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Inflation Targeting in Serbia

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Abstract: Serbia introduced inflation targeting regime in August 2006. After nine years of its application, conclusions may be drawn on the (un)successfulness of the regime. Inflation targets have not been achieved during seven of nine observed years. Key difficulties in the application of the regime refer to insufficient efficiency of monetary policy instruments, insufficient confidence in the domestic currency (widely spread informal euroisation), and indexing of prices according to the exchange rate.

The paper consists of four sections. The first section analyses theoretical assumptions of the inflation targeting regime. The second part describes the characteristics of the regime in Serbia. The third section analyses results, while the fourth section analyses the reasons for insufficient efficiency of the regime and gives actual suggestions for improving the existing regime.

Key words: Serbia, monetary policy, inflation targeting.

JEL Classification: E31, E42

1. Theoretical basis of inflation targeting

Today, with a wide economic consensus that the primary objective of monetary policy is achieving price stability, selection of an optimum monetary regime is one of the most important issues burdening central banks and economists worldwide. Nowadays, the most important monetary regimes are: discretionary monetary policy, inflation targeting, monetary targeting, exchange rate targeting, and dollarization. Pursuing monetary strategy is a very long and complex process which affects different economy segments, thus increasing monetary policy creators' accountability. Diversity of monetary regimes in countries in the region

may be best depicted in the table below. Although being very similar, it can be seen that countries in the region apply rather different monetary regimes.

Table 1:	Monetary	regimes in	the region
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Country	Monetary regime
Serbia	Inflation targeting
Montenegro	Dollarization (euroisation)
Bosnia and Herzegovina	Currency Board (exchange rate targeting)
Croatia	Discretionary monetary policy
FYR Macedonia	Exchange rate targeting

Inflation targeting is a relatively new monetary policy regime that emerged in early 20th century and has been widely accepted worldwide. B. Bernanke defined the inflation targeting concept as a monetary policy framework whose characteristics include public announcement of the numeric target (or zone) for one or more time periods, and an explicit statement that a low, stable inflation rate represents the main monetary policy objective. (Bernanke, Laubach, Mishkin & Posen, 1999)

Stone believes that there are four prerequisites necessary to implement inflation targeting. The first one refers to reducing inflation as an objective of a central bank, simultaneously making it one of the responsibilities of a central bank. The second prerequisite relates to avoiding a situation where inflation downsizing is subordinate to some other objective, while the third one concerns a well-developed and stable financial system. The last prerequisite implies the utilization of monetary policy instruments aimed at reducing, i.e. sustaining the inflation rate. (Stone 2003)

After the exchange rate crisis or inflatory episodes, many countries accepted this concept. Since early 1990s, many countries have accepted inflation targeting as their monetary policy regime. It was first done by New Zealand (1990), followed by the United Kingdom (1992), Sweden and Finland (1993), while Austria and Spain did it one year later.

Defining the inflation target itself does not present the inflation targeting regime, i.e. years may pass from announcing the inflation target to accepting the inflation targeting concept. Inflation targeting involves several key elements (Mishkin, 2006):

• public announcement of medium-term numerical targets for inflation;

- an institutional commitment to price stability as the primary, long-run goal of monetary policy and a commitment to achieve the inflation goal;
- an information inclusive strategy in which many variables and not just monetary aggregates are used in making decisions about monetary policy;
- increased transparency of the monetary policy strategy through communication with the public and the markets about the plans and objectives of monetary policymakers; and
- increased accountability of the central bank for attaining its inflation objectives.

Primacy in the inflation targeting regime is given to price stability, which becomes the primary and solely allowed central bank's objective. All other macroeconomic variables are used only for the purpose of achieving nominal inflation target.

In this regime, the central bank forecasts the future path of inflation and compares it with the target inflation rate (the rate the government believes is appropriate for the economy). The difference between the forecast and the target determines how much monetary policy has to be adjusted (Jahan, 2015).

