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Efficiency of Monetary Policy Mechanisms Before and After the 2008 Financial Crisis in the Russian Economy

Oleg Nikolayevich Salmanov[1] Natalia Vladimirovna Babina[1] Ekaterina Evstafyevna Koba[1] Ekaterina Evgenyevna Koba[1] and Olga Alekseevna Lopatina[1]

[1]*Moscow Region University of Technology (UNITECH), the city of Korolev, 42, Gagarin Street, Korolev, Moscow Region, 141070, Russian Federation*

ABSTRACT

The goal of this work is to reveal differences in transferring the regulator's policy before and after the 2008 financial crisis. The research was made by using the method of vector auto-regression. The analysis was related to the channel of interest rate, corporate crediting, volumes of money supply, and growth of the prices level. Differences in the monetary policy of the regulator before and after the 2008 financial crisis were interpreted.

Changes in the transfer of the regulator's monetary policy via channels of the monetary transmission: the level of prices, interest, rate, bank crediting, and channel of monetary flows were statistically confirmed.

It was determined that the specified channels had relative importance in transferring the policy and acted with the relatively different level of efficiency during the pre- and post-crisis period. The growth of efficiency of the channel related to the unforeseen growth of prices level, channel of bank crediting, and channel of monetary flows during the post-crisis period were revealed. Results of the research can be used for further theoretical and empiric analysis of the transmission mechanism. Results of such researches are useful for the regulator to pursue efficient monetary policy, for commercial banks to take into account when forming the development strategy whose important element is a system of financial stability management.

Keywords: Monetary policy, crisis, vector auto-regression, impulse functions.

1. INTRODUCTION

Over the recent years the Bank of Russia has fundamentally changed the priorities of the pursued monetary policy. The transfer to targeting inflation and flexible rate formation came with the change of the basic tools of the regulator's monetary policy.

The goal of our research is to reveal differences in transferring the regulator's policy before and after the 2008 financial crisis. The change in the transfer of the monetary policy means that some parameters of the systems (1) – (2) have changed with the flow of time. It can come out as the change of the correlation of the policy tool and variable.

Herewith, we will mention a number of difficulties that occur when analyzing the Russian monetary policy. Thus, in particular, when estimating the rules of the monetary policy for understanding the regulator's reaction to the change of target indicators, inflation, exchange rate and tempo of the economy growth can act as target indicators. When they deviate from the target indicators, the central bank manipulates the financial system by using tools. The first difficulty is related to the use of the flexible approach by the Bank of Russia when defining its policy. This approach includes a variety of tools used during various periods of time (sometimes they are mutually excluding) and change of goals. It makes the selection of the basic instrument problematic. For example, money supply in the McCallum's rule or interest rate in the Taylor's rule.

When solving this problem, the use of vector-auto-regression can be helpful. It allows to estimate several equations that describe the monetary policy, take into account several goals and tools. Based on the real data, vector auto-regressions (VAR) allow to identify structural shocks that can be considered as reasons of economic fluctuations, and estimate the impact of the latter on economy. Thus, for example, using the structural model of the vector auto-egression in their works, Sims C.A. (1992), Bernanke B.S., Gertler M. (1995) analyze the efficiency of the monetary policy when changing the price of oil as an external shock, and the level of its impact on the real economy. Functions of the impulse response and decomposition of the variation make it possible to make such estimation. This method makes it possible to estimate not only the applied tools but also the impact of internal and external shocks.

After revealing unexpected changes in endogenic variables, it is possible to decompose them to structural shocks and analyze impulse functions in order to understand the dynamics of every variable of the model as a respond to the revealed structural shocks. Herewith, changes of the variables can be caused not only by structural shocks of the variable itself, but also structural shocks of other variables of the vector, a so called cross-correlation of variables. It stipulates the need to identify and impose feasible limitations taking into account the speed of reaction of certain variables. Impulse functions (reaction to the shock impulse) add demonstrativeness to the research results. Graphs of the impulse function visualize the impact of the shock on any variable of the model.

The second difficulty is related to the lack of statistical data. Insufficient continuance of a number of statistical data in researches limits the number of variables that can be included in the model. It does not limit the accuracy of defining the channels of transmission, monetary policy, and decreases the degree of stability of the obtained results. Estimating the regulator's policy in Russia, many authors consider mainly the time line since 2000. For example, in their works Esanov A., Merkl C. (2005), Vdovichenko A.G. and Voronina V.G. (2006) analyze the goals set by the Bank of Russia in the 2000s because more or less reliable statistics for many economic indicators in Russia is available since this period.

The third difficulty is related to the instability of the results of the conducted researches. For example, Esanov A., Merkl C., De Suza (2005) made estimation on the basis of the 1993-2002 data and have come to the conclusion that the basic tool of the regulator at the present time is the M1 monetary aggregate. The

research made by Vdovichenko A.G. and Voronina V.G. (2006) and aimed at estimating the regulator's monetary policy for 1999-2003 resulted in the conclusion that after the 1998 crisis the regulator had started paying special attention to the exchange rate. The reason of instability can be various limitations and structural changes that have an impact on the efficiency of the monetary policy pursued by the Bank of Russia and its being at the formation stage.

