

## Price Level Dynamics Differentiation as a Problem of Definition of Price Stability in the Euro Area

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### Abstract

*The price stability is the widespread goal of monetary policy. But it doesn't mean that it is definitely good for society and economy. In the fact there are also negative consequences, especially for the monetary union like EMU. Their importance depends on correctness of definition of price stability for the practical purposes. The main aim of this article is presentation of the definition of ECB definition of price stability and their threats for member's countries. First of all four phenomenons are pointed out: threats of deflation, downward rigidities of nominal wages, and zero bound of nominal interest rates and inflationary/deflationary differentials in the euro area. To realize this aim, procedure of definition of price stability is proposed in the first part of article. It allows understanding essence of price stability in the transparent way. In the second part potential threats of price stability are indicated. In the third and last part definition and their threats of euro area price stability are presented. Especially the importance of inflation differentials is emphasized.*

**Key Words:** deflation, euro area, monetary policy, monetary union, price stability.

### 1. Introduction

The European Central Bank conducts a strategy, the primary aim of which is price stability. Its specific feature is that this aim encompasses all member states of the monetary union, and the entire strategy (including the scope of its instruments) is uniform for these countries. Such a situation requires a clear definition of the ECB price stability both in terms of its target value and other features such as: the time horizon, manner of measuring and others. It may seem that since price stability is an aim of the monetary policy, it should be explicitly beneficial for the society and the economy.

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In reality, besides the benefits of price stability, which are predominant, there also occur its negative consequences. The strength of their influence depends on how well price stability has been defined for practical purposes. Specific dangers of conducting the monetary policy which aims at price stability concern the monetary union, an example of which is the euro area, and result from the differences in the price dynamics of the member states. The main aim of this article is to present a definition of the ECB price stability and to indicate its possible threats for the economies of the euro area member states, with a particular focus on the general price level dynamics. In order to fulfil this aim, the author has applied a proposal of the procedure of defining price stability. The proposal makes it possible to understand clearly the essence of price stability in economic practice.

The article consists of three main parts. Part one presents the conception of price stability with a proposal of the procedure of defining price stability taking the form of a decision tree. The economic decision-maker, taking into consideration particular branches of the tree, makes a choice between possible forms of the definition. Part two indicates possible threats resulting from price stability in the background of the above-mentioned procedure. Finally, part three provides a definition of price stability used by the ECB and the its dangers for the monetary union member states, with a particular focus on the differences in price dynamics which occur between the member states, and which are of crucial importance in the context of a uniform monetary policy in the euro area.

## **2. The conception of price stability**

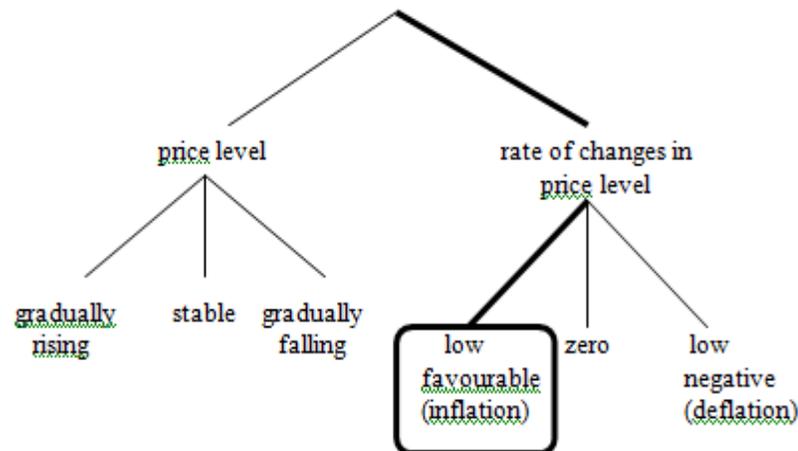
It may seem that the notion of price stability is synonymous with zero inflation. It should in fact be the result of the monetary policy and have an explicit beneficial influence on the economy. These assumptions are, however, very controversial. It may be interesting at this point to take a closer look at how price stability is defined in economic practice as one of the aims of the monetary policy.

A general definition of price stability was presented by A. Greenspan, who used the following statement in 1989 before the House of Representatives committee: "Price stability is reached when inflation is not a consideration in household and business decisions" (McDonough 1997). Although it is hard to disagree with such a definition, its accuracy leaves much to be desired. First of all, its literal interpretation may indicate that price stability includes both a certain, rather small inflation rate, which does not affect the behaviour of economic entities, and zero inflation or even deflation.

