

# Financial Regulation based on the Implementation of Financial System Assessment Indicators: Regional Aspect of Methodology

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**Keywords:** Financial Regulation, Regional Development, Socio-Economic Development, Financial and Real Sectors, National Economy.


**Abstract:** The presented research is of a review nature. The subject of the research is the financial and economic indicators of the Russian Federation's national economy, based on the analysis of which the authors attempt to propose a methodology for assessing the sustainability of regions. The assessment of the contribution of individual regions to the socio-economic development (SED) of the country is relevant for many countries of the world, regardless of the territory's size. The administrative status of the regions is also irrelevant for this assessment. The main and, perhaps, the only indicator of assessing the contribution of the region to socio-economic development is the gross regional product (GRP), by analogy with the gross domestic product (GDP), calculated as the sum of the added values created in the region of goods for the period. In this regard, the authors consider it a promising scientific and methodological task to expand the tools of this assessment for the formation of a more effective socio-economic and financial policy of the state. The research hypothesis is to find a mechanism for regulating the national economy by targeting individual financial parameters. The existing methods of such regulation are limited mainly by changes in the Central Bank rate, which indirectly affects the real economy through the cost of financial resources for economic entities. However, the regulation can be expanded, becoming significantly more effective and, at the same time, less restrictive. The scientific potential of the presented research is determined by the influence exerted by state regulation on the sustainability of the socio-economic development of individual regions and the national economy as a whole through the implementation of a targeted financial policy. The authors are convinced that the result of the research are proposed additions to the methodology for assessing the contribution of individual regions to the socio-economic development of the country, has scientific and methodological novelty and is suitable for practical application in the analysis of the financial and real sectors of the regions.


## 1 INTRODUCTION


For the Russian Federation, the task of stimulating regional development is particularly acute, since in 15 years (from 2006 to the beginning of 2021) the number of donor regions has decreased from 25 (providing about 80% of federal budget revenues) up to 14 (Figure 1).

Experts believe that the main reasons for this dynamic are the centralization of income, which is fixed by the inter-budgetary policy. In addition to the

analysis of tax revenues, the authors have proposed a number of other indicators, the totality of which should be considered a methodology. The proposed methodology, as well as any other, should be discussed in scientific circles and tested before being recommended for use. Moreover, the authors believe that the methodology can be transformed by adding new indicators or making changes to the proposed coefficients.

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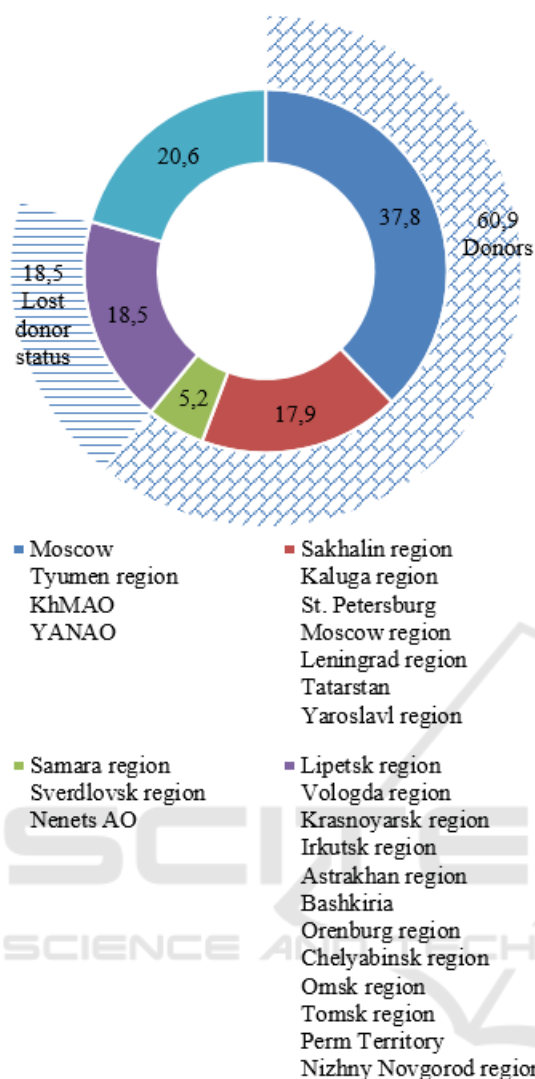


Figure 1: Structure of regional tax revenues in the consolidated budget of the Russian Federation, %