At first glance, a dilemma may arise whether this may be a monetary regime at all, and how can an intermediary objective be something that is the ultimate objective. Still, this is a monetary regime, since it includes structural approach in order to achieve the objective. The primary difference between this regime and the regime with full monetary policy discretion is reflected through the procedure for the monetary policy objective selection, the initiative for achieving the objective, and a high degree of monetary policy transparency (Fabris, 2007). This approach is a type of compromise between rules and discretion. Rules are visible in defining the numeric value of the inflation target and a high degree of transparency required for the application of the regime. Discretion is reflected in the freedom of determining the value of inflation and in the selection of instruments to achieve inflation targets. An important characteristic of the regime is middlerun approach. Mishkin (2006, p. 501) characterised this regime as a "rule, but with a lot of flexibility."

The next and, according to some authors, probably the key characteristic of the regime is a high degree of transparency in communication with general public. Transparency is reflected through announcing the current inflation to the public, primarily followed by other macroeconomic indicators, future estimates of inflation trends and indicators affecting the inflation, and future steps by the central bank. The advantage of the regime is that the public easily understands and more

often monitors price levels than it was using the monetary targeting which required monitoring and understanding monetary aggregates. The key document in communicating with the public is the inflation report (Mishkin 2006a). In addition to the analysis of the deviation of current inflation from the planned one, this report contains the explanation of inflation measurement, explains the manner of determining the inflation target, the manner of target reaching in current economic circumstances, and the inflation trend forecast for the upcoming period.

Inflation targeting is based on managing short-term interest rates. Countries that adopted inflation targeting try to pursue their primary objective of maintaining price stability using the reference interest rate as the main monetary policy instrument. In the targeting regime, reserve requirements policy and lending and deposit facilities are considered auxiliary instruments with no dominant role in pursuing monetary policy towards price stability, but this does not mean that they are not used.

Inflation targeting evolved from monetary targeting by adopting its most successful elements: an institutional commitment to price stability as the primary long-run goal of monetary policy and to achieving the inflation rate goal; increased transparency through communication with the public about the objectives of monetary policy and the plans for policy actions to achieve these objectives; and increased accountability for the central bank to achieve its inflation objectives. Inflation targeting, however, differs from monetary targeting in two key dimensions: rather than announce a monetary aggregates target, this strategy publicly announces a medium-term numerical target for inflation; and it makes use of an information-inclusive strategy, with a reduced role for intermediate targets such as money growth. (Mishkin, 2006a)

Inflation targeting has superseded monetary targeting owing to several advantages. First, inflation targeting does not rely on a stable money-inflation relationship and thus large velocity shocks, which distort this relationship, are largely irrelevant to monetary policy performance. Second, an inflation target is readily understood by the public because changes in prices are of immediate and direct concern, while monetary aggregates are farther removed from peoples' direct experience. Inflation targets are therefore better at increasing transparency of monetary policy because these make the central bank's objectives clearer. This does not mean that monetary targets could not serve as a useful communication device and increase accountability to control inflation as they did in Germany and Switzerland, but once the relationship between monetary aggregates and inflation breaks down, as it has repeatedly (and especially in Switzerland), mon-

etary targets lose a substantial degree of transparency because the central bank now has to provide complicated discussions of why it is appropriate to deviate from the monetary target. Third, inflation targets increase central bank accountability because its performance can now be measured against a clearly defined target. Monetary targets work less well in this regard because of the unstable money-inflation relationship that makes it harder to impose accountability on the central bank because the central bank will necessarily miss its monetary targets frequently – the Bundesbank missed its target ranges over half of the time and it was the most successful practitioner of this policy regime. Inflation targeting has much better odds of successful execution. (Mishkin, 2006a)

Today, there are many debates on the success of the regime, its positive and adverse effects and problem it carries, but facts show that there is a growing trend in the number of countries that apply the inflation targeting regime. Inflation targeting supporters point out that the main advantage of such monetary policy regime compared to other regimes is in orientation towards domestic economy and achieving and maintaining price stability. Inflation targeting tends to neutralise all impacts on price stability, i.e. to prevent the appearance of high inflation. Unlike monetary aggregates targeting, this regime does not base future inflation only on the size of monetary aggregates, but on all available information and signals that come from the economy. All countries that have introduced this regime increased the central bank's credibility. This was mostly due to high degree in transparency and enormous efforts on communicating with the public. Increased accountability was the result of quantitative defining of target to be achieved by central bank. Central bank's independence in selecting the instrument for monetary policy pursuing and non-interference of the government strongly increased the central bank's accountability for the achieved results. Econometric studies find that, in countries that have adopted inflation targeting, inflation rates have fallen, spreads between nominal and real interest rates have fallen, other measures of expectations of inflation have fallen, and macroeconomic growth numbers have remained unchanged or even improved. (Gramlich, 2005). On the other hand, inflation targeting critics pointed out that the USA experienced completely identical developments although they had not used the inflation targeting policy.

