



**CENTER FOR MACROECONOMIC ANALYSIS AND SHORT-TERM
FORECASTING**

Tel.: +7(499)129-17-22, fax: (499)129-09-22, e-mail: mail@forecast.ru, <http://www.forecast.ru>

Monetary policy vs. Economic Growth

IRINA SUKHAREVA, expert

Presentation plan

- I. Russian monetary policy in 2013**
- II. Russian monetary policy adequacy analysis**
 - a) Inflation targeting**
 - b) Exchange rate control**
 - c) Sustaining economic growth**
 - ✓ correlation analysis
 - ✓ monetary policy rule evolution in Russia
(econometric modeling)
- III. Coordination of monetary policy and economic growth**
 - a) Monetary policy rule modification**
 - b) Calculation of the modification effect**
- IV. Conclusions**

I. Russian monetary policy in 2013

Russian monetary policy in 2013

Interest rate policy reform (1)

- *Transition from target range of annual inflation (CPI) to “point” targets (5.0% in 2014, 4.5% in 2015 and 4.0% in 2016). Fluctuations around “point” targets on a scale of +/-1.5 p.p. are allowed if such fluctuations are associated with short-term shocks and aren’t linked with fundamental factors*
- *Change in the system of interest rate instruments of monetary policy, including the introduction of the key rate simultaneously with setting a secondary role for the refinancing rate, and also simplification of the entire system of interest rate instruments of the Bank of Russia*
- *Emphasis on the development of the interbank lending market. Setting market benchmark interest rate policy – with the help of liquidity regulation operations in the banking sector "the Bank of Russia will strive to maintain a one-day money market rates at the level of the key rate"*

Russian monetary policy in 2013

Interest rate policy reform (2)

- *Increasing flexibility of the exchange rate regime* and continuing the transition to floating exchange rate regime of the ruble in 2015
- *Increasing policy transparency level*, which includes an active information policy (regular reports about dynamics of the main monetary policy parameters, explaining the content and objectives of the key policy measures)

II. Russian monetary policy adequacy analysis

Russian monetary policy adequacy analysis

Inflation targeting

- A wide range of permissible fluctuations of inflation around the specified targets (± 1.5 p.p.) may lead to greater uncertainty in monetary policy instead of the planned increase in certainty of monetary policy purposes
- Large opportunity to avoid inflation control for the Bank of Russia

Russian monetary policy adequacy analysis

Exchange rate control

- As part of the transition to a floating exchange rate the Bank of Russia plans to disclaim all responsibilities in the area of exchange rate regulation by 2015

Russian monetary policy adequacy analysis

Sustaining economic growth

- *According to the minutes of meetings of the Bank of Russia:*

Decisions on the level of a key instrument of interest rate policy are based on the "assessment of inflation risks and prospects for economic growth"

- *At first sight, traditional monetary policy rule principles*

Taylor rule: the value of the discount rate should be determined by deviations of inflation and economic growth from their potential levels (long-term trends)

