

Possibilities of Russian Economy Monetization

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Abstract — The research is devoted to the issues of the monetization of economy. The topic of the study is the possibility of monetization of the Russian economy. The purpose of the research is to identify the possibilities of changing the monetization coefficient of economy, by analyzing the impact of changes on economy in the dynamics of GDP growth rates in US dollars and rubles, the GDP deflator, monetary aggregate M2 and the ruble exchange rate. Statistical, comparative and logical methods of analysis are used in the study. The article identifies the reasons for the forecasted decline in economic growth in emerging and developing countries, as well as global economy. The historical role of money is shown as well as its impact on economy and society from coining of money in Athens to the transition to a peer-to-peer payment system using “Bitcoin” and “Altcoin”. The study reveals the stabilization of the dynamics of GDP growth in US dollars and in rubles, the GDP deflator and the M2 monetary aggregate in the range from 4 to 12 %. It is found that the changes in the monetization of the Russian economy are associated with the volatility of the ruble exchange rate, which is adjusted by the “budget rule”. The growth rate of the ruble exchange rate is less than the growth rate of the purchase of foreign currency, etc. It is advisable to use the results of the study in the formation of an agreed equilibrium triad of monetary, budgetary and entrepreneurial relations to ensure sustainable economic growth in Russia. The analysis of the possibilities and consequences of changing the monetization coefficient of Russian economy revealed the decisive role of the “budget rule”, which helps to reduce the volatility and inflation of ruble exchange rate and replenish international reserves. The stabilization of the ruble exchange rate, in the conditions of continued growth in foreign currency purchase volumes, led to the need to actively increase the issue of federal loan bonds with bond yield not lower than the key rate and to increase the reserve requirements for the banking sector, which negatively affected the growth rate of the volume of loans granted to legal entities.

Keywords — budget rule, monetary aggregate, dynamics, ruble exchange rate, monetization of economy, federal loan bonds, economic growth.

I. INTRODUCTION

The World Bank expects economic growth in developing countries and emerging markets to be 4.6 % in 2020 compared

to 4 % in 2019. However, trade and financial shocks threaten the forecast.

According to World Bank forecasts, in 2019 the world economy will slow down to 2.6 %, and in 2020 it will step up to 2.7 %. The growth rates of the economies of developing countries and emerging markets are stabilizing, as the period of financial difficulties in a number of countries will be left behind. The prospects of economic growth in developing countries and emerging markets are limited by poor investment activity and significant risks [1].

World Bank in the report “Global Economic Prospects. Heightened Tensions, Subdued Investment” includes such risk factors as: the growth of trade barriers, financial shocks and the recession in the economy of several large countries. These factors negatively affect forecasts and structural problems, lead to investment decision error and discourage investments [2].

It is expected that in the group of advanced economies, especially in the euro area, economic growth will slow down in 2019 due to reduced exports and investment. According to the forecasts, the growth rate of the US economy in 2019 will decrease to 2.5 %, and in 2020 – 1.7 %. In the euro area in 2020–2021 fluctuations in economic growth rates are expected at around 1.4 %.

The World Bank reported a record growth of the Russian economy in 2018 – 2.3 %. Russia managed to achieve such a result due to the increase in world oil prices, the increase in export earnings, the implementation of several major energy projects and the World Cup. However, the World Bank cut its forecast for the growth of the Russian economy in 2019. Experts cut the April forecast from 1.4 to 1.2 %. According to the report, this is due to a decrease in oil production, a tighter monetary policy, coupled with an increase in VAT at the beginning of the year.

The problem of economy stimulation is actualized by the expected more than threefold lag in the growth rates of the Russian economy from developing countries and emerging economies, a more than two-fold lag behind the growth rates of the world economy.

In the modern world economic structure, the economies of the countries of the world have almost reached the limit values of effective demand and capital. The main trigger for the development of economy is monetization. The nature of the trigger action is getting closer to impulse dynamics. This is due to the transition to a digital economy, a peer-to-peer payment system, “Bitcoin” and “Altcoin” (“alternative coin” – “Litecoin”, “Namecoin”, “PPCoin” and others).

