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THE NATIONAL BANK OF ROMANIA'S MONETARY POLICY STRATEGY AND INSTRUMENTS FOR EUROPEAN MONETARY INTEGRATION

Ph.D Supervisor:
Prof. univ. dr. Trenca Ioan

Ph.D candidate:
Curiman Mihai Cosmin

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INTRODUCTION

The present paper is part of a study that refers to the Strategy and monetary policy instruments regarding the European integration and it aligns itself to literature, developing through applied research and different views of world-renowned economists, from the Occident, as well as the new states that already are inside the Eurozone, or are planning to join.

The literature reviewed the main theories that are governing MONEDA, monetary market, and policy, the role that monetary policy plays for it to fulfill the fundamental goals of the general economic policy, thus showing how the monetary policy actions are spreading throughout the economy. Going further, they followed the efficiency of transmitting monetary policy through its given channels that allow the instruments to intervene on monetary sizes.

Regarding the build-up of a legal, strategic, and operational framework, the cases of European monetary integration and common monetary policy have been deepened. The main coordinates of the monetary European integration process, starting its origins with the gold currency, continuing with Bretton Woods Pact and with IMF, and ending it with identifying the events, which led to the birth of the European Monetary System.

Another topic that the Romanian economists find very important is the National Bank of Romania's monetary policy, and the focused mainly on the used instruments, as well as the transmission channels used for attaining the desired goals.

We found that one of the most important challenges in applying the strategy in Romania is the topic of the persistence of demand excess in the economy, which generates inflationary pressures and creates dilemmas regarding the finding of a balance between fulfilling the nominal convergence and ensuring, at the same time, the real convergence of the economy.

Moreover, *our opinion* is that the liberalization of the capital influx under the circumstances of a big differential between the internal and external interests will continue to create constraints in utilizing the interest rate in monetary policy because of the dangers represented by the speculative capital influxes.

At this time, nineteen states are part of the Eurozone, and finishing up the build-up of the Monetary and Economic Union has to represent a mandatory goal so that a full-on solid economic integration can happen. We want to pursue even further this

matter from a numerical standpoint of the transmission of monetary policy for the economies of the Czech Republic, Hungary, Romania and Poland, and the case study follows up on studies like Maliszewski (1999), Christoffersen et al. (2001), Boțel (2002), Ganev et al. (2002), Creel and Levansseur (2005), and Elbourne and de Haan (2006).

The reason why this topic has been chosen is first and foremost determined by the early stage of existing research in the field of Eurozone integration. Moving forward, I wish to deepen the theories that were devised for developing an outlook on the positive and negative effects, which come out from this approach. Secondly, it was chosen because it is important to understand the necessary degree needed to accomplish the nominal and real criteria so that Romania can obtain a series of benefits after joining the Eurozone.

The goal of this research is to analyze and deepen the theoretical and methodological aspects by creating a unitary approach regarding Romania's capacity to join the Monetary and Economic Union. The end goal of the research is oriented to highlighting the desirable convergence level, which Romania must reach so that the Euro adoption process can be called a success, as well as the numerical research of certain aspects regarding the monetary policy transmission channels for the four researched economies, The Czech Republic, Hungary, Romania, and Poland.

Research methodology. From the perspective of theoretical and scientific support this research starts from, in the literature, as we already mentioned earlier, research papers have been written by Romanian and foreign authors, as well as papers published by the research departments of the world-renowned institutions.

For fulfilling the proposed goals, the methodological instruments used mainly referred to: descriptive research, quantitative analysis, empirical research, compared analysis, and deduction. In this context, this Ph. D thesis has been structured in five chapters with a synthesized approach, presented as follows:

In the first chapter, titled "*Approaches regarding monetary policy and exchange rate – concepts, opinions, and theories*", we discussed a series of theoretical aspects that are very relevant and important today, such as monetary policy strategies, nominal anchor and monetary policy, monetary aggregates targeting, exchange rate targeting, implicit nominal anchor, the National Bank of Romania's monetary policy and instruments mix used, the goal of monetary policy and the existing challenges, the way it is implemented, as well as using the monetary policy instruments.

In the second chapter, titled "*The role of the National Bank of Romania in the process of European monetary integration* – Euro adoption in Romania", we analyzed relevant aspects regarding the creation and expansion of the Eurozone – the Maastricht criteria, the nominal and real convergence criteria, the legal framework, preparing the joining process, getting inside the antechamber, the duration of participation and the accession in the Exchange Rate Mechanism II, fulfilling the convergence criteria – the exchange rate, advantages and disadvantages of participation to the Exchange Rate Mechanism II, aspects regarding the economy and economic policies of Romania, setting the central parity, integration to the Banking Union, Pillar I – Single Supervisory Mechanism, the accession process to the SSM, Pillar II – Single Resolution Mechanism, Pillar III – The European Deposit Insurance Scheme.

In the third chapter, titled "*Theories on optimum monetary areas – the basis for European monetary integration*", we analyze the perspective of accession in the monetary union in the traditional terms of the theory of optimal monetary zone but also in the regards of the costs which the candidate countries have to make for the extension, known in the literature as Mundell II or the new Mundell, in which the exchange rate and the independent monetary policy represent an important way to deal with asymmetric shocks. We have done a synthetic analysis of the main factors, which determine the benefits, as well the costs for the Euro adoption for the four-candidate countries tot Eurozone, meaning the Czech Republic, Hungary, Romania, and Poland, from the perspective of the theory of optimal monetary zones or the monetary policy autonomy, according to the impossible trinity theory. At the end of the chapter, we build a comparative analysis of the orientation of the monetary authorities from the countries mentioned before, for the year 2017.

In the fourth chapter, titled "*Collaborative analysis of the effects of economic and monetary shocks in Central and East European countries. Romania's case*", we highlighted how various variables react to economic shocks and the monetary policy transmission mechanism in four countries from Central Eastern Europe, in the period 2000-2019. The main goal was to evaluate existent similitudes in this region. The results have shown differences in the way the variables are influences by the economic shocks, which highlights the heterogeneity of the economies in talk. To obtain a landmark, we have also included in the analysis two countries that are already part of

the Eurozone. Moreover, we have tested the robustness of the effects in different timestamps.

CHAPTER 1 SUMMARY - APPROACHES REGARDING MONETARY POLICY AND EXCHANGE RATE – CONCEPTS, OPINIONS, AND THEORIES

In this first chapter, we started by presenting the main conceptual approaches regarding monetary policy. In this context the monetary policy from the European Central Bank's point of view is: "all the decisions that are taken by the central banks to influence cost and money availability in an economy." According to the National Bank of Romania: "The monetary policy transmission mechanism represents the entirety of channels through which the central bank, utilizing a varied set of monetary policy instruments, can influence the dynamics of the aggregate demand and prices in the economy."

Monetary policy is an essential part of economic policy because with its help the central banks can take action and influence the liquidity demand and supply. Moreover, the main purpose of monetary policy measures aims at ensuring price stability, efficient inflation control, and national currency stability respectively. A very important aspect to mention regarding the European Central Bank is that the monetary policy goal is aimed at the strategy for maintaining price stability, as well as keeping inflation rate at lower levels, somewhere in the 2% area on medium-term.