Table 2: Success of implementing inflation targeting in selected countries

COUNTRY	YEAR OF APPLICATION	FIRST TARGET	INFLATION		
			Before introducing	After 1 st year	After 2 nd year
New Zealand	1989	3% - 5%	7%	4.5%	0.8%
Canada	1991	1% - 3%	6.9%	1.7%	2.3%
UK	1992	1% -4%	3.6%	1.4%	2.4%
Sweden	1993	1% - 3%	1.8%	1.7%	2.5%
Czech Republic	1997	5.5% - 6.5%	10%	3.5%	3.4%
Poland	1998	< 9.5%	10.4%	8.8%	9.9%
Hungary	2003	7%	10.8%	4.9%	4.3%

Source: Website of the European Central Bank, www.ecb.int

Critics of this regime argue that even though it is based on rules, inflation targeting actually represents a pure discretion and too great a discretion may lead to large inflation rate fluctuations. They also stress that regardless of insisting on transparency, this regime remains insufficiently transparent since its essence represents a model-estimated inflation rate serving as the basis for manipulating monetary policy variables. An estimated inflation rate is often conditional, associated with movements of interest rates, exchange rates, and the like. The public often do not understand how the model has been created and how it functions, so it can be considered as being a non-transparent approach. Its weakness is also that this regime mainly rests on the forecasted inflation rate, and forecasting techniques are still insufficiently reliable. Also, the basis of this model is a free exchange rate fluctuation that could have negative effects on some economies in transition and developing countries that are less competitive, with poor credibility of economic policy creators, and insufficiently developed financial markets (Fabris, 2006).

2. Introduction of inflation targeting in Serbia

In the Memorandum on the Principles of New Monetary Policy Framework (hereinafter: the Memorandum) as of September 2006, the National Bank of Serbia (NBS) presented to the public its new measures and adopted new monetary policy implementation principles aimed at achieving objectives in terms of inflation. The new monetary framework has been applied since September 2006 and

is very similar to the inflation targeting regime.¹ According to the NBS statement, the reasons for the transition towards the new regime are the consequence of the expected structural changes, higher degree of opening towards the EU and a high degree of euroisation, which contribute to the extremely rapid transmission of inflationary shocks. The NBS assessed that in such circumstance, the fixed exchange rate regime or targeting monetary aggregates cannot ensure a stable and low inflation rate.

One of the introduced changes was the change of the exchange rate regime. In the Memorandum, the NBS expressed its firm commitment to implementing the flexible exchange rate regime. The main reason for the introduction of a floating exchange rate was the expectation that fluctuations in the nominal exchange rate will increase the flexibility and reduce the effects of possible shocks.

The new monetary framework has been adopted as a part of a programme that aims to:

- Create an environment with a low and stable inflation rate, compliant with the criteria stipulated in the EU accession process,
- Encourage the use of, and confidence in, the national currency,
- Increase flexibility and adaptability to temporary domestic and external shocks, as well as changes in the environment that are expected during the process of Serbia's accession to the EU.

In the new monetary policy framework, the exchange rate should no longer represent an instrument but rather an indicator of monetary policy transmission. Accordingly, there is a plan for a gradual decrease of the regular presence of the NBS in the foreign exchange market. After the transition period, the plan is to accept a floating exchange rate, the establishment of which will affect basic economic trends, inflation trends, and short-term supply and demand trends and market trend signals. Upon completion of the transition period, the NBS should play a secondary role at the foreign exchange market. The NBS agreed to establish a new system of rare foreign exchange interventions which will be conducted by the market participants in order to:

1. Limit daily volatility by depreciation i.e. disabling excessive daily oscillations but not the cumulative pressures over a longer period of time,

¹ The NBS has pointed out that this is a transitional regime to complete the transition to inflation targeting. Although the difference between the current regime and the inflation targeting regime has not been formally explained, the only difference that can be noted is that the forming of the exchange rate is not completely left to a free market.