The indicator of monetization is the corresponding coefficient equal to the ratio of money supply to GDP. Money supply is a combination of cash in circulation and balances of non-cash funds in accounts held by individuals, legal entities and the state. The Central Bank of the Russian Federation calculates the monetary aggregates “M0”, “M1”, “M2” and “M3”: M0 – cash in circulation (coins, banknotes); M1 – M0 and checks, demand deposits (including bank debit cards), balances in national currency on the settlement accounts of organizations, current and other accounts on demand of the population, non-financial and financial (except credit) organizations; M2 – M1 and fixed period deposits; M3 – M2 and savings deposits, certificates and public bonds.

The main indicator of the state of the money supply in the Russian economy is the monetization coefficient, equal to the ratio of M2 to GDP. The optimal level of monetization coefficient in the conditions of stable economic growth is considered to be 55–60 %. M3 / GDP and M1 / GDP are also estimated. The excess of M3 / GDP over M1 / GDP indicates a developed system of cashless payments and the financial potential of the economy.

The value of the monetization indicator of economy reflects the state’s ability to borrow money in the domestic market – monetization of income and interest rate [3]. Thus, uncontrolled monetary emission leads to a decrease in the monetization of economy.

During the period of inflation (demand and costs), the increase in the nominal money supply leads to the increase in prices and nominal GDP, this outpaces the growth in the amount of money, which leads to a decrease in the monetization coefficient. At the same time, the decrease in the growth rate of nominal money supply with growing GDP increases confidence in national money, which leads to the increase in the monetization of economy. A high coefficient of monetization of the economy is typical for developed countries.

Russia possesses the raw material profile [4, 5] and fits into the requirements for monetization coefficient of 55–60 % for the conditions of stable economic growth. At the same time, under the conditions of a slowdown in global economy, Russia lags significantly behind the developed countries in terms of monetization coefficient, which exceeded these values by 2–4 times. Under the conditions of Russian monetary policy, the optimal growth of money in the economy is possible with the active implementation of a new monetary mechanism based on the reserves of the Central Bank issued for investment projects.

II. LITERATURE REVIEW

The significant role of money, its impact on economy and society were determined in ancient Greece – the consequences of the introduction of coining of money in Athens. The role of

money was quite extensive. Money was used not only as an equivalent, serving as a measure of the value of any goods and services, able to exchange directly for them, but also as a means of distribution of justice [6].

The initial role of money is often discussed by economists, historians and anthropologists. There are two dominant models. The first one is the function of money arising from exchange and the second one is the function of the functioning of state institutions. The research on monetization was focused on the Eurasian currency and the sources of modern capitalism. Moreover, none of the dominant models is sufficient to describe the monetization process. The elements of both models acted simultaneously, since households and government agencies were negotiating various economic strategies [7].

The introduction of paper money in England in 1703–1749 led to the expansion of money supply, contributed to the implementation of both monetization models. For example, bills of credit issued for seigniorage purposes had a positive impact on household development [8]. The changes in the mechanism of monetary transmission (behavior of money, income and prices) of Spain in 1989 led to real effects from monetization, in particular, the increase in the rates of long-term bonds. At the same time, increased economic integration within the EU fundamentally changed the dynamics of the traditional IS-LM transmission mechanism and led to the decrease in the effectiveness of monetary policy [9].

In general, monetization is considered as the extension of the sphere of monetary policy and is one of the most important aspects of economic growth and development [10]. This can be traced through the example of economic reforms in China. During the ten-year economic reform in China, the growth rate of the money supply steadily exceeded the sum of real GDP growth and inflation. The Chinese economy quickly monetized during the period of 1979–1984, when the introduction of a liability system in the agricultural sector and the growth of townships and rural enterprises and private businesses led to extreme demand for foreign currency.

The best part of the “extra money” was absorbed by the monetized economy and inflation was moderate. However, since 1985, the monetization process has slowed significantly. The economy could no longer absorb the extra money. The excess money supply exceeding the growth rate of real GNP led to inflation [11].

The leading developed countries of the world are sufficiently monetized, since economic operations that do not include the use of money are of minor importance in these countries [12]. On the contrary, the degree of monetization is much lower in less developed countries, where a significant share of income usually comes in kind as a result of barter or the consumption of their own services [13]. At the same time, the population independently insures against the risk of consumption – a significant monetization of trade can reduce wealth relative to barter [14].

