ECONOMIC MECHANISM OF INFLATION TARGETING IN DEVELOPING COUNTRIES

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Abstract. In this article, the economic mechanism of inflation targeting (IT) regime in developing countries has been studied. Subsystems of the economic mechanism have been analyzed. The main elements of the functional subsystem (authority which sets the inflation target, target measuring element, target range, target horizon, key monetary instrument, authority which makes decisions on issues of monetary policy) have been considered. Features of the economic mechanism of inflation targeting in developing countries have been determined.

Keywords: monetary policy, central bank, inflation, inflation targeting, price stability, economic mechanism of inflation targeting.

Introduction

As a result of the growth of openness and trade interdependence between countries, support of currency stability becomes the primary task of the central bank (CB). Since 2002, certain work has been carried out in Ukraine in order to create required preconditions for transition to the inflation targeting regime. The main precondition, which is legal definition of price stability as the major goal of the central bank, was implemented in the legislation in 2010 by making amendments to the Law «On the National Bank of Ukraine». Pursuant to these amendments, the priority for the National Bank of Ukraine is achievement and support of price stability in the country.

Works of the following foreign scientists have been dedicated to problems of introduction and implementation of inflation targeting: B. Bernanke, D. Vavry, J. Epstein, M. King, F. Myshkin, S. Fisher, B. Friedman et al. The following Ukrainian scientists study instruments of inflation targeting: Y. Bazhal, A. Halchynskyi, V., A. Hrytsenko, V. Mishchenko, A. Moroz, O. Petryk, M. Savluk, V. Stelmakh et al.

In their works, the majority of the scientists analyzed theoretical and conceptual basics of the inflation targeting regime, its distinctive features and advantages of use compared with other monetary regimes. They study principles of inflation targeting, basic theoretical principles, most efficient environment for functioning, stages of implementation, etc. The scientists focus less on the integrated analysis of the economic mechanism of the inflation targeting regime.

The importance of our study is caused by the need for improvement of instruments and procedures of implementing the monetary policy (MP) of Ukraine, as well as bringing them into conformity with standards of inflation targeting on the basis of studying foreign experience of inflation targeting implementation.

Method

We selected an analysis as the main method of our research. It includes analysis of the regulatory and legal base of implementing inflation targeting in developing countries and analysis of the features of its application in practice.

Results

Inflation targeting is a regime of monetary policy, when the common ultimate goal of the central bank is support of price stability. It consists in forecasting by the central bank of a future inflation level which is compared with the target value. The difference between the forecast and the target is in fact the index of how the monetary policy should be adjusted. Today, this regime is applied by 27 countries, 9 industrialized countries and 18 developing countries.

While analyzing scientific works dedicated to features of IT functioning, we have not found a definition for the notion «economic mechanism of inflation targeting». Therefore we will try to give our own definition of this term.

The economic mechanism of inflation targeting is a system of elements which creates favourable conditions for ensuring efficient functioning of the IT regime. In our opinion, there are the following five subsystems in the structure of the economic mechanism: 1) functional support; 2) legal support; 3) informational support; 4) modeling and forecasting; 5) accountability.

Let us consider in detail the functional subsystem of IT.

The functional subsystem, in our opinion, includes the following elements: authority which sets the inflation target, target measuring element, target range, target horizon, key monetary instrument, authority which makes decisions on issues of monetary policy.

Authority, which determines the inflation target. In 9 out of 18 developing countries, the inflation target is set jointly by the government and central bank; in 8 – by the central bank (in Chile, Czech Republic by the central bank after approval of the government); in South Africa – by the government (Table 1). During the process of inflation targeting, the government and central bank can be responsible only for that part of inflation which is caused by the factors controlled by them.

Table 1.