- 2. Limit threats to financial stability and price stability that cannot be achieved only by changing the reference interest rate, and
- 3. Maintain an adequate level of foreign exchange reserves.

During the introduction of a new framework in Serbia, it was decided that the NBS was to publish the inflation target independently and start consultations with the Government at a later stage. This means that the NBS retained independence both over goals and instruments.

Core inflation was selected to be the price index that will be the subject of targeting. The following products were excluded from the calculation of core inflation: fresh vegetables, fruits, eggs, fish, bread, milk, tobacco, electricity, coal, heating oil, medicines, oil derivatives, utility services, TV subscription, social protection services, transportation, and postal services. This means that prices of the state-controlled services and prices under the effect of seasonal factors or developments at the international markets have been excluded. This choice of index is proper at the beginning of the application because it excludes the prices of those products that cannot be affected by the monetary policy, thereby reducing the risk of failing to realize targets. Due to significant discrepancies between core inflation and the inflation rate, the consumer price index has been used since 2009.

By acting transparently and responsibly to the public, the NBS has committed itself to communicating with the public as follows:

- By posting press releases from the Monetary Board sessions on the same day they were held;
- By the Governor's press conferences in order to explain the reasons why
 the Monetary Board made certain decisions and to answer any potential
 questions of the public;
- By publishing quarterly inflation reports, as is the most important means
 of informing the public about developments in the economy that determines the decisions of the Monetary Board and activities of the Central
 Bank.

In this regime, the NBS tried to achieve the targeted inflation rate through corrections of interest rates applied on two-week repo operations. Other monetary policy instruments, like issuing of long-term securities or reserve requirement, have a supporting role in realizing the targeted inflation rate. Their goal is to contribute to smooth transmission of the main reference interest rate.

Also, bearing in mind that the real inflation targeting regime introduces sanctions for failing to reach the inflation target, the NBS has assumed the Bank of

England's model since 2010, that is, in the case of the deviation of inflation from the established target for more than six consecutive months, the NBS will inform the Government in writing on the reasons for the deviation, the measures to be taken, and the time required to return inflation to the targeted range.

3. Results of inflation targeting in Serbia

The following table shows the results of inflation targeting in the period 2006 - 2014. As the table below shows, the inflation target was realized only in two of nine observed years. Target was exceeded in four years while it was not reached in three years.

Year	Targeted inflation (in %)	Realized inflation (in %)
2006	7-9	5.9
2007	4-8	5.4
2008	3-6	10.1
2009	6-10	6.6
2010	4-8	10.3
2011	3-6	7
2012	2.5-5.5	12.2
2013	2.5-5.5	2.2
2014	2.5-5.5	1.7

Table 3: Inflation targets and their realization in Serbia

During the first two years of the regime implementation, core inflation was successfully brought down and kept at a relatively low level. After high core inflation at end-2005, a substantial slowdown occurred during the next year and at end-2006 core inflation was below the lower threshold of the targeted range. Substantial nominal appreciation of the dinar particularly expressed in the second half of the latter year represented the main cause of the slowdown.

At end-2007, the target was reached and inflation was within the targeted range. However, the target for 2008 was not realized and core inflation was significantly above the upper threshold of the target range at the end of that year. The series of external shocks (global oil tripled from early 2007 to June 2008, while the prices of the most important agricultural products were more than doubled during the

 $^{^{2}}$ It should be noted that the target inflation rate below the lower threshold is considered a failure.

same period) led to a substantial increase in inflationary expectations and were one of the main causes of inflation acceleration. In mid-2008, it was already quite certain that despite the extremely restrictive NBS policy, the target set for that year would not be achieved. The NBS increased its reference interest rate five times until October (from 10% to 15.75%). Then, in late October, in response to the new substantial depreciation pressures, followed by inflationary pressures, the reference interest rate was further increased by 200 base points. In 2008, the value of the dinar exchange rate recorded a substantial decline. High inflationary expectations were additionally spurred against the backdrop of the international liquidity crisis - unstable trends at the foreign exchange market, increased risk premiums, and drastic reduction of capital inflows, which neutralized disinflationary effects by decreasing aggregate demand. In addition to external factors, inflation in 2008 was also affected by internal factors - primarily political uncertainty, especially expressed in the first half of the year followed by depreciation pressures, as well as more expansive nature of the fiscal policy than originally expected. Thus, at end-2008, core inflation was 10.1% and was substantially above the upper threshold of the target range set for that year (3%-6%). However, one should bear in mind that 2008 was unsuccessful also for the other central banks that have introduced inflation targeting regime.