A new stage in the development of economy in the context of the global “Internet” using “Blockchain” technologies (“Digital Economy”) has dramatically changed the way business processes.

The development of digital innovations, including cloud services, mobile services and artificial intelligence, significantly expanded the possibilities of monetization of economy, providing extraordinary services and welfare that were never expected before [15]. Exchange rates became much more flexible. Two-way exchange in “Digital Economy” is faster, since “Blockchain” technologies can reduce the cost of the solution of the Pareto optimum distribution matrix — the increase in the usefulness of trade [16] when money has intrinsic value [17].

III. METHODOLOGY

The statistical analysis is used in the research. Statistical analysis is a method of collecting, studying and presenting large amounts of data in order to identify the main patterns and trends of a particular phenomenon [18].

There are several methods of statistical analysis: statistical observation – the systematic collection of data, followed by mathematical processing; sampling – the use of a certain part of the data for certain characteristics (stratified, cluster, quota, etc.); correlation and regression reveal the relationship of data and the reasons why the data depend on each other; dynamic method allows tracking the strength, intensity and frequency of changes in objects and phenomena [19].

IV. ANALYSIS

Opportunities. In order to analyze the possibilities of changing the monetization coefficient of the Russian economy, we firstly assess the dynamics of GDP growth rates in US dollars and in rubles, the GDP deflator and the M2 monetary aggregate, and secondly, we assess the dynamics of the monetization coefficient of economy and the ruble exchange rate. The sources of assessment will be data from OECD, the Central Bank and the Federal State Statistics Service of the Russian Federation.

As a result of the analysis of the obtained trends, the dynamics of GDP growth rates in US dollars and in rubles, the GDP deflator and the M2 monetary aggregate we found (figure 1):

1) high median value and variance of growth rates:

- monetary aggregate M2 (Me = 13.46 %, $\sigma^2 = 231.25$);
- GDP, measured in rubles (Me = 12.78 %, $\sigma^2 = 108.92$);

2) average median values and variances of GDP growth rates, measured in US dollars (Me = 5.72 %, $\sigma^2 = 99.52$);

3) low median values and the variance of the growth rate of the GDP deflator (Me = 0.09 %, $\sigma^2 = 37.20$).

In Russian economy, after a sharp drop in 2007–2009 and a continued decline in 2011–2015, there is a stabilization of the dynamics of GDP growth in US dollars and in rubles, the GDP deflator and the M2 monetary aggregate in the range from 4 to 12 %.

As a result of the assessment of the dynamics of the monetization coefficient of Russian economy and the ruble exchange rate, we found (Figure 2):

- a relatively stable low median value of economy monetization coefficient in US dollars (KUSD, Me = 14.39 %, $\sigma^2 = 11.47$);
- Commensurable median values of the monetization coefficient of economy in rubles and the ruble exchange rate (KRUB, ME = 35.51 % and 32.20 %, respectively), significantly differ in volatility ($\sigma^2 = 32.91$ and 316.40, respectively);
- Consistently high values of the KRUB / KUSD ratio (Me = 2.25, $\sigma^2 = 0.25$).