Although all of these possibilities (i.e. a certain inflation and deflation rate and zero inflation) are accounted for in the subject literature (Issing 2000), an exact definition of price stability should specify the direction of price changes. For practical purposes, it is also crucial to indicate a concrete, desired value (it may also be a range) of changes in the price level. Secondly, the definition makes it clear that price stability should be considered as a rate of price level changes. In reality, one should also consider the possibility of specifying price stability in the form of a price level.

Bearing in mind the two above remarks, we may suggest a procedure of defining stability presented in figure 1 in the form of a decision tree. The first branch depicts an alternative between price stability in the form of a price level and in the form of a rate of changes in the price level. The second branch of the tree shows the direction of price changes. While trying to define price stability, an economic decision-maker should take into account a range of arguments which affect the choice of an adequate branch of the tree. However, it will not be presented at this point. The tree will be resolved in a simplified manner. The type of the definition of price stability will be indicated on the basis of an analysis of the inflation goals realised by central banks in a number of countries around the world. Such an approach will make it possible to reach an answer to the question of how economic practice understands price stability. These goals constitute, under certain conditions, a reflection of price stability.

### The manner of measuring price dynamics



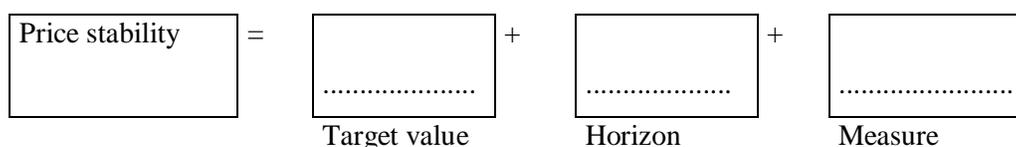
**Figure 1. The procedure of defining price stability – decision tree**

Source: self-prepared by the author.

At present, the only aim form applied is the rate of changes in the price level (the first branch). What is probably the only case of applying the price level as an objective of monetary policy were the experiments of the Bank of Sweden conducted in the 1930s, based on a strategy of *price level targeting* (Berg and Jonung 1999). Furthermore, the predominant value of inflation is the favourable rate (the second branch). Zero inflation is used definitely less frequently. It usually takes place in the case of an aim in the form of a range. The negative rate as an objective of monetary policy is not used at all. It may be thus concluded that price stability in economic practice is equivalent to a low inflation rate. The proper element of the decision tree and the path leading to it have been emphasised in figure 1 with a bold line. It is difficult, however, to specify unambiguously a suitable rate of inflation which would be optimal for the economy and would define the notion of price stability. The experiences of a number of countries indicate that the most frequently applied values range between 2 – 3% and are expressed in the CPI index or (less frequently) in base inflation (Schmidt–Habbel and Tapia 2002).

In order to analyse and compare various cases of applying price stability we may use the following, simplified scheme, reflecting the basic components of price stability (figure 2).

**Figure 2: Key components of price stability**



**Source:** self-prepared by the author.

The above components of price stability have been determined on the basis of an analysis of the definitions of price stability in a number of countries. They constitute common and most important elements of these definitions. By completing the gaps in the scheme, we determine the notion of price stability for practical purposes. This process shall be conducted with considerable care and it shall be supported with adequate research. The result of the research must be an indication of the best definition of price stability for given conditions. The realisation of this definition shall be beneficial for the society and the economy.

### **3. Dangers for price stability definitions**

In order to analyse a potential influence of price stability on the economy, we should take into consideration both the economic practice and its negative consequences. The former are commonly known, and thus will be omitted in this work. It seems much more justified to focus above all on possible dangers for price stability. The author will present the potential threats in this section, and a definition of the ECB price stability and its threats in the next section of the work. In order to do this, the scheme presented in figure 2 will be used. While considering the potential threats the author will refer to other elements of price stability. The main reservations with reference to price stability concern its first component – a target value of inflation. It may seem that, since inflation is a negative phenomenon for the economy, the main objective of the economic policy should be the complete elimination of inflation. Such explicit reasoning was applied above all in a situation when inflation was at a high level. When the inflation rate fell in many countries around the world to very low values, its negative effects began to be noticed.