The opinion about the influence of financial indicators on the dynamics of macroeconomic indicators is very obvious and even axiomatic – this is true for all modern states. It is based on this opinion that the financial and socio-economic policy of any state is formed. The search for sources of economic development and tools to stimulate it is the focus of research in the world and domestic financial science (Razumovskaya and Lebedev, 2019; Lebedev and Razumovskaya, 2020; Drobyshevsky, Trunin, Bozhechkova, 2018; Drobyshevsky et al., 2020; Bernanke, 2020; Blanchard and Summers, 2018; Brand, Bielecki, Penalver, 2017). The theoretical and methodological aspects of these sources and tools are traditionally associated with institutional concepts, while the practical ones are no less important to the

authors. In this regard, the authors set the task of analyzing the dynamics of the financial parameters of the domestic financial system in comparison with the dynamics of the macroeconomic ones to identify the correlation between them. Such a correlation, if confirmed, will confirm the relationship between these parameters, which, if at all obvious, needs to be interpreted as a cause-and-effect relationship and an assessment of the degree of trend volatility. The present research attempts such an interpretation.

The context of this research suggests that the objects of direct state regulation are the parameters of the financial system, and through it - the pace and direction of changes in economic indicators, which assess the socio-economic development of all economic entities. This type of research consists in assessing the quantitative financial and economic parameters that form the basis of monetary analysis.

The expected result of the research should be justification of objective financial parameters, regulation of which, ultimately, is directed to the financial policy of the state, which is usually attributed to: the key rate and reserves of the Central Bank, monetary aggregates, total assets of commercial banks (Drobyshevsky, Trunin, Bozhechkova, 2018; Drobyshevsky et al., 2020; Bernanke, 2020). These parameters fully reflect the condition of the financial system and can be used to assess its impact on socio-economic development, since they determine the cost of financial resources in the national economy (Blanchard O.J., Summers, 2018; Brand, Bielecki, Penalver, 2017; Chakraborty, Goldstein, MacKinlay, 2020).

## 2 RESEARCH METHODOLOGY

The most common and generally accepted method in the comparative analysis of data is the relative or coefficient method, which involves calculating the ratio of one of the considered values to another or a certain generalizing value. The result, obviously, will be the "share" – in this research - the contribution of an individual region to the indicator of national development. Such an indicator would be appropriate to take the gross product – regional and domestic, respectively.

However, the authors believe that this method cannot fully reflect the analyzed component, since it shows the share of added value created in the region, while it is necessary to understand the sources from which this added value was created. In addition, as indicated, the value in the assessment under

consideration can and should take into account the indicators:

- 1) share of the region's financing of national goals – share of tax revenues in the consolidated budget;
- 2) share of transfer the region's financing;
- 3) creditworthiness of the region (as an option - in the industry context);
- 4) market capitalization of regional companies;
- 5) investment adequacy.

The authors believe that the proposed set of indicators is a methodology aimed at assessing the economic potential of the regions, which determines their sustainable development.

To assess the condition and dynamics of the Russian financial system's financial indicators, the authors used analytical and expert methods of analyzing official data of the Bank of Russia and the Federal State Statistics Service of the Russian Federation. The analytical method is implemented in the framework of comparative and dynamic analysis, for which the analysis is processed by the authors and presented in a single format suitable for the method of expert assessments.

The analysis is supplemented by the analysis of the domestic commercial banks' capitalization dynamics.

### 3 RESEARCH RESULTS

The authors' proposal to supplement and develop the methodological apparatus for assessing the contribution of individual regional entities to the state budget consists in an indicator showing how much tax deductions provide the region's contribution to the gross domestic product:

$$k_{\text{credit}} = (\text{share of DFR in GDP, \%}) / (\text{Share of regional tax revenues, \% of the federal budget}) \quad (1)$$

The authors believe that the coefficient (1) can reveal the disproportion of the donor regions' contribution to the value of the regional gross product, as well as the insufficiency of the similar contribution of the recipient regions. However, this indicator should be calculated for an adequate assessment of the status of the regions and their development prospects.

The following indicator allows one to assess the degree of the region's dependence on federal funding:

$$k_{\text{financial dependence}} = (\text{share of DFR in GDP, \%}) / (\text{Share of funding from the federal budget, \% of the regional budget}) \quad (2)$$

In fact, the assessment of the degree of the region's dependence on the funding that comes to its budget in

various forms from the federal budget allows one to understand the significance of this funding for the sustainability of the region.

The third indicator proposed by the authors reveals the significance of the debt burden in its development:

$$k_{\text{credit}} = (\text{share of DFR in GDP, \%}) / (\text{Share of total debt liabilities of the region, \% of the regional budget}) \quad (3)$$

Taking into account the nature of inter-budgetary relations in the Russian Federation, coefficient (3), along with coefficient (2), assesses the contribution of federal credit financing and borrowing from other sources to the development of the region.