The monetary policy transmission mechanism refers to how the alterations of cash influx rate affect economic activity and inflation. The monetary policy effects are but hard to quantify. A lower cash rate stimulates household and investment spending, partially through raising wealth and the household cash influx. A lower cash rate tends to lead to an exchange rate depreciation, which leads to net export growth and imported inflation.

Developing the country's monetary policy represents the most important responsibility of a central bank. This sets the flow of the economy, it influences the exchange rate, it could drive up inflation, and it affects income and spending, especially in the private sector. Moreover, this is connected to everything that influences the money supply, as well as the cost, and the funds' availability borrowed through the interest rate.

Classical monetary theory is the first recognized monetary policy and it was established by Irving Fisher through the so-called quantitative theory of money, which tied monetary policy with economic variables. The traditional financial paradigm states that a rigorous monetary policy is necessary to sustain the exchange rate and to temper inflationary pressure (Goldfajn & Bain, 1998). Keynes rejected the quantitative theory of money, from a theoretical standpoint, as well as an instrument of applied policy, stating that, in part, the money rotating speed is unstable and not constant. Also, the quantitative theory of money implied that the absence between inflation and production (Keynes, 1936). Keynesianism advanced the idea that prices are rigid and the money supply is adjusted rapidly. Money demand is not exogenous, but endogenous and it depends on income and interest rates, as stated in the theory of liquidity preference. This theory combines the money supply with the quantity of money supplied by the central bank to determine the monetary equilibrium level. This equilibrium makes it that the interest rate can influence the monetary phenomenon (Twinoburyo & Odhiambo, 2018).

The monetary policy strategies that a central bank can use are the monetary aggregate targeting, exchange rate targeting, nominal anchor and monetary policy, implicit anchor, and direct inflation targeting.

In economics, the strategy notion appears to show the operation for planning, organizing, and leading the operations for reaching a certain objective (Cerna, 2009). In the literature and in central banking studies, there only so few tries to define what a monetary policy strategy is and when such an approach is taken, the concept seems to have an explanation relatively different.

For example, Mishkin, one of the most important researchers in the field, in his entire work, when approaching the topic of monetary policy strategies, he goes straight to presenting their particularities depending on the used nominal anchor, without defining explicitly the concept of a strategy. In such an approach, the used nominal anchor by the central bank, which represents without any doubt the central element in the customization of the different monetary policy strategies, appear as being the only defining element for them.

Monetary aggregates targeting, a fundamental strategy on quantitative monetary theory, shows the use by the monetary authorities of a monetary aggregate as a *nominal anchor* for attaining the final goal of monetary policy. In practice, such a monetary policy strategy implies modifying the short-term nominal interest rate by the

central banks to accelerate/slow down the monetary growth with a defined and settled priory announced rate. Such a rate is designed to be compatible with the end goal of monetary policy (*price stability*).

Exchange rate targeting is a monetary policy strategy in which the monetary authority sees over direct interventions (buy or sell foreign currency), as well as indirect (through means of interest rate) to maintain the exchange rate at its predetermined level or interval. Hence, the exchange rate serves as a nominal anchor or as an intermediary objective of monetary policy.

The exchange rate targeting strategy is associated with different exchange arrangements, such as exchange arrangement with no separate legal tender, currency board arrangement, conventional fixed peg, pegged exchange rate with horizontal bands, crawling peg, or exchange rate with crawling bands.

The nominal anchor represents a central element of monetary policy strategies and it is used in all countries as an intermediary monetary policy objective to accomplish its final goal. The nominal anchor appears as a macroeconomic nominal variable (such as exchange rate, money supply, interest rate, inflation level, nominal income, and price level) used by the monetary authority as a constraint on the national currency's value.

Using the nominal anchor forces the monetary authority to drive monetary policy in such a way that the nominal macroeconomic variable is utilized as an anchor to stay positioned in a predefined interval or fixated at a preset level. *The implicit nominal anchor*, a monetary policy strategy, used also by the USA Federal Reserve, highlights the mindset of the American monetary authority to control inflation in the long term.

Direct inflation targeting, along with a credible nominal anchor, is an accepted way through which the long-term monetary policy main objective, meaning price stability, can be attained. Bernanke et al (1999) highlight the fact that inflation targeting is a monetary policy strategy characterized by four fundamental traits: public announcing an inflation target for one or more time horizons, explicitly acknowledging the fact that low and stable inflation represents monetary policy's main long term objective, and that strong communication with the public regarding the actions and objectives of the monetary authority and mechanism for strengthening the central bank's responsibility regarding attaining these objectives.

This strategy has more advantages than the exchange rate targeting strategy or the monetary aggregates strategy, such as the possibility of promoting an independent monetary policy, oriented to internal affairs, it is not based on the money-inflation relationship, it allows monetary authorities to utilize all available information in the substantiation process of the monetary policy decision.

The monetary policy instruments mix used by the National Bank of Romania is diverse, but in the case of finding a structural liquidity excess in the market, it can be observed that the instruments more used are: open market operations, standing facilities, reserve requirements, and foreign exchange market interventions.

CHAPTER II SUMMARY – THE ROLE OF THE NATIONAL BANK OF ROMANIA IN THE PROCESS OF EUROPEAN MONETARY INTEGRATION – EURO ADOPTION IN ROMANIA

Romania's accession to the European Union on January 1st 2007 was the result of sustained efforts towards reforming the Romanian society and economy. As Romania signed the Treaty concerning the accession to the European Union, it became mandatory for it to adopt the Euro at a certain moment, just like any other EU member. Currently, Romania is exempt from taking such step and, under Art. 122 of TFUE, this is applicable to the states that fail to meet the criteria for adopting the Euro. Although this is an eminently political decision, the accession to the Eurozone must consider the previous experiences and the fulfilment of the economic criteria, thus maximizing the advantages deriving from being a member of such an exclusive club.

This chapter briefly reveals the events and the starting point of the economic and monetary union. A first moment may be considered the Treaty of Rome 1, which had limited objectives (in force on January 1st, 1958), namely the establishment of a customs union and the creation of a Common Agriculture Market.

1962 is the year of the beginning of the monetary integration process, according to ECB, i.e. the foundation of negotiations on monetary cooperation and a common currency, and the document is called the *Marjolin Memorandum.* In 1969, the Hague Summit consecrated the objective to create the Economic and Monetary Union (EMU). Here the Werner Plan has been drawn, concerning the liberalization of capital movement, the convertibility of member countries' currencies, and pegging the exchange rates. In 1972, in Paris, „the snake in the tunnel" mechanism was agreed.

In order to adopt the single currency, the MS must develop their own strategy for replacing their national currencies with the Euro as well as a compliance strategy. The first 11 countries to adopt the Euro were Austria, Belgium, Finland, France, Germany, Ireland, Italy, Luxemburg, Netherlands, Portugal and Spain and in 2001 Greece followed. During this process of adopting the Euro, the candidate state may adopt one of the following scenarios: *The Madrid Scenario* (there is a transition period between the date the state becomes EZ member and the date the Euro actually enters the circulation), the *Big – Bang Scenario* (there is no transitional period. Euro banknotes and coins enter into use on the same day as the euro officially becomes the country's

new currency), the *Big – Bang with transition period* (similar to the second scenario but with a transition period so that legal documents, such as contracts, may be denominated in Euro) – out of which the European Commission recommends the second.

