

**ACADEMY OF ECONOMIC STUDIES OF MOLDOVA**

As a manuscript  
C.Z.U.: [338.23:336.74]:336.748.12(478)(043)

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**MONETARY POLICY OPTIMISATION THROUGH  
THE INFLATION EXPECTATIONS MANAGEMENT**

**522.01 – FINANCE**

**Summary of the thesis of doctor in economics**

**CHIȘINĂU, 2022**

The thesis was developed within the department “Investments and Banking Activity”  
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The presentation will take place on October 31, 2022, at 14.00 in the Commission's meeting for public defence of the thesis of doctor in economics within the Academy of Economic Studies of Moldova, at the address: Chişinău mun., 61 Gavriil Bănulescu-Bodoni St., MD-2005, Block A, third floor, Senate Hall. The doctoral thesis and the abstract can be consulted at the Scientific Library of the Academy of Economic Studies of Moldova and on the ANACEC website ([www.cnaa.md](http://www.cnaa.md)).

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## CONCEPTUAL GUIDELINES OF RESEARCH

**The actuality and importance of the topic.** The concern of economists in the direction of optimizing and maximizing the monetary policy efficiency from the perspective of keeping the inflationary process under control in order to ensure lasting economic growth has existed throughout time. Their theories were adapted and applied according to the identification of new processes, phenomena and challenges arising in the economy and in society. The central banks, aiming to ensure price stability, take into account the theories associated with monetary policy in order to optimize it, but also to find new directions in its actions, in the context in which contemporary economies have begun to grant special attention to expectations from the perspective of identifying the macroeconomic trends and developments in order to make correct and effective decisions at the proper time.

In this sense, under the repercussion of the notion of expectations in the economy, in the last decade of the 20th century, the monetary authorities are required to strengthen their own actions in the direction of increasing the bank's transparency and communication, recognizing the indispensable role of the inflation expectations in price stability ensuring, one of the less valued aspects being the process itself and inflation expectations management determinants capable to achieve price stability.

Recently, we are witnessing the manifestation of the overlapping effects of the two crises, the crisis associated with the COVID-19 pandemic and, respectively, the energy crisis. The crisis generated by the COVID-19 pandemic has forced the monetary authorities to review their priorities in order to overcome any liquidity deficits in its banking systems. In this context, most of the world's central banks had to turn to a stimulating monetary policy in order to support economic growth and support the general economic policies of the state on the background of increased transparency of its decisions, aiming to mitigate the overwhelming economic impact of the pandemic. The energy crisis at the end of 2021 shook the world economy, leaving imprints on global inflation through the high quotations on energy resources, thus activating the second-round effects likely to adjust the further acceleration of the inflation process.

At the same time, it is worth mentioning that the tense events associated with the armed conflict in the region conditioned additional inflationary pressures on the global inflation process from the perspective of distortions in the supply, production and commercialization chains. In this sense, the food and raw materials prices on the international markets have recorded strong ascents with clear prospects for the substitution of goods from countries involved in armed conflict.

The pandemic crisis inhibited the aggregate demand, the consumers became more reluctant, preferring to postpone final consumption, but with the cancellation of the restrictions imposed by

COVID-19 and the resumption of the global economic activity, its reactivation was observed, likely to affect inflation. The supply factors intensified with the energy crisis manifestation, attributing to the inflationary process the accelerating trend due to costs, inflation becoming non-monetary. The increase in the world prices of energy resources, which started towards the end of 2021, together with the acceleration of those for food, represents a threat to global inflation and world economic conditions, and these negative effects are mostly felt by emerging economies.

The international context has had a strong impact on the Republic of Moldova conjuncture, being a small country with an open economy, importing energy resources and food products, it is exposed even more heavily to external shocks, and its vulnerability has been confirmed by the persistent increase in consumer prices, with severe repercussions on consumers' personal budgets. In addition, to the two above-mentioned crises manifested in the last two years, there is also the refugee crisis, which outlines additional inflationary pressures on the inflation process in the Republic of Moldova through the consumption channel.

**The description of the situation in the research field and the identification of associated problems.** In the context of aforementioned, the importance and role of the inflation expectations management in the price formation process has doubled, a fact that involves the ensuring of increased credibility of the monetary authority in order to overcome the distortions in the rational distribution of financial resources in the economy. The population and economic agents are more rational in making investments, savings and consumption when inflation is anticipated and the central bank enjoys the increased credibility in its actions and decisions. The contribution of central banks to the inflation expectation formation is considerable and directly related to the way in which past, present and future actions are communicated and, respectively, to the way in which the central banks respond to the challenges of responsibility and independence in the execution of inflation objective.

The inflation expectations constitute a significant landmark in the conduct of monetary policy from the perspective of strengthening the transmission mechanism of monetary policy decisions, and their level has a greater impact on the inflation process foundation in economy. For these reasons, the central banks are currently co-interested in the process of inflation expectations formation and management, directing them to the levels associated with the inflation target.

Carefully researching the literature in the field, it was found that in the specialty, there is a lack of a clear and explicit definition of the optimal monetary policy. At the same time, the specialized literature does not clearly and explicitly identify the overall defining aspects that underlie the inflation expectations management mechanism at the level of the central bank, through which it is capable to influence the expectations formation and, consequently, ensuring the inflation objective achievement.

Referring to the Republic of Moldova, we can state that the monetary policy had an active, predominantly anti-inflationary character, from the fight against hyperinflation, in the period 1990-1994, to a moderate inflation in 2000-2008. At the same time, it should be noted that the transition to the inflation-targeting strategy in 2010 imposed a series of challenges in the action perimeter of the transparency and communication policy of the National Bank of Moldova, given the fact that the success of this strategy is conditioned by the inflation expectations anchoring and, therefore, by the institutional credibility, along with the promotion of increased transparency, independence and responsibility, which gives originality and confirms the importance of the researched theme.

**The study degree of the research topic.** The theoretical and practical aspects related to the role of inflation expectations in the monetary policy promotion and in the context of the transmission mechanism of monetary policy decisions, the importance of communication, transparency, independence, accountability and credibility from the perspective of the monetary policy objective ensuring were addressed, predominantly, in the researches of scientists affiliated to neoclassical, monetarist, neo-keynesian schools – M. Friedman, E. Phelps, R. Lucas, T. Sargent, R. Barro, N. Wallace, E. Prescott, F. Kydland, G. Calvo, N. Mankiw, R. Reis, J. Roberts, J. Gali, M. Gertler, of researchers from abroad – A. Alesina, L. Summers, S. Blinder, M. Woodford, B. Bernanke, M. Ehrmann, M. Fratzscher, J. Hann, D.-J. Jansen, N. Dincer, B. Eichengreen, B. Taylor, L. Svensson, A. Posen, F. Mishkin, A. Levin, P. Geraats, A. Cukierman, G. Tabellini, M. Goodfriend, V. Grilli, D. Masciandoro, of researchers from the CIS space – A. Sokolova, A. Loleyt, I. Gurov, of Romanian economists – M. Isărescu, S. Cerna and the national ones – V. Cociug, A. Casian, R. Cuhai, V. Cuhai, A. Secrieru.

The researches of the above-mentioned authors constitute a significant theoretical and practical value and substantiate the points taken as a benchmark for the development of the respective research. At the same time, it should be noted that the aspect related to the inflation expectations management from the perspective of monetary policy optimisation remains intact and has not been subjected to research in the Republic of Moldova, a fact that gives an extended perimeter of research and finalization in the respective field.

**The purpose of the research** consists in the monetary policy optimisation from the perspective of ensuring price stability through the inflation expectations management on the background of maximizing and strengthening the central bank credibility due to the transparency, communication, independence and responsibility of the central bank.

In order to achieve the proposed goal, the following **objectives** were formulated:

- Identifying the theoretical determinants associated with the optimal monetary policy concept;

- The systematization of theoretical and methodological approaches regarding the inflation expectations and the delimitation of their place in the monetary policy optimisation process;
- Identifying the concept of inflation expectations management due to the consistency of institutional framework associated with the independence, transparency and responsibility of the central bank in view of the monetary policy optimisation possibility;
- Studying the ways to optimize the monetary policy from the perspective of inflation expectations management within the international experience, mainly referring to countries with a similar monetary policy regime to that of the Republic of Moldova;
- The evaluation of the monetary policy framework promoted by the NBM, together with the analysis of the inflationary process in the Republic of Moldova and the estimation of its volatility, using the heteroscedastic GARCH model;
- The development and simulation of an econometric model, which would allow the evaluation of the monetary policy in the Republic of Moldova with the identification of the possibility of its optimisation by including the inflation expectations as one of the model variables.

**The research object** includes the monetary policy and the National Bank of Moldova as the monetary authority responsible for its promotion and implementation.

**The research hypothesis** resides in the possibility of monetary policy optimisation by outlining an adequate framework for inflation expectations management. The author claims that the monetary policy effectiveness will increase with the improvement of the inflation expectations management against the background of the persistence of a solid framework of transparency, independence and responsibility in correlation with a proactive, explicit and readable communication adapted to each target group, a fact that will facilitate the public, economic agents and economists in creating a predictable economic environment and will ultimately contribute to the achievement of the objectives proposed by the monetary authority itself.

**Synthesis of the research methodology.** The approaches of the neoclassical economic theory were the basis of the research development, together with the methodological and applied studies of foreign economists. The spectrum of informational data associated with the institutional and statutory framework of central banks, statistical information were taken from the official web pages of the National Bank of Moldova, the National Bank of Poland, the Czech National Bank, the National Bank of Romania, the National Bureau of Statistics of the Republic of Moldova. At the same time, the researches, estimates and analyses, previously carried out by the author, were taken as a reference.

The following research methods were used in the process of researching information relevant to the topic addressed:

- ✓ the method of scientific abstraction – through which the concept of optimal monetary policy was studied and substantiated, the aspect related to inflation expectations and their role in the context of an optimal monetary policy was defined, resorting to the elimination of irrelevant and arbitrary concepts and theories;
- ✓ the method of analogy and comparison – contributed to the comparability of different views in specialized literature regarding the importance of inflation expectations for the effectiveness of monetary policy, as well as to the valorisation of international experience in this field, thus contributing to the identification of own conceptions related to the monetary policy optimisation in the Republic of Moldova in terms of inflation expectations management;
- ✓ the econometric simulation and analysis method – determined the aspects related to the inflation process evolution in the Republic of Moldova and the determination of its volatility, through the prism of the empirical and econometric framework was estimated the causal relationship between inflation expectations and inflation;
- ✓ the deduction and systematization method – is beneficial from the perspective of conditional need argumentation of central bank independence, transparency and accountability in the context of the inflation expectations management mechanism and their increased role in monetary policy promotion; the formulation of inflation expectations establishing process from the position of identifying the role and the place of the central bank in their management.

