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Forecast for the Development of the Russian Economy for 2012 – 2015 Using the Dynamic Input –Output Model

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Content of the report

1. Recent developments of World Economy
2. Hypotheses Employed in Making a Forecast
3. Analysis of Estimated Results

Table 1. GDP growth rates in leading economies and in Russia in 2010 - 2012, %.

	2010	2011	2012 (forecast)
World economy	5,3	3,9	3,5
USA	3	1,7	2,0
EU	2	1,6	0,0
including EURO Area	1,9	1,5	-0,3
China	10,4	9,2	8,0
Japan	4,4	-0,7	2,4
Russia	4,3	4,3	4,0

Source: World economic outlook: a survey by the staff of the International Monetary Fund, URL: http://www.imf.org/external/pubs/ft/weo/2012/update/02/ date of treatment 18.07.2012

1. On the one hand central banks of the leading world economic centers keep real discount rates equal to zero or negative. For this reason, the leading world economies are in the situation or close to the situation of "a liquidity trap" when real interest rates in the economy are very low and their adjustment has very little influence on the behavior of economic agents, the situation which was described in the economic theory long ago. That is why, in our opinion, in these conditions it is hard to expect considerable positive consequences from manipulating the money supply and interest rates in the economies of the USA, EU, and Japan.

2. On the other hand, the governments' of the USA, Japan and some countries of the EU that have great national debts (that in some cases greatly exceed the GDP, for example in Greece and Italy) are limited in their ability to stimulate economic growth by applying fiscal measures.

In the short-term and medium-term periods there is a high likelihood to expect low growth rates of the world economy or another decline similar to the recession of 2008 – 2009. This fact predetermined the philosophy of forecasting the economic development of Russia for the period 2012 – 2015, with the trajectory of economic growth projected within the range of _basic or moderately optimistic (moderate rates of growth) and pessimistic alternatives._

The econometric analysis, which employed the quarterly data describing the dynamics of the most important real (i.e. net of inflation) macroeconomic variables in Russia, shows that in the recent decade the following changes have had a crucial effect on the dynamics of GDP

- ✓ Real money supply M2 (a positive effect with a 1 quarter lag);
- ✓ Price of Urals oil brand (a positive effect with a 1 quarter and 4 quarter lag.

Hypotheses Employed in Making the Forecast

__Basic scenario.__ It is predicated on the main idea of the absence of radical economic or political shocks in the forecasting period.

1. It is assumed that the plan for gradually leading some of the union member countries out of the debt crisis adopted under the direction of the EU will be carried out step by step.

2. The US Federal Reserve System and government continue taking measures to provide economic growth and reduce inflation.

3. The Chinese leaders manage to avoid the slowing of the national economy, which will ensure the stability of their financial markets and continuation of steady economic growth in the country.

4. It is forecast that the Russian leaders will carry out a reasonable economic policy taking advantage of the positive external conditions in order to ensure stable economic growth.

Hypotheses Employed in Making the Forecast (continuation)

The period 3 – 4 quarters 2012 (basic scenario)

✓ Under the basic scenario it is assumed that in 3-4 quarters 2012 the average Urals oil brand price will be at the same level as average level of 2nd quarter of 2012, i.e. approximately \$107 per barrel.

✓ The Bank of Russia will provide such growth of nominal money supply that in 3rd 2012 it will lead to a gradual increasing of the volume of real money supply M2 by 20% and by 10 % in 4th quarter 2012. Under the assumption that GDP deflator in 2012 will increase by 9,3 % (average deflator for 2010-2011) volume of nominal money supply M2 in 2012 will increase by 26 %. It's comparable with increase of nominal money supply M2 in 2010 (32,9 %) and in 2011 (23,8 %).

