

SOME PARTICULARITIES OF THE MONETARY TRANSMISSION CHANNELS IN ROMANIA

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Abstract

In the last decade the monetary policy from Romania was deeply changed. The inflation decreased considerably in comparison with the 1990s. From a few years National Bank of Romania adopted the inflation targeting strategy that implied a careful use of the monetary instruments. The success of the Central Bank depends greatly on understanding the monetary transmission mechanism. Using the VAR methodology, we analyze in this article the particularities of the monetary transmission mechanism in Romania.

Key words: *Monetary Policy, Transmission Mechanism, VAR Analysis, Inflation Targeting, Transition Countries.*

Introduction

In 2005, the National Bank of Romania (NBR) adopted the inflation targeting regime as an explicit anchor for conducting the monetary policy. It was proved that strategy could lead to an improvement of the monetary policy performance if it was applied properly. Among the main conditions for an adequate inflation targeting implementation it is an institutional commitment to price stability as the monetary policy primary goal, backed by a significant credibility in the central bank capacity to achieve it. In the case of Romania, some important challenges make the inflation targeting regime very difficult for the near future. First, in order to participate to ERM II and then to the euro zone, the process of reducing inflation has to be continued. Second, a major financial crisis affecting the world economy is still a significant threat. Third, the elections programmed for 2008 could put in danger the financial equilibrium.

In these circumstances it is very important that central bank capacity to intervene efficiently in order to maintain the monetary stability. This capacity is conditioned by the understanding of the mechanisms through which the monetary policy affects the economy. In Romania, the monetary transmission channels have some particularities that have to be approached for a proper inflation targeting regime.

In the last decades, the vector autoregressive (VAR) models became widely used in the analysis of the monetary transmission channels. This methodology facilitates the study of the complex interactions between the factors affecting the monetary equilibrium. Some papers approached the NBR monetary policy by VAR analysis revealing the actions of some relevant factors affecting the macroeconomic performances. However, the complexity of this subject makes useful any new attempt to assess the macroeconomic variables responses to the monetary policy changes. In this paper we try to study, using a VAR model, the particularities of the main monetary transmission channels in Romania in relation with the inflation targeting regime adopted by NBR.

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Literature Review

The transmission mechanisms of the monetary policy were approached more than a half of century ago, in the traditional Keynesian model. The key role was assigned to the interest rate channel. For example, an expansionary monetary policy is supposed to cause a fall in the real interest rates and that leads to a cost of capital decrease. This will cause a rise in the investment spending which will stimulate the aggregate demand increasing the output¹.

In the last decades, after significant changes occurred in the monetary policy perspective, other transmission mechanisms were approached: exchange rate channel, equity price channel, bank lending channels, balance-sheet channels a.s.o.

The monetary policy could affect the output through exchange rates. For example, an expansionist monetary policy leads, usually, to a depreciation of the national currency. That raises the net exports stimulating the economic growth². Another way that monetary policy could affect the output is through the equity price. In the specialized literature many such transmission mechanisms were approached. Tobin (1969), for example, proposed *q Theory* of investment and wealth effects on consumption by which an expansionist monetary policy could cause an increasing of investment spending and hence in aggregate output³. The important role of lender that banks play make them part of the monetary transmission channels. For example, an expansionist monetary policy could lead to banks deposits increase. That generates a rise in the bank loans that will stimulate the investment consumer spending, leading to an increase of the output. However, in the industrialized countries, after the decline of the traditional bank lending business from the last decades, this channel became less important⁴. The monetary policy could have an important impact on the net worth of a firm registered in the balance-sheet. Because of this situation, in the specialized literature there were approached some balance-sheet channels. For example, an expansionist monetary policy could lead to a rise in equity prices which raises the net worth of firms. This increases the investment spending, stimulating the economic growth⁵.

For the emerging markets, there were revealed significant differences in comparison with the industrialized countries, especially because of the insufficient development of the financial markets, the bigger importance of bank lending and the ambiguous autonomy of the central banks. The macroeconomic systems circumstances lead to important particularities of the monetary transmission channels. Some recent researches find out major differences not only between the emerging markets and the industrialized countries, but also between the emerging markets⁶.