When estimating the availability and importance of changes in the mechanism of transfer, the researchers used one of the following strategies:

1. Estimation of the empiric model according to various sub-samples,
2. Estimation of the empiric model for processing (some sub-aggregates) parameters as latent processes that change in time (as a rule, accepted for developing in accordance with the random walk), and
3. Estimation of changing-over the mode of the empiric model version where (some sub-aggregate) parameters can stochastically change over various modes depending on their values.

In order to define the priorities of the regulator's monetary policy by using the classical regression, in their work Yudaeva K., Ivanova N. et al. (2010) individually decomposed the research period into sub-samples. Herewith, researches on the basis of regression undergo difficulties related to revealing evidences to stipulate the reality of the selected sub-periods. That is why there is a possibility that during the analysis a sub-period important for economy is not taken into account.

Boivin J. and Giannoni M. (2002) estimated the VAR for two samples (before and after 1979) by using the recourse scheme of identifying for defining shocks of the monetary policy. The obtained results showed that after 1979 exogenic changes in the monetary policy had been less efficient. As for the reaction of the production to shocks, they inform that in the post-1979 period the production reaction was as follows: 4 periods make up about one fourth of what had been during the previous period. Primiceri G. (2002), Gali J. and Gambetti L. (2007), as well as Canova F. and Gambetti L. (2009) used the time-variant VAR with random coefficients to provide a stronger evolution of the monetary policy transfer. Gali and Gambetti (2009) also think that the effect of shocks from the demand for the real activity and inflation felt down with the flow of time. On the other hand, according to the results of the model based on the recourse defined VAR, Primiceri G. (2002) came to the conclusion that over the recent fifty years there had been no considerable changes in the transfer of the monetary policy. Canova F. and Gambetti L. (2009) made the same conclusion and also mentioned the increase in the sensibility of the real activity to the shocks of the monetary policy over the recent decade.

The model with the Markov changes was applied by Fedorova E. and Lysenko A. (2013) to research the monetary policy in Russia for 2001-2011 on the basis of the Taylor's rule. On the basis of the constructed model with the Markov changes, the authors revealed the periods of changing over the modes (maintaining the level of inflation, fixation of the exchange rate). Dynamic features of this model are defined by the current mode. In their turn they are defined by implementing the hidden Markov chain with the end space of states. The dynamic model was used.

The MSVAR model with the Markov changes was applied by Bordon A.R. and Weber A. (2010) to estimate the changes in the mechanism of the monetary transmission of Armenia in 2000-2010. Having applied the MSVAR model (with and without the threshold variable), the authors identified the changing of the modes in the second part of 2006 and in the middle of 2009.

In spite of the fact that now, when researching monetary policy and forecasting it, structural and dynamic models are used, Christiano (2012) states that VAR models are still important today. It is important that according to the estimations of impulse functions of the respond, VAR models provide a natural method to select parameters of the structural model and to estimate empiric veracity of alternative models (Christiano, 2006). Allowing to obtain empirically feasible estimates of dynamic reactions of basic macro-economic variables of the monetary policy, VAR is widely used both in estimates of the empiric adjustment of structural models (see, for example, Boivin and Giannoni, 2003, Christiano, Eichenbaum and Evans, 2000), and in applications of the monetary policy (Bernanke, 2004).

2. METHOD

The method of vector auto-regressions makes it possible to make analysis in the dynamics of the mutual impact of several variables. Every variable is considered as endogenic. Macro-economic variables are changed with the flow of time. In terms of macro-economy it is important to understand the impact and the degree of the monetary policy pursued in the country. Understanding of the causal relationships between the applied monetary tools and indicators that characterize the economic state in the country allows to estimate the efficiency of such policy.

The research uses the VAR model to define changes in the regulator's policy after the 2008 crisis. The econometric model was constructed and estimated by using the Eviews software. The research is based on principle economic and financial monthly indicators of Russia for the period since August 2001 to August 2015. The data resources are the website of the Bank of Russia (www.cbr.ru) and data of Rosstat (www.gks.ru). Herewith, two sub-samples are analyzed: before (since August 2001 to November 2008) and after the crisis (since December 2009 to August 2015). The period of the greatest impact of the crisis on the national economy is not taken into account because it differs by considerable structural changes. It would make the research results time dependent.

A number of statistical data (exclusion of the season component, reducing to the static form, defining the lag length of the variables included in the model) was processed.

When analyzing the impact of the monetary policy and various shocks, we used:

1. Decomposing the dispersion of variables to define the degree of the impact of a certain shock in the dispersion of the indicators we consider,
2. Function of impulse responds, which adds demonstrativeness to changes of indicators of the considered variables as a respond to various shocks.

We are going to analyze impulse responds of basic variables that characterize the national economy on unexpected shocks related to stiffening the monetary policy. As a result, these methods allow to reveal differences in the transfer of the monetary policy before and after the 2008 financial crisis.

2.1. Specification of VAR model

In this chapter we will describe the basic VAR model we use to analyze the consequences of the shock of the monetary policy of the Bank of Russia. The VAR model is as follows

$$Y_t = A(L)\, Y_{t-1} + B(L)\, X_t + \varepsilon_t \quad (1)$$

where Y_t and X_t are vectors of endogenic and exogenic variables respectively, ε_t is a vector of errors under the normal allocation, A and B are matrixes of coefficients, and L is a lag.