The rate by which the EU countries adhere to the single currency is lower than in the period until 2008, when the crisis broke out, as this latter led to the deterioration of the macroeconomic indicators in both the countries that intended to access the EZ and some of the EZ members that were not complying with the accession criteria anymore.

The Maastricht criteria, which became the standard according to which a country is eligible or not for adopting the single currency so that the Eurozone may firmly respond in case of asymmetric shocks, have been conceived in relation with: (a) process stability, (b) long term interests, (c) public deficit and public debt, (d) exchange rate stability. The Maastricht Treaty provides for reaching „a high level of durable convergence" as a precondition for a member state to adopt the single currency.

Concerning the compliance with the Maastricht criteria, the convergence Report published by the ECB in June 2020 emphasizes a limited evolution compared to the results of the previous report.

According to the ECB June 2020 report, "in March 2020, the average annual inflation rate HICP recorded by Romania was 3.7%, a level that is higher than the benchmark of the criterion on price stability, which is 1.8%[1]." According to the process stability criterion, which states that the inflation rate may not exceed by more than 1.5 % the average rate of the first three-member countries that recorded the best results, Romania fails to fulfill the criterion as it exceeds by 1.9 percent the standard value.

In what concerns the criterion assessing public finances[2], the component that targets the public debt reached 34.7% of the GDP in 2018 and 35.2% in 2019, therefore „in Romania the public debt met the level foreseen by the corresponding Maastricht criterion". As for the budget deficit, it increased from 2.9% in 2018 to 4.3% in 2019 and „exceeded the reference value of 3% from the GDP in 2019. Hence, in April 2020, the excessive deficit procedure was initiated, according to which Romania must correct the excessive deficit by 2022, the latest." This proves that Romania meets the

[1] the value represents the average of the last 12 months in Portugal, Cyprus, and Italy, to which 1.5% has been added

[2] the budget deficit cannot be higher than 3 % of the GDP and the public debt cannot be higher than 60 % of the GDP

criterion only in what concerns the public debt, which does not exceed 60% of the GDP. The criterion of the exchange rate has not been met, as Romania is not part in ERM II, while for the long term interest rates criterion, the ECB Report noted continuous drop since 2010, when the interest rates were at 10% up to 4.4%, in March 2020. Even so, the value exceeds the reference level of 2.9%, corresponding to the convergence criterion on the exchange rates[3].

In order to adhere to the EZ, it is not enough to meet only the nominal criteria, as the experience of the last few years (in countries like Spain, Portugal, and Greece) shows that in lack of structural and institutional compatibility of sound economic equilibrium, sliding into actual and durable convergence (income per capita) and in lack of robust economy, the position into the EZ is precarious and following the accession to the EZ the correction of the imbalances will not be possible anymore by the depreciation of the national currency. Following the EZ accession, the imbalances can be managed only by firm control of budgetary deficits, by using macroprudential instruments and adjusting the incomes/salaries (the so-called “internal devaluation”), which means cessation of the increase or even reduction of the prices and salaries in nominal terms, a process that may be costly if we consider both the economic and social factors.

The participation in the Exchange Rate Mechanism II represents the check-up area for a mandatory period of at least two years of functioning (the maximum deadline is unknown) when Romania must prove a stable economy without the use of the exchange rate Leu/Euro as the paramount instrument of correction. To overcome this stage, the following objectives must be concurrently fulfilled: the nominal criteria that have already been met are kept stable, the real convergence increases, the exchange rate stays within the set margins – the Leu appreciation is allowed but its depreciation results in failing to meet the criterion.

The maximum period of testing within the ERM II is unknown and it extends in case the economy fails to adjust in lack of the exchange rate. That is why the moment and the Euro/Leu parity must be correctly determined, given the level of economic competitivity, the macroeconomic balance/imbalance, and the real convergence (GDP per capita).

[3] According to NBR, the long-term interest rate should not exceed by more than 2% the rate of the three-member states that recorded the best results with respect to price stability

The stabilization potential within the ERM II varies under the level of convergence of each economy, taking into account the economy's evolution, the economic cycle stage, and the coherence of the economic policies. Therefore, for the countries with emerging economies, facing foreign capital inflows and outflows leading to the appreciation of the national currencies or for the EU member states facing significant gaps and lack of robustness in fiscal and structural policies, the conclusion leads to a negative balance in case of the analysis of the advantages and disadvantages of such decision.

Even though the ERM II is a testing area with a pegged exchange rate regime, it has certain flexibility due to the adjustable nature given by the fluctuation band, i.e. +/-15% around the chosen parity.

When joining the mechanism, the EU member countries, which have implemented a pegged exchange rate, will not face *de facto* changes, but the MS that opted for a flexible exchange rate and preserved high autonomy of the monetary policy (ex. Romania), may face *de facto* change of the exchange rate regime, by allowing for fluctuation only within the pegged central parity band. Such an approach implies adjusting the interest to the values prevailing in the EZ, which means that the burden of reaction and absorption of asymmetric shocks, of economic adjustment (structural policies, macroprudential policies) as well as of harnessing the inflation lies with the fiscal policy.

One must also consider the inflationist phenomenon caused by the differences in real convergence which the higher they are the lower the capacity of economic policies to intervene.

In the case of countries whose monetary policy strategy is the direct inflation targeting (Romania since August 2005), the exchange rate's fluctuations have a major impact on price stability. In this context, the participation in ERM II, along with maintaining the inflation targeting strategy, requires the existence – in terms of quantity – of both the objective aiming the inflation and the one considering the exchange rate. In the undesirable situation of the extension of the ERM II participation period to more than two years, the process may have negative effects upon national central banks' credibility, thus reducing its stabilizing factor role due to lack of population's acceptance and understanding of monetary policy decisions, on the background of macroeconomic pressure caused by the mix between direct inflation targeting and pegged exchange rate.

It is imperative for the Romanian economy to be thoroughly prepared before submitting the request for participation within the ERM II, so that it can handle the demands of the mechanism and the result is a success. In order to achieve a high convergence, interventions should be made in the following fields: economic and political stability, an increase of competition level, increase of economic growth and flexibility potential, and increase of resilience to shocks. The lessons provided by the Eurozone crisis proved that the accession within the ERM II and then the EZ without sustainable convergence may lead to imbalances and the diminution or even loss of possible benefits of the process.

At the European level, there are major differences in what concerns the economic structure of accession member states as well as in terms of the exchange rate, monetary regime, or level of nominal and real convergence. In this context, one may not recommend a generally valid path for all the states in order to achieve success within ERM II. Such a model does not exist and that is why the accession strategy must be specific, created for each particular situation, and must provide assessments along the entire process. As well, the recommendations must be specific, constantly taking into account the equal treatment principle.

For an EU member country to have successful accession it is extremely important the selection of the time for ERM II candidature submission, of the participation period and, at the same time, setting the central parity and exchange rate fluctuation margin. For setting the central parity and the fluctuation band, parameters should be agreed with the CEB, EC, the Euro system, NBC and the governments of EU member countries. Prior to submitting the request for participation, confidential consultations are required, in order to preserve the information related to the central rate and the fluctuation range until entering the mechanism. Most experts agree that the central parity must follow the level of the real exchange rate, determined over a long period and that major fluctuations may lead to low economic performance.