Reducing inflation requires taking proper actions by economic decision-makers, and entails in particular monetary restriction which causes certain costs for the economy. Research indicates that these costs are mostly short-term. The assumption that the costs of reducing inflation to the values approximating zero are solely short-term has been questioned in recent years (Akerlof, Dickens and Perry 1996; Wyplosz 2000). The main arguments for this are the phenomena of downward nominal wage rigidity (Groschen and Schweitzer 1997; Loboguerrero and Panizza 2006), lower level of nominal interest rates (Wojtyna 2001) and deflation threats (Kumar et al. 2003).

They all serve as an argument against setting the inflation target at the zero level. A certain favourable rate of changes in the general price level is said to ensure, first of all, better wage-price adjustments on the labour market (downward nominal wage rigidity); secondly, a possibility of influencing the economy by the central bank with short-term interest rates and using negative real interest rates in unusual circumstances (lower level of nominal interest rates); thirdly, a security barrier against the possibility of deflation which is an unknown area for economic decision-makers (deflation threats). With reference to monetary unions, what is also indicated as an argument for a favourable direction of changes in the general price level are the inflation/deflation differences between the member states. This argument will be presented in the following section with reference to the currency union. The second component of price stability is the time horizon. It stems from the fact that price stability is dynamic in its character.

It does not consist in attaining the assumed inflation, but rather in maintaining and stabilising it at a proper level (in the form of a point value or more frequently in the form of a target range), and thus it is vital to specify the horizon in which it should take place. One shall answer a question here whether the target rate of inflation should be attained in a short, medium or long term. Each option has both its benefits and drawbacks. The subject literature and economic practice show that the least desired horizon is the short term one, indicating among all that stabilising inflation in a short term may harm the real sphere of the economy, e.g. it could lead to destabilising the GDP and employment.

Another argument are long external delays of the monetary policy, understood as the time between applying an instrument and its assumed effect – most frequently concerning the influence on inflation. These delays result in a short-term inability of the monetary authorities to control precisely the objective for which they are responsible. Thus, more favourable horizons are the medium and long-term horizons. Decision-makers do not have to react overly rapidly to the appearing conditions, and they are able to decide whether the occurred inflation pressure is temporary or permanent in its character and can take adequate actions. These actions are said to ensure the realisation of the objective in the long-term horizon, allowing short-term deviations of the inflation rate from the assumed value.

The notion of price stability should further be completed by specifying a measure in which it will be expressed. There are a number of measures of inflation, yet only a few of them are suitable for serving the role of an aim of the monetary policy. Most frequently these are CPI and – currently less frequently – the core inflation. Among the threats which refer to the above indices the most frequent ones are the inaccuracies in measuring inflation. Research corroborates that it is possible to overestimate the real rate of inflation. The amount of overestimation may differ in various countries, with up to 2 basis points.<sup>2</sup> In the case of realising the monetary policy under the conditions of high inflation, the inaccuracies in measuring inflation are rather insignificant.

On the other hand, under the conditions of low inflation corresponding with the deflation in price stability, the overestimation may constitute a crucial part of the aim. The realisation of an overly low aim may lead to the materialisation of the threats concerning the values of the inflation target which are mentioned at the beginning of this section. The author notices here a connection between two elements of price stability: the value of a target and its measure. Mistakes in measuring may serve as an argument for a higher value of the inflation target.

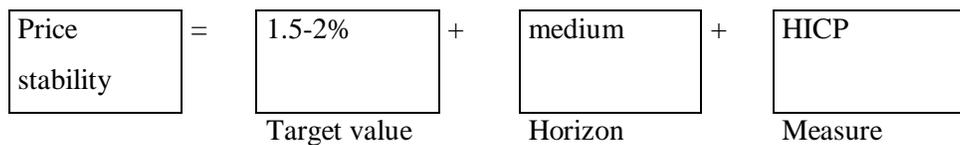
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<sup>2</sup> Such a value is consistent with the estimates of J.B. Taylor for the economy of the United States in mid-1990s. (Friedman, Solow and Taylor 2002).