As a rule, the vector of endogenic variables (Y_t) includes the tempo of growth of the gross domestic product (y_t), indices of consumer prices (p_t), monetary nominal interest rate (i_t), exchange rate (r_t), and money supply (m_t):

$$Y_t = [y_t \; p_t \; i_t \; r_t \; m_t] \quad (2)$$

In this work we make the estimation by using the VAR method, variables of the monetary policy, real sector and external factors. The vector of endogenic variables (Y_t) includes the following: index of industrial production (IGDP), M2 monetary aggregate, average weighed rate of the currency market of ruble to USD (RM), index of consumer prices of goods and services (CPI), volume of corporate crediting (Loans), investments in the basic capital (IC), international reserves (NRES), re-financing rate (IREF), and average weighted interest rate for ruble loans (IRNF).

The vector of exogenic variables contains prices for Urals oil (oil) and constant:

$$X_t = [c, \text{oil}] \quad (3)$$

All variables (exogenic and endogenic), excluding interest indicators, were processed subject to seasonal character; they are logged (natural logarithms) to obtain the linear type of indicators relationship.

The shock of the monetary policy is defined with the aid of the standard decomposition of Kholetskiy with the initial supposition that the shocks policies do not have a simultaneous impact on initial data, prices and money. It is possible to influence momentarily the exchange rate. However, the directive interest rate does not react to the current changes of the efficient exchange rate.

The lack of the serial correlation is proved by the Portmanteau test. The test of Lagrange multipliers confirmed the performance of the zero hypotheses.

The lag length is defined according to the Akaike and Schwarz criteria – (2). The one-time test was made, and it was defined that all contrary radices according to the module are lower than one. It confirms the statics of the obtained VAR model.

Like in our previous research (Salmanov O.N, Zaernjuk V.M., 2016), we accept that the working capacity of the channel related to the interest rate is characterized by the average weighted cost of short-term rubles loans for enterprises and organizations (except for the financial sector) (IRNF). We relate the channel of bank crediting to the volume of the loans provided to corporate clients (Loans). M2 variables and consumer prices (CPI) are responsible for the channels of monetary flows and unpredicted growth of prices level respectively.

3. RESULTS

Figures 9.1-9.4 show impulse functions of the response of monetary policy variables included in VAR whose shock causes the growth of the indicator into one standard fluctuation. Impulse responses are output for 16 months.

3.1. Interest Channel

We will consider the interest channel, which the Western references consider as the key one according to the Keynesian model. Figure 9.1 shows the obtained impulse responses.

Theoretically, in accordance with the IS-LM model, a decrease in interest rates contributes to a growth of the demand for capital, investments, and issue. The growth of rates stimulates the opposite reaction of these indicators. Consequently, after the monetary shock the regulator expects that the issue, prices, and demand for money will fall down subject to an increase in interest rates. Herewith, the reaction of money will outrun the price response. Herewith, the interest rates are controlled via the impact on the volume of liquidity in economy.