Depending on the character of the research, the research method is mainly applied, intradisciplinary, descriptive and causal.

**The scientific novelty and originality** consists in providing some solutions, including those determined by econometric models and theoretically based on the monetary policy optimisation through the inflation expectations management. The scientific originality stems from the current emphasis placed on the national and international level, marked by the implication of inflation expectations in the price formation process, putting the burden on the central banks in their management.

In this context, the scientific novelty can be disaggregated into the following elements:

1. The theoretical conceptualization of the need to manage inflation expectations in order to establish an optimal monetary policy model;
2. The foundation of the notion of optimality from the macroeconomic perspective with the identification of the specificity of optimal monetary policy concept;
3. Identifying the good practices for optimizing monetary policy by inflation expectations management;



4. The evaluation of the monetary policy framework in the Republic of Moldova with the identification of its optimisation possibilities by introducing the concept of rational inflation expectations, including the analysis of the inflationary process volatility through the heteroscedastic GARCH model;
5. The concretization of the legal responsibility of the monetary authority from the Republic of Moldova, together with the quantification of the independence and transparency degree of the NBM and formulation of recommendations in the direction to increase the NBM transparency, oriented towards the formation and consolidation of rational inflation expectations;
6. Identifying the opportunity of the influence of mixed inflation expectations, such as backward and forward-looking on the inflation process from the Republic of Moldova;
7. The simulation of a causal econometric model with the integration of inflation expectations in the Republic of Moldova and identifying their role in the price formation process;
8. The econometric assessment of the way in which the inflation expectations are able to cause the evolution of the inflation process and the deduction of the importance of their inclusion in analysis and forecasting models applicable to the evaluation and establishment of monetary policy from the perspective of its optimisation.

**The theoretical value of the research is summarized in:**

- the exhaustive definition of the optimal monetary policy concept;
- the systematization of economic theories in the matter of inflation expectations with the identification of the rationales for their application from the perspective of monetary policy optimisation;
- the argumentation of conditional necessity of the central bank's independence, transparency and accountability in the context of the inflation expectations management mechanism;
- the formulation of the inflation expectations formation mechanism from the perspective of identifying the role and place of the central bank in their management.

**The applied value of the research consists in:**

- the proposal of inflation expectations management mechanism based on an increased degree of independence, transparency and accountability;
- the quantification of independence and transparency degree of the monetary authority from the Republic of Moldova with the identification of strong and vulnerable points;
- the econometric confirmation of the causal relationship between inflation expectations and the evolution of the inflationary process (the case study of the Czech Republic and Poland);

- the simulation of a causal econometric model with the inclusion of inflation expectations adapted to the situation from the Republic of Moldova.

The analytical results and syntheses associated with the thesis and represented by schemes, indicators and econometric models are useful for students, masters, PhD students, specialists and experts in the research field.

**Implementation of the scientific results.** The results obtained in the research have the character of a recommendation for the monetary authority of the Republic of Moldova, conferring a niche for the monetary policy optimisation due to the inflation expectations management and the valorification of the potential of the forward-looking expectations formation. The results of the research were presented to the relevant authority in the field, being supported and appreciated by the National Bank of Moldova and the Academy of Economic Studies of Moldova, a fact confirmed by the implementation certificates attached to the thesis.

**The approval of results.** The theoretical and methodological approaches, conclusions and recommendations mentioned in the thesis were reflected in the scientific research published in national and international journals, as well as supported in the context of conferences and symposia of scientific events both nationally and internationally. The author has published 13 researches and scientific studies associated with the fundamental topic of the thesis with a total volume of 6.62 a. p. At the same time, the author participated at 14 courses, seminars and workshops organized by international institutions and central banks, thus consolidating the knowledge in the field of the researched topic and in some of them, the author supported the presentations related to the monetary policy promotion and communication in the Republic of Moldova.

**The thesis structure.** The thesis was configured in a consistent and logical structure, likely to ensure the achievement of the proposed goal and objectives. Thus, the thesis contains the annotation, introduction, three chapters, general conclusions and recommendations, bibliography of 210 titles, 8 annexes, 137 pages of basic text, 36 figures and 25 tables.

**Keywords:** central bank, inflation expectations, monetary policy, price stability, inflation, central bank's communication, transparency, independence, accountability.

## CONCEPTUAL GUIDELINES OF RESEARCH

*Chapter 1 "The theoretical-conceptual approach of the possibility of monetary policy optimisation through the prism of the inflation expectations management"* contains a multidimensional vision on the monetary policy optimality concept, focusing mainly on the ability of the central bank to optimize the monetary policy through the inflation expectations management mechanism based on increased credibility due to the three pillars – transparency, independence and accountability. At the same time, the emphasis was placed on the theoretical and applied approaches of inflation expectations in the context of theories of economic thought affiliated to the keynesian, monetarist, neoclassical, neokeynesian schools and the researches of economists in the field.

The promotion of an optimal monetary policy capable to ensure the achievement of stable and low inflation has been a persistent concern of central banks and the academic environment. Assuming the indispensable role of price stability in the allocation of resources and in the distribution of income in the economy with repercussions on lasting economic growth, the central banks are forced to strengthen their efforts in the direction of valorification of this optimal monetary policy in order to achieve the proposed goals. The specialized literature in the field defined an extensive variety of approaches associated with an optimal monetary policy, but from the perspective of a single determinant taken as a benchmark in its foundation. In this context, the author proposed to study the respective approaches in order to find the overall definition of an optimal monetary policy. It should be mentioned that, in order to give the consistency and viability of the researched subject, the term optimisation and the rudimentary ones, such as optimal, optimality, were studied. Starting from the reasoning of the aspects complexity that are the basis of an optimal monetary policy promotion, the Pareto's optimality was abstracted in the conducted research and by referring to the interpretations presented in the dictionaries of the Romanian language, optimisation was identified – as finding an optimal solution for solving a problem, and the optimal solution is the one that ensures the greatest efficiency, corresponding adequately and/or according to the pursued goals.

The theoretical and empirical approaches related to the optimal monetary policy can be found in the research of Lucas and Stokey [39], in whose view an optimal monetary policy in a closed economy with flexible prices and perfect competition consists in setting of the nominal interest rate close to zero, which in fact reflects the Friedman's conceptual rule. Friedman [23], conducting a long-term monetary policy analysis with flexible prices as a benchmark concluded that the opportunity cost of holding money by economic agents should be equal to the social cost of the additional banknotes

creation, in the condition that the marginal cost of additional money creation is around zero. Therefore, the nominal interest rates should be zero.

At the same time, in his researches, Rotemberg and Woodford [46], Giannoni and Woodford [27] find that an optimal monetary policy consists in establishing the right interest rate that best represents the relationship between inflation and GDP deviation. While, Eggertsson and Woodford [20], studying the macroeconomic problem associated with the nominal short-term interest rate in the proximity of the zero value, concluded that inflation expectations with credible commitment to the private sector are able to optimize monetary policy in that context. At the same time, Kydland and Prescott [34], Barro and Gordon [6] approached the concept of optimal monetary policy from the perspective of *the institutional framework*, appreciating the role of central bank credibility.

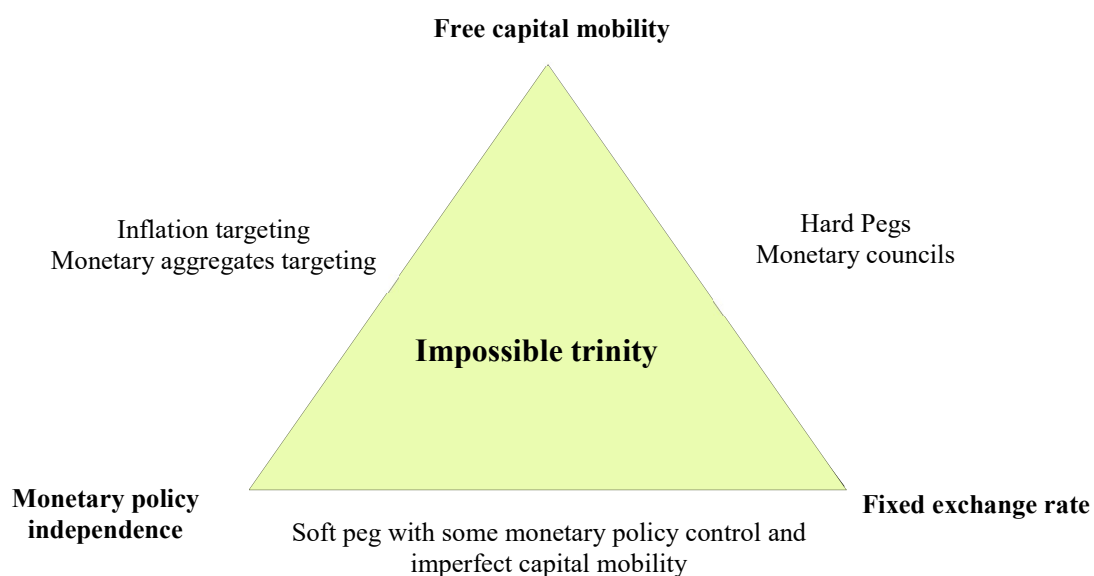
According to Svensson [48], [49] a monetary policy promoted under the inflation-targeting regime is considered stable and optimal if it meets the following three dimensions: 1) an explicit mandate with priority over price stability; 2) the operational independence and the increase of the central bank capacity in the direction of exercising the legal mandate; 3) the accountability to the government and the public, strengthened by transparency and explicit communication of monetary policy actions and decisions.

At the same time, the performance of the monetary policy is obtained by the countries with the most independent central banks (Alesina and Summers [4], Cukierman [12], [13], Blinder [9], Woodford [51], Svensson [49]). The promoters of this approach also emphasize the study of the optimal character of a central bank's communication strategy, as well as its dependence on the institutional framework in which a central bank operates, outlining the role of transparency in increase of the monetary policy efficiency. Eijffinger and Geraats [21], Dincer and Eichengreen [15], [16], [17], carried out the most significant empirical studies, which reflected the increase in transparency of world central banks in the last decade. At the same time, Geraats [26] was the first who analytically emphasize the interdependence between transparency and the monetary policy framework.

Nolan and Schaling [42], doing a study on the responsibility index in relation to the average level of bond yields in the last decade, considered a proxy for inflation expectations, analytically demonstrated that the central banks opting for independence reduced the inflation expectations due to increased responsibility and transparency of monetary policy. At the same time, *the inflation expectations* play a crucial role in the monetary policy transmission mechanism. Woodford [51, p. 12] insists that *"the conditionality of a successful monetary policy is not reflected by the management of overnight interest rates, but by the inflation expectations management"*. Bernanke et al. [8] and Levin [35] highlighted the benefits of a clearly defined medium-term objective. From the above, to mention

that *the optimal monetary policy is defined by impact on the background of the institutional framework*.