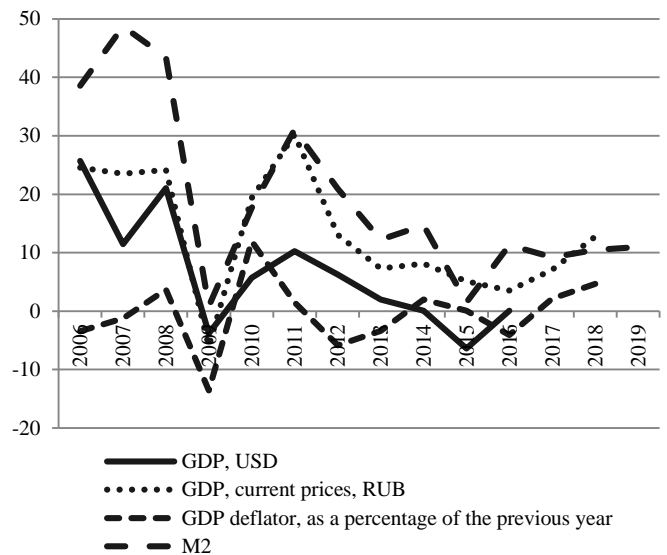


Fig. 1. GDP growth rates in US dollars and rubles, GDP deflator, M2. Source: OECD (2019), Gross domestic product (GDP) (indicator). doi:10.1787/dc2f7aec-en (Accessed on 04 June 2019), URL:https://data.oecd.org; The Central Bank of Russia, URL:https://www.cbr.ru; Federal State Statistics Service of the Russian Federation, URL:http://www.gks.ru.

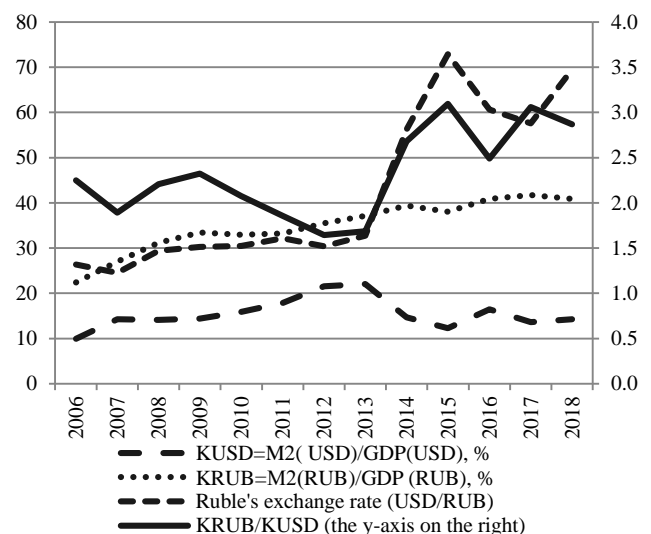


Fig. 2. Monetization coefficient of economy, ruble exchange rate. Source: OECD (2019), Gross domestic product (GDP) (indicator). doi:10.1787/dc2f7aec-en (Accessed on 04 June 2019), URL:https://data.oecd.org; The Central of the Russian Federation, URL:https://www.cbr.ru; Federal State Statistics Service of the Russian Federation, URL:http://www.gks.ru.

Consequently, the changes in the monetization of Russian economy are associated with the volatility of the ruble exchange rate, which is adjusted by the Central Bank and the Ministry of Finance of the Russian Federation within the framework of the “budget rule” – the maximum amount of expenditures of the federal budget, which should not exceed the amount of the base volume of oil and gas revenues calculated at a base price of oil. The base oil price means the average annual oil price – \$ 40 per barrel in 2017 prices, subject to annual indexation of 2 percent starting in 2018 [20].

TABLE I. MEDIAN (ME) AND DEVIATION FROM ME ON 01/01/2019, VARIANCE (σ^2) IN THE GROWTH RATE OF THE VOLUME OF LOANS GRANTED TO LEGAL ENTITIES – RESIDENTS AND INDIVIDUAL ENTREPRENEURS IN RUBLES, 2009/05/01–2019/01/01

Types of Economic Activities		Me	01.01.2019	Δ	σ^2
In total		17	13	-4	1977
mineral production		14	23	9	2202
Including:	Production of fossil fuels	14	24	10	2982
manufacturing		16	10	-6	1957
Including:	food production, including beverages and tobacco	17	9	-8	2043
	wood processing and manufacture of wood products	16	8	-8	3379
	pulp and paper production; publishing and printing activities	18	13	-5	2857
	production of carbonite, petroleum products and nuclear materials	17	7	-10	1652
	chemical production	18	12	-6	2041
	production of other non-metallic mineral products	16	16	0	2672
	metallurgical production and production of finished metal products	16	9	-7	3962
	machinery manufacturing	16	11	-5	1869
Including:	production of machinery and equipment for agriculture and forestry	17	16	-1	6422
	production of vehicles and equipment	17	13	-4	1988
Including:	automobile production	16	12	-4	3098
production and distribution of electricity, gas and water		17	6	-11	2814
agriculture, hunting and forestry		16	23	7	3399
Including:	agriculture, hunting and the provision of services in these spheres	16	23	7	3416
Construction		18	10	-8	2639
Including:	construction of buildings and facilities	19	10	-9	2656
transport and communications		19	7	-12	3623
Including:	activities of air transport, subject and not subject to schedule	15	57	42	3146
wholesale and retail trade; repair of motor vehicles, motorcycles, household products and personal items		17	11	-6	1975
real estate operations, rental activity and provision of services		18	11	-7	2373
Other types of activities		19	20	1	2217
Calculation completion		17	12	-5	1815