Hypotheses Employed in Making the Forecast (continuation)

The period 2013 – 2015 (basic scenario)

✓ Under the conditions of EU and world economy recovery Urals oil brand price will increase gradually. In 4th quarter of 2013 it will be 5 % higher as compared with its average level in 2-4 quarters 2012. In 2014 Urals oil brand price will increase by 10 % and in 4th quarter 2014 will be equal $123,5 per barrel. Gradual growth of oil price is forecasted for 2015 (by 10 % per year). Average oil price for 2013 is assumed on the level of $110 per barrel and is equal to average oil price which is forecasted for 2012. In 2014 average Urals oil brand price is forecasted on the level of $119 per barrel and for 2015 - $ 131 per barrel.

✓ The Bank of Russia will continue to provide active monetary policy. It will increase real money supply M2 by 10% in 2013 and by 5 % in 2014-2015. Under the assumption that GDP deflator in 2012 will increase by 9,3 % (average deflator for 2010-2011) volume of average nominal money supply M2 in 2013 will increase by 20,2 % and by 14,7 % in 2014-2015.

Hypotheses Employed in Making the Forecast (continuation)

Pessimistic Scenario. It is predicated on a negative development of the world economy in short and medium-term perspectives. The essence of the negative scenario of development is as follows:

1. In spite of the fact that a considerable part of the state debt of Greece was written off in autumn 2011 (which, in fact, means partial default already), the country will not be able to service the outstanding debt. The other countries of the Euro Zone will refuse to finance the Greek debts and exclude the country from the Euro Zone or Greece will leave it voluntarily. Another potential shock that may provoke the beginning of a new financial-economic crisis is connected with the deterioration of the state debt problem of Spain, one of the largest European economies. Distrust towards the country's state securities and its possible default can also provoke panic at stock exchanges and lead to destabilization of the world economic system.

2. The negative development scenario in the market of European public debt obligations leads to a sharp fall of trust to the Euro as one of the world reserve currencies, the rate of the Euro in relation to other world currencies is depreciated. There is a sharp fall in the price of all assets nominated in the currency, a fall in the price of state securities of problem European countries in particular, whose state debt exceeds or is equal to the size of their annual GDP – Portugal, Ireland, Italy. The assets of the largest European banks and corporations decrease drastically.

Hypotheses Employed in Making the Forecast (continuation)

3. Due to the depreciation of European assets investors start a mass sale of securities of European banks and corporations. It leads to the beginning of a collapse at European stock exchanges.

4. A number of largest European banks − holders of large packages of state securities of problem countries - go bankrupt. In order to prevent a complete collapse of the financial system the banks are nationalized by the governments of the EU countries.

5. The panic at European stock exchanges spreads all over the world. The crisis of the European financial system leads to a sharp fall of trust among the financial institutes of the whole world economy and, in effect, stops inter-bank crediting in the USA, Japan, China, in the BRIC counties and the rest of the world.

Hypotheses Employed in Making the Forecast (continuation)

6.   The slump in the world production will lead to a decrease of demand on Russian exported goods and the prices and sales volumes of Russian main exported goods will fall considerably. This will result in a sharp fall of the surplus of current account operations of the balance of payments. In addition, as in 2008-2009, the consequence of the crisis of the world financial system will be a sharp reduction or suspension of crediting Russian banks from abroad. The supply of credits in Russia will decrease, which will lead to a reduction of real money supply. As it happened in 1998 and the autumn of 2008, Russia will face a massive flight of speculative capital that will sharply increase a negative balance of the capital account of the balance of payments. There is a high likelihood that in general the balance of payments will be either negative or balanced.

7. In 4th quarter 2012 and in 2013, the fall of demand on exported goods , the reduction of the size of credits and the flight of capital will lead to a slump of production in Russia

8. In 2014, the fiscal and monetary measures of stimulating economy will prevent a further fall of production in the largest economies of the world. At the same year, a structural reorganization will take place in the economies of the leading countries that will ensure the growth of production effectiveness and the beginning of economic recovery in 2014 -2015.

Hypotheses Employed in Making the Forecast (continuation)

3 – 4 quarters 2012(pessimistic scenario)

✓ In 3-4 quarters 2012 г. the average Urals oil brand price will decrease by 10 % as compared with average price in June 2012 ($93,4 per barrel). Average Urals oil brand price in 3-4 quarters will be approximately $84,1 per barrel.