#### 4. Controversies and challenges concerning price stability in the euro area

The monetary policy in the euro area is conducted at the supranational level. It is uniform for all member states. An institution which is responsible for its fulfilment is the European Central Bank. Aside of the strategy realised by the ECB, it is worth mentioning at this point that its supreme objective is price stability. It has been defined as inflation lower than, yet close to 2%<sup>3</sup>. It is not clear, however, what this “closeness” to 2% actually amounts to, and to what extent the inflation below 2% is acceptable. Assuming an arbitrary value of 1.5 – 2%, the entire definition of the ECB price stability may be illustrated on the basis of the following figure:

**Figure 3: Key components of the ECB price stability**



**Source: self-prepared by the author on the basis of the ECB website.**

Similarly to point 3, we may consider the dangers of particular elements of such a definition. Much as the last two elements do not bring any reservations (bearing in mind, however, the possibility of overestimating the inflation rate by HICP), the target value of inflation is quite controversial. At present, central banks define price stability in the categories of a favourable rate of changes in the price level, maintaining the safety barrier against possible threats of overly low inflation, zero inflation or deflation, mentioned in section 2.

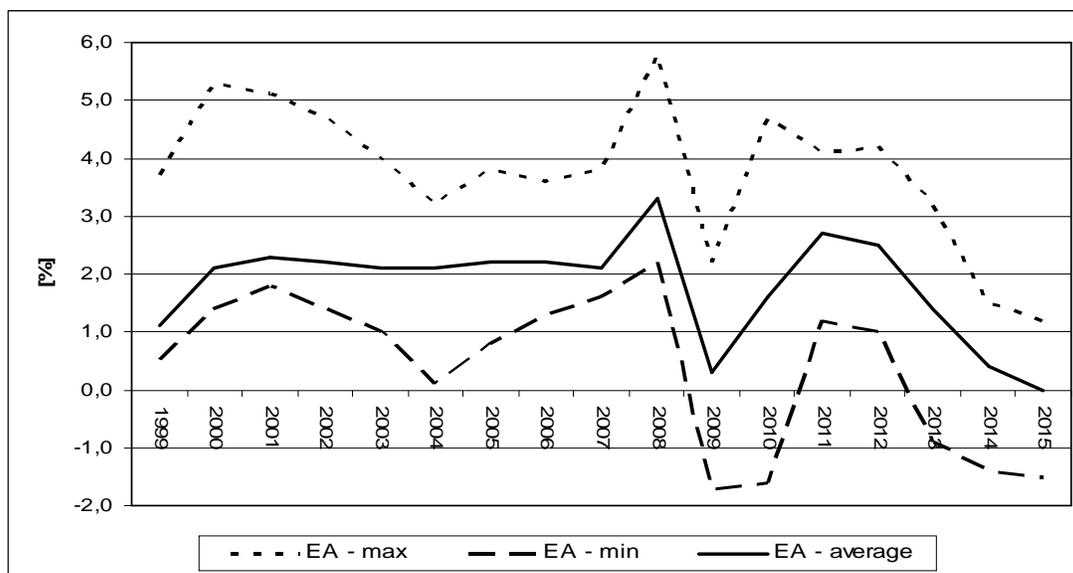
In this context, the realisation of the monetary policy under the conditions of a lower value of the range of the ECB target inflation may constitute a threat for the currency union member states. These threats seem to be noticed by the ECB’s decision-makers. In their completion of the definition of price stability, they indicate that inflation should rather be maintained close to the upper border of the aim. This leads us to posing a question of replacing – under such circumstances – the aim in the form of a range with a point aim, e.g. with the value of 2% or a little higher.

<sup>3</sup> Earlier this definition did not include the phrase “close to 2%”, which may have shown that the aim of the ECB may have been inflation close to zero or even inflation including the zero value. Due to its wide criticism, this definition has been completed with the above-mentioned phrase.

However, even the value of 2% may arise certain reservations. In the case of a monetary union, the example of which is the euro area, an additional argument for a favourable rate of changes in the price level is given. It is the difference in the dynamics of a general price level of the member states. This problem stems from the fact that – although the instruments of the monetary policy and the assumed inflation target are uniform for all members – the assumed result in the form of inflation rates differs in various countries. We face regional diversity in the price dynamics rates. It may be corroborated by the data included in tables 4 and 5, presenting basic statistics concerning the dispersion of the inflation rate in the EU countries and the euro area in the years 1999-2015.