At the same time, an optimal monetary policy can be valorised on the side of compliance with the theoretical *criteria*, which have been studied to the maximum by classical and contemporary economists. In this way, a monetary policy from the perspective of optimality is based on the Mundell-Fleming model or the *impossible trinity theory* (Fig. 1.1).



**Figure 1.1. Mundell Fleming's model and the impossible trinity related to the monetary policy framework**


Source: [7, p.17]

The impossible trinity emphasizes the problems of monetary policy optimisation alongside the trade-offs involved in monetary policy decisions depending on the monetary policy regimes applied by central banks. From figure 1.1, it should be noted that the optimality of the monetary policy is reflected by the impossibility of the simultaneous meeting of the three aspects, expressed by the free capital mobility, a fixed exchange rate and an independent monetary policy. At the same time, *Taylor's monetary policy rule* [50] is defined in economic theory, which assumes that the monetary policy rate is a function determined by the inflation deviation from the target and the GDP deviation.

Additionally, it is necessary to note that the *conjunctural framework* exemplified by the productive and economic potential of the country against the background of economic cycles must be taken into account when choosing the monetary policy optimal course. Another aspect of the conjunctural framework is the fiscal policy and other macroeconomic policies of the state. Isărescu [31, p.11] claims that "*Without the support of other economic policies, the monetary policy could encounter difficulties in ensuring, in a sustainable manner, a low inflation. In other words, the price*

*stability may be achieved at the expense of other macroeconomic equilibria, which may ultimately prove to be a self-reversing process.”*

**Table 1.1. Defining the concept of optimal monetary policy taking as a benchmark the conjunctural, institutional and operational framework**

	Optimal monetary policy by		
	Factors	Impact	Criteria
<b>Conjunctural framework</b>	1. The domestic economic potential; 2. Fiscal policy and other macroeconomic policies; 3. External environment.		1. The impossible trinity 2. Taylor's rule
<b>Institutional framework</b> – critical for credibility and inflation expectations management		1. The explicit character of the monetary policy objective; 2. Independence of the CB; 3. Transparency and communication of the CB; 4. Accountability of the CB.	
<b>Operational framework</b>		1. Nominal anchor; 2. Transmission mechanism; 3. Monetary policy instruments; 4. Developed analysis and forecasting models.	

*Source: developed by the author and published [11]*

The aspects related to the *operational framework* contribute to the definition of a monetary policy through impact. And its optimality depends on the degree of adjustment and development of the transmission mechanism of monetary policy decisions, the applied monetary policy instruments, the model used for forecasting, and last but not least the explicit definition of a nominal anchor, either the monetary aggregate, or the inflation rate, or the exchange rate depending on the applied monetary policy regime.

Finally, the author of the thesis defines the *optimal monetary policy* – *the totality of the measures taken/decisions adopted by the monetary authority according to the conjunctural, institutional and operational framework on the three segments (factors, impact, criteria) (Table 1.1) in order to make the monetary policy more efficient and to ensure the achievement of the medium-term monetary policy objective.*

Table 1.1 highlights the importance of the institutional framework in inflation expectations anchoring and the need of monetary authority's independence, transparency and communication, as well as the accountability in the process of streamlining and optimizing monetary policy through impact, being considered by the author the pillars of a central bank's credibility in the context of this research. It is very difficult to impose a central bank to respond to those pillars of credibility in conditions where an adequate institutional framework for the promotion and implementation of

monetary policy is not defined. Thus, with the explicit and readable definition of the institutional framework in the context of which the monetary policy is promoted in a way that can be understood by the general public, the central bank *is able to manage the inflation expectations*, being defined by the author as a segment of monetary policy optimisation through impact.

The continuous evolution of economic theory and thought laid the foundations for the role and place of inflation expectations at the micro- and macroeconomic level (Table 1.2).

**Table 1.2. The evolution of the inflation expectations concept in the context of economic theories**

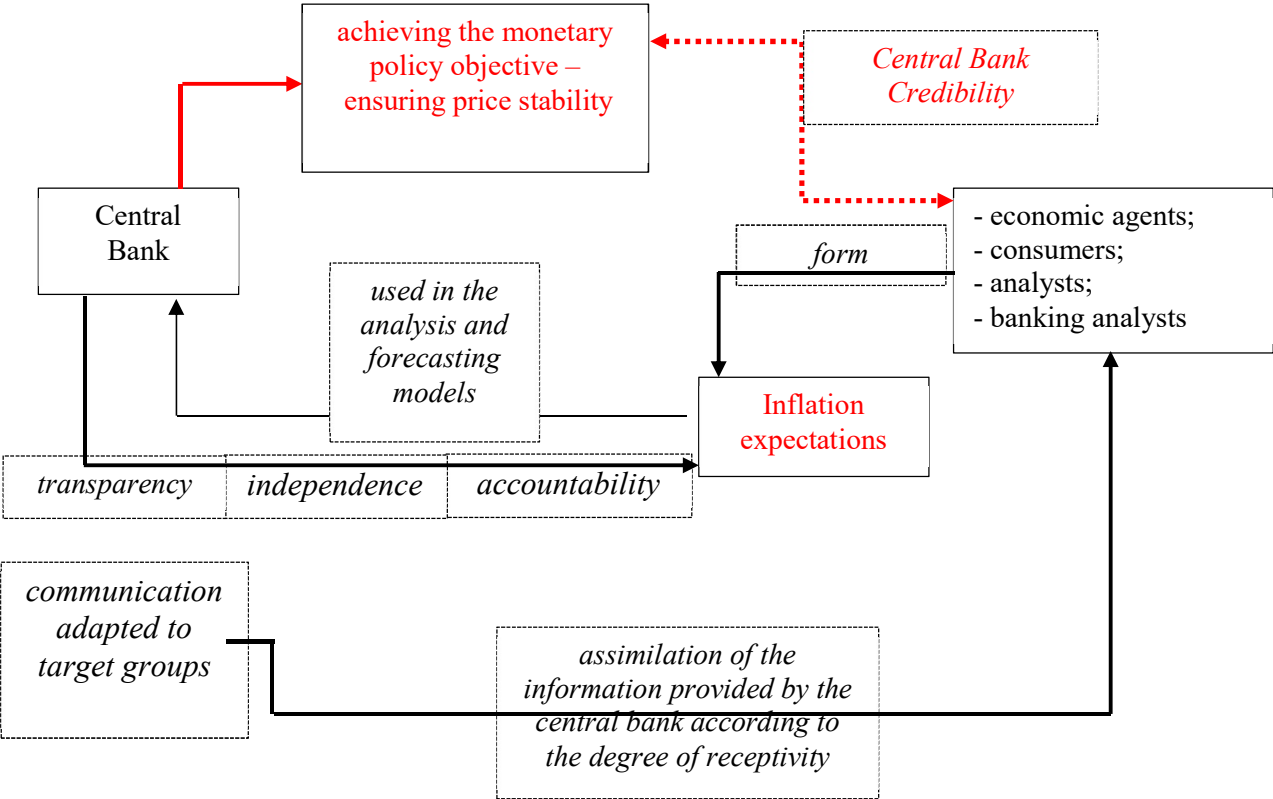
Schools of economic thought	Affiliated Authors	Supported ideas related to inflation expectations	The type of inflation expectations
<b>Keynesism</b>	J.M. Keynes [33]	The assumption of the uncertainty persistence in the future, which conditions the irrationality of economic agents, including what is related to the impossibility of their anticipatory capacities.	-
<b>Monetarism (Chicago School)</b>	M. Friedman [22] E. Phelps [43]	The adjusting of keynesian approaches related to the Philips curve to the behavioural microeconomic interdependencies of economic agents by introducing their inflation expectations into the curve.	Adaptive inflation expectations (backward-looking component)
<b>New classical economics</b>	J. Muth [41] R. Lucas [36,37,38] T. Sargent, N. Wallace [47] R. Barro [5] F. Kydland, E. Prescott [34]		Rational inflation expectations (forward-looking component)
<b>New Keynesian economics</b>	G. Calvo [10] N. G. Mankiw, R. Reis [40]	The approaching the concept developed by the neoclassicals with the inclusion of the vision of the heterogeneity existence of economic agents. Finding that economic agents adjust their prices and form the inflation expectations in different periods.	Rational inflation expectations (forward-looking component)
	J. Roberts [44, 45] J. Gali, M. Gertler [24] și D. Lopez-Salido [25]	Supporting the concept of persistence of mixed inflation expectations, as some economic agents form their inflation expectations based on past inflation values; the others make decisions based on the totality of available forward-looking information.	Adaptive inflation expectations (backward-looking component) and rational inflation expectations (forward-looking component)

*Source: developed by the author based on the synthesis of specialized literature [5], [10], [22], [24], [25], [33], [34], [36], [37], [38], [40], [41], [43], [44], [45], [47]*

The author appreciates the position of the neoclassicals in substantiating the concept of rational inflation expectations and their including within the Phillips curve in the conditions where more and

more emphasis is placed on the benefits of the decision-making process in an informational environment that is in continuous adjustment and updating. At the same time, the author supports the ideas promoted by neo-keynesians, mainly by Roberts, Gali, Gertler, Lopez-Salido, as the inflation process is dependent on both rational inflation expectations and inflation values from the previous period, thus emphasizing the backward-looking inflation expectations. In the opinion of the author of the thesis, the monetary authority credibility, the degree of receptivity and assimilation of the provided information, as well as the ability of the target groups to use this information are the basis of the inflation expectations formation process.

The management of the inflation expectations formation mechanism is beneficial to the central bank in the formulation of monetary policy, of strategy and instruments, the application of which provides an estimation of medium-term inflationary pressures in order to ensure the establishment of an optimal monetary policy. Guided by the respective reasoning, the author of the thesis establishes a mechanism of inflation expectations formation with the identification of the central bank's role within it, schematically represented in figure 1.2.



