Source: elaborated by authors according to Dincer and Eichengreen, 2014. Central Bank Transparency and Independence: Updates and New Measures. International Journal of Central Banking and the official sites of the respective banks.

The level of correlation between the degree of transparency of a bank and the evolution of inflation in the direction of achieving the objective of monetary policy is reflected in figure no. 3. It is necessary to note that the most successful central banks at the start relied on increased transparency of the bank, except for the National Bank of Poland and the Bank of Hungary. However, the degree of transparency has increased considerably between 1998 - 2014, recognizing the importance of transparency and predictability of monetary policy. At the same time, it should be noted that the low annual inflation rates are associated with an increased level of transparency of the central bank.

Figure no. 4. The trend of central bank's transparency according to the degree of development of the countries



Source: Dincer and Eichengreen, 2014. Central Bank Transparency and Independence: Updates and New Measures. International Journal of Central Banking.

Figure no. 4 reflects the conclusions of Dincer and Eichengreen (2014) that institutional transparency contributes to consistent results on the monetary policy objective of achieving and maintaining price stability. At the same time, from this figure it should be mentioned that the degree of transparency has an upward trend, which means that the central banks opt for an opening of their activity, greatly relying on credibility and, as a result, on the inflation expectation anchoring. However, the increased transparency is characteristic for developed economies, and the low-income economies are associated with a low degree of transparency.

The study of international monetary policy experience has outlined and confirmed the researches of the need of central bank transparency in the inflation target achieving. The most successful central banks in the field of monetary policy have relied on institutional credibility, which is ensured by increasing the bank transparency, independence and responsibility.

4. The evaluation of monetary policy framework applied in Republic of Moldova

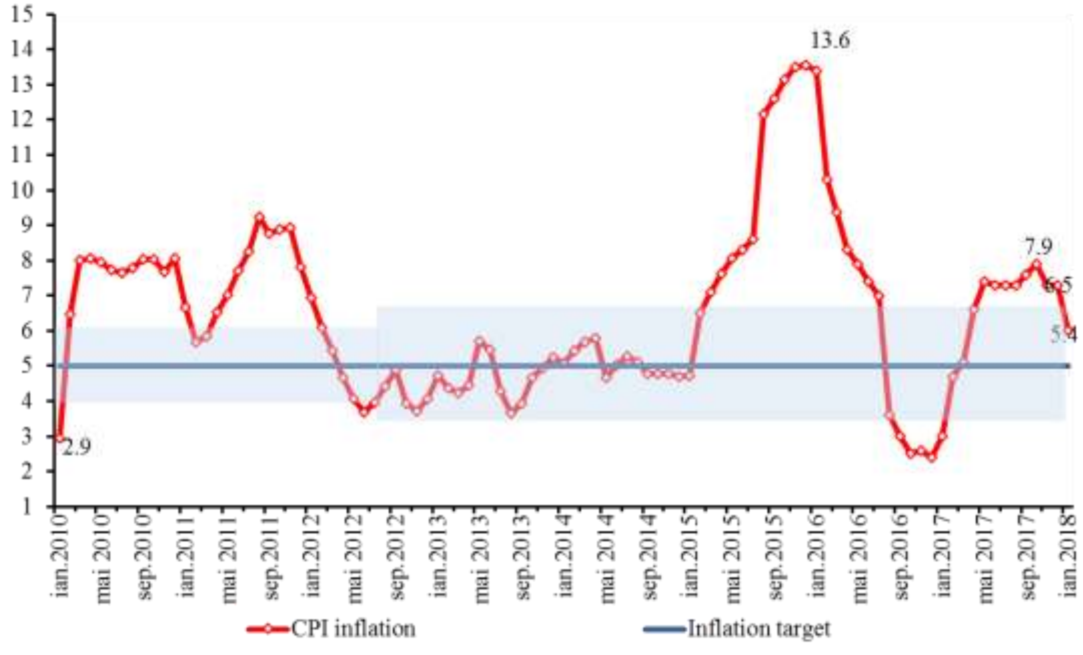
Referring to the Republic of Moldova, it is necessary to mention that the macroeconomic imbalance on inflation has been a major problem throughout the period since independence. Between 1991 and 2017, Moldova recorded various types of inflation, from hyperinflation to values close to the inflation target. *Hyperinflation* was specific for the period of 1990 to 1994, when the annual inflation rate in 1992 recorded 1669.6% and in 1993 it was 2705.7%. The *galloping inflation* (1995-1999) - in 1995 the annual inflation rate constituted 23.7%, and in 1999 - 43.7%; *moderate inflation* (2000-2008) - the annual inflation rate in 2000 was 18.4% and in 2008 - 7.3%; *disinflation* (2009) - the lowest level (0.4%) of inflation was registered for the first time in the economic history of the Republic of Moldova. The disinflation process registered during 2009, based the prerequisites for the implementation of the inflation targeting regime in 2010. The period of 2010 to 2017 is characterized by the general moderation of the inflationary process in the Republic of Moldova, registering the annual level of 7.3% in 2017.

It should be mentioned that since 2006, the NBM has pursued the fundamental objective of ensuring and maintaining price stability. The art.4 (2) from the Law on NBM no. 548-XIII of 21 July 1995 stipulates that without prejudice to its fundamental objective, the National Bank of Moldova promotes and maintains a financial system based on market principles and supports the general economic policy of the state. In 2010, the NBM moves to the inflation targeting regime, and until the inflation target was declared, the NBM managed inflation through the monetary aggregate targeting regime, which contributed to the strengthening of the population's confidence in the national currency.

At the same time, it should be noted that the implementation of the direct inflation targeting strategy imposed a series of challenges in the perimeter of transparency and communication policy of the National Bank of Moldova, given that the success of this strategy is conditioned by the inflation expectation anchoring and therefore the institution credibility, along with the promotion of increased transparency.