Economic mechanism of IT in developing countries

SUBSYSTEM OF FUNCTIONAL SUPPORT						
Country	Authority which sets the inflation target	Target measure	Type of the target value (as of 2014)	Target horizon	Key instrument of monetary policy (as of September 2014)	Authority which makes decisions on the monetary policy, frequency of meetings
Czech Republic	CB (after approval of the Government)	CPI	PT+ T (2%+/- 1)	Medium term; 12-18 months	Two-week repo rate (0,05%)	Council of the CB, 8 times a year
Poland	CB	CPI	PT+ T (2,5%+/- 1)	Medium term	Repo rate (2,5 %)	Council of the CB, monthly
Brazil	CB and Government	CPI	PT+ T (4,5%+/- 2)	1 year	Overnight interest rate (11 %)	Monetary Policy Committee, 8 times a year
Chile	CB (after approval of the Government)	CPI	PT+ T (3%+/- 1)	2 years	Overnight interest rate (3,25 %)	Council of the CB, monthly
Colombia	CB	CPI	PT+ T (3% +/- 1)	Medium term	Repo rate (4,5 %)	Council of the CB, monthly
South Africa	Government	CPI	R (3%-6%)	Undefined horizon	Repo rate (5,75 %)	Monetary Policy Committee, 6 times a year
Thailand	CB and Government	CPI	R (0,5%- 3%)	8 quarters	One-day repo rate (2%)	Monetary Policy Committee, 8 times a year
Mexico	CB	CPI	PT+ T (3%+/- 1)	Medium term	Overnight interest rate (3 %)	Council of the CB, 8 times a year
Hungary	CB	CPI	PT (3%)	Medium term	Interest rate on two-week central bank bond (2,1%)	Council of the CB, monthly
Peru	CB	CPI	PT+ T (2%+/- 1)	Undefined horizon	Overnight interest rate (3,5%)	Council of the CB, monthly
Philippines	CB and Government	CPI	PT+ T (4%+/- 1)	Medium term	Overnight interest rate (4 %)	Council of the CB, 8 times a year
Guatemala	CB	CPI	PT+ T (4%+/- 1)	1 year	Leading rate on overnight interbank deposits (4,5 %)	Council of the CB, weekly. Interest decisions are made eight times a year
Indonesia	CB and Government	CPI	PT+ T (4,5+/-1)	Medium term	Overnight interest rate (7,5%)	Council of the CB, monthly
Romania	CB and Government	CPI	PT+ T (2,5%+/- 1)	Medium term	One-week repo rate (3,25%)	Council of the CB, 8 times a year
Turkey	CB and Government	CPI	PT+ T (5%+/-1)	3 years	One-week repo rate (8,25%)	Monetary policy committee, monthly
Serbia	CB and Government	CPI	PT+ T (4%+/-1,5)	Medium term	Two-week repo rate (8,5 %)	Council of the CB, 8 times a year
Ghana	CB and Government	CPI	PT+ T (13% +/- 2)	18-24 months	Prime rate (19 %)	Monetary Policy Committee, 6 times a year
Armenia	CB and Government	CPI	PT+ T (4%+/-1,5)	12 months	One-week repo rate (6,75 %)	Council of the CB, monthly

Note: «R» - range; «PT» - point-like target; «PT+ T» - point with tolerance band.

In our opinion, the best option is when the target of the monetary policy is set by the central bank. In the event of any unforeseen circumstances, the target may be changed after consulting between the government

and central bank, provided that the information about the change and its reasons gets publicly disclosed. At the same time, the central bank keeps full instrumental independence, and the government publicly shares with it the responsibility for the planned inflation.

Target measuring element. An important question that should be clarified for implementation of IT is selection of an inflation index. The most widespread targeting object in the world is the consumer price index. The advantage of the CPI as a target reference is its clarity for the public, since it most clearly shows changes of the cost of living; it is understood well by the public, published freely and calculated regularly. Some countries target core inflation (CI) index, which is calculated on the basis of the CPI by removing from the consumer basket certain components which are sensitive to supply shocks and are of non-monetary nature (e.g. fuel, food, interest payments for mortgage loans). In some countries (Ghana, Hungary, Romania and Turkey) forecasts of core inflation additionally published. Core inflation is less changeable and more sensitive to the interest rate policy. It is fully controlled by the central bank, since it is formed under the influence of monetary factors, and therefore its achievement is more likely. However, CI excludes food prices as the most changeable component. In some developing countries, they can be more than 40% of the consumer basket, and ignoring them would decrease the level of trust in monetary authorities. All the 18 analyzed countries use the CPI as an object of targeting.