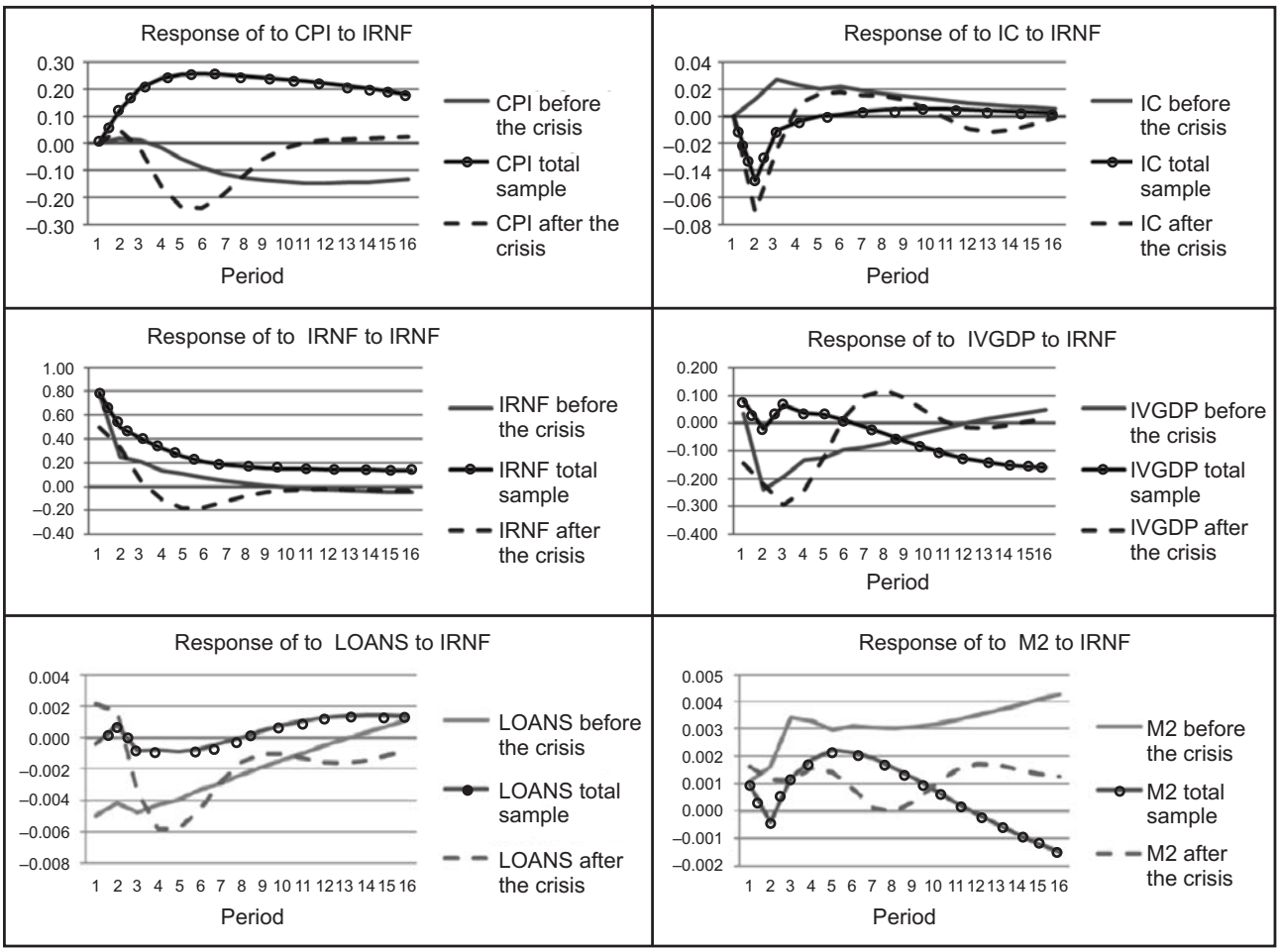

Figure 9.1: Impulse Functions of Interest Rate Response (Response to Cholesky One S.D. Innovations ± 2 S.E.)

In case of the limited shock that affects interest rates during the pre-crisis period, prices react continently. The reaction appears in two periods by the temporary inconsiderably growth. After that, prices progressively decrease during five periods and stabilize. After the crisis the price reaction is cyclic. The short-term growth is replaced by the 0.25% prices decrease during four periods. After that prices again increase. Achieving their initial (pre-shock) value in ten periods, prices stabilize. This reaction does not contradict the theory. Herewith, in the general sampling, the limiting shock of the interest rate causes the growth of prices. It contradicts to the theory. This is a price puzzle. Sims C.A. (1992) defined one of its reasons in the fact that the interest rate shock was not entirely exogenic due to the fact the regulator had taken into account the price expectations when pursuing the monetary policy. To our mind, if it is not

found in samples before and after crisis, price puzzle appears in the general sampling as a consequence of the crisis impact. As a whole, the result of three samples displays the cyclicity of the monetary policy. The reaction of investments is long-term. It takes more than 12 periods. The investments before the crisis increase by 0.03% during the first three periods, as a response to the shock. After that, they fall down during 12 periods, and finally stabilize. The reaction during the post-crisis period is opposite: steep downfall of investments during two periods is replaced by a subsequent considerable growth during four periods. Herewith, investments return to the level before the shock during the fourth period (in two periods after the growth begins). Investments achieve the maximum value during the sixth period. After that they fall down.

The decrease in the interest rate during the pre-crisis period comes with the immediate growth of the crediting volume. The reaction is long-term and is not characterized by volatility. After the crisis the initial response for the shock is a considerable decrease in the volume of crediting; it is related to the creditors' caution. However, since the fifth period the volume of crediting increases. Unlike the pre-crisis period, the growth is incremental. Probably, it is explained by limitations to risks banks are ready to undertake taking into account the crisis.

Like the response of investments, crediting, the reaction of issue has a long-term nature. The pre-crisis issue slumps during the first two periods. During the next 14 periods it stably increases and re-establishes. During the post-crisis period the shock of the interest rate causes the fall of the issue, but it re-establishes twice as fast.

Studying the reaction of economy on shocks of the monetary policy, Bernanke and Gertler (1995) defined that in spite of non-permanent impact of unexpected limitation on interest rates, it caused a stable decrease in the real issue and prices. The end demand decreases rather quickly after the compression. The issue also reacts by the fall. However, the reaction is delayed. It causes short-term increase in leftover stock whose gradual subsequent decrease is the main reason of the GDP decrease.

The increase in the issue against theoretical expectations of the steady fall that is often found in empiric researches applying VAR is called output puzzle.

Wong (2000) analyzes the reaction of the issue and prices to shocks of the monetary policy through various periods of time from three to sixty months. Based on this, he forms an idea about the conduct of variables during various time periods. During the short-term period the growth of the issue after the limiting shock was revealed. It contradicts to the theory because the issue must decrease. The author thinks that in the majority of cases the issue falls down during the medium-term interval.

According to Ahmadi and Uhlig (2015), after the limiting shock of the monetary policy, the issue has a negative reaction but it is small.

3.2. Bank Crediting Channel

Figure 9.2 shows impulse functions of the bank crediting.

Shock of internal credits causes the immediate inflation effect that has a more conspicuous nature during the post-crisis period (four periods). The shock of volumes of corporate crediting causes a dramatic but short-term growth of investments and industrial production after the crisis. Positive shock of internal crediting after the crisis causes solid growth of the interest rate during three periods with the subsequent fall during eight months. Stabilization is observed in fifteen months. No considerable impact on the interest rate has been revealed during the pre-crisis period. During both periods the money supply increases.