Russian monetary policy adequacy analysis

Sustaining economic growth

Correlation analysis

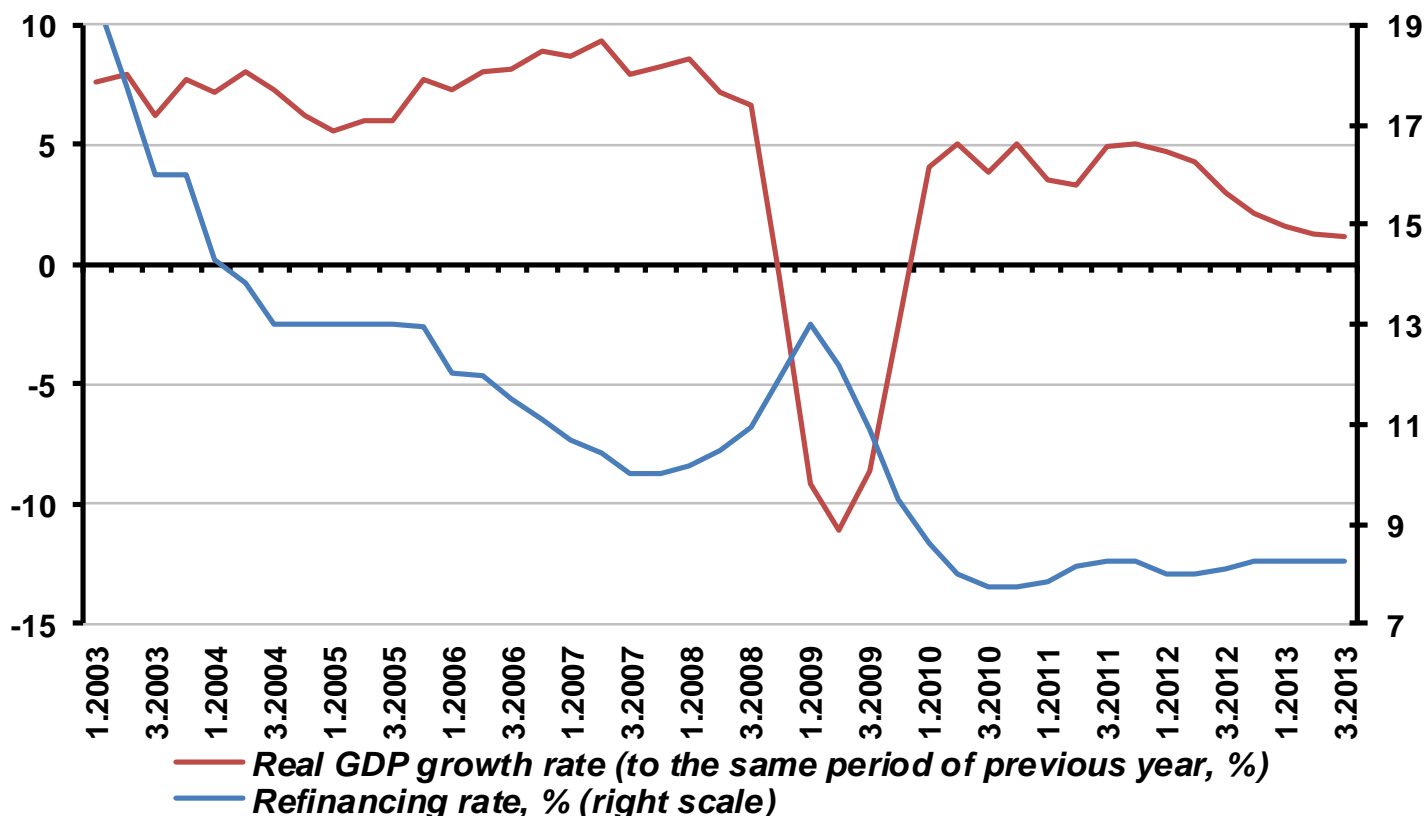
- Inflationary pressure and exchange rate dynamics play key role in the interest rate policy in 2003-2013
- The system of interest rate policy which is based on a system of controlling inflation is not adequate to the main policy goal – to sustain economic growth
- Phenomenon of interest rate policy procyclicality in relation to the macroeconomic conjuncture could be clearly observed at the last post-crisis period – 2009-2013

Russian monetary policy adequacy analysis

Sustaining economic growth

Correlation analysis

- *In 2003-2013 changes of the refinancing rate were almost a mirror image of the economic growth dynamics*



Sources: Rosstat, Bank of Russia

Russian monetary policy adequacy analysis

Sustaining economic growth

Correlation analysis

■ Correlation matrix

To the same quarter of the previous year	Refinancing rate			
	1.2003-2.2008	1.2009-3.2013	1.2009-4.2011	1.2012-3.2013
Real GDP growth rate	-31.4	-94.6	-95.5	-96.5
Industrial production growth rate	42.3	-89.9	-95.3	-87.6
Inflation (end of period)	49.3	81.0	83.8	83.9
Growth rate of ruble to bi-currency basket exchange rate	79.3	90.8	93.2	-21.9
Growth rate of ruble to US dollar exchange rate	51.5	88.9	93.6	-75.3

Sources: Rosstat, Bank of Russia

Russian monetary policy adequacy analysis

Sustaining economic growth

Monetary policy rule evolution in Russia (econometric modeling)

- *Main conclusion:* the interest rate policy of the Bank of Russia was not intended to support economic growth during the whole historical period (1996-2013)
- (1): during the historical period (1996-2009) various econometric estimations of monetary rule, haven't found any significant evidence of economic growth impact on the refinancing rate dynamics
- (2): econometric modeling results show that the Russian monetary policy rule didn't include economic growth parameters in the period 2009-2013

Russian monetary policy adequacy analysis

Sustaining economic growth

Russian monetary policy rule evolution (econometric modeling)