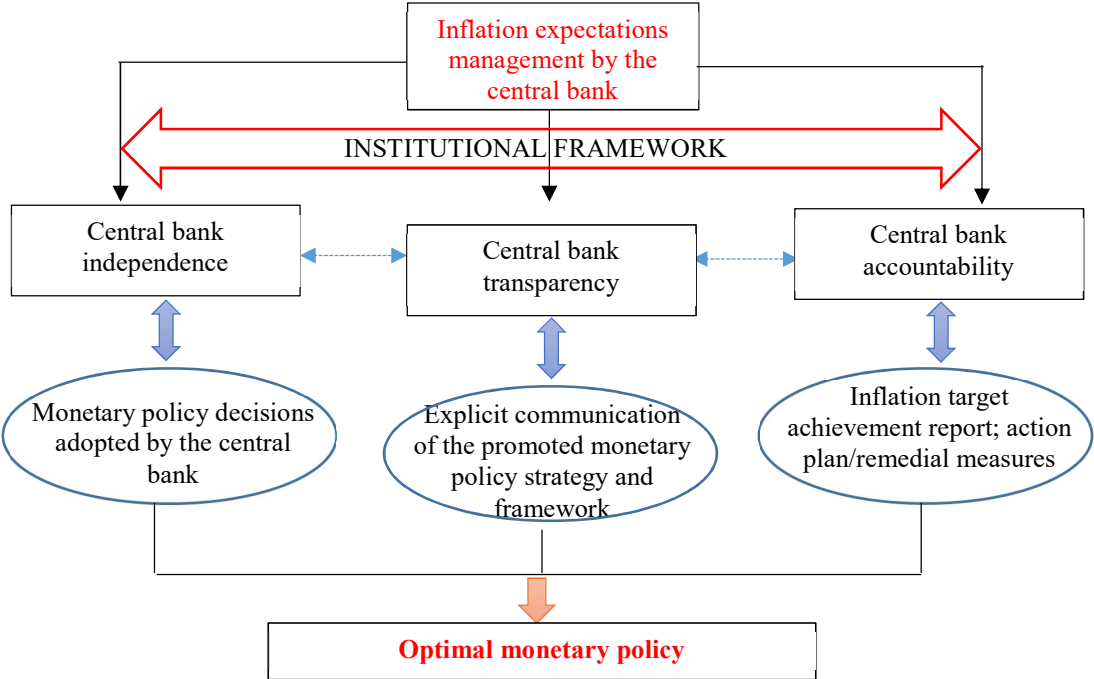
**Figure 1.2. The inflation expectations formation mechanism and the central bank role within it**  
*Source: developed by the author and published [30]*

Starting from the statutory assumptions of the central bank associated with transparency, the central bank through the communication process provides the information adapted to each target group



explicitly, they are taken over by the target groups according to the degree of receptivity of the information and the degree of credibility in the monetary authority, thus contributing to the inflation expectations formation. The independence side is viewed from the perspective of decision-making and the full exercise of monetary policy by the central bank, which is reflected in the strengthening of institutional credibility, implying in this way the persistence of accountability for the actions and adopted decisions, likely to condition the inflation expectations configuration. The latter, being taken over by the central bank in the analysing and forecasting inflation process, being an integral part of the monetary policy adjustment models.

Therefore, it should be noted that the monetary authority has the prerogative to manage the inflation expectations by implementing a solid institutional framework based on the principle of independence, transparency and accountability for its actions in terms of monetary policy likely to strengthen the central bank's credibility, thus giving and implying an optimal character to monetary policy. In this context, the author proposed an inflation expectations management algorithm (Fig. 1.3).



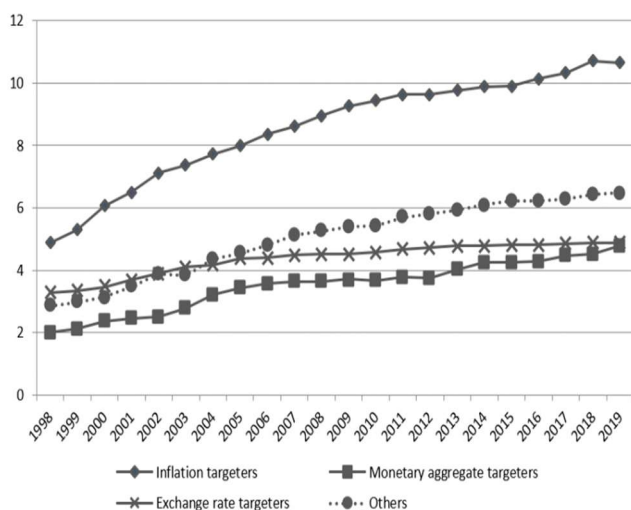
**Figure 1.3. The pillars of monetary policy optimisation associated with the inflation expectations management mechanism**

*Source: author's assessment*

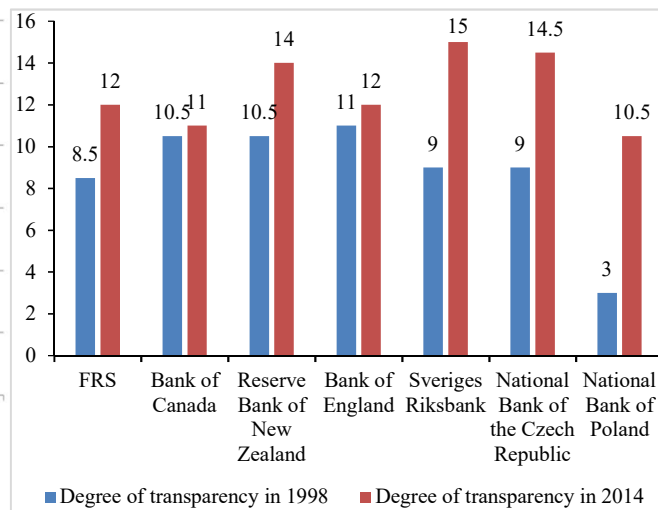
Chapter 2 "The inflation expectations management from the perspective of international experience" is based on the study of the institutional framework of the world central banks and the trends associated with this framework, emphasizing the identification of the monetary authorities capability in managing and anchoring inflation expectations from the perspective of achieving the performance of the direct inflation-targeting regime and thus ensuring the price stability in accordance

with the quantitative values of the inflation targets adopted and reflected in the statute of the central banks. At the same time, the Granger causal relationship between inflation expectations and the evolution of the inflation process in Poland and in the Czech Republic was econometrically estimated.

In specialized analytical and empirical studies, the idea is circulated that the transparency of a central bank is a prerogative of the direct inflation-targeting regime, a fact confirmed by figure 1.4. It is observed that a high transparency index is associated with central banks, which promote monetary policy in accordance with the inflation-targeting regime, followed by others, referring to those with implicit anchors. Finally, the author concludes that the monetary policy regime and, respectively, the monetary policy framework associated with the regime chosen by the monetary authority according to the conjunctural and economic conditions of the country determine the transparency and communication degree of the central bank in matters of monetary policy, which directly reflects on the formation process and the bank's ability to manage rational inflation expectations. Thus, the monetary authorities that implement and promote monetary policy through the inflation-targeting regime enjoy a higher capacity in managing the rational inflation expectations compared to those related to other monetary policy frameworks.



**Figure 1.4. The dynamics of central banks transparency according to the monetary policy regimes in the period 1998-2019**  
*Source: [19, p. 340]*



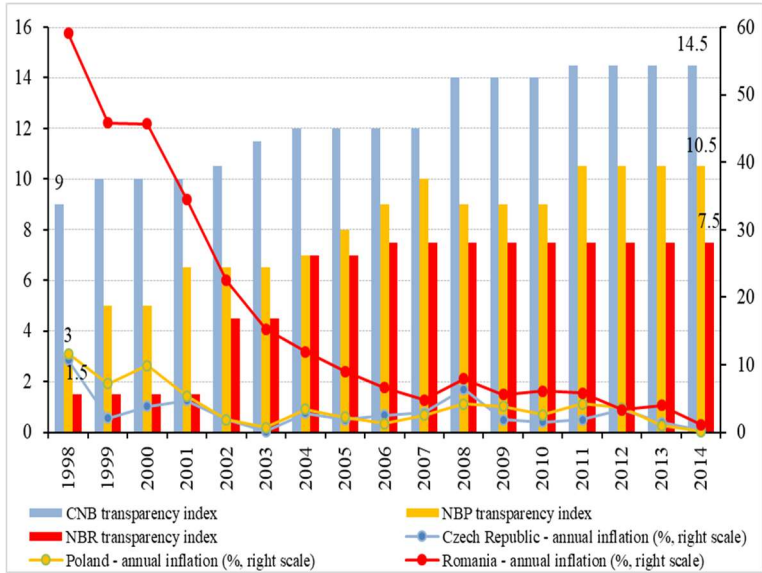
**Figure 1.5. The evolution of central banks transparency degree in the period 1998-2014**  
*Source: author's compilations in accordance with [17]*

The institutional framework of central banks has been subjected to practical research and evaluation by many international economists. Thus, Cukierman et al. [14] performed a detailed analysis of the relationship between central bank independence and inflation, concluding that the increased independence implies reduced inflation. Hayo and Neuenkirch [29] concluded that a higher perceived quality of central bank communication strengthens the credibility of the monetary authority

and contributes to increased perceptions of central bank independence and predictability. Dincer and Eichengreen's study [17] reflects the most transparent central banks (Fig. 1.5). It should be noted that the National Bank of Poland, considerably increased its transparency from an index of 3 in 1998 to 10.5 in 2014. At the same time, the Czech National Bank significantly strengthened its actions towards the transparency of monetary policy during the period 1998 - 2014.

The Czech Republic was the first country with an economy in transition whose central bank resorted to implementing the inflation-targeting regime, followed by the National Bank of Poland. The experience of whose central banks through the lens of communication tools and accountability of the monetary authority represents an example worthy of following by other central banks, which promote the monetary policy in the context of the direct inflation-targeting regime. The selection of the National Bank of Romania was based on the aspects related to the previous implementation of the inflation targeting-regime and the circumstances of Romania's integration into the European Union, along with the successes already achieved in ensuring the inflation target, the achievements that are the interest and an example for the Republic of Moldova's monetary authority.

Analyzing the experience of CNB, NBP, NBR, we note that the Czech National Bank since 1998 – the year of the direct inflation-targeting regime implementation, was generally able to manage inflation effectively until 2020, so that inflation at the end of the year was positioned within the range



**Figure 1.6. The evolution of the CNB, NBP, NBR transparency index in accordance with the inflation process dynamics in the period 1998-2014**

Source: author's compilations after [17] and official web pages of the central banks of the Czech Republic, Poland and Romania

of inflation target confidence – 13 times in annual terms. The National Bank of Poland, with the inflation-targeting regime implementation, succeeded in tempering the inflationary process, the annual inflation rate varying around the target horizon with a range of 9 times in annual terms during the period 1999-2020. While the National Bank of Romania managed to ensure the achievement of the objective regarding inflation by setting the annual rate of the consumer price index – 6 times in annual terms

within the variation range of the target for the period 2005-2020. It is worth noting that the year 2021 marks the acceleration of inflation above the corridor of the variation range of the target pursued in the case of the analyzed three banks against the background of the energy crisis.