✓ At the same time the Bank of Russia will not provide active monetary police. The real money supply M2 <u>will not increase</u> in 3-4 quarters 2012.

Hypotheses Employed in Making the Forecast (continuation)
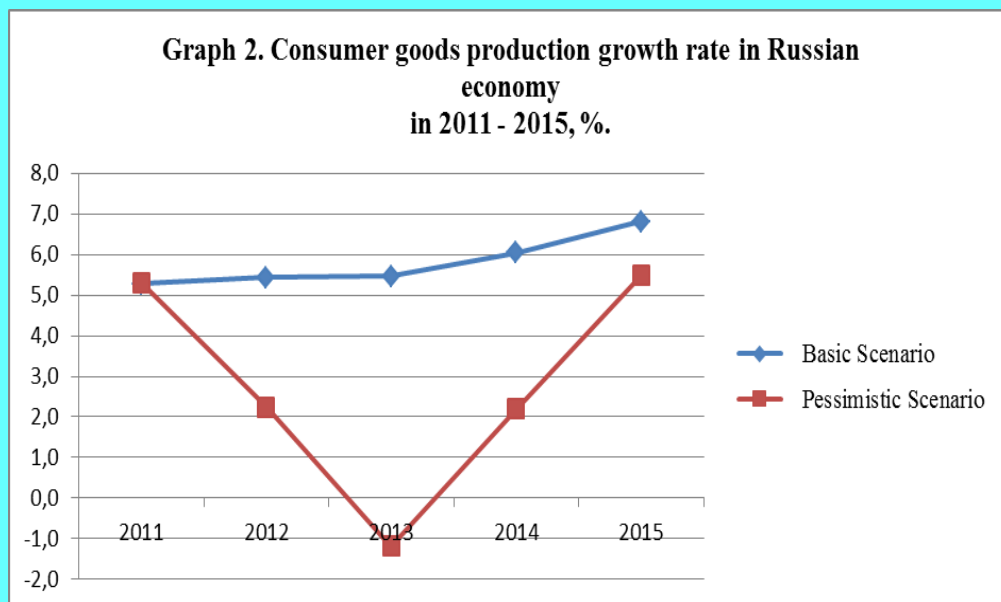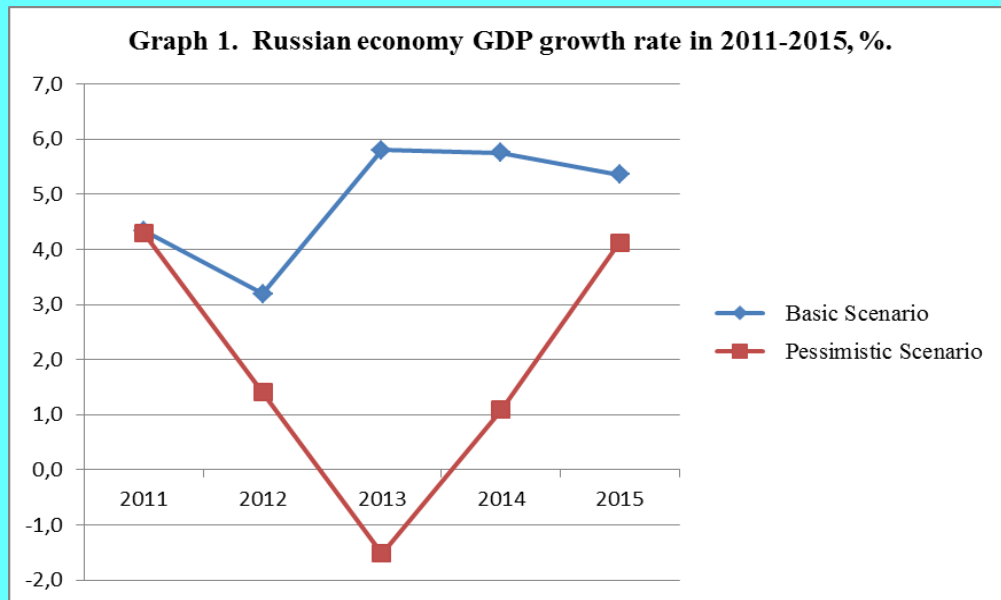
2013 – 2015 (pessimistic scenario)

