# EFFECTS OF THE APPLICATION OF TARGETING THE EXCHANGE RATE POLICY IN MACEDONIA

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***Abstract***

*The monetary system and monetary – credit policy in the Republic of Macedonia were built after the country gained independence from the previous federal community, when Macedonia faced problems such as: termination of many plants, increase in unemployment, increase in budget and foreign trade deficit as well as high inflation rate. The macroeconomic stability narrowly understood as reducing the inflation rate, was the first measure of the economic policy, undertaken along with the monetary independence of Macedonia.*

*In a small and open economy, the exchange rate policy has particular importance in the control of the inflation rate and beyond: in the real economic trends. The strategy of targeting the denar exchange rate was accepted and applied with the expectation that it would act in that direction, hence the monetary policy was focused on maintaining fixed exchange rate against the euro. The determination of the country to join the European Union and to become a member of other international financial organizations is yet another reason for choosing this strategy.*

***Keywords:*** *macroeconomic stabilization, inflation rate, exchange rate of the denar, foreign exchange market, economic growth.*

***Clasificare JEL:*** *EOO, E4, E5, E24 E31, F41.*

## 1. Introduction

For successful functioning of the market system in the Republic of Macedonia after the independence, it was necessary to decrease the high level of inflation. It was the main purpose of the macroeconomic policy, since in 1992 the inflation reached hyperinflation size – 1925 % per year. It was particularly important to establish strict financial discipline in the economy, applying restrictive monetary and fiscal measures, by limiting the personal consumption, wage policy and exchange rate policy of the denar. After the successful handing to the inflation, the macroeconomic policy of the country enforced the economic stabilization through monetary, fiscal and foreign exchange policy. In the intention to associate within the European Union and the euro area, since 1995, the monetary policy has been changed in the sense of applying monetary strategy of targeting the denar exchange rate. Although according to foreign exchange law, the denar exchange rate policy was defined as flexible, the denar exchange rate was treated as fixed by this change and served as nominal anchor to the internal stability which was supposed to be provided by monetary policy. Already in June 1998 convertible status rate of the denar was declared. At present the monetary policy is based on fixed denar exchange rate. In the meanwhile, the objectives of price stability were achieved successfully as important targets of the macroeconomic policy, but other target achievements were missed: GDP growth, employment growth, rising standard, balancing of foreign relations, etc.

The arguments to justify the sustainability of maintaining the fixed exchange rate of the denar are increasing by delaying the time for its implementation. After a few years of persistent implementation of the fixed exchange rate policy, a structure of production and consumption is set, determined by the level of exchange rate that generates deficits in foreign trade and balance of payments. Apart of that interest groups are formed, which have benefits from the exchange rate stability, and whose material – financial position would be worsened by the fluctuation. The more the correction of the exchange rate is delayed, the more negative effects are accumulated. The damage probably would be insignificant if the rate duly reflected the price levels domestically and abroad, applying tight monetary and fiscal policy, thereby the pressure of exchange rate depreciation would be reduced [1].

Particularly important in assessing the effectiveness of monetary policy is achieving its ultimate goal, i.e. achieving price stability. The inflation rate in the Republic of Macedonia, by the end of the first quarter in 1994, was significantly decreased and was held on low and stable level during the whole period. Compared to other countries with similar exchange rate, Macedonia recorded the highest inflation rate stability, is within the interval of +/- 2.5% with the probability of 88.9%. Achievement of stable inflation rate in a longer period is particularly important condition for stabilizing the inflation rate expectations of the economic subjects [2].

The analysis of the success of the denar exchange rate policy in terms of real variables, shows mixed but generally positive results. On the one hand, since the first year of applying the targeting of the exchange rate, reversal in the movement of production was observed i.e. after few years of recessionary trends, growth in real the GDP is achieved. But, on the other hand, this strategy could not give positive results in unemployment rates and external imbalances – two big problems that still plague the Macedonian economy.