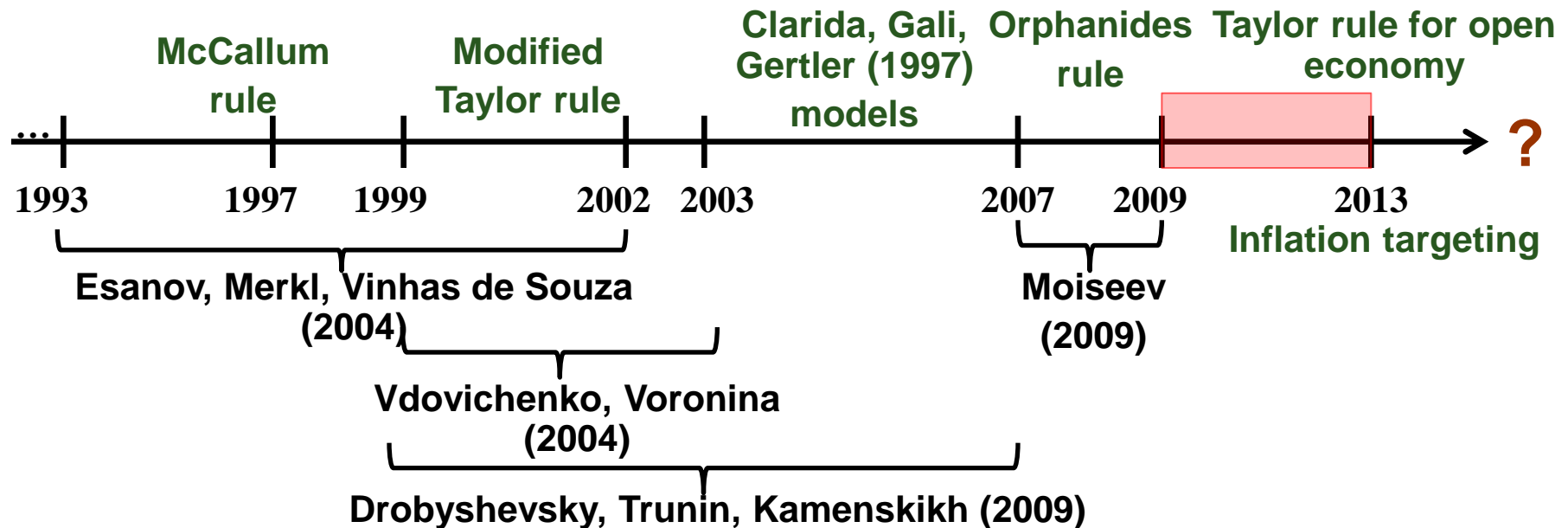
Taylor rule

$$R_t = \bar{r} + \Delta p_t^a + \alpha_1 (\Delta p_t^a - \pi^*) + \alpha_2 \bar{y}_t$$

- R_t – short-term nominal interest rate
- \bar{r} – average real long-term interest rate
- Δp_t^a – average or current inflation value (or expected values)
- π^* – central bank target inflation rate
- \bar{y}_t – difference between actual values of output and its potential values (or long-term trends)

Russian monetary policy adequacy analysis

Monetary rule assessment for the Russian economy

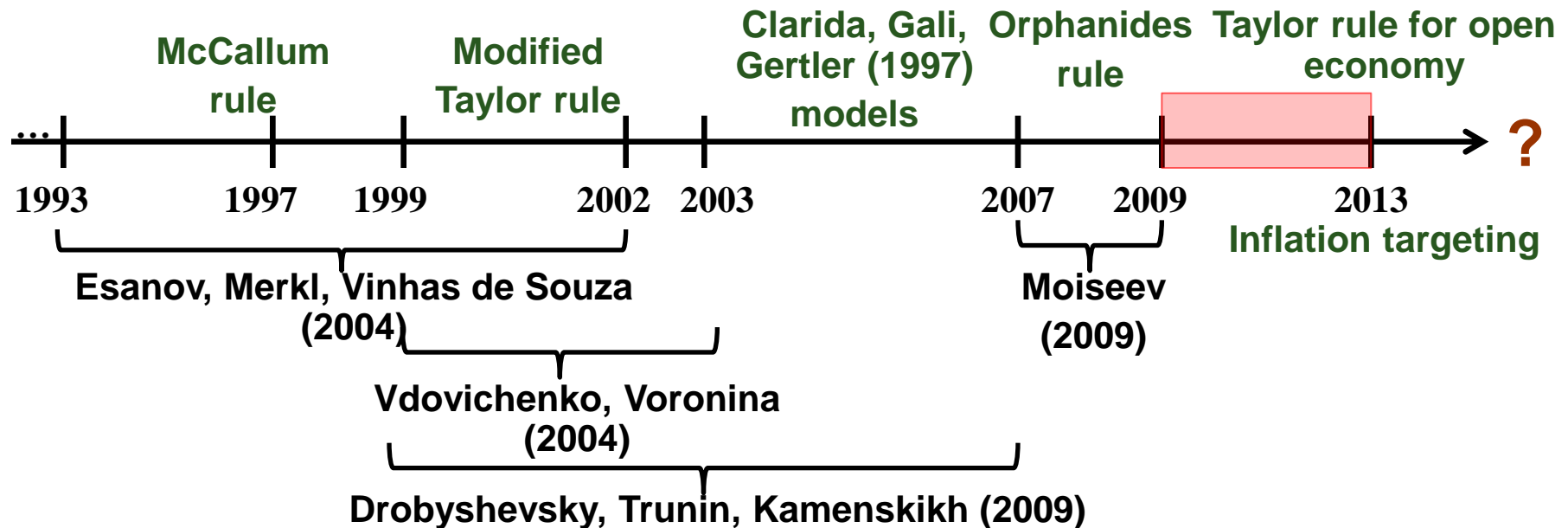


Key findings in 1993-2009:

- **Monetary policy instrument:** before 2004 – monetary base, after 2004 – the refinancing rate
- **Critical importance of exchange rate dynamics** in the period from 2004 till 2009
- **Best estimator:** Generalized Method of Moments (GMM)
- *Absence of clear evidence of economic growth significant impact on the refinancing rate dynamics*

Russian monetary policy adequacy analysis

Monetary rule assessment for the Russian economy







2009-2013-?