Given that 2009 was a typical recession year, inflation rates worldwide trended downward. This trend was also present in Serbia, thus the target inflation rate was realized and was slightly above the lower threshold.

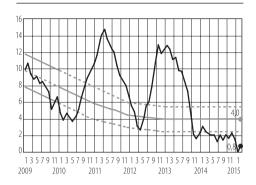
Problems reappeared in 2010 although the inflation rate remained within the targeted range during the first half of the year. Sudden depreciation of the dinar had to reflect on inflation, and it would have been even higher if it had not been for low aggregate demand and low purchasing power had not been present due to the crisis impact. In the first seven months of 2010, the consumer price index stood at 4.5%, while the inflation rate for was $6\% \pm 2$ percentage points. However, in the second half of the year, as a result of the rapid loss of the value of dinar, there was a rapid rise in inflation and the inflation target increased above the upper threshold.

Although 2011 was characterized by the strengthening of the dinar, the inflation target exceeded the upper threshold, as a result of belated price adjustments. However, it should be noted that there was a decline in inflation during that year in relation to the year before. Nevertheless, inflation picked up in the following year and the inflation target was exceeded. This was the highest inflation rate recorded in the entire observed period.

As a result of numerous recession pressures and declining prices of food and energy generating products in 2013 and 2014, the inflation targets were below the lower threshold. These were the years when inflation was very low or negative in the neighbouring countries and the EU.

The figure 1 shows realization of the inflation rate by month for the last six years.

Figure 1: Inflationary targets and their realization in Serbia by months



Source: NBS (2015) Targeted and realized inflation, http://www.nbs.rs/internet/latinica/30/30_9/kretanje_inflacije.html

4. Difficulties in the inflation targeting regime and potential modifications

At the beginning of its application in 2006 and 2007, inflation targeting yielded impressive results. However, it should be considered that positive results of the monetary policy over these two years were not exclusively due to the new monetary regime but also to favourable external developments. To wit, inflow of foreign capital was especially high during that period and dinar continually appreciated. Therefore, claims made by the critics of this regime that any monetary regime would give impressive results under such conditions seemed justified.

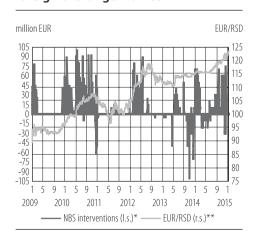
Absence of monetary policy instruments' efficiency represents a major issue in the application of the regime. The core instrument through which inflation targeting is carried out, is the reference interest rate on two-week repo operations. This instrument, however, applies only to dinar transactions, but in the environment of widespread informal euroisation and underdeveloped money and capital markets, the reference interest rate is not "strong" enough to influence the overturn of inflation expectations. In her research, J. Dimitrijević (2007) came to a conclusion that, the reference interest rate had no major influence on the lending increase in the one-year period. Increase in political instability at the end of 2007 and early 2008 induced changes in the exchange rate level, and the same occurred under the influence of the global financial crisis at the end of 2009 and over 2010. Against this backdrop, the NBS proved unable to overturn inflation expectations

regardless of the increase in the reference interest rate and was forced to intervene in the foreign exchange market.

High credibility of monetary policy makers represents a rather important prerequisite for a successful application of this regime, since this regime is largely based on the belief that the targeted inflation rate will be achieved. Although the monetary policy credibility increased over the years, it can still be rated as unsatisfactory, because the memory of economic entities still holds numerous hyperinflation episodes from late 1980s and early 1990s, as well as the issue of frozen foreign currency deposits. Thus, at the slightest signs of instability, financial markets react by "escaping" from the national currency, i.e. by increasing demand for foreign currency, causing sudden surges in the exchange rate level which then need to be "flattened" by interventions in the foreign exchange market. Consequently, due to extremely high instability of the dinar exchange rate, the NBS was often forced to intervene in the foreign exchange market. The insufficient credibility is supported by the fact that euro is the main currency of household savings. In addition, one of the former NBS governors, Radovan Jelašić (2008), singled out the lack of credibility of monetary policy as a limitation in the application of inflation targeting regime.