Table No. 1. Basic macroeconomic indicators, 1993-2002 [3]

| Year | Production[1] | Unemployment | Current account [4] |
|---|---|---|---|
| 1993 | -7,5 | 27,7 | 0,8 |
| 1994 | -1,8 | 30,0 | -4,7 |
| 1995 | -1,1 | 35,6 | -4,9 |
| 1996 | 1,2 | 36,9 | -6,3 |
| 1997 | 1,4 | 36,0 | -7,2 |
| 1998 | 3,4 | 34,5 | -8,7 |
| 1999 | 4,3 | 32,4 | -3,0 |
| 2000 | 4,5 | 32,2 | -3,1 |
| 2001 | -4,5 | 30,5 | -8,6 |
| 2002 | 0,7 | 31,9 | -8,7 |
| 2003 | 2,8 | 36,7 | -4,1 |
| 2004 | 4,6 | 37,2 | -8,1 |
| 2005 | 4,4 | 37,3 | -2,5 |
| 2006 | 5,0 | 36 | -0,4 |
| 2007 | 6,1 | 34,9 | -7,1 |
| 2008 | 5,0 | 33,8 | -12,8 |
| 2009 | -0,9 | 32,2 | -6,8 |
| 2010 | 2,9 | 32 | -2,0 |
| 2011 | 2,8 | 31,4 | -3,0 |
| 2012 | -0,3 | 31 | -3,9 |

## 2. Positive effect – stabilization of the price and exchange rate levels

From macroeconomic point of view, the inflation is in the focus of central banks in the application of monetary policy, i.e. the inflation is an indicator for price stability. Today there is a general consensus for the need to maintain low and stable inflation rate, as a condition for sustainable economic growth and creating employment. Achieved consensus comes from already confirmed costs of the high inflation rate that generates uncertain environment which causes distortions in the consumption and investment decisions, creates high transaction costs, income redistribution from creditors to debtors, and erosion of fixed income recipients. Although there isn’t precise definition for price stability, usually it’s defined as low, positive and stable inflation rate. From the beginning of the nineties, many central banks not just declared price stability as a final goal, but defined a specific quantity target for inflation. The negative implications of high inflation rate and the need of its permanent following, created a need for its precise measuring in order to make the right monetary decisions [5].

Targeting the exchange rate strategy has proved highly effective in reducing the inflation rate and maintaining its low one-digit level. Hence, at the end of the first year of implementation of this strategy, the inflation rate was reduced to 0.6%. In the next years, the inflation rate was maintained at low level, and from that point of view Macedonia belongs in the leading counties in transition. From price stability aspect, targeting the exchange rate with no doubts deserves positive evaluation. This strategy provided stable denar exchange rate against the German mark at the level about 27 denars for a German mark in the middle of 1997, i.e. about 31 denars for a German mark later. That stability of the denar continues after the acceptance of the euro as an anchor.

### 2.1. Exchange rate movement in the period 1993-2012

At the same time with the monetary independence, fixed exchange rate of the denar against the German mark was declared in context with the stabilization program. The exchange rate was fixed at the level of 360 denars for a German mark. Taking in consideration the modest foreign reserves, this monetary policy measure was by all means only administrative. However these conditions economic policy makers weren't able to maintain the official exchange rate, and being aware for the reality, they didn't even try to do that.

Hence, in this period, the exchange rate was let to fluctuate freely under the influence of supply and demand for foreign currency. Taking in consideration the high inflation rate and external imbalances, the foreign currency demand exceeded the supply, so the denar sharply depreciated against the German mark and other currencies. Therefore, in the period from monetary independence until the end of 1992, the denar depreciated against the German mark for 124% on the black market, i.e. 111% on the official market. The denar depreciation continues with bigger intensity in 1993, when the German mark value rose for 148% on the black market, i.e. even 236% on the official market.

In this period the Central Bank didn't even lead any active exchange rate policy, it was passively accommodating with the inflation rate and the movement of the exchange rate on the black market. In the time of the fixed exchange rate, from time to time, the denar exchanged rate was devaluated so that the official exchange rate would get close to the denar exchange rate on the black market. Hence, in October 1992 the first devaluation of the denar exchange rate was made on the level of 600 denars for a German mark. Later, in December, the denar devaluated again for 30%, when the new official exchange rate was set to 914 denars for a German mark. The last devaluation was made in May 1993 in the amount of 62% against the German mark.