- Refinancing rate values estimation on the basis of two econometric models with regard to expert opinion
- **Taylor rule for open economy:** target variables – inflation and exchange rate
- **Inflation targeting:** target variable – inflation
- *None of the model specifications with GDP as target variable is significant*

Russian monetary policy adequacy analysis

Monetary rule assessment for the Russian economy

Calculating elasticity of the refinancing rate to dynamics of target factors

Factors	1995-1998	1999-2004	2005-2008	2009-2012	2012- <i>present</i>
Inflation	11.0	15.0	22.7	17.4	
Exchange rate	-	3.83	1.02	0.90	
GDP	2.00	0.67	0.14	0.07	
Lagged refinancing rate	0.90	0.90	0.80	0.80	

Instrumented variables: lagged refinancing rate, GDP

Russian monetary policy adequacy analysis

Monetary rule assessment for the Russian economy

Special features

- **Decision-making on the base of expected values of target variables** – Generalized Method of Moments (GMM) estimation
- **Adjustment of expectations to changes in time and policy regime** – differences between actual values of explanatory variables and their long-term trends
- **Harmonized time series** – the same monetary policy conditions
- **Verification of the model specification stability for the considered time period** – bootstrap resample procedure and estimated coefficients correction
- **Inertia factor**– including lagged dependent variable in the list of explanatory variables

Russian monetary policy adequacy analysis

Model 1, inflation targeting

- **Dependent variable** – current Bank of Russia refinancing rate

<i>Explanatory variables</i>		<i>OLS-1</i>	<i>OLS-2</i>	<i>OLS-3</i>
Refinancing rate	Lag -1	0.885*** (0.024)		
	Lag -3		0.648*** (0.039)	
	Lag -6			0.369*** (0.035)
Basic consumer price index (to the same month of the previous year)		0.287*** (0.145)	0.778*** (0.265)	1.033*** (0.279)
Constant		-2.176*** (1.396)	-5.539*** (2.627)	-6.023** (2.867)
Number of observations		50	48	45
R-squared		R ² = 0.99	R ² = 0.94	R ² = 0.83
F-stat (P-value)		1923.1 (0.00)	324.39 (0.00)	99.00 (0.00)

Note: *** $P < 0.01$, significance level equals 1%

Russian monetary policy adequacy analysis

Model 2, with taking into account exchange rate dynamics

<i>Explanatory variables</i>		<i>2SLS-1</i>	<i>2SLS-2</i>	<i>2SLS-3</i>
Refinancing rate	Lag -1	0.724*** (0.097)	0.756*** (0.127)	
	Lag -3			0.353** (0.163)
Difference between actual exchange rate of the bi-currency basket against the Russian ruble and long-term exchange rate trend forecast for a month		0.210** (0.111)	0.140* (0.095)	0.571** (0.261)
Difference between real inflation rate and target inflation rate	Lag -1	0.534*** (0.211)		1.144*** (0.440)
	Lag -3		0.406* (0.205)	
Constant		2.290*** (0.831)	2.018* (1.089)	5.415*** (1.415)
Number of observations		49	47	47
R-squared		R ² = 0.98	R ² = 0.98	R ² = 0.83
F-stat (P-value)		576.3 (0.00)	772.57 (0.00)	81.83 (0.00)
Instrumented variables		Difference between actual exchange rate of the bi-currency basket against the Russian ruble and long-term exchange rate trend forecast for a month		
Number of instruments		3	3	3
Hansen test, instruments relevance, P-value		0.22	0.28	0.38

Note: *** $P < 0.01$, significance level equals 1%, * $P < 0.10$, significance level equals 10%.