It is useful that monetary transmission channels to be studied in relation with the applied monetary policy regime. In the recent years, many industrialized and transition countries implemented the inflation targeting regime. This could increase the monetary policy efficiency under the condition of a properly use of the monetary transmission channels. The adoption of inflation targeting impact was approached largely in the specialized literature. Mishkin and Schmidt-Hebbel (2006) found evidences that inflation targeting adoption in 1990s improved macroeconomic performance such as:

- decline of the inflation levels;
- attenuation of the inflation volatility;
- decline of the interest rates;
- attenuation of the exchange rate pass-through.⁷

However, Ball and Sheridan (2003) didn't share this point of view arguing that such improvements were experienced in the 1990s by most of the industrialized countries although some of them didn't implement inflation targeting.⁸

The inflation targeting suitability for the emerging markets is still a controversial subject. Jonas and Mishkin (2003) studied the effects of inflation targeting in three countries: the Czech

Republic, Hungary and Poland. Their study revealed the difficulties of this strategy implementation in the context of a significant uncertainty that usually characterizes the emerging markets. They found out the complex relations that occur sometimes in the transition countries between the central bank and the government could hamper the inflation targeting sustainability. Despite these aspects, they concluded that inflation targeting in the transition economies could be implemented reasonably successfully⁹. Other studies revealed the disadvantages associated to the adoption of inflation targeting in the emerging markets. Masson, Savastano and Sharma (1997) considered this regime as unsuitable for the emerging markets because in these countries central banks are not allowed to carry out an independent monetary policy. They also point out that in emerging markets the exchange rates remain an important objective which could be in conflict with the inflation targeting¹⁰. Kumhof (2000) revealed that credibility is hard to be achieved for the central banks from transition countries¹¹.

The monetary transmission channels in Romania were subjects for some papers. Pelinescu (2001) revealed some circumstances such as weak competition, soft budgetary constraints and lax corporate governance that lead to a short transmission period of the mechanism in the Romanian economy¹². Popa *et al* analyzed the impact of inflation targeting regime on the monetary transmission channels¹³. Antohi, Udrea and Braun (2003) realized an econometric modeling of the monetary policy transmission mechanism in the period October 1999 - May 2002¹⁴.

Theoretical Background

We study the effects of the Romanian monetary policy using a VAR methodology. This technique was proposed by Sims (1980) almost three decades ago¹⁵. Since then it suffered a lot of improvements and it took several versions¹⁶. In this paper we use a version of non-structural VAR innovation response analysis applying the econometric software *EasyReg International* proposed by

Professor Herman J. Bierens (2007) from Pennsylvania State University¹⁷.

In the VAR analysis of monetary transmission channels we used monthly time series data provided by NBR. Because of the structural changes experienced by Romanian economy during the 1990s, these time series data start from January 2000. It weren't included values after December 2006 because of the temporal effects induced by Romania's adhesion to the European Union. Because of the short sample of relevant data we limited to six the variables included in the VAR model, although a larger model with more variables would be desirable to capture the finer details of monetary transmission channels. These variables are consumer price index (CPI), exchange rate (ROL/EUR), industrial production (PRIND), money supply (M2), non-government credit (CRED_N), and three month offered interest rate from Romanian Interbank Offered Rate (ROB3M).

VAR innovation response analysis

In order that effects of monetary policy became more obviously we transformed the variables by taking logs. Also, because they proved to be nonstationary, we took them in the first differences. The resulted time series were named:

- DIF1[LN[IPC]], for consumer price index;
- DIF1[LN[ROL/EUR]], for exchange rate;
- DIF1[LN[PRIND]], for industrial production;
- DIF1[LN[M2]], for money supply;
- DIF1[LN[CRED_N]], for non-government credit;
- DIF1[LN[ROB3M]], for three month offered interest rate from Bucharest Interbank Offered Rate.