From October 1995, the Macedonian Central Bank, accepted targeting of the denar exchange rate strategy on the level of 27 denars for a German mark. Accepting this strategy meant change in the exchange rate, which became monetary policy intermediate target. This strategy includes active exchange rate policy, where the Macedonian Central Bank seeks to maintain the exchange rate on the target level, intensively intervening on the foreign exchange market in case of any significant exchange rate deviation from the target.

The German mark exchange rate fluctuated within a narrow range around the level of 27 denars for a German mark. This tendency began since 1994, i.e. earlier from the formal accepting of the exchange rate targeting and lasted extremely long, until the middle of 1997. Since then the exchange rate started fluctuating around the level of 31 denars for German a mark. The same fluctuating tendency of the exchange rate remained with the acceptance of the euro as an anchor [6].

This impressive stability of the denar clearly reflects the nature of the exchange rate targeting, which was applied implicitly in the first place, but afterwards it was explicitly applied. The Central Bank intensively intervened on the foreign exchange market every time when there was pressure of appreciation or depreciation, and in that way the exchange rate remained on the target level. In that context, it should be noticed, that the success of the Central Bank is to a high level based on the support from the fiscal policy. Hence, starting from 1995, certain amount of budgetary funds was permanently allocated to special account at Central Bank, intended for the interventions on the foreign exchange market.

Table No. 2. Exchange rate movement, 1993-2012 [7]

| Year | Average exchange rate Macedonian denar/German mark | Average exchange rate Macedonian denar/EUR |
|---|---|---|
| 1993 | 14,16 | / |
| 1994 | 26,62 | / |
| 1995 | 26,54 | / |
| 1996 | 26,58 | / |
| 1997 | 28,70 | / |
| 1998 | 30,95 | / |
| 1999 | 30,99 | 60,62 |
| 2000 | 31,05 | 60,73 |
| 2001 | 31,14 | 60,91 |
| 2002 | / | 60,98 |
| 2003 | / | 61,26 |
| 2004 | / | 61,34 |
| 2005 | / | 61,30 |
| 2006 | / | 61,19 |
| 2007 | / | 61,18 |

| | | |
|---|---|---|
| 2008 | / | 61,27 |
| 2009 | / | 61,27 |
| 2010 | / | 61,51 |
| 2011 | / | 61,53 |
| 2012 | / | 61,53 |

### 2.2. Price movement in the period 1993-2012

As stated before, price stability is the main goal of the monetary policy, and the term itself indicates the price level that shows no major fluctuations than certain optimal value. The inflation rate on the price level that doesn't show bigger fluctuations is considered as optimal inflation rate.

The exchange rate policy has undoubtedly special importance for the inflation control in a small and open economy. As for the inflation, the impact of the exchange rate is expressed through two channels: first the exchange rate changes directly affect the inflation rate through the prices of tradable products, and second the exchange rate causes indirect effects on the domestic inflation rate through imported production factors, so as through the fact that many nominal variables in domestic economy implicitly or explicitly are indexed for the exchange rate. Therefore any intention of the monetary policy makers for inflation stabilization, includes the exchange rate policy in one or another way.

Table No. 3. Movement of inflation, 1993-2012[8]

| Year | Inflation rate in % |
|---|---|
| 1993 | 229,6 |
| 1994 | 55,4 |
| 1995 | 9,2 |
| 1996 | 0,2 |
| 1997 | 4,5 |
| 1998 | -1,0 |
| 1999 | 2,3 |
| 2000 | 6,1 |
| 2001 | 3,7 |
| 2002 | 1,1 |
| 2003 | 2,6 |
| 2004 | -1,9 |
| 2005 | 1,2 |
| 2006 | 2,9 |
| 2007 | 6,1 |
| 2008 | 4,1 |
| 2009 | -1,6 |
| 2010 | 3,0 |
| 2011 | 2,8 |
| 2012 | 4,7 |

Table 3 shows that after 1994, the inflation rate was reduced to a single-digit level, and that the trend is maintained over the coming years. Deviations in the inflation rate are very small. The volatility in the inflation rate will be measured with standard deviation. Taking into consideration that in 1993 and 1994 the inflation rate was very high, only the years since the monetary strategy of targeting the denar exchange rate was established, i.e. the period 1995-2012 will be reviewed.