Russian monetary policy adequacy analysis

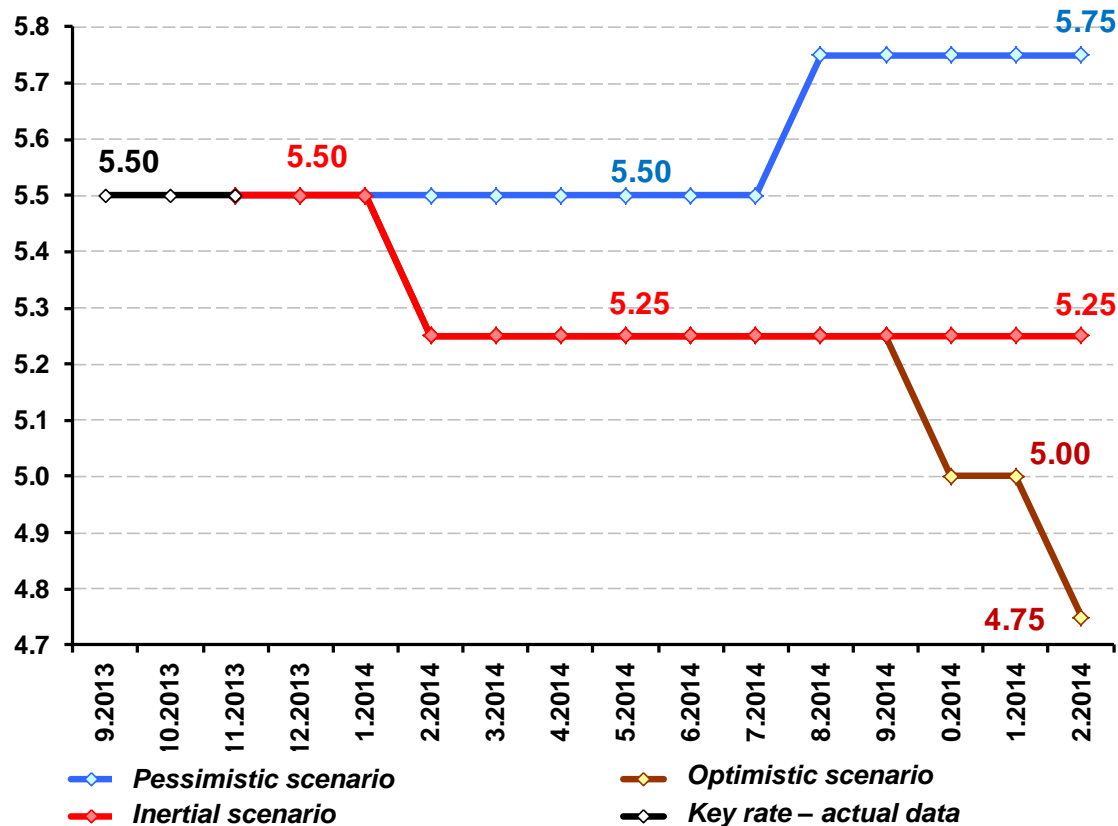
Short-term forecast of key monetary policy rate from November 2013

Scenarios	GDP	Oil prices	Inflation	Exchange rate*
Inertial	2.3	101	6.1	39.1
Optimistic	2.9	109	5.5	37.6
Pessimistic	1.0	93	7.3	42.2

**Bi-currency basket to ruble*

Russian monetary policy adequacy analysis

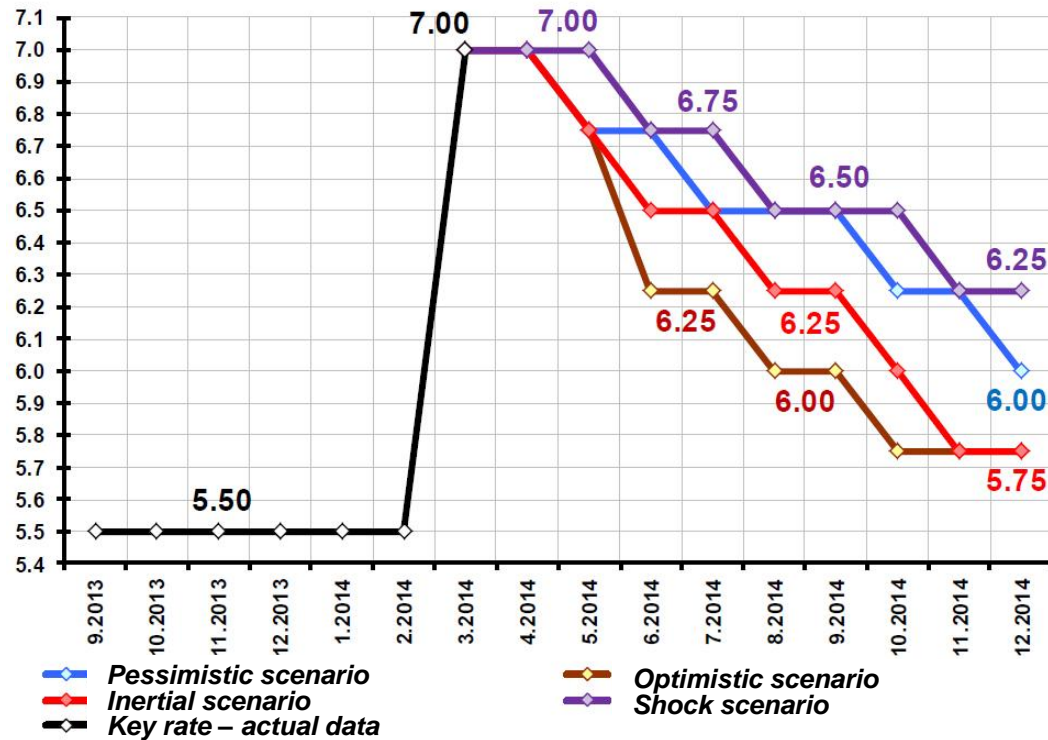
Short-term forecast of key monetary policy rate from November 2013