Because of the short degrees of freedom we didn't include the seasonal dummy variables, although some time series exhibit a significant seasonality. The short sample of data we used made us choosing a lag order of two although the information criteria Akaike, Hannan-Quinn and Schwarz could allow us to use a bigger value (Table 1).

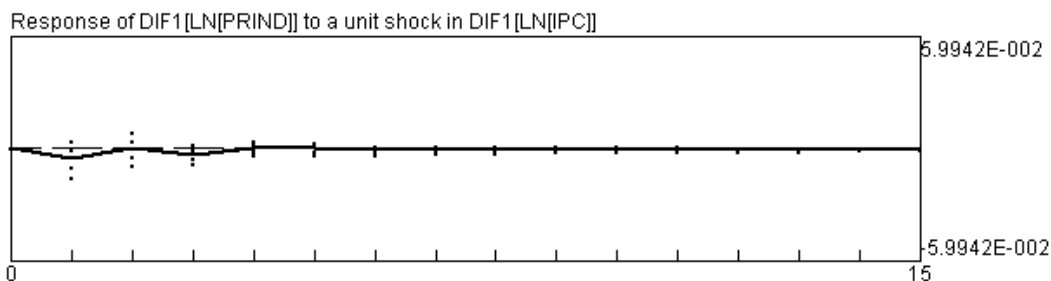
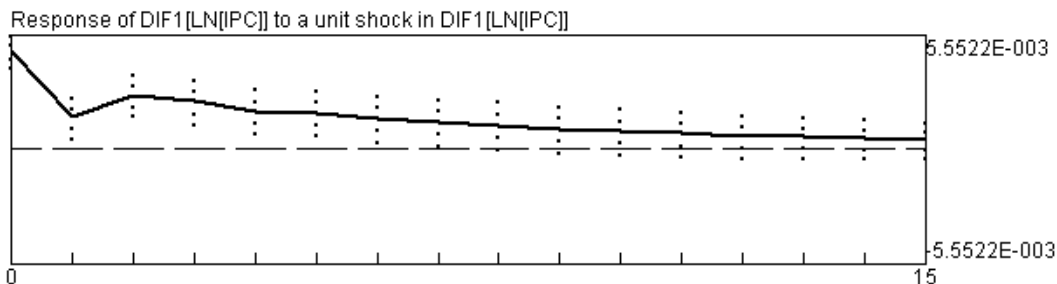
Table 1 - Information criteria for choosing lag length

Lag order (p)	Akaike	Hannan-Quinn	Schwarz
1	-4.45747E+01	-4.40798E+01	-4.33420E+01
2	-4.50864E+01	-4.41613E+01	-4.27806E+01
3	-4.53254E+01	-4.39645E+01	-4.19310E+01
4	-4.53623E+01	-4.35599E+01	-4.08633E+01
5	-4.51708E+01	-4.29210E+01	-3.95509E+01
6	-4.53338E+01	-4.26309E+01	-3.85764E+01
7	-4.57258E+01	-4.25637E+01	-3.78136E+01
8	-4.62837E+01	-4.26563E+01	-3.71991E+01

We analyzed innovation responses using forecast error variance decomposition. From the perspective of inflation targeting regime there are important responses of prices and output to the shocks of the six variables.