The standard deviation is recorded with the letter $\sigma$ and is calculated with the formula:

$$\sigma_y = \sqrt{\frac{\sum (y - \bar{y})^2}{n}}$$

where $y$ is the letter of the occurrence that is under investigation, in this case the inflation rate, and $\bar{y}$ is the arithmetic mean. According to the formula, the standard deviation of the inflation rate for the period 1995-2012 is $\sigma=2,87$. This shows that the deviation from the mean is very low, that indicates that the inflation rate in each year is moving close to the average value in that period.

The reason why targeting the exchange rate strategy influences the inflation rate is the high degree of determination of the inflation rate changes from the denar exchange rate changes. The exchange rate determines the other prices in the economy. Considering that fact, the monetary-credit policy should be geared towards achieving the exchange rate stability, because indirectly it will provide price stability. That means that the monetary supply is determined by the need to maintain denar exchange rate stability, i.e. the monetary supply increase is limited by the need to maintain exchange rate stability. And if the ratio of foreign currency supply and demand, bring the exchange rate stability into question, then the exchange rate isn't changing, but adjustments are made on the growth of monetary aggregates to maintain the exchange rate stability.

## 3. Negative effect – generating low economic growth rate

Despite the already mentioned positive effect of targeting the denar exchange rate policy – maintaining price and exchange rate stability, the realization of macroeconomic goals: achieving satisfactory growth rate, employment rate and foreign relations balance still lagged.

Economic growth is defined in two ways: 1) as real GDP growth for a certain period (usually one year); and 2)real GDP per capita growth for a certain period (usually one year). Economies from year to year notice different growth rate of real GDP. In the long run, they are reduced on average growth rate. For example, the average growth rate of Macedonian economy in the period 1996-2008 is about 2%, that doesn't mean that the real GDP of Macedonian economy in that period every year increased with the rate of 2%, but that in the whole period, the average growth rate of real GDP is 2% [9].

In practice the adjustments of the monetary aggregates growth, to maintain the denar stability, often come to implementation of measures to withdraw money from circulation by increasing the compulsory reserves rate and discount rate, the issuing of treasury bills with relatively high interest rate to cumulate high level of foreign exchange reserves. This impacts negatively on the interest of taking investment actions to a large extend.

The consistent implementation of targeting the exchange rate policy, because of the high inflation rate in the country against the most significant foreign-trade partners, resulted with loss of price competitiveness abroad. And that causes distortion in the external balance.

The stabilization policy, and targeting the exchange rate as part of it, are mentioned as some of the factors that cause decreasing the economic activity in the transition countries. The reason behind that is that for the purpose of stabilization, there is restriction of many items of public expenditure that contribute to reducing the aggregate demand. In parallel with the stabilization, there is sharp decline in the real money supply and loans, thereby the companies are faced with lack of working capital to continue production. In transition countries, restrictive monetary policy can cause big costs because of the fact, that due to the slow restriction, the companies aren't sensitive of the monetary policy actions, which hurts the good companies hence the economy is the one that suffers [10].

The lack of foreign funds inflow that would strengthen production and export component of economic growth, affect the growth slowdown. Even more in the context of fixed exchange rate of the denar and pressure for its appreciation, the export-oriental economy is de-stimulated, where an import-depend is stimulated.

The economic growth can be measured in two ways: through real GDP and through real GDP per capita, as percentage rate *g:*

$$g = \frac{Y_t - Y_{t-1}}{Y_{t-1}} 100 \quad \text{or} \quad g = \frac{Y_{t\ per\ capita} - Y_{t-1\ per\ capita}}{Y_{t-1\ per\ capita}} 100$$

$Y_t$ - real GDP in current year;
$Y_{t-1}$ - real GDP from the previous year;
$Y_{t\ per\ capita}$ - real GDP per capita in current year;
$Y_{t-1\ per\ capita}$ - real GDP per capita from the previous year.