The entire thinking of the Banking Union (BU) model resides in the need for the consolidation of the European Union, so for the process to achieve the desired scope, the basis of the Economic and Monetary Union has to be consolidated. In the context of the recent economic and financial crisis, the basis of the BU – addressing the EZ states as well as those outside the EZ that may voluntarily participate – has been construed on three main pillars:

- Single Supervisory Mechanism (SSM);
- Single Resolution Mechanism (SRM);
- European Deposit Insurance Scheme (EDIS).

For Romania to be able to make decisions with respect to entering the BU, prior to adopting the single currency it must have established a dedicated strategy for meeting the EU requirements at the national level**.** Therefore, NBR's strategy must be part of the national strategy for accessing the European institutional framework and once the BU accession has been signed, sovereignty would be lost. Hence, the NBR will yield EBC its prerogatives regarding the monetary policy and the supervision of the banking market and to the Single Resolution Board, the powers in the field of banking resolution.

CHAPTER III SUMMARY – THEORIES ON OPTIMUM MONETARY AREAS – THE BASIS FOR EUROPEAN MONETARY INTEGRATION

Having their own currency has been, for a long time, the very proof of states' sovereignty. In a lack of control over their currency, the states have no prerogatives in conducting their own monetary policy. In Mundell's opinion (1961), an optimum currency area is a geographic area made of several states that get together for the common purpose of avoiding asymmetric shocks and the two balances: the internal balance (maximum degree of employment, price stability, low inflation) and the external balance (sustainable position of the balance of payments).

The departing point in supporting this theory was Mundell's understanding that the actual monetary situation could not offer the countries that abided by the principle one country - one currency the best monetary arrangements and, therefore, a smaller number of currencies in relation with the number of countries would be more convenient. The real challenge was to clarify the circumstances in which a region or a country may benefit from accessing a monetary union under the aforesaid conditions.
Mundell (1961) identified four criteria that qualify a country as optimum monetary area:

- Flexible capital and employment markets that enable the production factors to easily move from surplus areas to deficit areas, thus naturally compensating any imbalance;
- Adjustable prices and salaries in accordance with the demand and supply, thus showing the capital and the manpower whereto they should move;
- Similar economic cycles, allowing the Central Bank to act towards stabilizing the entire region (not favoring some countries and destabilizing others);
- Mechanisms for assessing the risks that allow, when the economic cycles are not aligned, for fiscal transfers (cashing the taxes in a surplus area and redistribution in recession areas).

In Mundell's original research (1961), the countries were subject to the effects of two types of asymmetric shocks in terms of demand: amplitude shocks (impacting the volume of consumption or investments) and structure shocks (impacting the shift of internal and foreign products ratio); the shocks are considered asymmetric when the disturbances are strongly correlated among countries and impact them with the same intensity, thus the adjustment costs being far more reduced compared to the case of asymmetric shocks that impact selectively (unequally). According to Mundell (1961),

placing the burden of recession and devaluation in one country is not sustainable. In other words, a floating exchange rate, which concentrates an economic shock in the country of origin, is far more costly than when the currency is shared among several countries and the region's global economic benefits, in the main, from the absorbance of the economic shock.

Hence, the issue of establishing an optimum currency area has been seen as a new theoretical basis for adjustment to asymmetric shocks, i.e. to exogenous factors that induce significant disturbances in a region or country.

Contemporary authors have reasoned that the single currency enhances the trade relationships and also the synchronization of business cycles, which is a mandatory precondition as per the founders of the optimum monetary area concept.

An important challenge came from Lucas (1976), known in the specialized literature as Lucas Critique, which stated that the monetary integration must be understood as a fundamental shift within the political regime, given that the political will was the one that kept the monetary unions throughout time.

The numerous empiric studies point out that in lack of real convergence (similar income per capita within the entire Union for a long time) and in lack of structural compatibility, the nominal convergence criteria are not sufficient.

We may thus state that the heterogeneity of the economies of the states willing to access a single monetary mechanism and the risk of asymmetric shocks occurrence should place the optimum monetary areas theory in a prudent applicability area and moderately optimistic.

The impossible trilemma doctrine, or the macroeconomic trilemma, simply states that a country cannot keep simultaneously the stability of the exchange rate, the mobility of the capital, and the monetary independence. According to this postulate, each nation may choose at most two of the three characteristics of its monetary policy regime:

- Open capital market (free mobility of cross-border capital);
- Independent monetary policy and
- Pegged exchange rate.

The trilemma has been solved in favor of exchange rate stability, to support the trade reconstruction in the post-war period. It was obvious that in view of having a developed trade, constraints-free payments were required, so a system that stimulated the credit was needed, at least over the short term.

In what concerns the impossible trilemma theory, provided that the international capital is highly mobile, the flexible exchange rate would enable the decision factors to implement the independent monetary policy. Departing from the arguments that promote the flexible exchange rate: a system of flexible exchange rates is usually presented, by its proponents, as a device whereby depreciation can take the place of unemployment when the external balance is in deficit, and appreciation can replace inflation when it is in surplus (Mundell, 1961); this would be the basis for preserving the monetary independence.

The conclusions emphasize that in case the internal authorities cannot capitalize on the independence of the monetary policy, it should be abandoned in view of importing stability from other countries. Choosing a pegged exchange rate under the free movement of capitals, characteristic specific to Central and Eastern European economies, leads to the loss of monetary policy independence as well as of the right to independently establish the interest rate or the exchange rate variability as adjustment instrument.

For the countries that intend to adopt the Euro, the monetary and currency policy over the period between the accession to the EU and the adoption of the Euro is quite difficult to draw and depends, to a great extent, on the real factors (including the equilibrium ratio for real appreciations and various structural characteristics) as well as on other factors, such as the credibility of the interest rate in relation with the Eurozone target rate.

A single global strategy is not suitable for all the EEC countries and it is expected that the countries with average income will grow faster than those with high income, in order to achieve the convergence of the income level, since they provide a higher capital rate of return.

In conclusion, the implications upon the monetary policy for the candidates to the Eurozone may be summarized as follows:

- The real economic forces regarding the production conditions and the path towards the real exchange rate equilibrium are limiting the independence of the monetary policy of these states and render them highly sensitive to the conditions of the external capital markets;
- The possibility to bias upon the exchange rate will not solve the issue, as it is not just a nominal phenomenon (the exchange rate regime has real, significant implications);

- In certain circumstances, the risk premium may provide some kind of protection against overwhelming influences from external capital markets. But since they are impacted by the development of the internal markets and the contagion effect, they may be the source of large and unpredictable shocks. The main common element that these states are facing in relation to the external environment is the large capital inflow impacted by changes in the market conditions irrespective of the exchange rate recorded by the country in transition.

As noted above, the theory of optimum monetary areas emphasizes the advantage of pegged exchange rates, which are specific to the monetary union, against the floating exchange rates, specific to the states before accession. The advantages of joining a monetary union are generally related to trade promotion and economic growth, while the disadvantage is the loss of control upon the monetary policy.

Some EU member countries fail to fulfill the criteria of an optimum monetary area and one of the accession arguments in such conditions would be the endogeneity of the monetary areas. By adopting the Euro, these countries would ultimately promote the trade with the advantages that come with the common currency, whilst the lack of economic correlation would diminish the positive effects. Beyond the endogeneity elements, the risks of the asymmetric shocks remain significant. Besides the flexibility, the main instrument for facing the shocks is the fiscal policy, but the EU is not a federation and the necessary countercyclical capital is harder to put in practice. A standard criterion for assessing the stage of an economy or the level of training prior to joining a monetary union decision is the real convergence degree.