It may seem that this regime functioned well only in a sound environment, and that on the appearance of any instability or uncertainty, intervention in the foreign exchange market was required to stabilise the system, which is against the core principles of inflation targeting.

Figure 2: NBS interventions in the foreign exchange market



Source: NBS (2015) Inflation Report, February.

Theoretical premises of this concept exclude the possibility that the central bank may have any other goal rather than targeted inflation rate. This means that, in this regime, the exchange rate cannot be used as a nominal anchor. To wit, determination of the exchange rate target and inflation target may represent two conflicted objectives, in which case it becomes necessary to prioritise the objectives. This means that this regime pursues the policy of flexible exchange rate, which is formed freely under the influence of demand and supply.

Nevertheless, this regime does not exclude occasional interventions in the foreign exchange market, them being primarily resorted to mitigating the consequences of occasional shocks. However, interventions are presumed to be occasional in cases of major shocks, but their continuous presence and an active role of the central bank in the foreign exchange market are not purported. However, they were rather frequent over certain periods in the case of Serbia, as Figure 2 shows.

Bearing in mind the situation in Serbia where the majority of prices are already mid-term adjusted to the exchange rate trending, frequent interventions in the foreign exchange market, as well as the major part of granted loans (to the household sector), considering the introduction of another nominal anchor in the form of exchange rate is justified. In their research, Josifidis et al. (2009) showed that the exchange rate pass-through is significant.

The examples of Chile and Israel can seem interesting since they used the floating exchange regime until the moment of introduction inflation targeting due to the high significance of exchange rate for the stability. Both countries intervened in the foreign exchange market in order to keep the exchange rates within the range. The ranges were widened over time, therefore, they did not hamper monetary policy in pursuing inflation targeting, and they were subsequently abolished in Israel. At one point, Hungary also pursued the policy of two targets – inflation and the exchange rate. However, in order to pursue such policy, the inflation and exchange rate targets need to complementary and not conflicting (Dimitrijević, 2007). Today, the example of such policy can be found in the Czech Republic.

Numerous empirical studies have shown that majority of countries under the inflation targeting arrangement pursue exchange rate policy in spite of that being against the theoretical framework of inflation targeting regime, which presupposes a completely flexible exchange rate policy. Thus, for example, Mohanty and Klau (2005) have shown that of thirteen countries applying the inflation targeting, the exchange rate ratio represented a significant variable in eleven countries. Edwards (2006, p. 2) stated: "At the policy level, very few inflation-targeting central banks openly recognize using the exchange rate as a separate term in their policy rules (that is, Taylor rules). Existing empirical evidence suggests, however, that almost every central bank takes exchange rate behaviour into account when undertaking monetary policy". This clearly suggests that the practice has gone way pass the theory and that the exchange rate policy can be used along with inflation targeting.

Fixed exchange rate regime would not be suitable for Serbia. In an environment of a high current account deficit, a high budget deficit, as well as Serbia's higher

inflation rate than that in the EMU, the price of sustaining such a regime would be a significant loss of foreign exchange holdings. In addition, none of the previous attempts to fix the foreign exchange rate yielded desired results.

Fluctuating foreign exchange rate would also not benefit Serbia because given its small market, numerous speculative stocks, low credibility of the dinar and the like, fluctuations of the exchange rate of dinar would be too high. Also, because of the memories of monetary shocks in the 1990s, the formation of foreign exchange rate is still under the influence of psychological factors, which in a floating exchange rate can induce sudden "surges" in the foreign exchange rate.

Therefore, Serbia's best option would be the floating foreign exchange rate regime, with ranges adjusted on the annual level. Under this regime, the NBS determines the range within which the dinar exchange rate can fluctuate, and resorts to interventions to prevent the rate to exceed the predetermined range. This regime would take into account the fact that that dinar needs to gradually depreciate, however this deprecation would not be turbulent but controlled and guided. Also, this would prevent excessive loss of foreign exchange holdings and introduce an element of predictability, also influencing inflation expectations. Within the range, dinar would fluctuate freely, and be formed on the basis of demand and supply ratios. This regime could thus make the best of both fixed and fluctuating exchange rates. Nevertheless, complementarity between the inflation target and foreign exchange rate target are of key importance.