In addition an analysis will be made that will determine the dependence of economic growth from the inflation rate. For that purpose, first we will consider the economic growth rates, as rates of real GDP growth in the period 1999-2012. Then we will calculate correlation coefficient and determination coefficient between the inflation rate and economic growth rate.

Table No. 4. Real GDP growth rates [11]

| Year | Real GDP growth rates |
|---|---|
| 1999 | 4,3 |
| 2000 | 4,5 |
| 2001 | -3,1 |
| 2002 | 1,5 |
| 2003 | 2,2 |
| 2004 | 4,7 |
| 2005 | 4,7 |
| 2006 | 5,1 |
| 2007 | 6,5 |
| 2008 | 5,5 |
| 2009 | -0,4 |
| 2010 | 3,4 |
| 2011 | 2,3 |
| 2012 | -0,5 |

The correlation coefficient is recorded with the letter *R* and is calculated with the following formula:

$$R = \sqrt{1 - \frac{S_y^2}{\sigma_y^2}}$$

*S* – default error;
*Σ* – standard deviation.

In this calculation the years after the introduction of the euro will be considered, i.e. 1999-2012. The correlation coefficient between the inflation rate and economic growth rate for this period of time is *R=0,16,* or between the inflation rate and the economic growth rate there is positive correlation with each other, that means if the inflation rate increases, the economic growth increases too. Defining the optimal inflation rate that will generate economic growth is difficult to determine and depends on the general economic growth of the country. However there are certain opinions that for countries in transition that optimal rate should be 7-11% per year.

The determination coefficient is recorded with D, and is calculated by the formula:

$$D = R^2 * 100$$

The determination coefficient in this analysis is *D=2, 70%*, which denotes that only 2.70% of the total variability in the economic growth depends of the inflation, and the rest 97.3% are from other factors

## 5. Conclusions

The consistent implementation of the policy of targeting the exchange rate, led to overestimation of the exchange rate due to higher inflation rates in the country relative to the most important foreign trade partners. This led to the loss of price competitiveness abroad and deterioration of the external balance. Hence, the country fell into a vicious circle of low growth rates. During the application of this mode of the rate, its impact was not realized on the current account of the balance of payments and the competitiveness of exports, since during the application of this rigid stabilization program with firm maintaining of the fixed exchange rate, it appreciated. The appreciation of the value of the denar is the main reason for the weakening of the interest in export and emphasized substitution of domestic production with imports.

The analysis made, suggest that if the country is interested in achieving higher growth rates, it shouldn’t consistently pursue low level of inflation rate, but to let the inflation rate to reach certain values of moderate inflation, while taking care not to exceed the single-digit rate, because if it permits higher rate, it will draw negative consequences.

## 6. Bibliography


[1] **Shajnoski, A.** (2009). Convertible denar – between dream and reality. St.Kliment Ohridski – Skopje, 142;

[2] **Krstevska, A. Bojcheva-Terzijan, S. Davidovska-Stojanova, B. & Besimi, F.** (2003) The transmission effect of the exchange rate in monetary strategy of Republic of Macedonia Central Bank. Economic research 2/2003. Republic of Macedonia Central Bank – Skopje, 7;

[3] Ministry of finance: Bilten 1-3/2003; Bilten 01/2013;

[4] Republic of Macedonia Central Bank: Basic economic indicators for Republic of Macedonia;

[5]**Davidovska-Stojanova, B. Mitreska, A. Shipovik, S.** (2007). Inflation measurement and inflation from monetary policy aspect. Republic of Macedonia Central Bank – Skopje, 5;

[6**] Petreski, G**. (2005). Monetary policy: theory and experience of Macedonia. St. Kliment Ohridski – Skopje, 282;

[7] Republic of Macedonia Central Bank: Basic economic indicators for Republic of Macedonia;

[8]Ibid;

[9] **Eftimoski, D.** (2009). Economic growth:basic theoretical consepts and models. University “St.Kliment Ohridski” – Bitola, 130;

[10] **Petreski, G.** (2005). Monetary policy: theory and experience of Macedonia. St. Kliment Ohridski – Skopje, 288;

[11] www.stat.gov.mk

[12] www.nbrm.mk

[13] www.finance.gov.mk