- ✓ Urals oil brand price in 2013 gradually will increase to $100 per barrel in 4th quarter 2013, i.e. by 20 % as compared with 3-4 quarters 2012. In 2014 oil price will increase by 10 % and will achieve $111 per barrel in 4th quarter 2014. In 2015 oil price will increase gradually by 10 % again and will achieve $122 per barrel in 4th quarter 2015.

- ✓ In 2013 real money supply M2 will increase by 10 %. In 2014 – 2015 for economic recovery the Bank of Russia will provide more aggressive monetary policy and will increase real M2 money supply by 20 % per year. It means 27 % growth of nominal money supply under condition that annual GDP deflator will be 6 % per year.

Analysis of the Calculations' Results

Table 2. Urals oil price ($US/bar.) dynamics and growth rates of some macroeconomic indices of the Russian economy for the period 2011 - 2015, %.

Indices	2011	2012	2013	2014	2015	2012 – 2015
Average Urals oil price						
Basic Scenario	109,1	109,6	110,3	119,2	131,2	120,2
Pessimistic Scenario	109,1	98	94	107	118	108,0
GDP growth rate, %						
Basic Scenario	104,3	103,2	105,8	105,8	105,4	121,6
Pessimistic Scenario	104,1	101,4	98,5	101,1	104,1	105,1
Capital and intermediate goods production growth rates (1st subdivision), %						
Basic Scenario	103,8	102,0	106,0	105,6	104,6	119,3
Pessimistic Scenario	104,1	101,0	98,3	100,5	103,4	103,1
Consumer goods production growth rates (2nd subdivision), %						
Basic Scenario	105,3	105,4	105,5	106,0	106,8	125,9
Pessimistic Scenario	104,0	102,2	98,8	102,2	105,5	108,9
Investments into fixed assets growth rate, %						
Basic Scenario	108,3	110	110	112	112,0	151,8
Pessimistic Scenario	106,2	106,2	96,0	102,0	110,0	114,3

Source of information: results of forecast using macroeconomic econometric model and Dynamic Input – Output Model.

Graph 1. Russian economy GDP growth rate in 2011-2015, %.

Graph 2. Consumer goods production growth rate in Russian economy in 2011 - 2015, %.