- Good enough to forecast growth under the pessimistic conditions
- Not good enough to guess the scale of economic growth damage from the Bank of Russia

Russian monetary policy adequacy analysis

Short-term forecast of key monetary policy rate from March 2013



- Gradual reduction of the key rate due to the stabilization of the situation with exchange rate risks
- By the end of 2014 the key rate will be higher than the average level of 2013 with almost the same level of inflation. The Bank of Russia continues constraining economic growth

IV. Coordination of monetary policy and economic growth sustainability

Coordination of monetary policy and economic growth sustainability

Monetary policy rule modification

What to do:

- *To formalize clearly and publish monetary policy rule (Taylor rule, the function of minimizing losses, etc.)*
- *To include economic growth parameter in the new monetary policy rule*
- To conserve the obligation to manage inflation within the 3 p.p. corridor
- Successful example: the Norges Bank inflation targeting policy.

Expected results:

- The logic of monetary policy within the target inflation corridor will become clear to the market
- Both goals to support economic growth and to reduce inflation will be coordinated between themselves in the short term
- The prior objective of reducing inflation in the medium term will be met

Coordination of monetary policy and economic growth sustainability

Monetary policy rule modification

Norges bank experience

$$L = \underbrace{(\pi_t - \pi^*)^2}_{\text{Criterion 1}} + \underbrace{\lambda(y_t - y_t^*)^2}_{\text{Criterion 2}} + \underbrace{\gamma(i_t - i_{t-1})^2 + \tau(i_t - i_t^*)^2}_{\text{Criterion 3}}, \text{ где}$$
$$\lambda = 0.75\gamma = 0.25\tau = 0.05$$

Criterion 3

π_t , y_t , i_t – current levels of inflation, output growth and monetary policy rate;

π^* , y_t^* – target rates of inflation and output growth respectively;

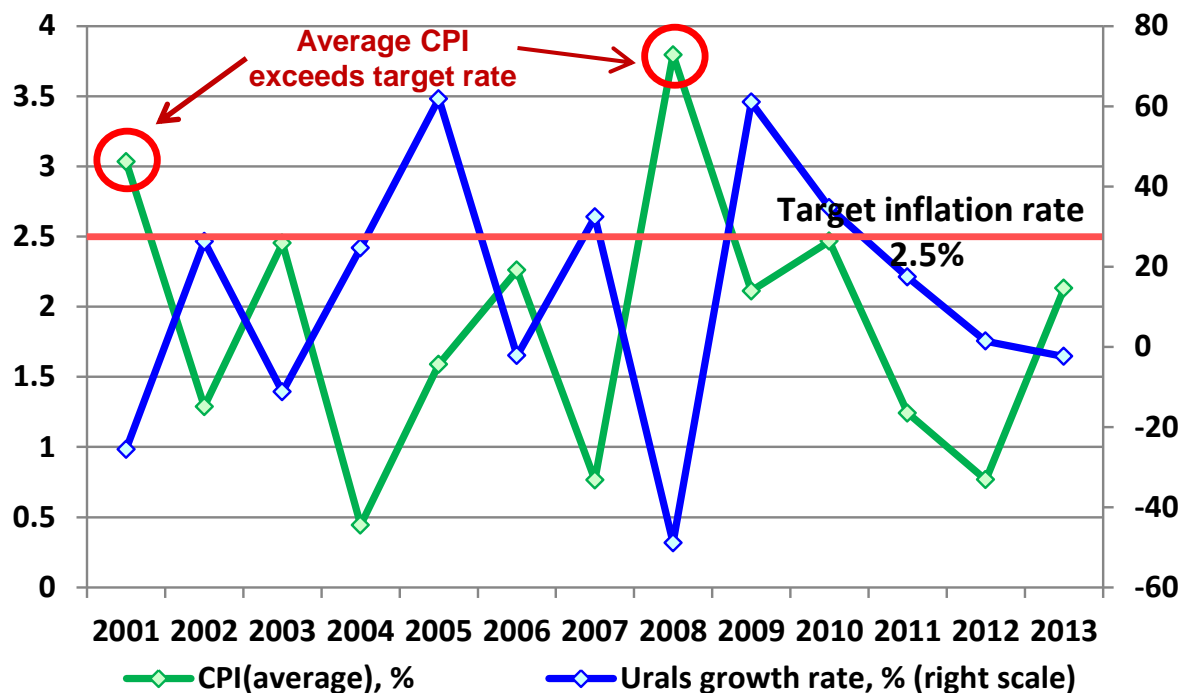
i_t^* – expected normal level of monetary policy rate (according to the Norges bank baseline scenario);

- Monetary policy rate in Norway – sight deposit rate (“overnight” deposits)
- According to Regulation on Monetary Policy (20.06.2003), monetary policy is oriented on support of low and stable inflation simultaneously with “contributing to stable dynamics of output and employment”