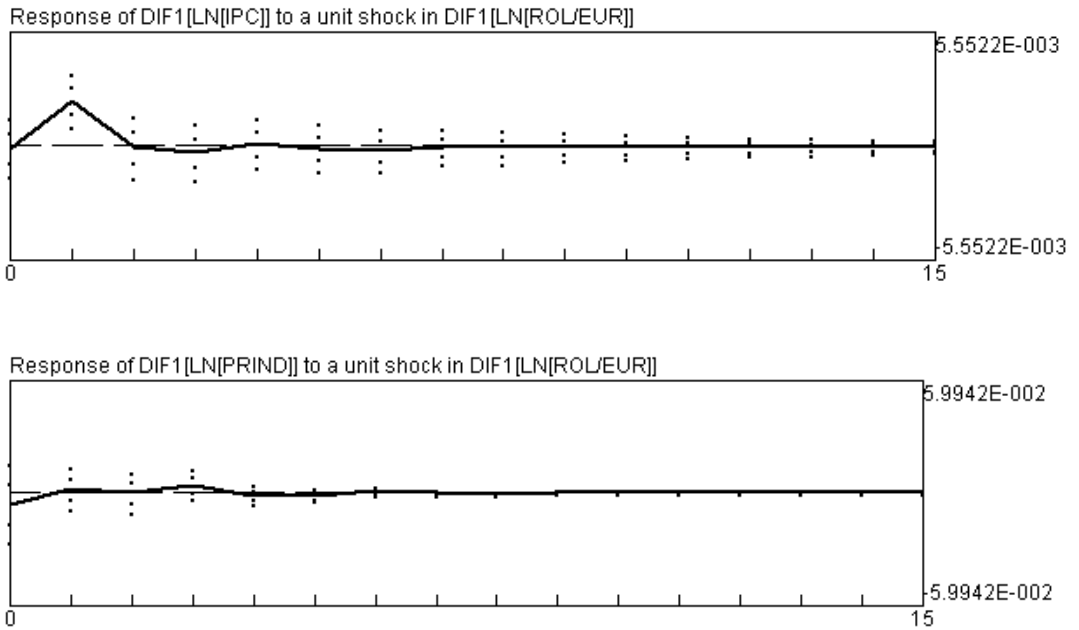
a. Responses to the inflation shocks. From the VAR Analysis it resulted that a unit shock in DIF1[LN[IPC]] affects the prices for a long time. Instead, the effects on the industrial production are much less significant (fig. 1.)

Fig. 1 - Responses to the inflation shocks



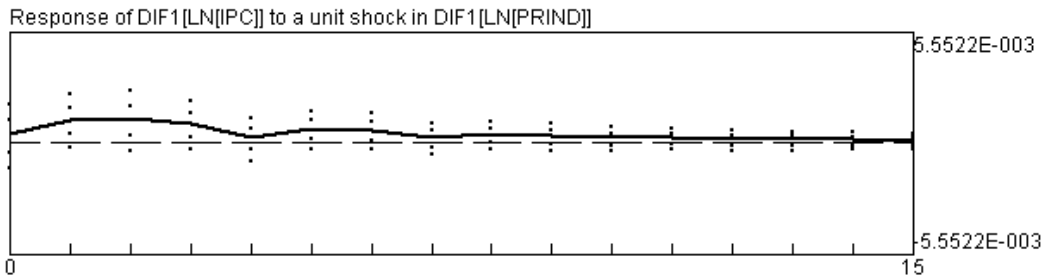
b. **Responses to the exchange rates shocks.** A unit shock in $DIF1[LN[ROL/EUR]]$ provokes a significant increases of prices that is shown especially in the first three months. It also causes a decrease of industrial production that lasts for about a month (fig. 2.).

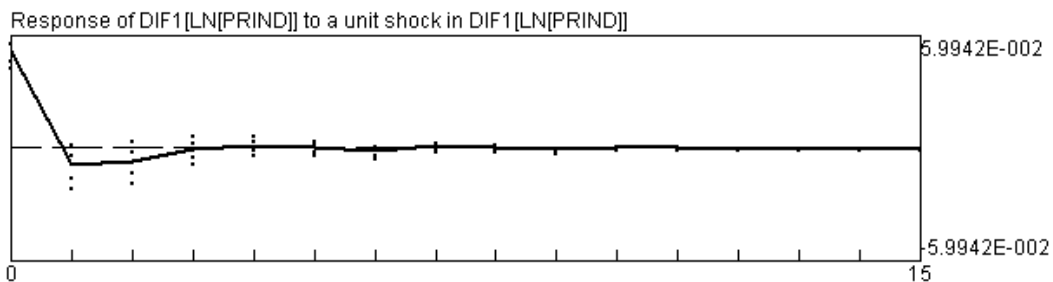
Fig. 2 - Responses to the exchange rates shocks



c. **Responses to the industrial production shocks.** A unit shock in $DIF1[LN[PRIND]]$ increases the inflation for many months. The responses of the industrial production to this kind of innovation consist in an increase for about a month followed by a decrease in the next (fig. 3.).