Graph 3. Investment growth rate in Russian economy in 2011-2015, %.
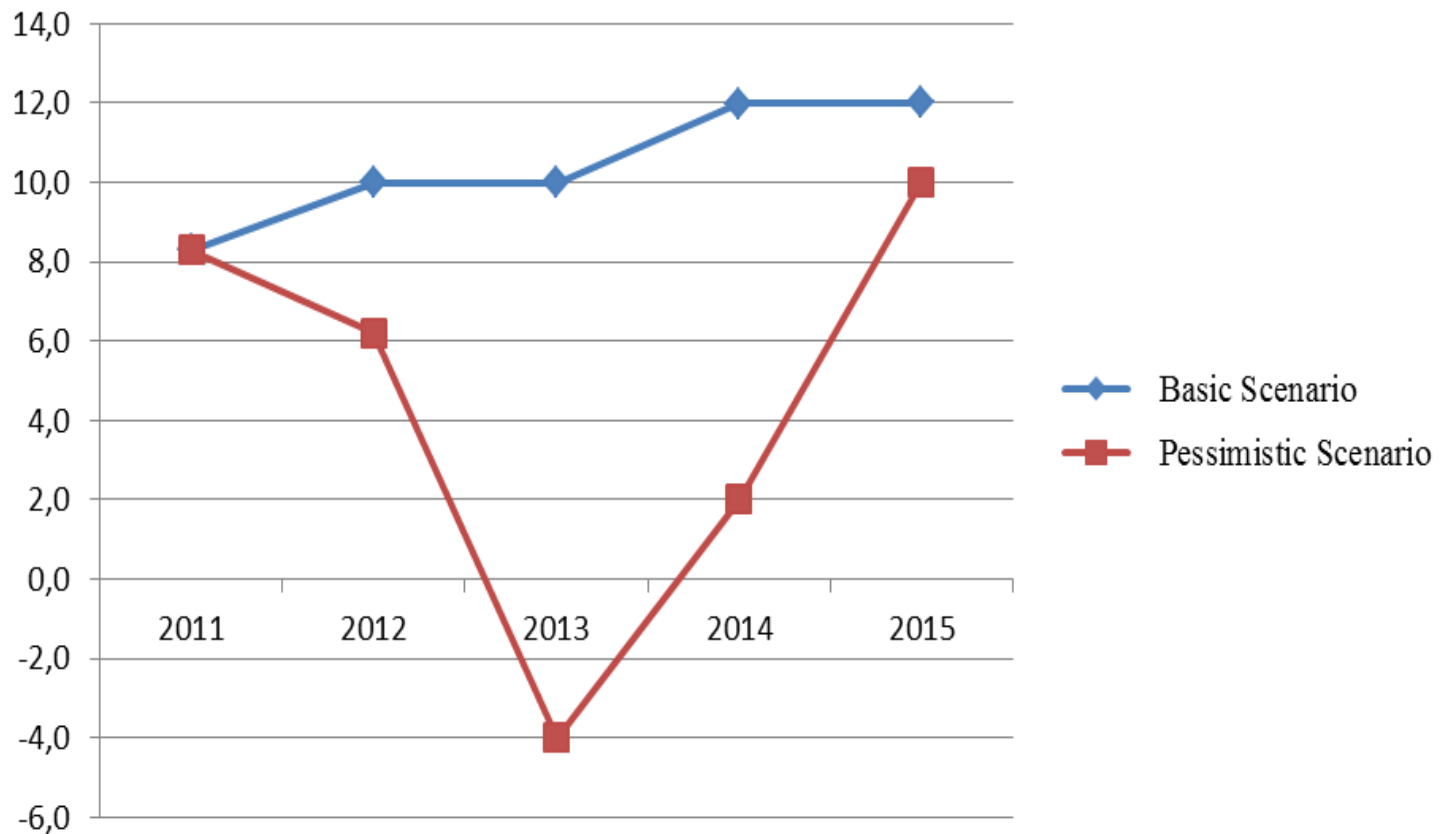
The main conclusions of the results of the projected estimates are as follows:

1. According to our estimates, *in the absence of an effective stimulating monetary policy on the part of the Bank of Russia and fiscal policy on the part of the government of the Russian Federation, with the dynamics of oil prices corresponding to the pessimistic scenario, the fall of GDP in the Russian economy in 2013 can account for approximately 1,5 %. Under this scenario, in 2014 the growth of GDP will be only about 1 %. A considerable positive development of the Russian economy will be restored only in 2015 when the growth rate may amount to 4,1 %.* In 2013 the gross output of the first division will fall by 1.7% and of the second one by 1.2%.