5. Closing remarks

Serbia introduced the inflation targeting regime in August 2006. Although the regime initially yielded good results, it turned out that they were more a result of favourable external situation. Inflation target was not achieved in seven out of nine observed years. Therefore, it is clear that the regime needs to be modified.

Key difficulties in the application of this regime refer to the lack of efficiency of monetary policy instruments in the widespread informal euroisation environment. Also, one of the assumptions of this regime is a high level of credibility. However, due to issues connected to the episodes of hyperinflation in the 1990s, frozen foreign currency deposits, and frequent foreign exchange fluctuations, the national currency (dinar) has very low level of credibility. In addition, all the nominal values (wages, prices, etc.) are adjusted to the foreign exchange rate trends in the medium term.

Therefore, this paper suggests the modification of the existing regime by introducing another nominal anchor. This nominal anchor would be in the form of a foreign exchange rate determined complementary to the inflation rate. Although such suggestion contradicts the theoretical premises of the inflation targeting regime (the premise of free fluctuation of the foreign exchange rate), these regimes are actually used in practice and the practice has gone way beyond the theory.

Bibliography

- 1. Bernanke, B., Laubach, T., Mishkin, F., i Posen, A. (1999). *Inflation Targeting Lessons from the International Experience*. Princeton: Princeton University Press.
- 2. Dimitrijević, B. i Fabris, N. (2007). *Ekonomska politika*. Beograd: Ekonomski fakultet.
- 3. Dimitrijević, J. (2007). Monetarna politika kanali transmisije na cene: godinu dana ciljanja inflacije. *Kvartalni monitor*, br. 10, FREN.
- 4. Edwards, S. (2006) *The Relationship Between Exchange Rates and Inflation Targeting Revisited*. University of California at Los Angeles
- 5. Fabris, N. (2007). *Centralno bankarstvo u teoriji i praksi*, Podgorica: Centralna banka Crne Gore.
- 6. Gramlich, E. (2005). The Politics of Inflation Targeting. Speach at Euromoney Inflation Conference, Paris.
- 7. Evropska Centralna Banka (2015, March 2). Retrived from: www.ecb.int.
- 8. Jahan, S. (2015, March 1). Inflation Targeting: Holding the Line. Retrieved from http://www.imf.org/external/pubs/ft/fandd/basics/target.htm
- 9. Jelašić, R. (2008). Challenges in the intoroductory phase of inflation targeting. Retrieved from https://www.cnb.cz/miranda2/export/sites/www.cnb.cz/cs/verejnost/pro_media/konference_projevy/konference/download/cnb10y_it_20080408_Jelasic.pdf
- 10. Josifidis, K., Allegret, J. and Beker, E. (2009). Monetary and exchange rate regimes changes: the cases of Poland, Czech Republic, Slovakia and Republic of Serbia. *Panoeconomicus*, 65 (2), 199 226.
- 11. Mishkin F. S. (2006a). Monetary policy strategy: How did we got here?. *Panoeconomicus*, 53 (4), 359-388.
- 12. Mishkin, F. S. (2006). *Monetarna ekonomija, bankarstvo i finansijska tržišta*. Beograd: Data Status.
- 13. Mohanty M., Klau, M. (2005). "Monetary policy rules in emerging market economies: issues and evidence". In *Monetary policy and macroeconomics stabilization in Latin America*, eds. Rolf Langahmmer and Lucio Vinhas L, 205 245. Heidelberg: Springer Verlag.
- 14. Narodna banka Srbije. (2015). *Izveštaj o inflaciji, februar*. Beograd: Narodna banka Srbije.
- Narodna Banka Srbije. (2015, March 21) Ciljana i ostvarena inflacija.
 Retrieved from http://www.nbs.rs/internet/latinica/30/30_9/kretanje_inflacije.html
- 16. Stone, M. (2003.), "Inflation Targeting Lite". In *Challenges to Central Banking from Globalized Financial System*, eds Piero Ugolini, Andrea Schaechter and Mark R. Stone, 111-132. Washington: IMF.