We share the opinion of those Ukrainian scientists (Grycenko, Krychevska and Petryk, 2008, 44-45), who believe that CPI should be chosen as the target, since it is clearer to the public, and core inflation should be calculated for estimating the influence of monetary factors on the inflation.

Target range. Another question which should be settled for implementation of IT is determining the degree of flexibility of the inflation target. The inflation target value may be a pinpoint one or may have a certain fluctuation range. In our opinion, the advantage of the pinpoint target is a clear signal from the CB to economic subjects, as well as clarity whether this target has been achieved or not. The population may perceive the target range as inability of the central bank to ensure accurate control over the inflation.

As it is shown in Table 1, most central banks have chosen such form of the target index as the pinpoint target with acceptable fluctuation margins. Selection of the range depends on the degree of inflation control. The central bank should decide between a narrow range, which is difficult to maintain, and a wide range, which can be perceived by market participants as weakness of the central bank. Selection of the range should ensure a compromise between formation of trust in the central bank's policy and preserving certain flexibility of the regulator's actions.

We agree with the opinion of western economists that the best is to set fluctuation margins of the price target as 1% (Epstein and Yeldan, 2007). It ensures certain flexibility of counteracting against unexpected short-term factors. However, at the stage of disinflation, when there are significant difficulties controlling inflation, it is advisable to set a bit wider range of deviations than it is recommended for countries which target a low and stable inflation. Experience of countries shows that later it is easier to narrow the range than to widen it.

For instance, developed countries set the inflation target as 1% to 3%. A higher level of inflation may undermine the public's trust.

In some developing countries, the inflation target remains within these limits too: Peru and the Czech Republic: 2%, Poland: 2,5%, Chile, Hungary and Mexico: 3%. Only in Ghana, the inflation target is 9,5% (Table 1).

In 15 countries, the target is set in the form of a pinpoint target with acceptable fluctuation margins. 1 central bank (Hungary) applies a pinpoint target, 2 central banks (South Africa, Thailand) apply a target interval (Table 1).

Target horizon. An important element of the inflation targeting mechanism is determining the period of time during which it is planned to achieve the goal set. To certain extent, selection of a target horizon depends on the inflation rate which exists at the moment of assuming the target.

The optimal targeting horizon depends also on whether the IT is used as a disinflation strategy or as a strategy for keeping inflation rates at an optimal level. Some countries, which fulfill inflation targeting in two stages, at the beginning, for the period of disinflation, set goals annually. After a desired level of inflation has been reached, they set goals with a medium-term perspective (Czech Republic, Poland) (Semenova, 2008).

The optimal IT horizon varies from country to country and in different periods it depends on a number of factors. One of the most important of them is efficiency of the transmission mechanism of the monetary

policy. Therefore, the IT target horizon should be not lower than the lag of effect of the money stock on the inflation. With a longer transmission mechanism, the central bank is not able to influence the inflation in the nearest period of time. In countries where disinflation strategy is applied, the inflation goals are usually set annually.

For example, in Ukraine this lag is 4-18 months, which allows setting inflation targets for both short-term and medium-term periods.

Key instrument of the monetary policy. The central banks which apply inflation targeting choose a short-term interest rate as an operational target of the monetary policy.

In developed countries applying IT, the central bank's operational target is the overnight interest rate. Under conditions of underdeveloped financial market, as the operational target of the monetary policy, the interest rate for a term longer than one day is used. This can be a three-month rate on the interbank market (Hungary), efficient monthly rate (SELIC in Brazil) or two-week repo rate (Czech Republic) (Table 1). For example, in Guatemala, the central bank uses a few various-term rates simultaneously and their weighted average as the operational target.

With development of the money market, the urgency of the operational target decreases and tends to the overnight interval. In particular, the National Bank of Romania used monthly interbank interest rate as the operational target till August 2007. In May 2008, it shifted to weekly interbank interest rate. Similarly, Bank Indonesia in its open market transactions was first basing on the average monthly rate, but after certain conditions arose in the money market in June 2008, it shifted to overnight rate. In Thailand, the central bank, while implementing a reform of operational instruments of the monetary policy during 2007-2008, shifted from targeting two-week repo rate to overnight rate.