2. Within the framework of the scenarios under review, investments into fixed capital will experience the most considerable variations among the analyzed macroeconomic indices. Under the pessimistic scenario, they might fall by 4% in 2013. In the basic scenario for economic development, the growth rates of investments into fixed capital vary from 110% in 2012 - 2013 to 112% in 2014 -2015
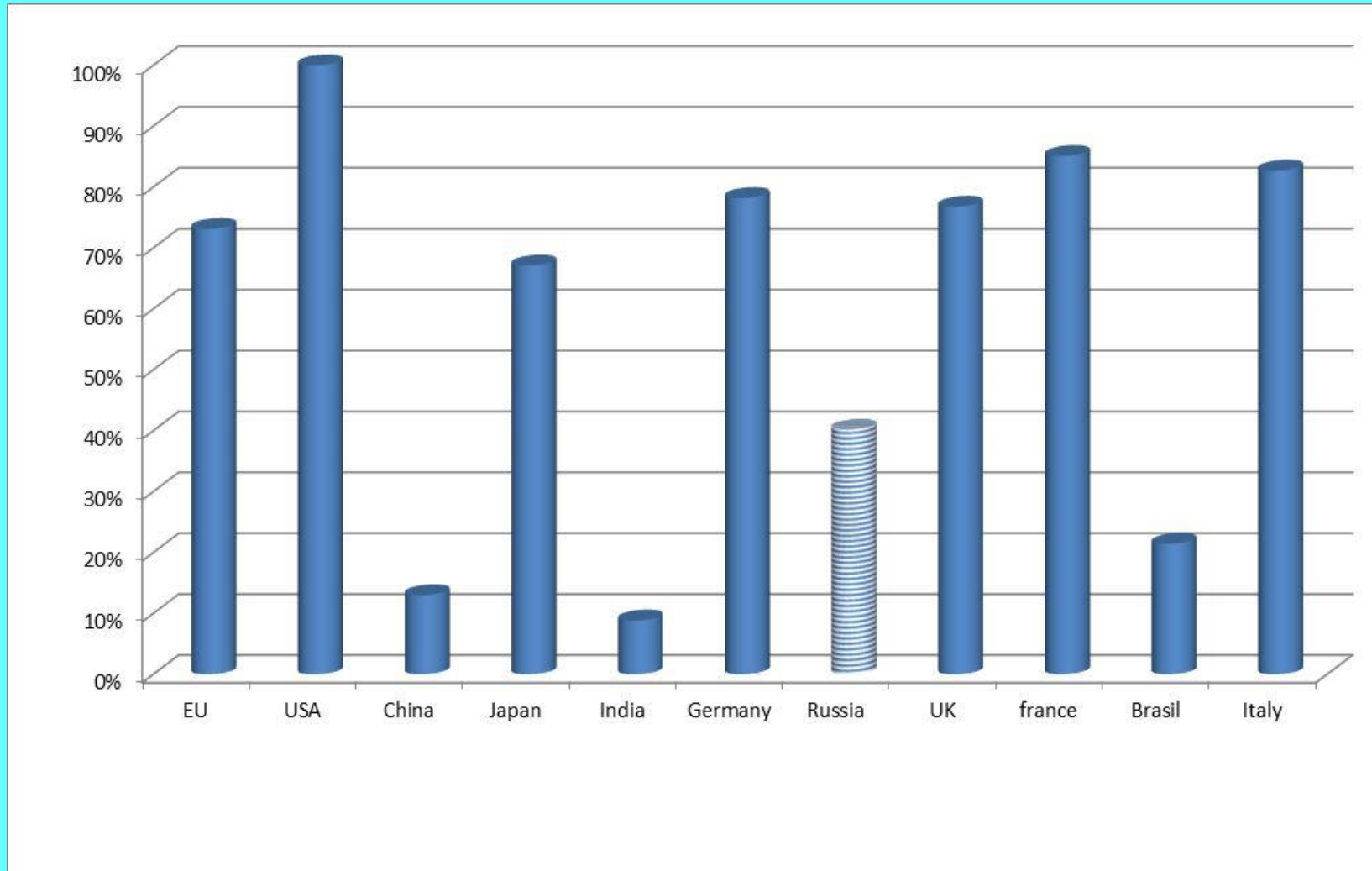
The main conclusions (continuation):

3.   The basic scenario is _moderately pessimistic_. This scenario does not presuppose the growth rate of investments into fixed capital (not less than 14%-15% per annum) that could provide an appropriate level of compensation for a drop out of the active part of fixed assets that are important for ensuring such rates of growth of production efficiency that would provide a reduction of a considerable gap between Russia and the developing countries on this index. Such rates of investments growth would require higher rates of growth of GDP (9%- 11%) or a reduction in the growth rates of the production of consumer goods and services, i.e. a redistribution of resources from the first subdivision into the second one. The latter is unacceptable in view of a rather low living standard of the population in Russia in comparison with that in the developed countries.