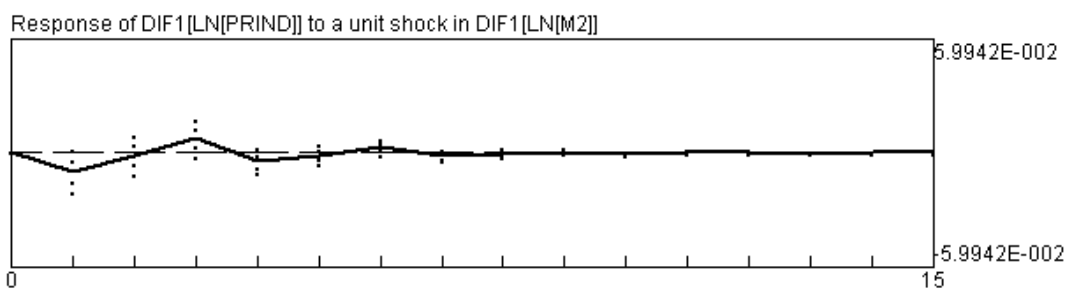
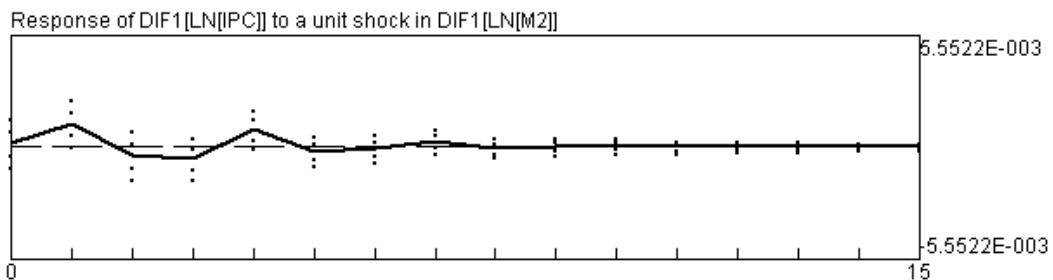
Fig. 3 - Responses to the industrial production shocks





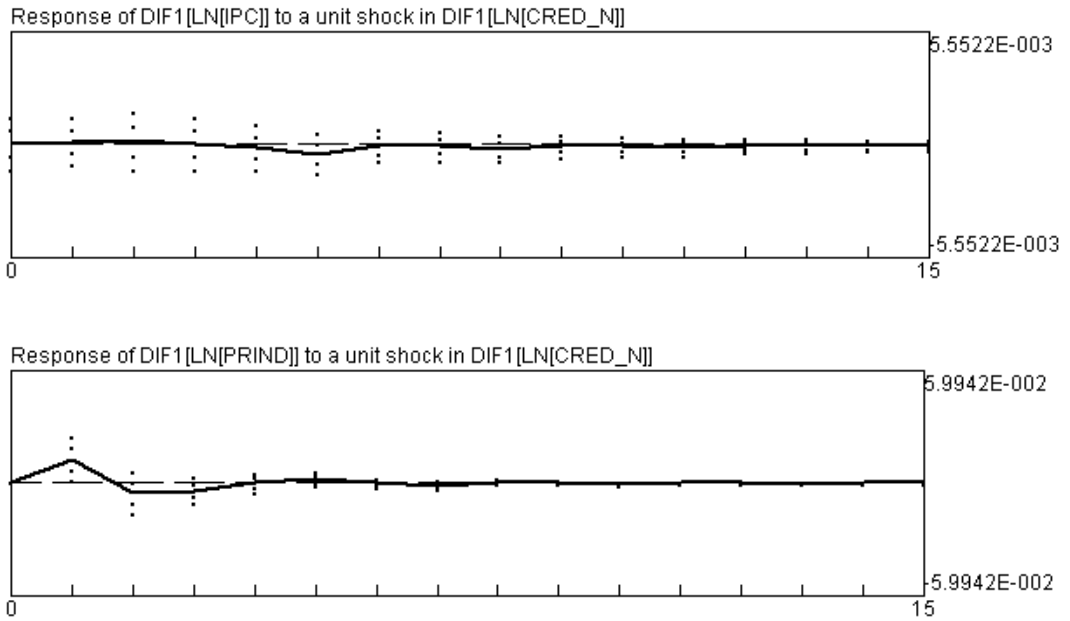
d. Responses to the money supply shocks. A unit shock in DIF1[LN[M2]] causes increases of inflation followed by decreases. Instead, for the industrial production, the effects consist in a decrease followed by an increase (fig. 4.)