In developing countries, including in Ukraine, it is possible to influence rates of the capital market and therefore volumes of consumption and investments only through regulation of rates under obligations of longer terms.

Authority which makes decisions on issues of the monetary policy. In 13 countries, decisions in the monetary field are made by the Council of the Central Bank, and in the other 5 countries – by the Monetary Policy Committee (MPC). This Committee develops policy in the area of foreign exchange transactions and money stock control. Its major task is to determine the level of the interest rate required to follow the inflation target. All members of both the Council and the Committee are experts in economics and monetary policy and they do not represent certain interests or sectors of economic influence. Each of them is independent and has one vote to determine the optimal, in his/her opinion, level of the interest rate which will be most favourable for following the inflation target.

Meetings on the issues of interest policy are held on the average 8-12 times a year. In Ghana, South Africa – 6 times a year (Table 1). On average, the MPC consists of 7 experts, which does not depend anyhow on the economy size. In Poland, this Committee consists of the largest number of members – 10 experts. In some countries, their number is 5 persons.

There are no strict rules regulating the composition of the Council, Board or MPC. Some committees consist of officials, experts of the central bank and external experts.

Accountability subsystem. Transparency and strategy of efficient communication are of crucial importance for formation of the population's expectations about inflation. Since the early 1990s, all central banks have become more transparent, as openness has replaced mystique as a guide to monetary policy, but inflation targeters are the most transparent (Geraats, 2009). Dincer and Eichengreenand in their scientific research of 2007 proved that the most transparent are the Reserve Bank of New Zealand, the Swedish Riksbank, the Bank of England, the Czech National Bank, Bank of Canada, European Central Bank. Openness and transparency help improve efficiency of the monetary policy, influence the market through a mechanism of expectations and reduce the gap between the moment of applying monetary instruments and response of prices. The majority of central banks report about their monetary policy and in the event of any changes of economic conditions, they explain to the public the reasons of their strategic decision.

Inflation targeting involves certain forms of accountability to the parliament: open letters and parliament hearings. The open letter is a letter prepared by the director of the central bank for the government in case the inflation differs from the target. Usually the central bank is obliged to explain why the inflation target has not been observed, what measures are being taken in order to return the inflation to the target and an approximate term when it will be achieved. At the same time, the open letter is considered as part of the communication

and accountability process, rather than condemnation of the central bank's actions. According to our analysis, 5 central banks (Brazil, Thailand, Philippines, Turkey, Serbia) are obliged to submit open letters pursuant to the accountability mechanism (Appendix A).

Another important mechanism of accountability is parliamentary hearings, during which the director of the central bank reports about the monetary policy. Parliamentary hearings are exercised as a form of accountability only in half of the developing countries. It should be noted that parliamentary hearings and open letters are basic forms of accountability.

The subsystem of informational support of the countries which apply IT is characterized by: transparent process and mechanism of making monetary decisions; active holding of press conferences dedicated to results of the monetary meetings; institute of personal liability of the monetary authorities' members for their decisions; active communication between representatives of the monetary authorities between the hearings held.

Communication strategies of central banks are somewhat similar. Most central banks publish information on basic principles and objectives of their monetary policy, as well as results of analysis of the economic situation, including forecasts of growth and inflation. Besides, most central banks explain reasons of their decisions made.

The key means of communication is a report about the inflation. All the 18 central banks, which apply IT, publish such report (Appendix A). The inflation report contains the following information: Analysis of inflation factors during the reporting period; forecasts of inflation and other key macroeconomic variables; explanation of the current situation in the monetary field; assessment of the previous analysis, forecasts and decisions.

Central banks make great efforts to improve their public relations by various means: web sites; short speeches, presentations for the public; conferences dedicated to issues of the monetary policy, etc.

Legal support subsystem. In all countries, the priority of the goal of price stability is protected by law (Appendix A). We have analyzed the main laws and regulations which define the major goal and basics of activity of central banks in countries which have already implemented IT. Our study allows making a conclusion about compliance of the Law of Ukraine «On the National Bank of Ukraine» with requirements of the legal support for IT. In particular, this law forms proper basis for a central bank's independence in carrying out its monetary policy and defines its main goal – to achieve and support price stability in the country.