The assessment of the stage of an economy or the level of training before joining a monetary union decision must start with quantifying the real convergence degree. The candidate countries shall synchronize the business cycle with the Eurozone in view of achieving shock symmetry. If the country records a slow-down in its economic activity when the entire monetary area announces a similar situation, it means that the CEB's monetary policy is suitable for all member states as well as for the new candidates.

But if the cyclic correlation is low, the economy in question shall face constraints with respect the interest rate management. Another interpretation of the real convergence would be the similar structure of the economy. The similarity would involve, among others, the dimension of the private sector, the distribution of employment by sectors, and the similarity of the production structures. Differences among economies' structures may become the source of asymmetric shocks. A third

interpretation of the real convergence is the similar level of productivity, income per capita, and relative prices of non-tradable goods.

The architects of the Eurozone noted that the real convergence or cyclic convergence was the path to be followed by the states that prepare their economies for facing the implications of a common currency when accessing the monetary union. Another interpretation of the convergence would also involve the reduction of the gaps in productivity and real income between East and West. Anyhow, the Maastricht treaty compels the candidates to wait until all four criteria of real convergence are cumulatively and constantly met: price stability, the sustainability of the fiscal position, the stability of the exchange rate, and the convergence of the long-term interest rates.

Thenceforth, we propose a synthetic analysis of the orientation of the monetary policy for 2017 considering the countries subject to the econometric study carried out in the next chapter.

For instance, the main objective of the monetary policy carried out by the *Czech National Bank (CNB)* is to maintain the price stability. Since January 1998, this objective has been fulfilled within an inflation-targeting regime, by which CNB tried to maintain the inflation close to an established target. Since 2010, CNB's inflation target concerning the consumer price index was set at 2%, with a tolerance band of ± 1%. Maintaining financial stability and the proper functioning of the Czech financial system is among CNB's objectives.

The main objective of the *Hungary National Bank (HNB)* is maintaining price stability. Notwithstanding its primary objective, HNB supports the stability of the financial intermediation system, the optimization of its resilience, and the durable contribution to the economic growth, along with the government's economic policy, by using the instruments at hand. The sovereign decision body is the Monetary Policy Board.

The main objective of the monetary policy conducted by *Poland National Bank (PNB)* is maintaining price stability, concurrently supporting the durable economic growth and the stability of the financial system. PNB is implementing the directions of the monetary policy established by the Monetary Policy Board and since 1998 it uses the direct inflation targeting strategy. Since the beginning of 2004, the continuous inflation target was 2.5%, with the possibility for deviation up to 1percent upwards and downwards in the medium term.

The National Bank of Romania (BNR) is also aiming at ensuring and maintaining price stability, which is the best contribution of the monetary policy to the country's sustainable growth. It formulates and implements the monetary policy within the context of direct inflation targeting strategy, establishing a stable inflation target of 2.5% ±1%, compatible with the definition of price stability in the medium term in the Romanian economy.

All four central banks from the analyzed states, within the COVID 19 situation, have followed the downward trend, progressively lowering the monetary policy interest. At the meeting dated 5th August 2020, NBR decided to reduce the monetary policy interest rate to 1.5% per year from 1.75% per year, starting with 6th August, while CNB kept its level at 0.25% per year, HNB reduced the monetary policy interest rate to 0.60% per year and PNB decided to keep it at a minimum historical level of 0.10% per year since the end of May 2020.

The lagged reserve requirements have also been subject to modifications, fact that gradually transformed the lagged reserve requirements system by reducing the lagged reserve requirements rate, payment of an interest related to their establishment, simplification of passives range subject to lagged reserve requirements and extension of the range of actives eligible for transaction. Hence, the level of lagged reserve requirements stands at 1% in Hungary, at 0.5% in Poland, at 2% in the Czech Republic, and 6% in Romania.

According to the information provided by the National Bank of Romania, the monetary policy interest rate „represents the interest rate used for the main monetary market operations conducted by NBR". Currently, „these are one-week term repo operations, developed by auctions at fixed interest rate". In this context, the interest rates of permanent facilities provided by NBR, namely lending facility and deposit facility, „create a symmetric corridor, i.e. +/- 50 base points, in relation to the monetary policy interest rate*".*

According to the Czech National Bank, the open market operations are used for leading the interest rate, being put into practice as 14 days' main duration repo operations. Hence, the interest rate for these operations is the reference rate of the monetary policy, being considered as paramount in conducting the monetary policy. Shorter maturity repos are carried out from time to time, under the forecasts on the banking sector liquidity. In the Czech Republic, due to the liquidity surplus in the

banking sector, The two-weeks' repo offers are currently used exclusively for liquidity absorption.

In what concerns Hungary National Bank, since the reduction of 3 months' deposit volume to zero, the role of the main policy instrument has been performed by the lagged reserves. HNB pays interest equal to the base rate of the central bank, applied to the average monthly outstanding balance of the bank accounts managed for the credit institutions. If the lagged reserves requirements of the credit institutions are under the established level, HNB will penalize the credit institutions by an interest equal to the base rate of the central bank. In case the credit institutions hold lagged reserves over the established limit, the central bank penalizes them by offering 0% interest or equal to the overnight deposit interest rate calculated for the period (calendar days) of maintaining the lagged reserves requirements, reduced by 15 base points, no matter if it is lower for the value that exceeds the value of the lagged reserve requirements.

As stated on the Poland National Bank's official website, the main instrument of the monetary policy is the reference interest rate (0.10% on 10.08.2020). It's being used for attracting liquidities on the monetary market for seven days' period. As well, its level impacts the efficiency of other monetary policy instruments. The rate's level adjustment determines the direction of the monetary policy and affects the interest level on the market. In this context, the band within which interests float on the inter-banking market for the overnight credit (0% on 10.08.2020) has been set somewhere between the rate of deposit and Lombard rate (0.50% on 10.08.2020).

In our opinion, the business cycle convergence and the flexibility of the labor market and the fiscal policy can be assessed together with the extension of trade with partners within the Monetary Union. *Our analysis* revealed that, due to the small size of CEE countries and their lack of reputation, the new criteria described in Mundell II cannot be confirmed. In this context, we believe that the evolution of the currency market shows that in these states the exchange rate did not react towards stabilization, but it has been considered a source of shocks rather than a stabilizing factor. We could note that large capital inflows represent a challenge for the monetary policy irrespective of the chosen exchange rate, but we also acknowledged that not all capital flows are disturbing and the consolidation of the internal financial system's resilience is mandatory in order to face the capital flow stops and reversals.

CHAPTER IV SUMMARY – COLLABORATIVE ANALYSIS OF THE EFFECTS OF ECONOMIC AND MONETARY SHOCKS IN THE CENTRAL AND EAST EUROPEAN COUNTRIES – ROMANIA'S CASE

This chapter intends to carry out a collaborative analysis of the impact of economic and monetary shocks in certain Central and East European countries. Detailed analysis of the effects allows for assessing the monetary policy transmission channels, as well as prices' dynamics. The scope of this section is to investigate certain aspects of the monetary policy transmission channels for the four investigated economies: Czech Republic, Hungary, Romania, and Poland. Such selection is based on the monetary policy common strategy within the mentioned countries, namely direct inflation targeting (in Romania since 2005). Moreover, in order to have a clearer picture, we included in the analysis two other countries from the Eurozone. We may thus identify the differences in shocks transmission. In order to investigate the mentioned elements, we selected the Vector autoregression method - VAR. Its advantage is given by simplicity and flexibility in accommodating various specifications, while its main disadvantage is given by their empiric structure.