Coefficient (4) makes it possible to see the impact of the share of the region companies' total market capitalization on the region's performance.

$$k_{\text{market cap.}} = (\text{share of DFR in GDP, \%}) / (\text{Share of the total capitalization of the region companies, \% of the capitalization of the Russian Federation}) \quad (4)$$

Indicator (4) should be calculated separately for the financial and real sectors, as well as consolidated.

The final coefficient evaluates the value of investments in the sustainable development of the region:

$$k_{\text{inv. asset}} = (\text{share of DFR in GDP, \%}) / (\text{Share of the region's investment expenditures, \% of the region's budget}) \quad (5)$$

It is the indicator (5) that seems to the authors to be the most significant from the point of view of revealing the internal potential of the regions, since, unlike credit financing or financing through budget instruments, investments are a free, if it is possible to say so, form of attracting resources: in sense of terms, cost, repayment terms, and a number of others, which, of course, makes the investment flexible.

For a full assessment of the potential of state financial regulation of the national economy socio-economic development

Conducting an extended research of the financial system includes an analysis of the dynamics of socio-economic indicators, so the authors analyzed the array of analytical data, the results of which are presented in Table 1.

Table 1: Dynamics of Russian commercial banks capitalization (The official website of the Central Bank of the Russian Federation).

Periods	Total assets of a Commercial Bank, billion rubles.	Change in total assets compared to the previous period, %	Total assets per 1 Commercial Bank, billion rubles.
01/01/2014	57,423	+ 15.9	62.213
01/01/2015	77,653	+ 35.2	93.109
01/01/2016	82,999	+ 6.9	113.232
01/01/2017	80,063	- 3.5	128.512
01/01/2018	85,192	+ 6.4	151.857
01/01/2019	94,084	+ 10.4	186.675
01/01/2020	96,581	+ 2.3	192.411
01/01/2021	103,698	+7.4	357.098

As can be seen from Table 1, the total assets of commercial banks have increased significantly both in absolute terms and per structural unit. During the research period, the value of the total assets of commercial banks almost doubled, and the growth per commercial bank was more than five times.

The period of pandemic restrictions in 2020 has generated significant shocks in the real sector, which the Russian economy has not yet managed to fully overcome. Russia's ongoing geopolitical standoff with Western countries has triggered another devaluation surge, fueled by Russia's disagreements with the Organization of the Petroleum Exporting Countries cartel over the synchronization of oil production efforts in a world market significantly weakened by the COVID-19 pandemic.

However, the pandemic shocks did not worsen the performance of the domestic financial system – by the beginning of 2021, the total assets of commercial banks increased by more than seven percent, which was obviously facilitated by the state policy in the field of social assistance to the population and the expansion of measures to stimulate crediting. Another important parameter of financial system's condition, the authors consider enlarged macro-financial indicators: monetary aggregates, reserves of the Central Bank and the volume of non-cash payments (Table 2).

Table 2: Indicators of the Russian Federation's financial system's condition at the beginning of the period (The official website of the Central Bank of the Russian Federation; Official site of the Federal State Statistics Service).

Years	Reserves of the Central Bank of the Russian Federation, million USD	The volume of non-cash payments, billion rubles.	M0, billion rubles.	M1, billion rubles.	M2, billion rubles.
2014	50,959.5	34,999	6,985.6	24,419.1	31,404.7
2015	38,546.1	40,514	7,171.5	24,939.1	32,110.5
2016	36,839.9	50,129	7,239.1	28,570.1	35,809.2
2017	37,774.1	61,985	8,034.3	30,703.1	39,275.9
2018	43,274.2	76,247	8,446.7	33,994.1	42,442.2
2019	46,849.5	78,946	9,339.2	34,351.8	47,109.3
2020	55,435.9	80,321	9,658.4	35,861.7	51,660.3
2021	59,742.1	86,128	12,523.9	37,785.6	58,652.1

As can be seen from Table 2, the volume of non-cash payments continues to increase. The significance of this indicator for assessing the financial system's condition and the national economy is the ability to analyze trends in the legalization of an unobserved segment of the economy. The growth of the Central Bank's reserves should also be considered as a positive trend, as well as the growth of monetary aggregates.

The clearly identified trends are shown in Figure 1.



Figure 1: Dynamics of macro-financial indicators of the Russian Federation financial system, billion rubles.

In continuation of the research, the authors analyzed the dynamics of one of the most important indicators that characterize the potential stability of the financial system and the entire economy – state

debt (Figure 2). The advantage of such an analysis is its stable assessment of internal inflation-in a freely convertible currency, in this case – US dollars (USD).