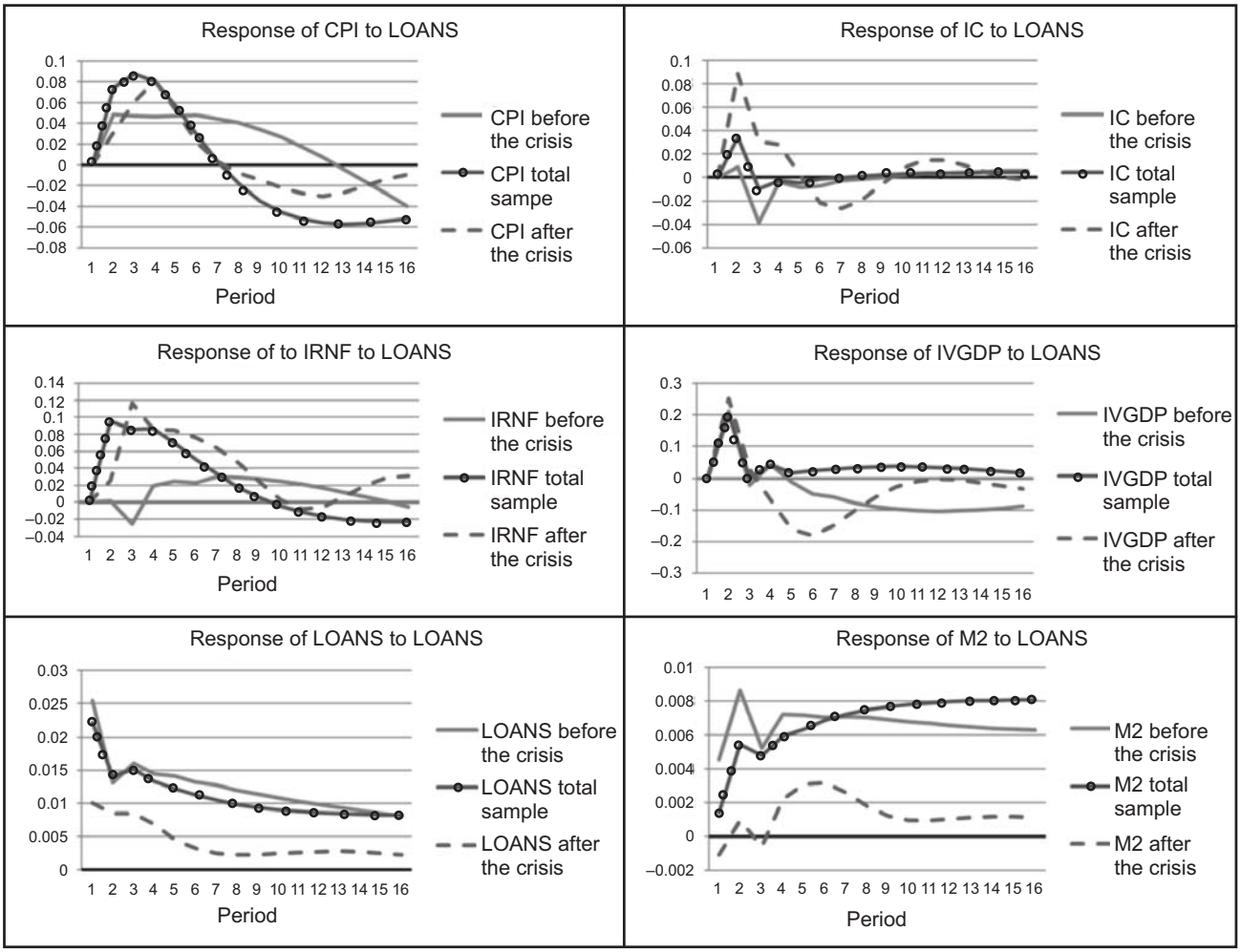

Figure 9.2: Impulse Functions of Response of Corporate Crediting Volume (Response to Cholesky One S.D. Innovations ± 2 S.E.)

3.3. Monetary Flows Channel

Figure 9.3 shows impulse functions as the response to shocks of money supply.

As a response to the shock of money supply before the crisis, corporate crediting decreases during two periods. After that the growth is observed both before and after the crisis. The reaction of investments is also similar in both periods: investments abruptly decrease, then increase and stabilize. Herewith, during the post-crisis period they display a longer growth. The reaction of the issue before and after the crisis differs. During the pre-crisis period the issue abruptly increases during two periods, and then steadily decreases during twelve periods. After the crisis the issue smoothly decreases during two periods. After that it starts steadily increasing. The interest rate before the crisis as a response to the shock decreases during the first two periods, and it increases during the next five periods. After that, the smooth decrease and stabilization in ten months are observed. During the post-crisis period the rate increases during three periods. After that the growth is observed.