^a. Source: The Central Bank of the Russian Federation. URL: <https://www.cbr.ru>

Consequences. The revealed range of changes from 4 % to 12 % of the dynamics of the growth rate of GDP in US dollars and in rubles, the GDP deflator and the M2 monetary aggregate determine the growth rate of the volume of loans granted to legal entities – residents and individual entrepreneurs in rubles. According to the Central Bank of the Russian Federation, there is a significant deviation (Δ) in the growth rate of the volume of loans 2019/01/01 from the median value 2009/05/01–2019/01/01 (table 1).

According to the types of economic activity, there is a volatile decrease in the growth rate of the volume of loans ($\Delta = -4$ %, $\sigma^2 = 1977$). The leaders of the decline are: transport and communications ($\Delta = -12$ %); production and distribution of electricity, gas and water ($\Delta = -11$ %); production of carbonite, petroleum products and nuclear materials ($\Delta = -10$ %); construction ($\Delta = -8$ %) (Construction of buildings and structures, $\Delta = -9$ %); food production, including beverages and tobacco ($\Delta = -8$ %); wood processing and production of wood products ($\Delta = -8$ %).

The growth leaders are the activities of air transport, which is subject and not subject to the schedule ($\Delta = 42$ %) [21]; mineral production ($\Delta = 9$ %) (Production of fossil fuels and energy minerals ($\Delta = 10$ %).

The highest volatility in the growth rate of loans was found in the production of machinery and equipment for agriculture and forestry ($\sigma^2 = 6422$) and metallurgy and finished metal production ($\sigma^2 = 3962$), the least volatility is in the production of carbonite, oil products and nuclear materials ($\sigma^2 = 1652$), calculation completion ($\sigma^2 = 1815$) and the production of machinery and equipment ($\sigma^2 = 1869$).

The process of the implementation of the “budget rule” led to a stably low median growth rate of the ruble devaluation during the year ($Me = 1$ %, $\sigma^2 = 62$) (table 2).

TABLE II. MEDIAN (ME) AND VARIANCE (σ^2) OF GROWTH RATE OF RUBLE EXCHANGE RATE, OIL AND GAS REVENUES, ADDITIONAL OIL AND GAS REVENUES, FOREIGN CURRENCY PURCHASE VOLUME, FEB. 2018–APR 2019.

Indicators	Me	σ^2
Ruble exchange rate	1	62
Oil and gas revenues (US \$)	2	334
Additional oil and gas revenues (US \$)	2	547
Foreign currency purchase volume (USD)	2	348

^b. Source: The Central Bank, URL: <https://www.cbr.ru> and the Ministry of Finance of the Russian Federation, <https://www.minfin.ru>

Despite the high volatility in the growth rate of additional oil and gas revenues and the volume of foreign currency purchases, the Central Bank maintains their median parity index ($Me = 2$).

It is necessary to note that the growth rate of ruble is less than the growth rate of the purchase of foreign currency. In order to eliminate this discord, an additional median percentage of the growth rate is covered by the Ministry of Finance of the Russian Federation through the issue of federal loan bonds.

According to the indicators of the federal budget in 2019, the state plans to attract 2.4 trillion rubles in the domestic market. For the first quarter it was planned to attract

450 billion rubles – as a result, federal loan bonds amounted 514 billion rubles. The plan for the second quarter reached 600 billion rubles, but by the middle of the term it had already been completed [22].

The issue of federal loan bonds allows maintaining the growth rate of foreign currency purchases in conditions of exceeding the growth rate of additional oil and gas income. Against this background, the Central Bank plans to collect the currency from the Russian banking sector, increasing the reserve requirement for foreign currency deposits.