Fig. 4 - Responses to the money supply shocks



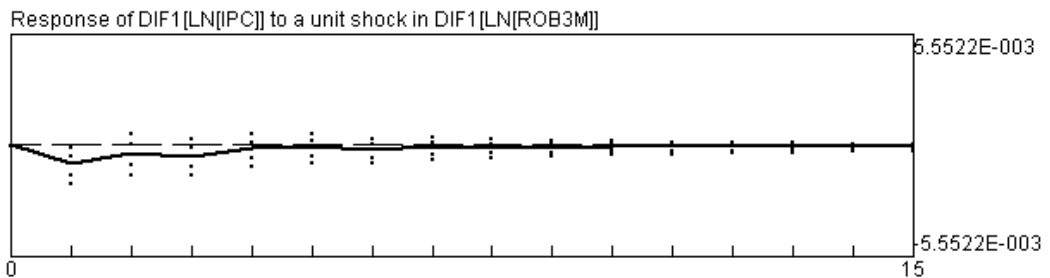
e. Responses to the non-government credit shocks. Inflation proved to be not very sensitive to non-government credit variation. Instead, a unit shock in DIF1[LN[CRED_N]] causes a significant increase followed by a decrease of industrial production (fig. 5).

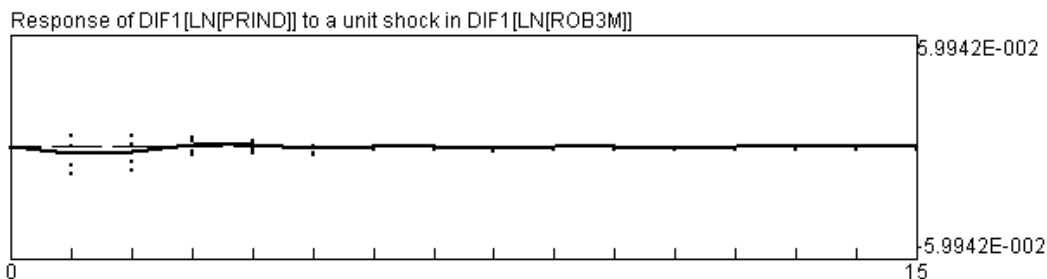
Fig. 5 - Responses to the non-government credit shocks



f. **Responses to the interest rates shock.** A unit shock in DIF1[LN[ROB3M]] causes a significant decrease of inflation, lasting for many months. It also leads to a decrease of industrial production but less significant and less persistent (fig. 6.).

Fig. 6 - Responses to the interest rates shocks





Conclusions

In this paper we approached the monetary transmission channels in Romania. We applied a non-structural VAR innovation response analysis using monthly data from January 2000 to December 2006. We found out that inflation had significant responses to shocks from exchange rates, industrial production, money supply and interest rates but was not very sensitive to non-governmental credit variation. We also found out that industrial production reacted significantly to the exchange rates, to the money supply, to the non-governmental credit and to the interest rates variation, but had a much less significant response to the shocks from inflation. For each variable we identified different persistence of the effects.

The short sample of data we used in this analysis affects the robustness of our results. However, the VAR methodology provided indices of the monetary transmission channels particularities in Romania.

Because of the short period of time it passed from Romania's adhesion to the European Union, this analysis couldn't take into consideration the structural changes induced. For that reason, we consider the result of our analysis should be completed with future researches approaching the new context of the monetary transmission channels.

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