4.   In our view it is possible to provide a required level of investments into fixed capital through attracting considerable foreign investments. However, in the next few years a massive inflow of investments will be limited by high uncertainty in the prospects for world economic development caused by the consequences of financial-economic crisis of 2008-2009 that have not been overcome yet.

Labor productivity (GDP (PPP)/ number of employees) in main world economies as share of the USA labor productivity, %
(Source of data: World Bank, URL: http://databank.worldbank.org; authors caculations)

The main conclusions (continuation):

5. A comparison of the projected dynamics in different types of economic activity according to different forecasting scenarios makes it possible to draw the following conclusions.

➢ Depending on different development scenarios, fund-forming industries experience the greatest fluctuations in the volumes of production. Under the pessimistic scenario, the rates of growth in machine building during total period under consideration (2012-2015) are 44,6% lower than those under the basic scenario (Tables 5). In construction the growth rates during total period under consideration (2012-2015) are 31,7% lower than those under the basic scenario (Tables 5).

➢ A comparison of the volatility dynamics in the extraction of mineral deposits and processing industries according to different forecasting scenarios shows a much higher fluctuation in the latter (see Tables 3-5). It is explained by a high volatility in the growth rates in machine building, production of construction materials, textile and sewing production and manufacture of finished hardware (Table5).

➢ At first sight, the rather insignificant, according to different variants of development, fluctuations of the gross output growth rates in extracting industries might seem paradoxical. However, it can be explained by rather stable production growth rates in these industries measured in *constant prices*.

The main conclusions (continuation):

6.   A comparison of the projected rates of production growth by industries make it possible to see how the mechanism of the negative influence of external shocks on the dynamics of the Russian economy works. In general terms its essence is as follows: reduction of aggregate demand on world markets and reduction of prices on exported goods→ reduction of net export, the balance of payments surplus and of currency earning→ decrease of earnings (sales volumes) in export-oriented industries→ ruble devaluation and collapse of the stock exchange market → massive flight of Russian and foreign capital out of the country → reduction of money supply →increase of interest rates in the economy →fall of internal aggregate demand that starts in industries of the investment complex →fall of total production output or reduction of production growth rates →considerable reduction of incomes in the extended budget and budget deficit. In other words, external shocks affect the economy of Russia not only through the industries of the extracting branch, but also through the financial market where the negative dynamics transform into a decline in production, increase of unemployment and budget deficit.

The main conclusions (continuation):

7. The government of Russia cannot influence the situation in external markets in any significant way. For this reason, under the adverse development of the situation in the world fuel markets, the mechanisms of stabilizing the Russian economy are those connected with regulating currency, stock and monetary markets as well as stimulating the economy by fiscal instruments.

8. *In general, according to our estimates, the most likely trajectory for the development of the Russian economy in 2012-2015 will be within the boundaries of the development dynamics of the main indices of the basic and pessimistic scenarios.*

Table 3. Gross output growth rates for different kinds of economic activities in Russia in 2012-2015 in accordance with the basic scenario forecast, %

Kinds of Economic Activity	2012	2013	2014	2015	2012-2015
1. Agriculture, hunting, forestry and fishing	103,5	105,1	105,2	105,5	120,7
2. Minerals mining	99,5	103,5	102,2	100,7	105,9
3. Manufacturing	102,3	106,1	106,0	105,4	121,2
including machine – building industry	106,2	108,6	111,9	112,0	144,6
4. Production and distribution of electric power, gas and water. Water collection, purification and distribution	101,8	105,5	104,8	104,1	117,1
5. Construction of buildings and facilities	108,4	109,2	110,9	110,8	145,4
6. Wholesale and retail trade, repair, hotels and restaurants	103,7	105,3	105,5	105,8	121,8
7. Transportation	102,5	105,2	104,9	104,6	118,3
8. Communication	102,8	105,4	105,0	104,8	119,3
9. Financial activities	110,5	105,4	104,3	103,4	125,7
10. Real estate transactions, renting and services	102,7	105,5	104,8	104,3	118,4
11. Public administration, military security. Social security, education, health and social services, other utilities, social and personal services	104,2	105,5	105,8	106,2	123,4