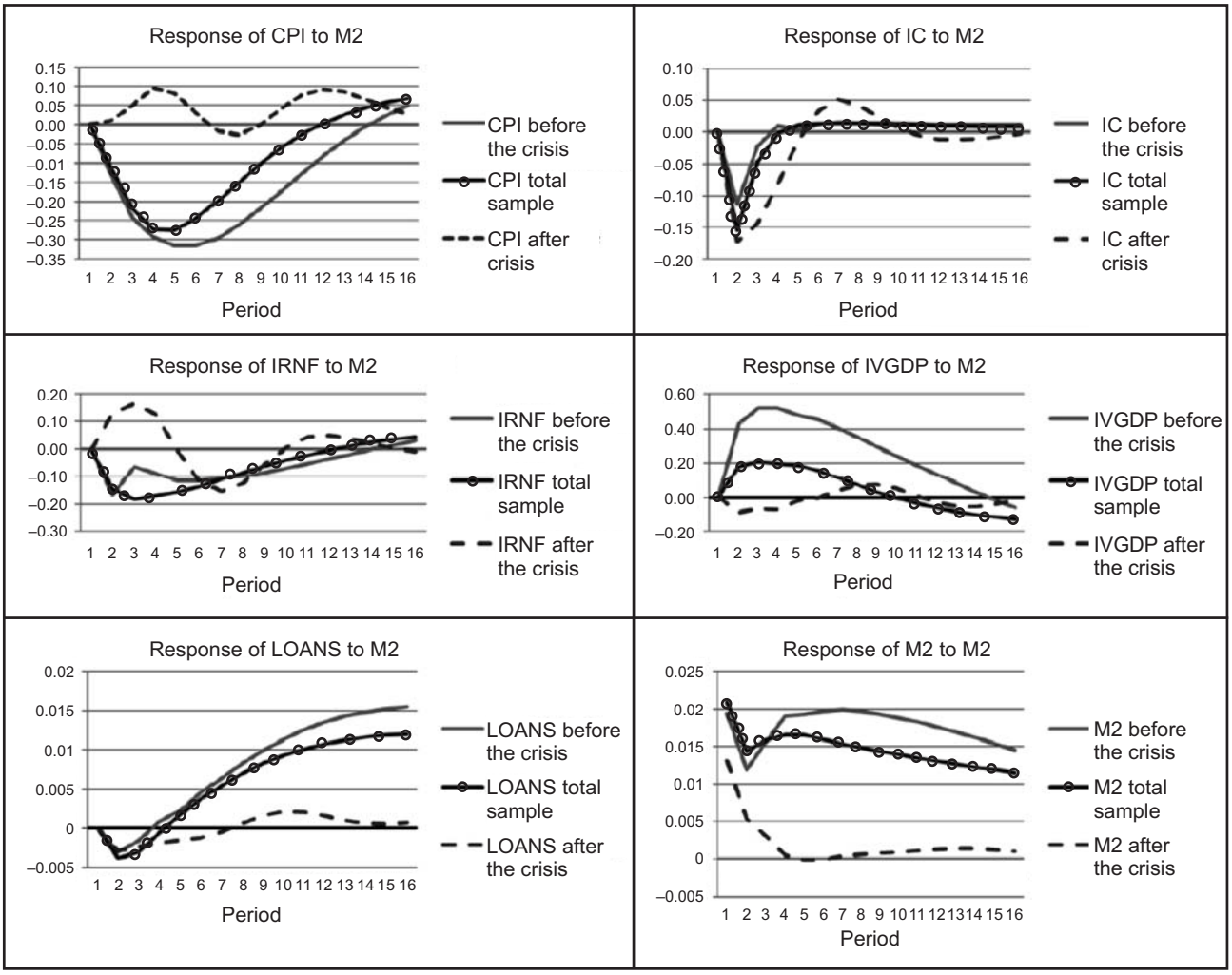

Figure 9.3: Impulse Functions of the Money Supply Response (Response to Cholesky One S.D. Innovations ± 2 S.E.)

According to Vashcheliuk N.V. et al. (2015), shocks of the monetary policy had an impact on the volume of industrial production rather moderately: within the ranger from –1.5% to +1.5%.

3.4. Channel of Unpredicted Growth of Prices Level

Figure 9.4 shows the impulse functions of the response of the prices level growth. It is possible to see that the reaction of investments is opposite before and after the crisis during three periods: in the first case investments considerably grow, in the second case they decrease. However, in both periods investments stabilize on the same level in five periods. During the pre-crisis period the issue falls down considerably. The reaction lasts for eight periods. After that the dynamics of growth is observed during next eight periods.

After the crisis there is the opposite steady reaction of the issue: smooth progressive growth during seven periods. The response of crediting differs before and after the crisis: fall in the first period and growth in the second one. Response of the interest rate is the same in both samples. After the inconsiderable decrease during the first two periods, the interest rate will increase during five periods. After that it gradually

decreases. The reaction takes place during nine periods. The reaction of money supply differs before and after the crisis. In the first case, the volume of money supply as a response to the growth of prices level decreases. Herewith, the volume of money supply reacts with a three periods delay. In the second case the money supply reacts by a small decrease. However, the reaction after the crisis is inconsiderable.