V. DISCUSSION OF RESULTS

During the assessment of the coherent picture of the possibilities and consequences of changes in the monetization coefficient of Russian economy, it is necessary to highlight the process of stabilization of the dynamics of GDP growth rates in US dollars and in rubles, the GDP deflator and the M2 monetary aggregate in the range from 4 to 12 %. To a large extent, this stabilization is associated with the decrease in the ruble exchange rate volatility due to the “budget rule”.

The range of growth rates of the respective changes from 4 to 12 % is a guideline for the Central Bank, which determines the key rate and requirements for the volume of required reserves of banking sector in US dollars and rubles. The increase in the key rate from 12/17/2018 to 7.75 % led to the increase in average market values of the total cost of a loan for legal entities and individual entrepreneurs [23], as well as the decrease in the growth rate of loan volume. The leaders of the decline are transport and communications; production and distribution of electricity, gas and water; production of carbonite, petroleum products and nuclear materials; construction; the production of food products, including beverages, and tobacco; wood processing and the manufacture of wood products; the leaders of growth are the activity of air transport, which is subject and not subject to the schedule; mineral production.

The stabilization of ruble exchange rate led to the decrease in its growth rate, which became less than the growth rate of the purchase of foreign currency. In order to eliminate the manifestation of the effect of “budget rule”, the Ministry of Finance of the Russian Federation is actively increasing the issue of federal loan bonds, which allows maintaining the growth rate of foreign currency purchase volumes.

The decrease in the growth rate of the volume of loans for legal entities and individual entrepreneurs, while maintaining the growth rate of the volume of purchases of foreign currency, does not provide stable economic growth of Russian economy.

Nowadays there is a monetary “brake” on economic growth, which cannot be eliminated without changing the transmission mechanism of investment-credit multiplication using the emission resources and mechanisms of Central Bank to support the stability of the economic system.

In general the methodological problem of the analysis of the possibilities and consequences of the changes in monetization coefficient of the Russian economy is quite extensive. It is associated with an adequate assessment of the

amount of money in economy, the size of economy, the temporary incomparability of the amount of money and the size of economy, a delayed response, the transmission channels of impulses from the refinancing rate to the money sector through the monetization coefficient of economy and money multiplier, the taxation of income of legal entities and individuals, the perception of economic phenomena by the population [24].

The analysis of the possibilities and consequences of the changes in monetization coefficient of the Russian economy in an aggregated form touches upon the above mentioned problems. The “budget rule”, which makes other factors insignificant to change the monetization coefficient of Russian economy, contributes to the aggregation of indicators at the level of GDP growth rates in US dollars and in rubles, the GDP deflator, the M2 monetary aggregate, the growth rate of the volume of loans granted to legal entities – residents and individual entrepreneurs in rubles, the issue of federal loan bonds, the growth rate of foreign currency purchase volumes, the rate of the growth of additional oil and gas revenues and the norm of obligatory reservation for foreign currency deposits.

VI. CONCLUSION

As a result of the analysis of the possibilities and consequences of the changes in the monetization coefficient of Russian economy, the essential role of the “budget rule” is determined. On the one hand, this rule reduces the volatility of the ruble exchange rate (2018/06/08 – \$ 61.8125, 2019/06/08 – \$ 65.0395) and the inflation rate (2019/04 – 5.2 %) and ensures replenishment of international reserves (2019/05/31 – \$ 495.2 billion), on the other hand, the issue of federal loan bonds with a bond yield higher than the key rate and the increase in the required reserve ratios for the banking sector negatively affect the growth rate of the volume of loans granted to resident legal entities and individual entrepreneurs.

Consequently, the generated range of GDP growth rates in US dollars and in rubles, the GDP deflator and the M2 monetary aggregate from 4 to 12 % is a favorable reference point for the Central Bank and the Ministry of Finance of the Russian Federation in the process of the changes in the monetization coefficient of Russian economy within 55–60 %. At the same time, this range (growth rates and monetization coefficient) is acceptable for stable economic growth and is insufficient when global economy grows for a long time, when the monetization coefficient of developed countries exceeds 2–4 times the Russian one.

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