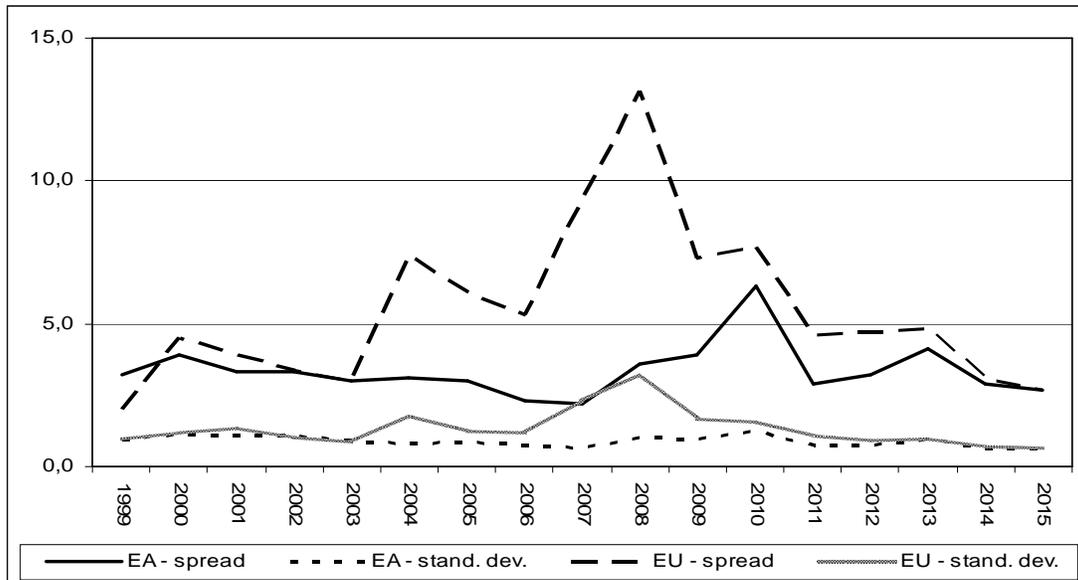
The data presented in figures 4 and 5 indicate that the differentiation in the general price level in the euro area measured both with a spread and standard deviation, is considerable and it is difficult to find its reduction in the period under analysis. The spread oscillates between 2.2 – 6.3, and taking into consideration low values of inflation rates in the euro area member states and the inflation target itself, these differences seem relatively high. Besides, what shall be highlighted is the fact that the diversity for the entire EU is much higher than that of the euro area. The spread fluctuates in this case within 2 – 13.1.

**Figure 4: Minimum, maximum and average dynamics of the general price level in the euro area member states in the years 1999-2015**



**Source:** self-prepared by the author on the basis of the Eurostat data.

**Figure 5: The spread and standard deviation in the general price level dynamics in the euro area and the European Union member states in the years 1999-2015**



**Source:** self-prepared by the author on the basis of the Eurostat data

Regional differences in the dynamics of the general price level lead to a situation when, given an overly low inflation target of the ECB, some economies might experience deflation. There may occur the incompatibility of the instruments used by the ECB with the price dynamics in particular countries. In fact, the ECB takes into account primarily the average price dynamics while taking decisions concerning the interest rates. For the countries with relatively high inflation, these instruments may turn out to be expansive, causing an even greater inflation pressure. On the other hand, for countries with low inflation (or deflation), they may be overly restrictive, leading to an undesired decline in the economic activity and in inflation (or leading to deflation threats). In order to reduce the possibility of the occurrence of deflation, it has been suggested to assume a favourable inflation rate as a union aim. Its value should be such so as to constitute a sufficient, anti-deflation safety barrier for the euro area member states.

It seems worth to consider the reasons for the phenomenon presented in this work. They stem above all from the asymmetry of shocks touching particular countries and the diversity of the mechanisms of their transition. What has also been emphasised recently is the significance of the Harrod-Balassa-Samuelson (H-B-S) effect. It concerns mainly the countries which are characterised by a relatively rapid pace of an increase in the productivity of tradable goods.

This increase leads indirectly to real currency appreciation, which may be absorbed either by nominal appreciation or by a faster increase in domestic prices. Following the H-B-S model, it may be concluded that a rapid growth in productivity in the sector of tradable goods leads to an increase in wages in this sector. In fact, the price for these goods is exogenic and it is shaped on a global market. Since there is perfect mobility of capital between the sectors of tradable and non-tradable goods, the wages in the latter sector will also increase. However, the pace of the growth in productivity is slower. The increase in wages will translate into an increase in prices in the non-tradable goods sector, and consequently it will lead to an increase in the general price level (Chmielewski 2003).

In the end, the countries with a rapid pace of an increase in productivity (mainly small, open economies of the emerging countries) will be potentially characterised by higher inflation compared to the countries with a slower pace (yet not a lower level) of an increase in productivity (primarily the well-developed countries). Inflation which results from the H-B-S effect may be described as good. It may be said that it results from a reduction in the distance between the well and less-developed economies. It is thus inadvisable to take actions in order to reduce this kind of inflation. It should be included in the inflation aim of particular states, and consequently in the definition of the ECB price stability.