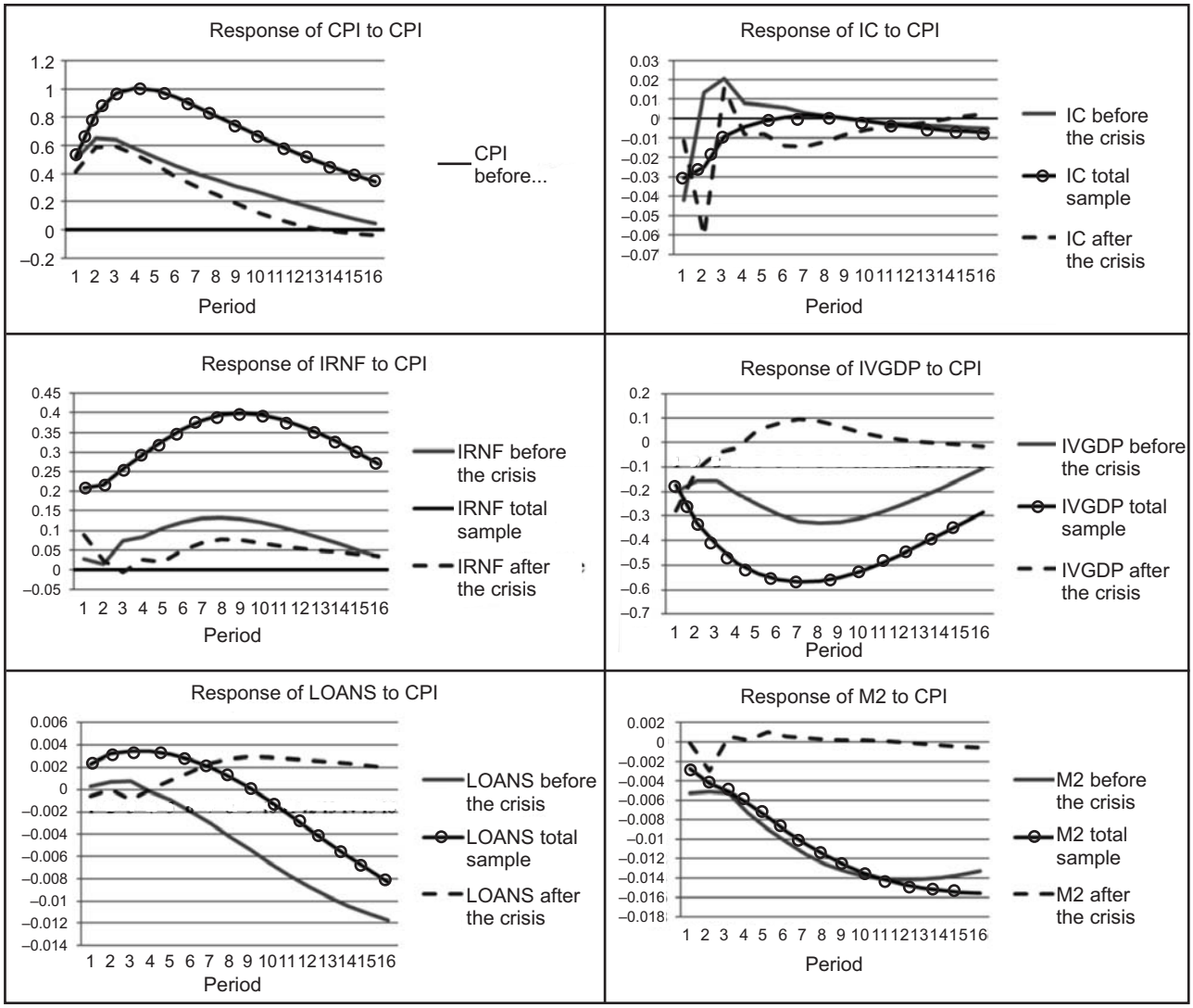

Figure 9.4: Impulse Functions of the Response of the Prices Level Growth (Response to Cholesky One S.D. Innovations ± 2 S.E.)

4. DISCUSSION

In case of the limiting shock that affects interest rates, prices before the crisis have restrained reaction, and the reaction occurs in one and a half or two periods by the temporary inconsiderable growth. After that prices progressively decrease during five periods and stabilize. The interest rate shock during the pre-crisis period causes a fall of the issue, and the growth of crediting, money supply and investments. During the first two periods the pre-crisis issue abruptly falls. During the next 14 periods it steadily increases and achieves the initial level. Herewith, in spite of the initial decrease in the issue during the first two periods,

during the next 14 periods it steadily grows and finally inconsiderably exceeds the pre-shock level. The interest rate shock after the crisis causes the fall of the volume of crediting, investments, money supply and issue. The reaction of the price and the issue in samples before and after the crisis, as a whole, does not contradict the theory. The interest channel requires further study and improvement of the results reliability.

The research of the bank crediting channel showed that during the pre-crisis period the increase in internal credits caused the growth of prices that lasted for not more than a year, and a short-term inconsiderable growth of investments. Positive shock of internal crediting causes the growth of industrial production (however this growth is short-term – during two periods), inconsiderable decrease in the interest rate and money supply. During the period after the crisis the response to the shock of the internal volume of corporate crediting was the growth of prices (it is more expressed as compared to the pre-crisis period), interest rate, the considerable short-term increase in investments and issue, as well as the growth of money supply. As a whole, it is possible to speak about the availability of the channel of bank crediting and growth of its efficiency during the post-crisis period.

The research of the money flows channel showed that the shock affecting the money supply during the pre-crisis period caused the fall of prices, investments, growth of issue during 3 periods with the subsequent decrease. The interest rate decreases during two periods with the subsequent growth during 10 periods. During the post-crisis period the money supply shock causes prices fluctuations (growth changed by the fall, etc.), decrease in the investments volume. The interest rate increases during three periods. After that there is a growth. Money during the post-crisis period almost has no impact on the issue. As a whole, it is possible to speak about insufficient efficiency of the work of money flows channel.

As a response to the prices level shock before the crisis, the interest rate increases during six periods. There is a short-term growth of investments, crediting and issue during two periods. After that they decrease. Money supply also reacts by decreasing and delaying by four lags. After the crisis the unforeseen growth of prices level causes a decrease in the interest rate during two periods. It stimulates short-term growth of investments, volume of crediting, money supply, and issue. The growth of issue under unforeseen growth of prices during the short-term period does not contradict the theory. On the one hand, it can be caused by the incompleteness and imperfection of information as a result of the growth of the relative price of some producers (model of imperfect information of G. Lucas). On the other hand, it can be related to the fact that firms do not change prices for goods at once as a response to demand fluctuations under the indefiniteness conditions (for example, a clause about tough prices in agreements taking into account the volatility of the rate to maintain clients) (model of tough prices of the neo-Keynesian direction).