When the Maastricht Treaty rendered credible the idea of the European monetary integration, the empiric analyses that used VAR models for studying its effects, multiplied.

This chapter joins the continuum of studies like those conducted by Maliszewski (1999), Christoffersen et al. (2001), Boțel (2002), Ganev et al. (2002), Creel and Levansseur (2005), Elbourne and de Haan (2006).

At large, in view of analyzing the channels of the monetary policy, the dedicated literature provides for multiple models: (i) stochastic dynamic general equilibrium models; (ii) traditional econometric models; (iii) vectorial autoregressive models. The appraisal of these models enables the identification of the impact of the monetary policy inflections upon prices and production and the way the effects propagate.

The vectorial autoregressive models are based on the hypothesis of limited knowledge on economy functioning. Therefore, no structure is imposed within these models.

The selection of this methodology is justified by the objectives pursued within this chapter and by the inclusion of several countries in the analysis. Even more, VAR models are quite common in time series analyses, mainly due to their flexibility and user-friendliness. This could be considered a generalization that includes the univariate

autoregressive model since the dependent variables are lags of explanatory variables, as well as simultaneous equations since a system of equations is simultaneously assessed. The VAR analysis is modeling each variable endogenous to the system following the former values of all system's endogenous variables (Sims, 1980).

The analysis has been carried out for four CEE countries: Czech Republic, Hungary, Poland, and Romania, but also for two countries in the Eurozone: Germany and Greece. For each of the mentioned economies, the following series have been used: the quarterly annualized growth rate of the real GDP, quarterly inflation rate (HICP, annualized), the quarterly annualized variation of the real exchange rate (41 partners, a positive value means appreciation in real terms, negative value corresponds to depreciation in real terms), the interest rate on interbank interest rate 3M. The source of these data is the Eurostat, the author carrying out seasonal adjustments for the real GDP series and the Harmonized Index of Consumer Prices (HIPC).

In what concerns the time-period used, the data availability has been taken into account when selecting the length of the intervals, namely 2000 Q1 - 2019 Q3, for a quarterly frequency. Subsequently, the specifications have also been assessed for two time subintervals, namely 2000 Q1- 2008 Q3 and 2010 Q3 – 2019 Q3. Their selection aimed at identifying possible differences in economies' development before and after the financial crisis that broke out at the end of the first decade

A brief analysis of the data used indicates a series of differences among the countries included in the analysis. These differences are notable between the CEE countries, between the two Eurozone countries as well as between the CEE and the Eurozone countries. The difference resides in the dynamic of the economic cycle. For instance, within the analyzed period, Poland did not experience a recession period, unlike other countries in the region.

Moreover, in Hungary and Romania, there are more periods of abrupt downfall of the GDP. Similarly, in the Eurozone, there are major differences in the GDP dynamic in Germany and Greece. Disparities may also be noted in what concerns the inflation rate. Naturally, these differences within the economic cycle reflect in the inflation pattern. For instance, in Romania, unlike other countries in the region, inflation was more persistent.

Germany has lower inflation, while Greece has a higher one. The differences in both the economic cycle and the inflation rate determine heterogeneous values of the interest rate.

Finally, a synthetic analysis indicates a reduced correlation of the economic cycles. This is valid also for the two Eurozone countries considered in the study. In our opinion, these differences are induced by the endogenous characteristics of the financial and economic system in the analyzed countries.

These elements may determine various effects and asymmetric shocks to monetary policy decisions. Within the monetary union, the lack of synchronization of the economic cycles and the disparities of the monetary policy effects lead to uneven economic development.

GENERAL CONCLUSIONS AND PERSPECTIVES OF RESEARCH

The monetary policy conducted by the National Bank of Romania has an essential role in the nominal convergence process as well as in the process of Romania's economy real convergence towards the European Union, as also stated in the first chapter "*Approaches regarding monetary policy and exchange rate – concepts, opinions and theories*". Our analysis departed from the main coordinates of the monetary policy during 1990-2005. The measures adopted at the beginning of the transition envisaged the construction of the monetary policy mechanism and instruments, in 1991 NBR adopting its first Statute (Law 34/1990) and the Banking Law (Law 33/1991). The institutional framework of the monetary policy was optimized in 1998, by the changes brought within the two mentioned laws, which are so important for the activity of the central bank and the commercial banks as well: the NBR Statute (Law 101/1998) and the law on the banking activity (Law 58/1998). During the same period, the law related to banking bankruptcy was adopted. In the main, as resulting from the analyzed information, the monetary policy has been generally characterized by high interest rates, large volumes of sterilization, high rates of the lagged reserve requirements and real appreciation of the national currency, all these being the features of restrictive monetary policy.

On the other hand, NBR's interest and exchange rate policy has been practically subordinated to major constraints related to the liberalization of capital flows with high monetary impact, given the existence of a high differential of the internal interest against the external one, thus encouraging speculative capital inflows.

Concurrently, due to the existence of a permanent liquidity structural surplus in the economy and given the need for its sterilization to avoid nourishing inflationist pressures, the instruments used by NBR became, de facto, mainly liquidity absorption instruments. Since the monetary policy transmission instrument is complex and involves long and variable delays, price stability is the final scope of the monetary policy, upon which the central bank may exercise only indirect control. Generally, the monetary policy strategy conducted by a central bank implies, in certain cases, the use of intermediate targets, such as monetary aggregate targeting and exchange rate targeting strategies. However, the direct targeting of the final objective can be used, namely the inflation rate targeting strategy. The monetary policy strategy that NBR has

been using de facto until 2005 was the monetary aggregates targeting, corroborated, in certain periods, with the exchange rate targeting.

In August 2005, NBR adopted the direct inflation targeting strategy. *We may conclude* that the change in the monetary policy strategy by adopting the inflation targeting was mainly due to the fact that the monetary aggregates targeting was not an effective strategy anymore, as the connection between the monetary aggregates and inflation has fainted and became less predictable. The main advantage of inflation targeting is that a reduced and stable inflation rate can be reached and maintained, with a positive impact on economic growth.

In chapter II -*"The role of the National Bank of Romania in the process of European monetary integration –Euro adoption in Romania",* we expressed the opinion that the main challenge at European level is asymmetric shocks absorption, fact formally acknowledged at the highest level in the Report of the 5 presidents.

The document draws conclusions aiming at not only finalizing the MEU but at setting „*means for ensuring a better and equitable life for all citizens, at preparing the Union for facing future global challenges and allowing each of its members to prosper".* Hence, reforming measures have been set in order to reach complete monetary and economic union. The need for such measures has been emphasized after the 2008 crisis, which revealed the weak reaction of the European Union to various challenges.

If we pass this test, the participation in ERM II will represent the fulfillment of one of the four convergence criteria, along with the MS economies preparation in terms of sustainability/robustness of the convergence and national currency's central parity/convergence to Euro. Romania's participation in this mechanism represents a change in the monetary policy and exchange rate strategies conducted by NBR, which implies to align the interest rate to a value similar to the Eurozone. It also involves the development of a policy that supports the exchange rate stability, thus transferring the task of inflation control and asymmetric shocks absorption within the fiscal policy and income policy area.