In accordance with the statutory provisions of the analyzed banks, they give the prerogative to the inflation expectations channel in the monetary policy promotion, which confirms the fact that the direct inflation-targeting regime, in addition to the interest rate channel, also uses that of inflation expectations in achieving the proposed objectives, staking considerably on credibility, generated by institutional transparency, independence and accountability. It should be noted that CNB, NBP, NBR maximized their efforts in the direction of increase the monetary policy transparency with the inflation-targeting regime implementation, a fact confirmed in figure 1.6. At the same time, this figure highlights the role of central bank transparency in ensuring the low and stable inflation and allows the identification of an inverse correlation between the degree of transparency and the inflation process.

In the following, starting from the approaches of the neoclassicals and neo-keynesians associated with the Phillips curve, as the current inflation is a function determined by inflation expectations, it was proposed to test the hypothesis that inflation expectations can cause the evolution of inflation on the example of the Czech Republic and Poland. Thus, the econometric estimation of the Granger [28] causal relationship between the inflation expectations of the financial market formed by internal and external analysts for the 12-month horizon and the evolution of inflation in the Czech Republic for the period 2010-2021 was carried out using the econometric VAR model.

**Table 1.3. Estimation of Granger causality in the context of the generated VAR model**

VAR Granger Causality/Block Exogeneity Wald Tests  
 Sample: 2010M01 2021M12  
 Included observations: 139

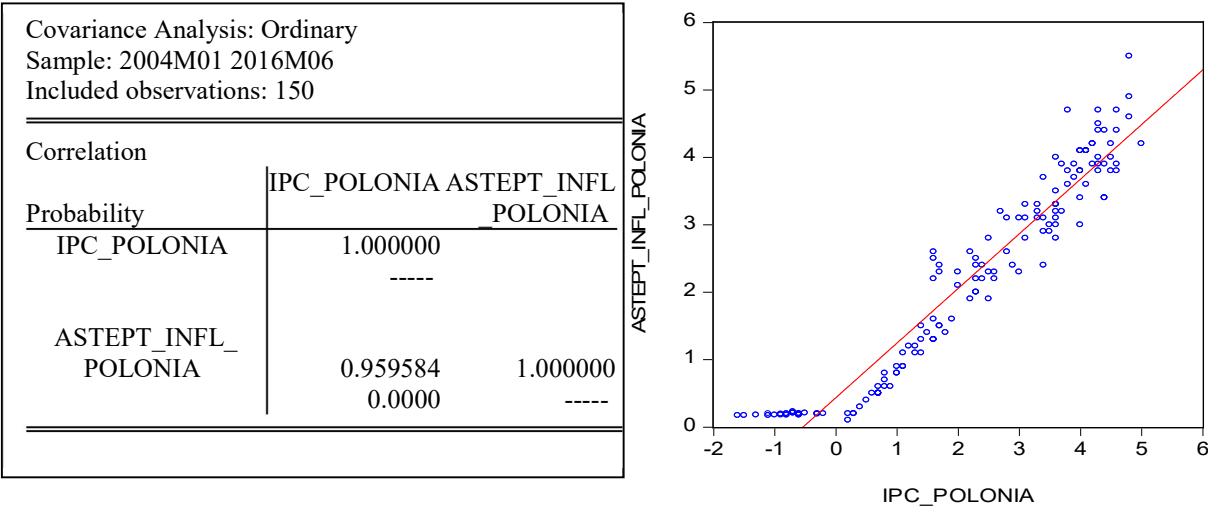
Dependent variable: DLOG_IPC				Dependent variable: DLOG_AST_TOTAL			
Excluded	Chi-sq	df	Prob.	Excluded	Chi-sq	df	Prob.
DLOG_AST_TOTAL	25.33033	4	0.0000	DLOG_IPC	28.11280	4	0.0000
DLOG_AST_AI	16.26043	4	0.0027	DLOG_AST_AI	0.216069	4	0.9946
LOG_AST_AE	15.00550	4	0.0047	LOG_AST_AE	7.385756	4	0.1169
All	43.46092	12	0.0000	All	45.25296	12	0.0000

*Source: elaborated by the author in the EViews program*

From table 1.3, it should be noted that the null hypothesis, according to which inflation expectations do not cause the dependent variable CPI, is rejected, taking as a benchmark the  $p$  value in relation to the critical one of 5.0%. According to these results for the period 2010-2021, a significant

Granger causality relationship is found to persist from financial market expectations associated with domestic and foreign analysts to inflation. At the same time, it is obvious that causality also manifests itself from the evolution of inflation towards total expectations of the financial market, signalling the formation of a bidirectional Granger causality.

With reference to the relationship between inflation expectations and inflation in Poland, a correlation coefficient of 0.9595 was obtained (Fig. 1.7), which determines a very strong positive linear relationship. The empirical confirmation of the causal relationship between these two variables was achieved by applying the VAR econometric model. The obtained results suggest the rejection of the null hypothesis and thus the bidirectional Granger causality relationship between inflation expectations and the evolution of inflation in Poland during the period under analysis is identified (Fig. 1.8, left).



**Figure 1.7. The degree of correlation between inflation and inflation expectations in Poland**  
*Source: author's calculations in the EViews program*

The impulse response function (Fig. 1.8, right) identifies that the persistence of a shock at the level of inflation expectations (the graph located on the upper right) generates an effect on the evolution of inflation in Poland starting from the second year of the forecast, being characterized by the fact that with decrease of inflation expectations and inflation will decrease and vice versa, starting with the third year of the forecast, inflation will register an upward trend, this being supported by increasing in inflation expectations, so the connection between the two variables is positive.

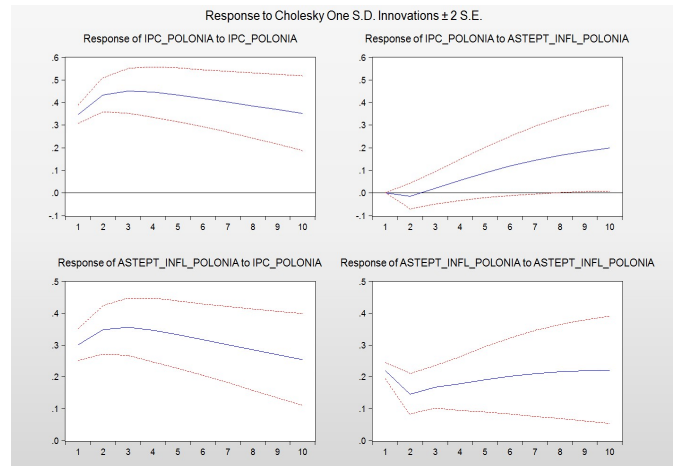
VAR Granger Causality/Block Exogeneity Wald Tests  
 Sample: 2004M01 2016M06  
 Included observations: 148

Dependent variable: IPC\_POLONIA

Excluded	Chi-sq	df	Prob.
ASTEPT_INFL_POLONIA	6.317842	2	0.0425
All	6.317842	2	0.0425

Dependent variable: ASTEPT\_INFL\_POLONIA

Excluded	Chi-sq	df	Prob.
IPC_POLONIA	11.21703	2	0.0037
All	11.21703	2	0.0037



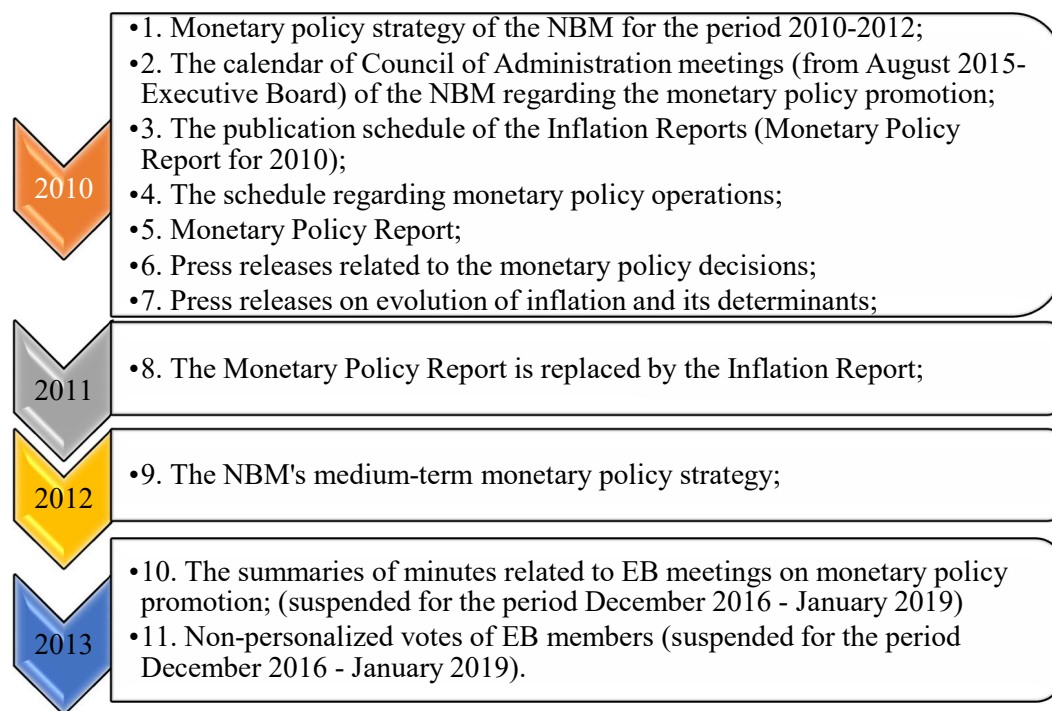
**Figure 1.8. Granger causality and the impulse response function in the context of the generated VAR model**

Source: elaborated by the author in the EViews program

Chapter 3 "The contribution of inflation expectations in optimisation of the inflationary process management in the Republic of Moldova" includes a qualitative and quantitative analysis of the institutional and operational framework associated with the monetary policy promotion in the Republic of Moldova, with the quantification of the transparency and independence degree of the National Bank of Moldova, along with the identification of accountability legal aspect. Based on the econometric techniques and methods, the author conducted the study of the inflation process volatility in the Republic of Moldova, with the probable identification of the backward-looking component of inflation expectations in the price formation process. At the same time, an important applicative value associated with the thesis represents the causality model simulated by the author with the determination of the causality relationship between inflation, economic growth, the monetary policy rate of the NBM and assumed inflation expectations. In this sense, the aspects to be consolidated and implemented in order to increase the transparency and credibility of the National Bank of Moldova in the context of optimizing the monetary policy from the perspective of ensuring price stability were also identified.