Table 4. Gross output growth rates for different kinds of economic activities in Russia in 2012-2015 in accordance with the pessimistic scenario forecast, %

Kinds of Economic Activity	2012	2013	2014	2015	2012-2015	Difference versus Basic Scenario for the period 2012-2015
1. Agriculture, hunting, forestry and fishing	100,8	99,2	101,9	104,4	106,3	-14,4
2. Minerals mining	99,2	100,4	100,4	100,5	100,3	-5,6
3. Manufacturing	101,1	97,7	100,3	104,0	103,0	-18,2
including machine – building industry	106,8	90,1	95,8	108,4	100,0	-44,6
4. Production and distribution of electric power, gas and water. Water collection, purification and distribution	100,1	99,0	101,1	103,3	103,4	-13,7
5. Construction of buildings and facilities	105,2	96,5	102,7	109,1	113,7	-31,7
6. Wholesale and retail trade, repair, hotels and restaurants	101,1	98,9	101,8	104,6	106,5	-15,3
7. Transportation	100,6	99,1	101,4	103,6	104,7	-13,6
8. Communication	100,6	99,2	101,6	103,9	105,3	-14,0
9. Financial activities	108,7	99,7	101,3	102,8	113,0	-12,8
10. Real estate transactions, renting and services	100,6	99,3	101,4	103,5	104,9	-13,4
11. Public administration, military security. Social security, education, health and socila services, other utilities, social and personal services	101,3	98,9	102,0	105,0	107,2	-16,2

Table 5. Gross output growth rates for different kinds of economic activities in Russia, with a more detailed description of different kinds of industrial activities, for the total period of 2012-2015 in accordance with different forecasting scenarios,%

Kinds of Economic Activity	Scenarios		Difference versus Basic Scenario for the period 2012-2015
	Basic	Pessimistic	
1. Machine – building industry	144,6	100,0	**-44,6**
2. Construction	145,4	113,7	**-31,7**
3. Agriculture, hunting, forestry and fishing	120,7	106,3	**-14,4**
4. Extraction of gas	108,7	101,4	**-7,3**
5. Extraction of oil	102,9	99,8	**-3,1**
6. Other minerals mining	115,9	102,1	**-13,8**
7. Foodstuffs and tobacco production	124,8	107,7	**-17,1**
8. Textile and Sewing production. Leather - Footwear Industry.	125,4	89,4	**-36,0**
9. Wood processing industry. Pulp and paper industry. Publishing and printing industry.	117,7	103,6	**-14,1**
10. Coke production	111,6	101,6	**-10,0**
11. Petroleum products production	113,6	102,6	**-11,0**
12. Chemical production. Rubber and plastic products production.	117,5	101,9	**-15,6**
13. Construction materials production	137,0	109,6	**-27,4**
14. Ferrous metals production	116,3	100,6	**-15,7**
15. Non-ferrous metals production	105,7	98,6	**-7,1**
16. Hardware production	124,0	103,1	**-20,9**
17. Other kinds of industrial activity	115,1	103,1	**-12,0**
18. Production and distribution of electric power, gas and water. Water collection, purification and distribution	117,1	103,4	**-13,7**
19. Wholesale and retail trade, repair, hotels and restaurants	121,8	113,7	**-8,0**
20. Transportation	118,3	106,5	**-11,9**
21. Communication	119,3		**-119,3**
22. Other services	122,0	107,3	**-14,7**
GDP - total	**121,6**	**105,1**	**-16,5**

THANK YOU !