Coordination of monetary policy and economic growth sustainability

Monetary policy rule modification

Norges bank experience



- Since 2001 the Norges bank allowed inflation level to exceed target limit of 2.5% by 2 times (2001; 2008)
- All these cases were linked with necessity to support economic growth (mainly because of oil price shocks)

Coordination of monetary policy and economic growth sustainability

Calculation of the modification effect

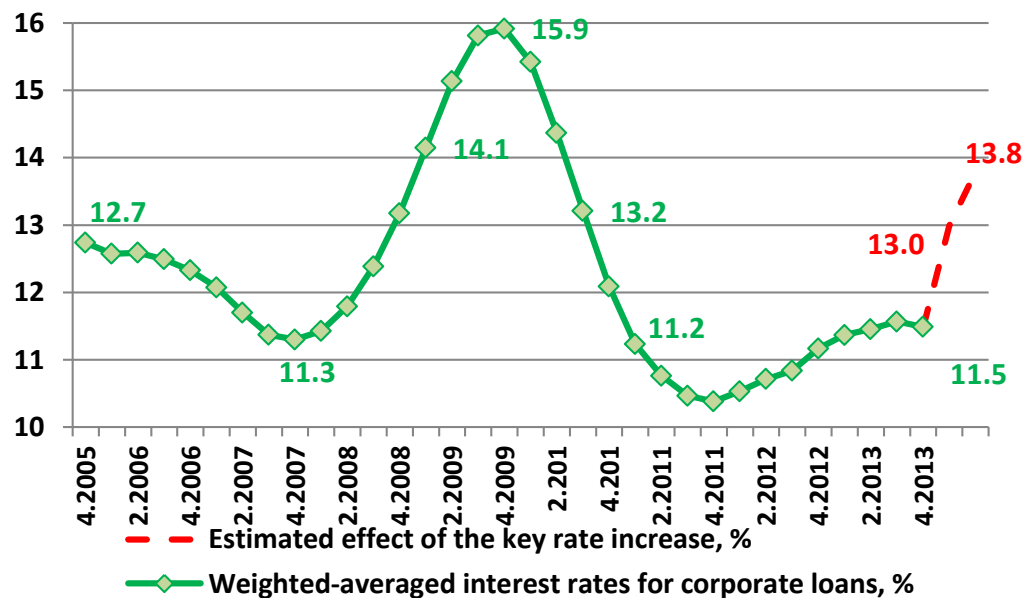
Component analysis of the average cost of corporate loans

- *Main conclusion:* the cumulative effect of lowering the key rate by 1 p.p. could allow Russian banks to lower corporate loan rate by 1-1.5 p.p.
- *Additional monetary policy reform proposals effect:*
 - ✓ creation of long-term borrowing benchmark yield for corporate blue chips controlled by the Bank of Russia could help reduce corporate loan interest rates by 0.7-1.2 p.p. by decreasing the average cost of banks to pay bond yields at least by 1 p.p.
 - ✓ encouraging banks to improve performance and reduce administrative costs (at least by 1 p.p.) also could help significantly increase the potential for reducing interest rates on corporate loans – by 0.1-0.5 p.p. (in the long-run)

Coordination of monetary policy and economic growth sustainability

Calculation of the modification effect

About the scale of monetary policy damage to the economic growth in 2013



- The cumulative effect of raising the key rate by 1.5 p.p. could oblige Russian banks to increase corporate loan rates by 1.5-2.3 p.p.
- Under current macroeconomic conditions such an increase will signify total closing of possibilities to get loans for the real sector and thus – deep reduction in investments (one of the key sources of economic growth)

Coordination of monetary policy and economic growth sustainability

Calculation of the modification effect

Component analysis of the average cost of corporate loans

$$NR_t = \sum_{n=1}^8 w_n * Liabilities_n + Ad\ min\ istrative_expenses_t + Risks_t + Re\ sidual_t$$

NR_t – weighted-averaged corporate loan rate (excluding loans up to 31 day)

From banks income statements:

$$Ad\ min\ istrative_expenses_t = \frac{\sum_{t-12}^t Adm_exp_t}{\sum_{t-12}^t Assets} * 12; Risks_t = \frac{Re\ s_t - Re\ s_{t-12}}{Loans_{t-12}};$$

$Liabilities_n$ – corporate deposits; retail deposits; interbank deposits; government accounts and deposits; bonds allocated; loans from the Bank of Russia; foreign liabilities

w_n – weights calculated on the base of coefficients of transformation of banks liabilities to corporate loans