Since 2006, the monetary authority pursues the fundamental objective of price stability ensuring and maintaining, and in 2010 it renounces to the monetary aggregates targeting regime and proposes to promote the monetary policy through the inflation-targeting regime, putting to advantage the framework associated with it. The transition to the inflation-targeting strategy imposed a series of challenges in the central bank's transparency and communication perimeter, given the fact that until

the declaration of the inflation target, the NBM managed inflation through the monetary aggregates targeting regime, which did not involve complex and regular communication. Thus, as a result of the reorientation to the direct inflation-targeting regime, the NBM introduced new communication tools, which recorded a continuous diversification over time (Fig. 1.9).



**Figure 1.9. The timeline of monetary policy communication tools implemented by the NBM**  
*Source: elaborated by author in accordance with [3], [52]*

The quantification of the NBM's transparency degree was carried out using the method proposed by Geraats [26] according to the 5 aspects of transparency, being further developed by Dincer N., Eichengreen B., Geraats P. [18]. It should be noted that the NBM registers an index of 11 out of 15 possible points. In particular, it is worth noting the high political transparency, which became viable with the establishment of the fundamental objective of ensuring and maintaining price stability in 2006, the transition to the inflation-targeting regime in 2010 and the establishment of the inflation target of  $5.0\% \pm 1.5$  percentage points.

The quantification of the legal independence degree of the National Bank of Moldova (Table 1.4) was elaborated according to the method proposed by Cukierman, Webb and Neyapti [14], taking as a benchmark the year 2006, in which essential changes occurred to Law no. 548 – XIII of July 21, 1995 regarding the NBM.

The increase in the degree of independence was achieved in the segments of the 4 criteria and is mainly due to the following aspects: **1)** the change of the fundamental objective of the NBM, from ensuring and maintaining the stability of the national currency to ensuring and maintaining price



stability; **2)** the abrogation of art. 12, Chap. II of the Law on the NBM, which provided the establishment and promotion of monetary and currency policy through collaboration with the Government; **3)** the annihilation of the NBM's attribution to grant the loans to the state and the prohibition of any financing of public institutions.

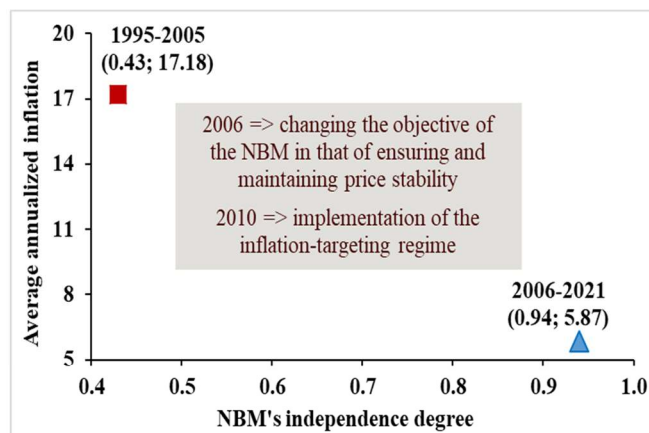
**Table 1.4. NBM independence index according to Cukierman, Webb și Neyapti [14]**

The independence criteria	1995-2005*	2006-present**
<b>I. Personal independence</b>	<b>0.09/0.20</b>	<b>0.14/0.20</b>
<b>II. Institutional independence</b>	<b>0.12/0.15</b>	<b>0.15/0.15</b>
<b>III. Operational independence</b>	<b>0/0.15</b>	<b>0.15/0.15</b>
<b>IV. Financial independence</b>	<b>0.22/0.50</b>	<b>0.50/0.50</b>
<b>NBM independence index</b>	<b>0.43/1.00</b>	<b>0.94/1.00</b>

Source: the author's assessments based on the Methodology proposed by Cukierman A., Webb S. B., Neyapti B. [14, pp.358-59], [1]

\*[https://www.legis.md/cautare/getResults?doc\\_id=66535&lang=ro#](https://www.legis.md/cautare/getResults?doc_id=66535&lang=ro#);

\*\*[https://www.legis.md/cautare/getResults?doc\\_id=128657&lang=ro](https://www.legis.md/cautare/getResults?doc_id=128657&lang=ro)



**Figure 1.10. The correlation between the NBM's independence degree and the evolution of inflation\***

\* author's calculations of the annualized average inflation (based on the geometric mean), the consumer price index was taken into account, December 1993=100 from the official webpage of the NBS [53]

Source: elaborated by the author

Appreciating and supporting the role of the central bank independence in the monetary policy optimisation, the author demonstrated and confirmed this hypothesis by qualitative and quantitative means. Thus, figure 1.10 demonstrates the role of the NBM's independence in promoting the anti-inflationary policy during the period 1995-2021. A degree of independence of 0.43 in the period 1995-2005 implies an average annualized inflation of 17.18%, instead increasing the independence of the NBM up to 0.94 finalized an inflation of 5.87% for the period 2006-2021. In the author's view, the increase in the NBM independence, starting from 2006, contributed significantly to the efficiency of monetary policy measures and to the moderation of the inflationary process in the Republic of Moldova, outlining the premises for the implementation of the direct inflation-targeting regime and is a strong point in the inflation expectations management process.

Analyzing the evolution of the inflationary process in the Republic of Moldova, it should be noted that the monetary policy in the Republic of Moldova faced with an increased volatility of inflation, from a hyperinflation during the years 1992-1994 to a disinflation in 2009, ensuring price stability during 2012-2014, with the implementation of the direct inflation-targeting regime. At the



same time, it should be noted that the inflation process in the Republic of Moldova increased mainly during the crisis in the banking system associated with the liquidation of the three banks and the recent energy crisis.

The estimation of inflation volatility in the Republic of Moldova was made by applying the GARCH (1, 1) econometric model according to two periods: January 1994 - June 2022 and, respectively, for the period associated with the inflation-targeting regime (January 2010 - June 2022). The increased volatility of the inflation process in the Republic of Moldova was confirmed by applying the ARCH test. The periods of low volatility tend to be followed by periods of increased volatility, defining the heteroscedasticity effect of the CPI time series. Based on the regression, it was determined that both the ARCH effect and the GARCH effect are statistically significant at the critical level of 5% in the two analyzed periods. At the same time, it should be noted that the conditions of a GARCH model are respected, the coefficients registered the positive values and in subunit sum.

It is necessary to mention that periods with increased inflation volatility are associated with events generating shocks to the domestic inflation process. It is worth noting the shocks that arose from the impact of international crises on macroeconomic developments in the Republic of Moldova, such as the financial crisis in the Russian Federation in 1998, the global financial crisis in 2008, the liquidation of the three domestic licensed banks from the period 2015-2016, the energy crisis of 2021-2022, all of which left their mark on the consumer price index evolution in the Republic of Moldova.

The empirical results confirm that the inflation process volatility in the Republic of Moldova depends on the previous volatilities, which is directly reflected on the inflation expectations formation process, conferring a margin of uncertainty in their formation. On the other hand, starting from the reasoning that current and future inflation is conditioned by previous volatilities, the probability of the persistence of backward-looking inflation expectations in the consumer price index formation in the Republic of Moldova is outlined.

Starting from the reasoning and arguments for the inclusion of observed inflation expectations within the models that can be used in the projection process in order to contribute to the performance improving of inflation forecasts [54], the author studied the perspective of econometric model simulation with the identification of the inflation expectations as one of the model variables.

The methodological and practical approach of the research was based on the simulation of a VECM econometric model, highlighting the opportunity to determine the relationship between inflation (CPI), the monetary policy rate (br), economic growth (gdp) and inflation expectations (exp) adapted to the macroeconomic situation in the Republic of Moldova.

$$CPI = f(gdp, br, exp) \quad (1.1)$$

The inflation expectations were defined according to those of the forward-looking type, the following conditionalities being assumed: **1)** Credibility of the monetary authority = 1; **2)** Perception of information by the general public = 1; **3)** Assuming the following equality

$$E_t \pi_{t+1} = \pi_f^{fl} \quad (1.2)$$

where  $E_t \pi_{t+1}$  – the level of expected inflation;  $\pi_f^{fl}$  – the official inflation forecast published by the NBM, taking as a reference the quarterly forecast inflation values included in the Inflation Reports.

The aforementioned reasonings highlight *the opportunity to test the hypothesis of the persistence of mixed inflation expectations, both adaptive and rational in the Republic of Moldova.*

The estimation of the regression equation (formula 1.3) associated with the VECM model was carried out for the period first quarter 2010 – first quarter 2022.

$$\Delta x_t = c + \sum_{i=1}^{n-1} \alpha_i \Delta x_{t-i} + \delta E_{t-1} + \varepsilon_t, \quad t = 1, \dots, T \quad (1.3)$$

where  $\Delta x_t = x_t - x_{t-1}$ , and  $E_{t-1}$  – is the error correction term,  $\delta$  – is the adjustment speed of the correction coefficient.

In this regard, Johansen's cointegration test [32] indicated the existence of a cointegration equation between the variables under analysis at the 5% significance level. The cointegration equation, defining the long-run relationship between the analyzed variables, is reproduced in the following extension with the inclusion of standard errors in parentheses:

$$\ln\_cpi(-1) = \overset{(0.09984)}{0.088441} * \ln\_gdp(-1) - \overset{(0.01372)}{0.013597} * \ln\_br(-1) + \overset{(0.02906)}{0.135549} * \ln\_exp(-1) + 3.560120 \quad (1.4)$$

The obtained results associated with the simulated model confirm the causal effect between these variables according to the principle of caeteris paribus. Thus, in the long term, the economic growth and inflation expectations have a positive impact on the dependent variable associated with inflation, and the opposite situation in the case of the base rate having an inverse causal relationship on consumer prices in the Republic of Moldova. Starting from the fact that logarithms have been applied to the time series and thus, assuming the interpretation of the coefficients as elasticities, the obtained results (equation 1.4) reflect that the increase of the gross domestic product by 1% causes the increase of the consumer price index by 0.088441 p.p., the increase of the base rate by 1% contributes to easing inflation by 0.013597 p.p., and the increase of inflation expectations by 1% contributes to accelerating inflation by 0.135549 p.p.