## **5. Summary**

The issue of regional differences in the dynamics of the general price level in the euro area is crucial due to the fact that the ECB's inflation target is low in practice. According to some authors (Wyplosz 2000), this value is too low and it does not include sufficiently the analysed diversity in the Union, as well as other arguments for favourable inflation. It may also turn out to be harmful to economic activity in the euro area. Such a statement gains in importance in the context of accession to the euro area of new member states, which joined the European Union in 2004 or later. In brief, these countries are characterised by a relatively fast pace of an increase in productivity, and consequently a potentially strong pressure on an increase in prices resulting from the H-B-S effect. Expanding the European monetary union may cause a growth in regional differences in price dynamics between its member states.

One of the main concerns about accessing the euro area is the loss of independence in the sphere of the monetary policy. It is this fact that affects the balance of costs and benefits of being a member of the European currency union both in the short and long time horizons.

After the accession, the member states are forced to adopt the ECB's strategy based on uniformity encompassing all member states, instead of their autonomic and domestic monetary policy. A fundamental question arises here concerning the present and future benefits for the extended euro area, and especially for its individual domestic economies. To answer this question we should, first of all, get to know the essence of the strategy realised by the ECB and its consequences for the member states, and secondly – what the influence of realising the superior objective of the common monetary policy – price stability – might be. Apart from the unquestionable benefits, there are also some threats that need to be taken into consideration. In order to increase the attractiveness of the membership in the European currency union, the definition of price stability should be specified in the best possible manner, so as to avoid or reduce potential threats. Moreover, the value of the inflation target should be determined at an optimal level, bearing in mind not only the euro area as a whole, but also including the benefits of its individual member states. For the time being, keeping in mind the arguments and empirical data presented in this work, it seems to be too low. In this context, it is necessary to conduct further research, possible directions of which have been outlined in this work, paying particular attention to the differences in the general price level dynamics among the members of the euro area.

## References

- [1] Akerlof G.A., Dickens W.T., Perry G.L. (1996), *The Macroeconomics of Low Inflation*, *Brookings Papers on Economic Activity*, vol. 1.
- [2] Berg C., Jonung L. (1999), *Pioneering Price Level Targeting: the Swedish Experience 1931-1937*, in: *Journal of Economics*, special issue, *Monetary Policy Rules*, Conference organized by Sveriges Riksbank and the institute for International Economic Studies, Stockholm University, vol. 43, no. 3, June.
- [3] Chmielewski T. (2003), *Od kursu płynnego do unii monetarnej. Znaczenie efektu Balassy-Samuelsona dla polskiej polityki pieniężnej*, NBP, „Materiały i Studia” nr 163, Warszawa.
- [4] Friedman B.L. (ed.), Solow R.M., Taylor J.B. (2002), *Inflacja, Bezrobocie a Polityka Monetarna*, CeDeWu, Warszawa.
- [5] Groshen E.L., Schweitzer M.E. (1997), *Identifying Inflation's Grease and Sand Effects in the Labor Market*, Federal Reserve Bank of Cleveland, Working Paper, May 1997.
- [6] Issing O. (2000), *Why price stability?*, in: *Why price stability?*, First ECB Central Banking Conference, November, Frankfurt, Germany.
- [7] Kumar M.S., Baig T., Decressin J., Faulkner-MacDonagh C., Feyzioglu T. (2003), *Deflation. Determinants, Risks, and Policy Options*, International Monetary Fund, Occasional Paper no.221.

- [8] Loboguerrero A.M., Panizza U. (2006), Inflation and labor market flexibility: The squeaky wheel gets the grease, Inter-American Development Bank, Working Paper, no. 69, February.
- [9] McDonough W. (1997), A framework for the pursuit of price stability, *Economic Policy Review*, Federal Bank of New York, August, vol. 3, no. 3.
- [10] Wojtyna A. (2001), Skuteczność polityki pieniężnej w warunkach niskiej inflacji: problem zerowej granicy nominalnych stóp procentowych, *Bank i Kredyt*, NBP, July.
- [11] Wyplosz C. (2000), Do We Know How Low Should Inflation Be?, in: Why price stability?, First ECB Central Banking Conference, Frankfurt, Germany, November.