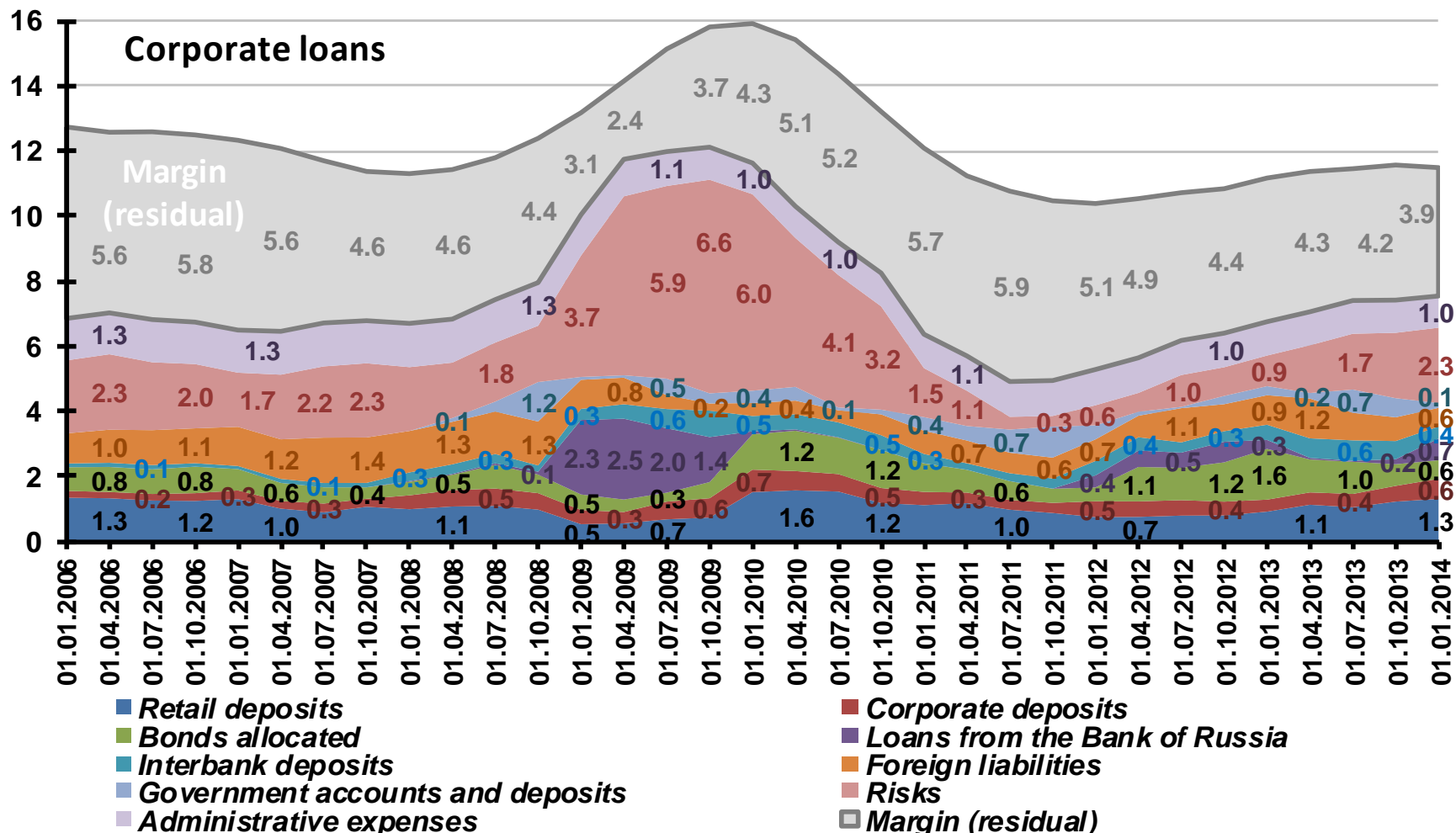
Main data source: consolidated financial statements of Russian banks

- Key rate could directly influence on the average cost of the loans from the Bank of Russia, government accounts and deposits and interbank deposits

Coordination of monetary policy and economic growth sustainability

Calculation of the modification effect

Component analysis of the average cost of corporate loans



IV. Conclusions

Conclusions (1)

- *The Bank of Russia monetary policy is not adequate to one of its main goals – to sustain economic growth – simultaneously with the weak obligation to pursue goals of inflation targeting and exchange rate risks stabilization*
- Both correlation analysis and econometric modeling results affirm the phenomenon of interest rate policy procyclicality relative to economic growth – *the Bank of Russia does not include economic growth parameters in its monetary policy rule*
- By recent sharp increase in the key rate the Bank of Russia could compel banks to raise corporate loan rates by 1.5-2.3 p.p. This will signify sufficient damage to the economic growth through closing of lending possibilities for the real sector

Conclusions (2)

- To coordinate monetary policy and economic growth sustainability *the Bank of Russia should formalize clearly and publish monetary policy rule*
- *The monetary policy rule should include economic growth parameter.* One of the successful examples – the Norges bank flexible inflation targeting rule
- The cumulative effect of lowering the key rate by 1 p.p. could create for the Russian banks the 1-1.5 p.p. gap for reducing corporate loan rates and thus help to increase the potential of economic growth (through launching the investment-led growth)

Thank you for your attention!



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