Regarding the other part of the regression equation associated with the VECM model (formula 1.5), which is directly related to the short-term relationship between variables, it should be mentioned the interpretation of the coefficients in table 1.5. The coefficient C(1) associated with the cointegration

equation represents the correction coefficient or that "speed of adjustment" or correction of deviations from previous periods associated with the long-run equilibrium, which is representative and valid. This fact being confirmed by its negative value and  $p$  value = 0.0224, being significant at the critical level of 5%.

$$D(LN\_CPI) = C(1)*(LN\_CPI(-1) - 0.135548764753*LN\_EXP(-1) - 0.0884412670538*LN\_GDP(-1) + 0.013596519256*LN\_BR(-1) - 3.56012035934) + C(2)*D(LN\_CPI(-1)) + C(3)*D(LN\_EXP(-1)) + C(4)*D(LN\_GDP(-1)) + C(5)*D(LN\_BR(-1)) + C(6) \dots\dots\dots(1.5)$$

**Table 1.5. Significance identification of the coefficients associated with the VECM model**

	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	-0.154655	0.064117	-2.412083	<b>0.0224</b>
C(2)	0.642320	0.173229	3.707928	<b>0.0009</b>
C(3)	-0.015625	0.010680	-1.462986	0.1542
C(4)	0.107862	0.082619	1.305537	0.2020
C(5)	0.038129	0.014003	2.722816	<b>0.0108</b>
C(6)	0.000807	0.002742	0.294440	0.7705

*Source: elaborated by the author by data processing in EViews program*

It should be emphasized the positive impact of the coefficient C(2) associated with inflation from previous periods on the evolution of the current inflation process. Its significance is validated by the associated probability  $p$  value and actually confirms the presence of the backward-looking component in the price formation process. The statistical tests associated with the validation of the generated VECM model are representative and confirm this fact. In this sense, it is worth mentioning the acceptance of null hypotheses such as that there is no serial correlation, and respectively the absence of the ARCH effect.

## GENERAL CONCLUSIONS AND RECOMMENDATIONS

As a result of the research carried out within the thesis, the proposed objectives were achieved which directly contributed to the achievement of the fundamental goal.

Carefully studying the literature in the field, it was found that there is a lack of a clear and extensive definition of an optimal monetary policy. In this sense, the obtained result that contributes to the solution of this scientific problem resides in the conceptualization of an exhaustive and explicit definition of the optimal monetary policy through the prism of factors, criteria and, respectively, its associated impact, taking as a benchmark the conjunctural, institutional and operational framework. Thus, the author defines the *optimal monetary policy – the totality of the measures taken/decisions adopted by the monetary authority according to the conjunctural, institutional and operational framework on the three segments (factors, impact, criteria) (Table 1.1) in order to make the monetary policy more efficient and ensure the achievement of the monetary policy objective in the medium-term.*

From the perspective of identifying the determinants, which are the basis of the inflation expectations management, the author finds the repercussion of a well-defined institutional framework likely to ensure the central bank credibility based on the independence, transparency and accountability of the central bank, which constitute the basic pillars of the inflation expectations management mechanism.

With reference to the methodology of inflation expectations management from the perspective of international experience, it was concluded that the most successful central banks in terms of monetary policy have a well-defined institutional framework, based on transparency, independence and institutional accountability, their degree varying depending on the monetary policy regimes assumed by the monetary authorities in achieving its objectives. Thus, the success of the inflation-targeting regime proved to be dependent on the implemented institutional framework and the ability of the central bank to encompass a broad sector of the target groups in the bank's communication process.

All the communication tools applicable in the international arena represent a worthy example to follow for the countries with the inflation-targeting regime, whose monetary policy objective is to ensure and maintain price stability, especially for those countries that have recently implemented this regime, the application of which would contribute to the remediation and optimisation of monetary policy due to the inflation expectations management. The international experience has shown that the high levels of inflation are associated with low degrees of transparency, independence and accountability of monetary authorities and vice versa.

In the context of the objective of the causal relationship identification between inflation expectations and inflation, the confirmatory practical aspect in this regard was reflected by the identification of a bidirectional Granger causal relationship between inflation expectations and the inflationary process both in the Czech Republic and in Poland. The impulse response functions of the generated VAR model associated with Poland reflect the movement in the same direction of the inflation variable upon the generation of a shock from inflation expectations, thus the decrease in inflation expectations will also imply the attenuation of inflation and vice versa, confirming the strong positive relationship between those two variables.

The estimation of the independence and transparency degree, together with the study of the NBM's legal responsibility aspects, led the author to conclude that the institutional framework associated with the monetary policy promotion in the Republic of Moldova is generally favourable to the effective functioning of the direct inflation-targeting regime. The NBM's independence, transparency and communication of monetary policy increased considerably with the transition to the inflation-targeting regime, thus contributing to the rational inflation expectations formation process. The NBM's transparency degree is high, but it can be improved, along with the increase of procedural and operational transparency. The increased independence corresponds to the international criteria for its evaluation, being confirmed by a degree close to the maximum value. The accountability of the central bank is consistent and stipulated in the legal status of the National Bank of Moldova. However, it should be emphasized that although the questionnaire related to the monitoring of inflation expectations persists on the institution's official website, the NBM does not publish the results of surveys related to inflation expectations, a fact that directly hampered the developed analyzes and estimates.

The empirical study associated with the inflation process volatility estimation, using the GARCH (1,1) model, contributed to defining the author's opinion regarding the opportunity of the persistence of the backward-looking component of inflation expectations in the consumer prices formation process in the Republic of Moldova, given the fact that the empirical results confirmed the hypothesis that past volatilities underlie current and future inflation dynamics. At the same time, its vulnerability to shocks from the external environment was empirically confirmed.

From the perspective of the novelty aspect of the thesis related to the econometric evaluation of way, in which the inflation expectations are able to cause the inflation process evolution in the Republic of Moldova, the obtained results associated with the VECM model simulated and adjusted to the situation from the Republic of Moldova confirmed the causal relationship between inflation, the NBM base rate, economic growth and inflation expectations with the conditionality of high

credibility and an increased degree of receptivity of the general public. Thus, in this context, it becomes imperative to strengthen the central bank credibility, so that the general public optimizes its behaviour according to its communication impulses, thus forming rational inflation expectations. At the same time, it is worth noting here that the monetary authority credibility is directly affected by the degree of perception and assimilation of the information provided by the central bank, being a subjective indicator that induces the risk of compromising the formation of the rational character of inflation expectations.

At the same time, the achieved results confirmed the author's hypothesis associated with the opportunity of the persistence of mixed inflation expectations, both backward-looking and forward-looking in the price formation process in the Republic of Moldova. This in turn implies the strengthening of institutional credibility likely to encourage the inflation expectations formation with forward-looking behavioural involvement.

At the same time, the obtained results emphasize and highlight the proactivity and optimality of the interest rate channel in monetary policy promotion from the perspective of reaching the inflation target, which directly favours the efficient and optimal functionality of the inflation-targeting regime in the Republic of Moldova. *The simulations carried out also contributed to identifying the impact of inflation expectations on the domestic prices evolution, having a positive causal relationship and thus determining the opportunity for the efficient functionality of inflation expectations channel likely to optimize the monetary policy from the perspective of ensuring and maintaining price stability. Hence, it is profiled the importance of including the inflation expectations in analysis and forecast models applicable to the evaluation and establishment of monetary policy from the perspective of its optimisation.*

The obtained results confirm and demonstrate the possibility of monetary policy optimisation through the inflation expectations management on the exclusive basis of maximizing and strengthening the central bank credibility due to transparency, communication, independence and accountability of the central bank.

In this context, the following recommendations associated with the inflation expectations management are formulated:

- 1) the reduction of the time interval regarding the publication of *summaries of the minutes* related to the Executive Board meetings of the NBM related to monetary policy decision, from 6 (six) months to 8 (eight) days (the experience of the Czech National Bank), to 1 month (the experience of the National Bank of Poland) or up to 14 days (the experience of the National Bank of Romania);

- 2) the inclusion in the summaries of the minutes of the Executive Board meetings regarding the monetary policy promotion of *the personalized opinions of the members* expressed during the meetings, as well as of the *personal options of the members votes*, in cases when the expression "the decision adopted unanimously" does not persist;
- 3) de facto responsibility strengthening in the circumstances of inflation deviation from the target by immediately publishing the explanations of the respective developments alongside *a plan of measures*, to be undertaken in order to bring inflation back to the target;
- 4) *the introduction of statistics associated with inflation expectations* quantified following the survey in the Inflation Reports and their publication on the official website of the National Bank of Moldova;
- 5) the publication of *a risk chart for the inflation projection* (experience of the Czech National Bank), which will reflect the schematic assessment of the balance of risks to inflation, compared to the last inflation forecast. Starting from the fact that the Executive Board of the NBM meets 8 (eight) times a year during ordinary meetings on monetary policy promotion, 4 (four) meetings are associated with the Inflation Report and, respectively, the other 4 (four) meetings of the EB it is based on the assessment of the risk of forecast deviation. Consequently, it is recommended to publish 4 (four) graphs per year;
- 6) the publication of the *bank's opinion with the comments and suggestions* on the Budget Law for the following year, in order to establish the concordance between the implementation of the monetary policy and the budgetary-fiscal policy in the conditions of the existence of an increased degree of interdependence between these policies and, respectively, overcoming possible shocks to the monetary policy;
- 7) the further strengthening *the opportunities to support financial education* through the launch by the NBM of educational and training projects, the target audience of which should be made up not only of students of the faculties with an economic profile from the main university, teaching staff and PhD students, but diversified according to different target groups;
- 8) *the publication of research and analytical studies* related to the monetary policy promotion, the evolution of the inflationary process in accordance with the adopted monetary policy measures, the elucidation of inflation forecasting aspects with the specification of variables taken as benchmarks, the evaluation and development of the monetary policy transmission mechanism with the demonstration of functional transmission channels etc;
- 9) *the expanding of the proposed model* by including other variables in the analytical studies of causality between macroeconomic variables and, respectively, publishing these simulations in

order to familiarize the public with the interdependence between macroeconomic indicators, thus contributing to increasing the degree of understanding of the monetary policy actions adopted by the NBM. In this sense, the inflation expectations formation process of the general public will be strengthened, at the same time, mitigating the public's reaction to a possible adjustment of the monetary policy conduct;

- 10) against the background of a high degree of transparency and independence, associated with the institutional framework, favourable to the formation and management of rational inflation expectations in the Republic of Moldova, *the efforts of the NBM would be welcome in the direction of the continuous strengthening of the aspect of clarity and legibility of the messages* and the transmission of information according to the target groups, the messages being adapted to each target group, depending on the degree of receptivity;
- 11) another inter-institutional side, which would contribute to strengthening the analytical and forecasting framework of the NBM, is the cooperation with the National Bureau of Statistics of the Republic of Moldova. Thus, it is recommended to initiate a discussion with the National Bureau of Statistics in the direction of convincing the need to start a process of quantifying confidence indicators, as the Central Statistical Office of Poland does with the inclusion of the price trend in the next 12 months, which is considered by the National Bank of Poland as consumer inflation expectations.