In view of conducting a successful and sustainable process, *we believe* that it should rely on the prior fulfillment of the conditions that lead to the limitation of ERM II participation to two years as well as to the adoption of the single currency once the ERM II period has ended. All these aspects require the fulfillment of the nominal and real convergence criteria so that ERM II participation will be a successful one and the development within the EZ will be smooth, sustainable, and consistent as, *in our*

opinion, there will not be another period for convergence preparation. *We therefore conclude* that when entering the ERM II, Romania must be prepared in every respect (both legal and institutional convergence) in order to evolve within the European Union.

One of the main actors in the process will be the National Bank of Romania who, in accordance with Law 312/2004 on the Statute of NBR, will issue recommendations with respect to the level of conditions fulfillment, steps to be followed, parameters, central parity, conversion rate, fluctuation range as well as to the optimum moment for entering ERM II. We consider that all these aspects must be based on thorough research of the experts within competent structures.

Chapter III, *"Theories on optimum monetary areas – the basis for European monetary integration",* analyses the outlook for joining the monetary union in terms of optimum monetary areas' theory but also in terms of the costs incurred by the candidates, i.e. Mundell II or the new Mundell, wherein the exchange rate and the independent monetary policy represent an important manner to face the asymmetric shocks.

We carried out a synthetic analysis of the main factors that generate both benefits and costs for four Eurozone candidates, namely the Czech Republic, Hungary, Poland, and Romania, in terms of the optimum monetary areas and monetary policy autonomy, in accordance with the impossible trilemma. Finally, we conducted a correlative analysis of the directions followed by monetary authorities in the mentioned countries, in 2017.

The convergence of the business cycle, the flexibility of the labor market and fiscal policy may be assessed together with the development of trade with partners within the Monetary Union. Since EEC countries are relatively small and in lack of reputation, the new criteria described in Mundell II have not been confirmed for these countries. The evolutions on the currency market show that, in these states, the exchange rate did not react in a stabilizing manner, but it rather was a source of shocks.

Large capital flows receive the vote of confidence for their convergence with Western Europe. At the same time though, they may tangle the monetary policy the exchange rate policy, generating potential dilemmas for the monetary authorities.

According to the conventional economic theory, given the free trade and factors mobility, the production convergence per capita usually requires convergence in technology, institution, and the ratio between the capital and manpower, the capital

being generally seen as including the manpower. In the analyzed countries, the education level is high, but the physical capital is reduced, so Lucas paradox that shows why the capital in rich countries will not flow towards the poor ones applies to these states (Lucas, 1990). The monetary policy is challenged to face erratic flows (sudden stops and capital outflows). Large capital inflows represent a fabulous challenge for the monetary policy, irrespective of the chosen exchange rate but, *in our opinion*, as already stated, not all capital flows are disturbing.

Direct foreign investments have a higher rate of return of the invested capital, far more stabilizing for the economy that the „hot money". *We believe* that these latter should be closely monitored by the authorities in view of avoiding macroeconomic instability and financial crises, generated also by overborrowing. In such conditions, it seems that an increase in the internal financial system's resilience is crucial to cope with the capital flows stops and reversals.

The applicative chapter of this Ph. D thesis, called "*Collaborative analysis of the effects of economic and monetary shocks in the central and east European countries – Romania's case*", leads to important conclusions. So, there are differences among the analyzed countries in what concerns the amplitude and the dynamics of variables responses, in accordance with the nature of the shock. For instance in the Czech Republic, a positive shock on the exchange rate did not significantly impact the inflation and the real GDP, while in other countries – such as Romania and Hungary – it increased the inflation, situation which *opposes the economic theory*. *In our opinion*, this proves the inefficiency of the exchange rate channel as an instrument used by the central banks for inflation control.

Moreover, *we may assert that* a positive shock on the exchange rate significantly and persistently affected all four countries, with lower variations in the Czech Republic. Our study emphasized the importance of the exchange rate channel in these countries, thus reflecting besides the effect of exchange rate variation upon net exports, also the existence of serious balance effects, due to the higher level of overborrowing in the foreign currency noted in Hungary, Poland and Romania, compared to the one in the Czech Republic. The analysis revealed a higher level of incertitude of the response functions, especially in Hungary and Romania. *In our opinion,* such a result may be explained by the lack of sound economic structures and economic mechanisms that are specific to the transition towards a market economy. Therefore, we may conclude that

the high incertitude may be a disadvantage for the central banks in their endeavor to attaining the monetary policy objectives.

Although the four countries had similar economic paths in the last decades, the monetary policy transmission mechanisms and the response of analyzed variables to various shocks were heterogeneous, fact that may be, in our opinion, an explanation for the delays in adopting the single currency. There are also differences in what concerns the CEE and Eurozone countries. For instance, according to our analysis, the exchange rate channel had more persistent effects in the CEE countries than in those in the Eurozone. ***The main conclusion*** is that the integration of EEC counties within the single monetary area requires the correlation of their economic cycle with that of the Eurozone, backed by collateral important aspects, as stated above.

The current research will be extended towards analyzing the National Bank of Romania’s contribution through the monetary policy in supporting Romania's monetary integration within the EU in terms of operation, legislation, financial-economic aspects, and education. As well, the research that grounded this Ph. D thesis, included studies carried out in collaboration with other experts on the monetary policy and its multidimensional implications, from the theoretical and conceptual viewpoint, but mainly in what concerns is applicability.

Finally, considering both the advantages and disadvantages of joining the Eurozone, we may state that Romania has to go through significant adjustments in order to achieve the final scope of having stable and durable real, nominal and structural convergence, at all levels – institutional, legal and social.

Although the process is mainly political, the National Bank of Romania must actively involve, further on, in supporting the accession to the Eurozone. Therefore, it would be advisable to:

- Construct the banking union accession strategy as an integral part of the national strategy of accession to the European institutional framework;
- Provide support with respect to adapting NBR Statute and the legislation, so that the legislation on Eurozone accession is compatible with the European regulations;
- Continue the consultations with CEB representatives in view of clarifying technical aspects and procedures;
- Develop operative instruments to be used in the accession process as well as pot-accession;

- Develop rigorous means of control at the banking system level, so that the participation within SSM/SRM will be consonant with the practices and experiences recorded so far within the BU;
- Use intervention mechanisms similar to other European countries by considerably reducing the reference interest (Poland) and bringing into the open the intention to distinctly purchase Government bonds on the secondary market, as within the COVID-19 crisis context.