During the transition to the inflation targeting regime, the prerequisites for the implementation of the regime were created, in particular, the placement of the annual inflation rate in the corridor of the target range during 2012, maintaining this trend until the beginning of 2015, fact visible in figure no. 5, along with strengthening NBM independence, exchange rate flexibility, and increasing the NBM credibility.

Figure no. 5. The monetary policy performance in line with the objective of ensuring and maintaining price stability



Source: elaborated by authors according to the data published by the National Bureau of Statistics from Moldova and official site of the National Bank of Moldova.

The inflation-targeting regime was implemented de jure in January 2013. It is necessary to note that annual inflation rate is close to the inflation target in the period of January 2013 to January 2015. Thereafter, it recorded values above the upper limit of the target range in December 2015, registering 13.6% against the backdrop of national currency depreciation and pressures from foodstuff products. The beginning of 2018 is characterized by the positioning of annual inflation rate into the variation corridor and near the target, registering values of 6.5 and 5.4% in January and February 2018, respectively.

Therefore, in order to carry out the tasks stipulated in the Monetary Policy Strategy, as a result of the reorientation to the direct inflation targeting regime, the NBM introduced new communication tools, which was confirmed by the publication on the official website of the calendar of meetings of the Executive Board of the NBM on the monetary policy promotion, the calendar of the Inflation Report publication (in 2010 - the Monetary Policy Report) and the one on monetary policy operations.

In order to ensure the transparency of the decision-making process, the NBM publishes press releases after each meeting of the Executive Board and briefings are organized with the participation of the vice-governor, which means informing the public about monetary policy decisions. The NBM, also prepares press releases related to the evolution of inflation, identifying the determinants of the inflationary process. It should be mentioned that the publication of Inflation Reports is preceded by the organization of conferences with the participation of the NBM governor and media representatives. We note that the National Bank of Moldova is reserved in the forecasting indicator area, quantitatively publishing, only inflation and providing reflections on gross domestic product deviation forecast.

At the same time, starting with the Inflation Report no. 3, 2017 the summaries of Executive Board meetings on the monetary policy promotion are missing in the Inflation Reports, this fact jeopardizes the credibility of the institution. There are also gaps in the inclusion of inflation expectations in the Inflation Reports, as well as not publishing them on the official website of the NBM. Nevertheless, we note that the inflation process in the Republic of Moldova has moderated with the implementation of the inflation targeting regime and the association of a specific institutional framework with the enhancement of credibility on the grounds of transparency and independence.

5. Conclusions

The clear and explicit definition of the optimal monetary policy is missing in the literature of speciality. In this context, the study of the optimal monetary policy concept is the subject of this research. The literature of speciality outlined the definition of optimal monetary policy in terms of its factors, criteria and impact.

In order to adjust monetary policy to an optimal level, the central bank of a particular state must take into account a complex set of factors that may affect the monetary policy character, endangering the achievement of the objective proposed by the monetary authority. These include the economic conjuncture, institutional and operational framework of the monetary authority.

The economic conjuncture is attributed to the economic potential of the state by identifying the economic cycle, the labour market situation and the degree of interdependence of monetary policy with fiscal policy and other macroeconomic policies of the state. In this context, it is important that the promotion of monetary and fiscal policy is achieved in a consistent relation in order to overcome possible shocks to monetary policy.

The *institutional framework* associated with an optimal monetary policy is limited to the following aspects: clear definition of the central bank's objective in the context of the legal framework; transparency of the central bank; increased independence of the central bank; the central bank's responsibility. At the same time, we note that one of the institutional criteria, which confers optimal monetary policy, is the need to prioritize a single central bank objective in order to overcome possible decision compromises in the presence of several objectives. We consider that pursuing macroeconomic stability through production, employment, exchange rates and financial stability (credit growth, asset prices) may conflict with price stability objective.

The operational framework consists in the existence of a well-defined nominal anchor, final (the case of direct inflation targeting regime) or intermediate (the case of the monetary aggregate targeting regime, the exchange rate targeting regime); the well-defined transmission monetary policy mechanism, as well as increased forecasting capacity of the estimation of inflation and macroeconomic indicators.

The study of theories associated with inflation expectations has demonstrated their indispensable role, especially the increased importance of rational expectations in the current modern economy. The international theory and practice have demonstrated that the channel of inflation expectations plays a decisive role in adequate monetary policy promoting, able to achieve the proposed objectives, such as price stability and medium-term sustainable economic growth.

The inflation expectation anchoring and effective management of inflation expectations are based on the process of communication, transparency and accountability of the monetary authority. The central bank communications must be transparent and timely, as clear communication improves the effectiveness of monetary policy. It should focus on explaining past results and actions to align the expected inflation with the policy objective, focusing on the variables that matter to the behaviour of the private sector. The effective communication helps reduce uncertainty; it improves monetary policy transmission mechanism and facilitates the accountability, thereby giving the institution credibility. It is also important to explain the deviations from the objectives and remedial actions. Thus, with increased communication and a transparent monetary policy, the central bank is able to anchor inflation expectations, which can be considered as other criteria of optimal monetary policy.

Referring to the Republic of Moldova, it was concluded that the NBM institutional framework is well defined and the transparency and accountability of the NBM increased with the implementation of the inflation targeting regime in 2013, along with the moderation of the inflationary process. However, the National Bank of Moldova faces with some gaps. We note that the NBM is reserved in the forecasting indicator area, quantitatively publishing only inflation and providing reflections on gross domestic product deviation forecast. At the same time, there are also gaps in the inclusion of inflation expectations in the Inflation Reports as well as the missing of them on the official website of the NBM.

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