Thus, we can make a conclusion about gradual approach of the Ukrainian legislation to the legal standards of implementing an inflation targeting regime.

Subsystem of modeling and forecasting. For efficient implementation of inflation targeting, the central bank should have technical instruments of economy modeling and inflation forecasting. The majority of central banks apply small econometric models, which is the main working instrument for medium-term forecasting.

Economic models help the central bank solve various problems. For instance, to estimate influence of new circumstances on the national economy (growth of international prices of raw materials or emergence of new energy saving technologies), to predict consequences of economic policy measures (reduction of the tax burden or the interest rate of the central bank) without approbation – real encounter of economy with shocks.

The models are intended, first of all, to study the current situation, secondly, to forecast and, thirdly, to develop decisions. This need of the regulator can be defined as an internal one. The external need in economic and mathematical models is connected with transparency of the central bank's activity. Public disclosure of the initial data and models allows explaining to economic agents reasons of certain decisions made by monetary authorities.

Most central banks, which apply IT, use the following set of models: statistical and consolidated forecasts, structural dynamic stochastic general equilibrium (DSGE) models, basic models, models with outrunning expectations, vector autoregression models, regression models of one equation model and dynamic optimization models, autoregressive integrated moving average (ARIMA) models, etc.

Consolidated tabular forecasts are usually used for monthly forecasting of the CPI for short terms (6 months). Small econometric models, such as vector autoregression models (VARs) use macroeconomic data for forecasting future changes and are usually used to receive forecasts for 6-9 months. Use of these models is of low efficiency, if rapid changes occur in the economy. In this case, future periods cannot base on the previous ones.

Central banks apply several types of models simultaneously. For example, a model with significant details can provide an accurate short-term forecast of inflation, and a simpler aggregate model is more useful in analysis of a long-term relation between instruments and goals of the monetary policy, such as economic growth and inflation. In addition to analysis of alternative options of the monetary policy, the models are used for analysis of inflation expectations.

Usually all central banks of developing countries publish inflation forecasts quarterly. Central banks of Ghana, Hungary, Poland, Romania and Thailand also publish forecasts of core inflation; and in Romania, forecasts of the output gap are published. The central bank of the Czech Republic publishes forecasts of the official interest rate (Appendix A).

Discussion

By summing up the above, we can make a conclusion that there is no single approach to determining the inflation target in developing countries. In Poland and Hungary, central banks set the inflation target without receiving formal approval from the executive authorities. In Chile and the Czech Republic, the central bank announces the inflation target only after consulting with the government. In Ghana, Indonesia and Serbia, the monetary policy is deeply subordinate to the government which announces inflation targets after approval of the central bank. In developing countries, government plays an important role in announcement of the inflation target. It is explained by the fact that, as well as the exchange rate targeting, IT requires close coordination between the monetary and fiscal policies. Among all the developing countries, the prevailing form of the target is the pinpoint target with a possible range of inflation values. Furthermore, at the stage of inflation decline, a simple corridor without advantages within the range limits serves as such target. At the stage of restraining low inflation, the target is a symmetrical range with central value. Most often, the target horizon equals one year. This period is so short due to the high degree of uncertainty, risks and potential shocks which occur in developing countries. As an object of inflation targeting, CPI is used. As the operational target of the monetary policy, the interest rate for a term longer than one day is used.

The results of our study allow making a conclusion that the inflation targeting object should be such a level of inflation which is easily regulated and forecast by the state and is well understood by the public, which is the CPI. In Ukraine, the term of influence of changes of the money stock on inflation is 4-18 months. Therefore, a rational targeting horizon should be a medium term.

In order to shift to the classical form of inflation targeting, the National Bank of Ukraine should participate in creation of institutional conditions, promote growth of the financial market liquidity, improve management of the banking sector, develop the system of analysis of the monetary policy, macroeconomic modeling and forecasting, increase efficiency of the interest rate policy, implement a set of measures in order to transform its interest rate into the main instrument of monetary policy which influences inflation expectations of economic agents and creates conditions for functioning of the national economy.

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