**The suggestions for potential future research directions related to the topic addressed.**

The research carried out and the results obtained within the respective thesis highlighted the complexity and intradisciplinary nature of the inflation expectations formation process. In this sense, it should be noted that the inflation expectations formation mechanism generally involves the contribution of two participants, on the one hand the central bank responsible for inflation expectations management through a solid framework of transparency, independence and accountability for the actions taken, this fact was addressed in detail within the present research, and on the other hand – the general public, which has a determined role within this mechanism. In this sense, the socio-human factor marked by the particularities of age, occupation, level of education and primarily the degree of financial education conditions the degree of receptivity and assimilation of the information provided by the central bank with repercussions on the inflation expectations formation. In this context, the opportunity to carry out studies, investigations and from the perspective of the general public in order to identify the feedback to the communication impulses generated by the monetary authority is profiled.



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## ADNOTARE

### **Hinev Olga „Optimizarea politicii monetare prin gestiunea așteptărilor inflaționiste”, teză de doctor în științe economice, Chișinău, 2022.**

**Structura tezei:** introducere, trei capitole, concluzii generale și recomandări, bibliografie din 210 titluri, 8 anexe, 137 de pagini text de bază (până la Bibliografie), 36 de figuri și 25 de tabele. Rezultatele obținute sunt publicate în 13 lucrări științifice.

**Cuvinte-cheie:** bancă centrală, așteptări inflaționiste, politică monetară, stabilitatea prețurilor, inflație, transparența, independența, responsabilitatea, comunicarea băncii centrale.

**Domeniul de studiu:** Științe economice.

**Scopul lucrării:** constă în optimizarea politicii monetare din perspectiva asigurării stabilității prețurilor prin prisma gestiunii așteptărilor inflaționiste pe fondul maximizării și consolidării credibilității băncii centrale pe seama transparenței, comunicării, independenței și responsabilității băncii centrale.

**Obiectivele cercetării** se rezumă la definitivarea noțiunii de politică monetară optimă; identificarea mecanismului de formare și de gestiune a așteptărilor inflaționiste; studierea performanței politicii monetare în cadrul experienței internaționale prin prisma gestiunii așteptărilor inflaționiste; estimarea econometrică a volatilității procesului inflaționist în Republica Moldova; estimarea gradului de independență și transparență a BNM; concretizarea aspectului legal de responsabilitate a BNM; simularea modelului econometric cauzal cu integrarea așteptărilor inflaționiste în procesul de formare a prețurilor în Republica Moldova.

**Noutatea și originalitatea științifică** este reflectată în fundamentarea unei definiții exhaustive a politicii monetare optime cu argumentarea exigenței unui cadru instituțional solid asociat independenței, transparenței și responsabilității băncii centrale în gestiunea așteptărilor inflaționiste, alături de evaluarea modului în care așteptările inflaționiste sunt capabile să cauzeze evoluția procesului inflaționist și deducerea importanței includerii acestora în modele de analiză și prognoză aplicabile la evaluarea și stabilirea politicii monetare din perspectiva optimizării acestora.

**Rezultatele obținute care contribuie la soluționarea problemei importante** se referă la identificarea unei definiții exhaustive a politicii monetare optime, definirea pilonilor de natură să asigure gestiunea așteptărilor inflaționiste, precum și la găsirea oportunității persistenței așteptărilor inflaționiste mixte în procesul de formare a prețurilor în Republica Moldova, atât celor bazate pe forward-looking, cât și a componentei de backward-looking. Aceasta, la rândul său, implică consolidarea credibilității instituționale de natură să asigure gestiunea așteptărilor inflaționiste raționale, pe de o parte și, respectiv, sporirea gradului de educație financiară a populației, pe de altă parte, de natură să asimileze informațiile furnizate de autoritatea monetară.

**Semnificația teoretică și valoarea aplicativă a lucrării.** Rezultatele obținute în cadrul cercetării poartă un caracter de recomandare pentru autoritatea monetară din Republica Moldova, conferind o nișă de optimizare a politicii monetare pe seama gestiunii așteptărilor inflaționiste și valorificării potențialului de formare a așteptărilor de tipul forward-looking. Formulările analitice și sintezele expuse în teză, reprezentate prin scheme, indicatori și modele econometrice sunt utile pentru studenți, masteranzi, doctoranzi, specialiști și experți în domeniul de cercetare.

**Implementarea rezultatelor științifice.** Rezultatele cercetării au fost prezentate autorităților de resort în domeniu, fiind susținute și apreciate de Banca Națională a Moldovei și de Academia de Studii Economice a Moldovei, fapt confirmat prin certificatele de implementare anexate la teză.

## ANNOTATION

### **Hinev Olga „Monetary policy optimisation through the inflation expectations management”, PhD thesis in Economics, Chisinau, 2022.**

**Thesis structure:** introduction, three chapters, general conclusions and recommendations, bibliography from 210 sources, 8 annexes, 137 pages of basic text (up to Bibliography), 36 figures and 25 tables. The obtained results are published in 13 scientific papers.

**Key words:** central bank, inflation expectations, monetary policy, price stability, inflation, transparency, independence, accountability, communication of central bank.

**Research area:** Economics.

**The purpose of the research:** consists in the optimisation of the monetary policy from the perspective of ensuring price stability through the inflation expectations management against the background of maximizing and strengthening the central bank credibility due to the transparency, communication, independence and responsibility of the central bank.

**The objectives of the research** are summarized in the formulation of the optimal monetary policy notion; the identification of the inflation expectations formation and management mechanism; the studying of monetary policy performance within the international experience in terms of inflation expectations management; the econometric estimation of the inflation process volatility in the Republic of Moldova; the estimation of the independence and transparency degree of the NBM; the concretizing of the NBM's responsibility legal aspect; the simulation of the causal econometric model with the integration of inflation expectations in the price formation process in Moldova.

**The scientific novelty and originality** is reflected in the formulation of an exhaustive definition of optimal monetary policy with the argumentation of the requirement of a solid institutional framework associated with the independence, transparency and responsibility of the central bank in the inflation expectations management, alongside the assessment of how inflation expectations are able to cause the evolution of the inflation process and deducing the importance of their inclusion in analysis and forecast models applied to the evaluation and establishment of monetary policy from the perspective of its optimization.

**The obtained results that contribute to solving the important problem** refer to the identification of an exhaustive definition of optimal monetary policies, the definition of the pillars likely to ensure the management of inflation expectations, as well as to finding the opportunity for the persistence of mixed inflation expectations in the price formation process in the Republic of Moldova, both those based on forward-looking, as well as the backward-looking component. This in turn implies the strengthening of institutional credibility to ensure the management of rational inflation expectations on the one hand and, respectively, increasing the degree of financial education of the population on the other hand in order to assimilate the information provided by the monetary authority.

**The theoretical significance and the applied value of the paper.** The results obtained in the research have the character of a recommendation for the monetary authority of the Republic of Moldova, conferring a niche for the optimisation of the monetary policy due to the inflation expectations management and the recovery of the potential for the forward-looking expectations formation. The analytical formulations and syntheses presented in the thesis, represented by schemes, indicators and econometric models, are useful for students, masters, doctoral students, specialists and experts in the field of research.

**The implementation of the scientific results.** The research results were presented to the relevant authority in the field, being supported and appreciated by the National Bank of Moldova and by the Academy of Economic Studies of Moldova, this fact confirmed by the implementation certificates attached to the thesis.

## АННОТАЦИЯ

### **Хинев Ольга «Оптимизация денежно-кредитной политики через управления инфляционными ожиданиями », докторская диссертация в области экономики, Кишинёв, 2022г.**

**Структура диссертации:** введение, три главы, общие выводы и рекомендации, библиография из 210 источников, 8 приложений, 137 страниц основного текста (до библиографии), 36 рисунков и 25 таблиц. Результаты работы опубликованы в 13 научных статьях.

**Ключевые слова:** центральный банк, инфляционные ожидания, денежно-кредитная политика, стабильность цен, инфляция, прозрачность, независимость, ответственность центрального банка.

**Область исследования:** Экономика.

**Цель исследования:** заключается в оптимизации денежно-кредитной политики с позиции обеспечения ценовой стабильности через призму управления инфляционными ожиданиями на фоне максимизации и укрепления доверия к центральному банку за счет прозрачности, коммуникабельности, независимости и ответственности центрального банка.

**Научно-исследовательские задачи:** сводятся к формулировке понятия оптимальной денежно-кредитной политики; выявление механизма формирования и управления инфляционными ожиданиями; изучение эффективности денежно-кредитной политики в рамках международного опыта через призму управления инфляционными ожиданиями; эконометрическая оценка волатильности инфляционных процессов в Республике Молдова; оценка степени независимости и прозрачности НБМ; конкретизация правового аспекта ответственности НБМ; моделирование причинно-следственной эконометрической модели с интеграцией инфляционных ожиданий в процесс ценообразования в Республике Молдова.

**Научная новизна и оригинальность** отражены в обосновании исчерпывающего определения оптимальной денежно-кредитной политики с аргументацией требования прочной институциональной основы, связанной с независимостью, прозрачностью и ответственностью центрального банка в управлении инфляционными ожиданиями, наряду с оценкой того, насколько инфляционные ожидания способны вызывать эволюцию инфляционного процесса и вывод о важности их включения в анализ и прогнозные модели, применимые к оценке и установлению денежной политики с точки зрения ее оптимизации.

**Полученные результаты, способствующие решению важной задачи,** относятся к выявлению исчерпывающего определения оптимальной денежно-кредитной политики, определению столпов, обеспечивающих управление инфляционными ожиданиями, а также к поиску возможности выявления смешанных инфляционных ожиданий в процессе ценообразования в Молдове, основанные как на forward-looking, так и на ретроспективной составляющей. Это, в свою очередь, предполагает усиление институционального доверия для обеспечения управления рациональными инфляционными ожиданиями, с одной стороны, и, соответственно, повышение степени финансовой образованности населения, с другой стороны, для усвоения информации, предоставляемой денежно-кредитным органом.

**Теоретическая значимость и прикладная ценность работы.** Результаты, полученные в исследовании, носят рекомендательный характер для денежно-кредитного органа Республики Молдова, предоставляя нишу для оптимизации денежно-кредитной политики за счет управления инфляционными ожиданиями и эксплуатации потенциала для формирования ожиданий forward-looking. Представленные в диссертации аналитические формулировки и синтезы, представленные схемами, показателями и эконометрическими моделями, полезны для студентов, магистрантов, аспирантов, специалистов и экспертов в области научных исследований.

**Внедрение научных результатов:** Результаты исследования были представлены компетентному органу в данной области при поддержке и оценке со стороны Национального Банка Молдовы и Академий Экономических Исследований Молдовы, что подтверждается сертификатами внедрения, приложенными к диссертации.



**HINEV OLGA**

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**522.01 – FINANCE**

**Summary of the thesis of doctor in economics**

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Approved to print: 22.09.2022  
Offset paper. Offset print.  
Printing sheets 2.5

Paper format 60x84 1/16  
Circulation 10 iss.  
Order no. 29

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