BIBLIOGRAPHY

Books

1. Altar, M., Albu, L.L., Dumitru, I., Necula, C. (2009) Estimation of the real equilibrium exchange rate and deviations for Romania, http://www.studii-economice.ro/2009/ seince090706.pdf.
2. Amato, J.D., Gerlach, S. (2001). Modelling the transmission mechanism of monetary policy in emerging market countries using prior information. BIS Papers18, 264-272;
3. Amiti, M., Itskhoki, O., Konings, J., (2014) Importers, Exporters, and Exchange Rate Disconnect. American Economic Review, 104(7), pp.1942–1978.
4. Ariyoshi, M.A., Kirilenko, M.A., Ötker, M.I., Laurens, M.B., Kriljenko, M.J.I.C., Habermeier, M.K.F. (2000) Capital controls: country experiences with their use and liberalization. International Monetary Fund.
5. Bayoumi, T. and Eichengreen, B. (1997) Ever closer to heaven? An optimum-currency-area index for European countries. European Economic Review, 41(3–5), pp.761–770.
6. Cerna, S. (2009) Monetary economy, Timişoara: Universităţii de Vest Printing House.
7. Creel, J., Levasseur, S. (2005). Monetary policy transmission mechanisms in the CEECs: How Important are the differences with the Euro Area? OFCE Working Paper;
8. Dăianu, D. (coordonator), Kallai, E., Mihailovici, G., Socol, A. (2018) http://ier.gov.ro/wp-content/uploads/2018/12/Prezentare-studiu-euro_16-nov-final.pdf
9. Dăianu, D. (2016) Romania and Eurozone accession.
10. De Grauwe, P., Mongelli, F. (2005) Endogeneities of optimum currency areas: What brings countries sharing a single currency closer together?
11. ECB (2018) The international role of the euro, June 2018. p.51.
12. Elbourne, A., de Haan, J. (2006). Financial structure and monetary policy transmission in transition countries. Journal of Comparative Economics, 34(1), 1-23.

13. Gabaix, X., Maggiori, M. (2015) International liquidity and exchange rate dynamics. The Quarterly Journal of Economics, 130(3), pp.1369–1420.
14. Ganev, G., Molnar, K., Rybinski, K., Wozniak, P. (2002). Transmission mechanism of monetary policy in central and Eastern Europe. Center for Social and Economic Research, Case Report # 52;
15. Gros, D. (2017) One Market, One Money–A Mistaken Argument (post factum)? Centre for European Policy Studies.
16. Halpern, L., C. Wyplosz (1998). Equilibrium exchange rates in transition economies: further results, prepared as part of a CEPR project on "Equilibrium and Adjustment Dynamics of the Exchange Rates of the Associated Countries of Central and Eastern Europe";
17. Herrero, A.G., Gaspar, V., Hoogduin, L., Morgan, J., Winkler, B. (2001) Why price stability? Europ. Central Bank.
18. Ishiyama, Y. (1975) The Theory of Optimum Currency Areas: A Survey Staff Papers - International Monetary Fund, 22(2), p.344.
19. Keynes, J.M. (1936) The General Theory of Employment, Interest and Money. Macmillan, London.
20. Krugman, P. (1993) Lessons of Massachusetts for EMU. In: F. Torres and F. Giavazzi, eds., Adjustment and growth in the European Monetary Union. [online] Cambridge: Cambridge University Press, pp.241–266. Available at: <https://www.cambridge.org/core/product/identifier/CBO9780511599231A099/type/book_part> [Accessed 16 Jan. 2019].
21. Issing, O. (2008) The birth of euro, Cambridge: Cambridge University Press.
22. Issing, O., Gaspar, V., Angeloni, I., Tristani, O. (2004) Monetary Policy în the Euro Area. Strategy and Decision Making at the European Central Bank, Cambridge: Cambridge University Press.
23. Issing, O., Gaspar, V., Tristani, O., Vestin, D. (2005) Imperfect Knowledge and Monetary Policy, Cambridge: Cambridge University Press.
24. Maliszewski, W. (1999).VAR-ing monetary policy in Poland. Central for Social and Economic Research, Studies and Analyses, no. 188;
25. Manolescu, G. (2009) The monetary policy in the globalization perspective, Bucharest: Universitară Printing House.
26. McKinnon, R.I. (1963) Optimum Currency Areas. The American Economic Review, 53(4), pp.717–725.

27. Mishkin, F., S. (2004) The Economics of Money, Banking, and Financial Markets, seventh edition, Boston: Addison-Wesley.
28. Mishkin, F., S. (2007) Monetary policy strategy, Cambridge: MIT Press.
29. Mishkin, F., S. (2012b) Macroeconomics. Policy and practice, Harlow: Pearson.
30. Mongelli, F.P., (2002) 'New' views on the optimum currency area theory: what is EMU telling us? p.54.
31. Mundell, R.A., (1961) A Theory of Optimum Currency Areas. The American Economic Review, 51(4), pp.657–665.
32. Mundell, R.A., (1973) Uncommon arguments for common currencies. The economics of common currencies, pp.114–132.
33. Mundell, R.A., (2002b) Monetary unions and the problem of sovereignty. Annals of the American Academy of Political and Social Science, 579, pp.123–152.
34. Sims, C. A. (1980) Macroeconomics and reality. Econometrica: Journal of the Econometric Society, 1-48.
35. Stiglitz, J., (2016) What is wrong with negative interest rates? Project Syndicate, 13.

Articles

1. Boţel, C. (2002). Causes of inflation in Romania, June 1997 – August 2001. Analysis based on the structural auto-regressive vector, NBR Study notebooks, National Bank of Romania.
2. **Curiman, M.**, Mihai, B. (2020) Considerations regarding the Optimal Monetary Areas, International Journal of Business Quantitative Economics and Applied Management Research, 6(8), 23–31.
3. **Curiman, M.,** Mihai, B., Tenea, C. (2018) Considerations regarding the Financial Stability and the Macro-Prudential Policy, Annals of the „Constantin Brâncuşi" University of Târgu Jiu, Economy Series, Issue 1/2018, pg. 130-138.
4. Eichengreen, B. (1993) International Monetary Arrangements for the 21st Century. Center for International and Development Economics Research (CIDER) Working Papers. [online] University of California-Berkeley, Department of Economics. Available at: <https://ideas.repec.org/p/ags/ucbewp/233202.html> [Accessed 31 Jan. 2019].

5. Fischer, S. (2001) Exchange Rate Regimes: Is the Bipolar View Correct? Journal of Economic Perspectives, 15(2), pp.3–24.
6. Fleming, J.M. (1971) On exchange rate unification. The economic Journal, 81(323), pp.467–488.
7. Frankel, J.A., Rose, A.K. (1998) The endogeneity of the optimum currency area criteria. The Economic Journal, 108(449), pp.1009–1025.
8. Krugman, P.R. (1979) Increasing returns, monopolistic competition, and international trade. Journal of international Economics, 9(4), pp.469–479.
9. Pop, N. (2018) Financial integration – necessary step for Romania's accession to the Eurozone, http://www.opiniibnr.ro/index.php/macroeconomie/285-integrarea-financiara-un-pas-necesar-al-apropierii-romaniei-de-zona-euro.
10. Rey, H., (2015) Dilemma not trilemma: the global financial cycle and monetary policy independence. National Bureau of Economic Research. Available at: http://www.nber.org/papers/w21162.pdf .
11. Trenca, I., Mihai, B., **Curiman, M.** (2015) The compliance of the Romanian leu with the Exchange Rate Stability Criterion: a hypothetical assessment, Emerging Markets Queries in Finance and Business, Procedia Economics and Finance, 32, 1178 – 1187.
12. Trenca, I., **Curiman, M.** (2020) Investigating the effects of economic and monetary shocks in Romania using VAR analysis, International Journal Of Core Engineering & Management, 6(8), pg.1-12, ISSN No: 2348-9510.
13. Twinoburyo, E.N., Odhiambo, N.M. (2018) Monetary Policy and Economic Growth: A Review of International Literature, Journal of Central Banking Theory and Practice, 2, pg. 123-137.