Summing it up, it is possible to conclude that all above channels exist with a different degree of working capacity. The growth of working capacity of channels of bank crediting, unforeseen growth of prices level and money flows during the post-crisis period were revealed. Considering the interest channel and the channel of money flows, it is possible to say that they remain insufficiently efficient. However, it is necessary to note that it is not easy to analyze them.

Such characteristic of channels on transferring the policy pursued by the regulator is obviously related to the depressive state of economy, lack of its growth over the recent years, and high level of inflation.

Besides, it is obvious that such characteristic was influenced by the monetary policy pursued by the regulator, and the change of the benchmark from the exchange rate to the inflation. Stipulated by this transfer, the regulator's monetary policy has changed since 2011: introduction of the key rate, formation of interest rates, cancellation of the currency corridor, and transfer to the floating rate. The basic tools of

the regulator when forming money aggregates were the operations related to providing liquidity for funds of the auction sale and repurchase agreement. The regulator's re-financing of commercial banks entered the pool of basic tools under conditions of the structural deficit of liquidity of credit organizations in the national banking sector and the current isolation of Russian banks from the external market of capital. At the present time this is the most important source of money supply. A number of publications research these aspects Rautava (2004, 2013), Beck & Kamps (2007), Granville & Mallick (2010), Grauwe & Storti (2004).

It is necessary to note that extending a set of variables will allow to increase the veracity of results when using the vector auto-regression. However, herewith in order to avoid so called "curse of dimensionality", it is necessary to use more comprehensive models than the standard VAR model used in this research. The use of FAVAR – (Bernanke, 2004), Bayes' VAR model (Banbura, 2010, Deriugina E., Ponomarenko A. 2015) will allow to extend a number of variables. They allow to sign directly impulse characteristics of a great set of variables in the Bayes factor-added vector auto-regression (FAVAR). As Ahmadi, Uhlig (2015) showed, every additional limitation of the sign can have the implement of the structural identification. Herewith, the selection of parameters of the structural model and estimation of the empiric veracity of alternative models are carried out by using estimates of impulse functions of the response and VAR model.

5. CONCLUSION

This work studied differences in the monetary policy of the regulator before and after the 2008 crisis, and interpreted the transfer channels. The research was made by using the vector auto-regression method.

Over the recent 15 years the internal monetary policy has been considerably corrected both in terms of goals and applied tools. Before the 2008-2009 crisis the monetary policy had focused on the currency rate (Yudiaeva (2010), Drobyshevskiy (2011). After the financial crisis the importance of the currency rate had decreased, and the Bank of Russia declared about the incremental transfer to targeting inflation and flexible rate formation.

The experience of foreign countries targeting inflation such as England, countries of the European Zone, Canada, etc. shows that under this mode it is the interest rate that acts as a basic tool of regulation.

The insufficiently developed financial market increases the sensibilities of the national economy to macro-economic shocks. At the present time such shocks for Russia include fluctuations of prices for hydrocarbons and limited access to markets of capital. They have a great impact on the exchange rate and accessibility of the international market of capital for internal members of the market, emergence of liquidity and payment capacity crises.

It is very important to understand via what tools and to what degree the banking sector reacts to changes in the monetary policy.

The authors have implemented the static solution for eight variables. According to the research results, the relative measure of monetary policy transfer via the interest channel, channel of bank crediting, channel of monetary flows and channel of unpredicted growth of prices level and their operation with a different degree of efficiency during the pre- and post-crisis period have been statistically stipulated.

The increase in the efficiency of bank crediting channels, unforeseen growth of the prices level and monetary flows in the post-crisis period have been confirmed. The efficiency of the interest channel remains insufficient, taking into account the course on targeting inflation declared by the regulator. Under this course, according to the experience of Western countries, this channel must act as the basic one in the transfer mechanism. Herewith, we can but not take into account small sample, few variables, transfer of the central

bank's policy from the policy related to targeting the ruble rate to the policy related to targeting inflation in the analyzed period, as well as macro-economic indicators (fall of tempos of the Russian economy growth, high inflation, dependence on world prices for oil).

Estimates of the response of variables for shocks obtained by using the VAR model can be used as a reference point for future researches of the mechanism related to transferring the monetary policy.

Taking into account the events in the internal economy in 2015-2016, the steep downfall of prices for oil and relevant weakening of the ruble, limitation of the access to international markets of capital that lead to structural changes in economy, introduction of anti-crisis measures of budgeting, it is possible to speak about forming a new mode of the monetary policy. Taking into account the speed of changes in the modern world, the dependence of the internal macro-economic situation on the world economy, due to the occurring processes of globalization, and integration that vividly showed the 2008 crisis, it is important to monitor changes in the unified monetary policy in terms of the efficiency of the applied tools, effectiveness of monetary transmission channels. The results of such researches are interesting not only for the regulator to pursue efficient monetary policy and not to allow the deepening of crisis phenomena but also for commercial banks to be taken into account when forming the strategy of development whose component is a system of financial stability management.

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