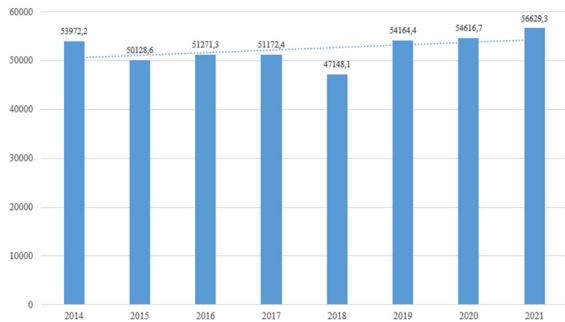


Figure 2: Dynamics of the external state debt of the Russian Federation, mln. USD (Lebedev and Razumovskaya, 2020; Official site of the Federal State Statistics Service)

Analysts' predictions suggest that by the end of 2021, external financial liabilities will increase to twenty percent of GDP, which is certainly far from the risk category in which some European countries – Greece, Italy, Spain and others-are located. The authors consider the question of whether the sanctions imposed by the United States administration on state debt will become critical for Russia to be debatable and political, while the difficulty of servicing even a relatively small state debt for Russia takes place and is due to the level of development and the degree of diversification of production, which do not allow to fully meet it (debt) in critical circumstances.

S&P Global Ratings, an international rating agency left Russia's rating at the beginning of 2021 at the level of "BBB -", which is below the investment category, although with a stable prediction (Fircescua, 2012).

In Russia, it is the devaluation risk associated with state debt, which can significantly increase the debt burden without additional borrowing, provided that the credit resources were attracted in foreign currency. Then the devaluation (Figure 3) will increase the debt burden in the national currency.

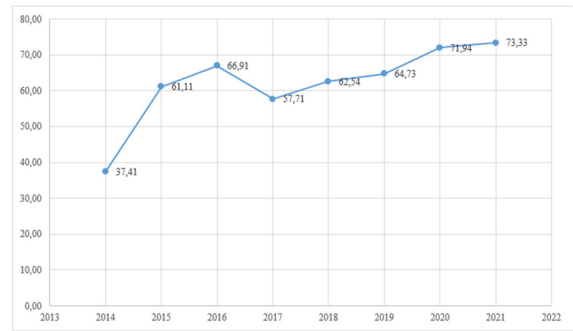


Figure 3: Dynamics of the Russian ruble against the USD (The official website of the Central Bank of the Russian Federation; Official site of the Federal State Statistics Service)

Figure 3 shows the volatility of the exchange rate of the Russian Federation's national currency, so the decline in the world that began in the spring of 2020 due to quarantine restrictions affects the Russian currency. Compensation from devaluation losses can be expected only with a significant increase in world prices for hydrocarbons, the share of export revenues of which is important for the state budget of the country. In addition, these are foreign currency receipts, which in ruble terms are growing at a higher rate than the prices themselves. The interim results of the analysis of the Russian economy's financial parameters include the impact they have on the real sector - this impact is focused on the dynamics of investment, which is the source of real economic growth (Figure 3).

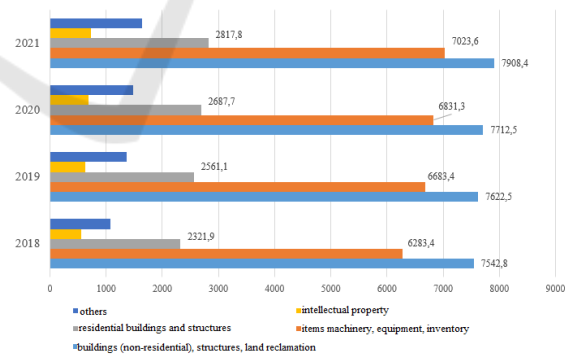


Figure 3: Comparative dynamics of investments in fixed assets by type of fixed assets in the Russian Federation, million rubles (Compiled by the authors according to the Federal State Statistics Service of the Russian Federation. Data for 2021-the authors' prediction)

As can be seen, the growth rate of investment in 2020 slowed down, with the exception of construction, which is significant outside the general external context due to the importance that the

construction industry has on the economy of any state, acting as an engine and indicator of its condition and dynamics. The increase in investment in the modernization and renewal of equipment is of particular importance - it is a category that can provide intensive growth in labor productivity, an increase in the share of value added in manufactured products, which is the main source of GDP growth. In the period under review, the volume of investments under the item "machinery and equipment" increased by 4.8%.

The question of how significant the multiplier effect of this category of investment can be is open, since it can be leveled by an increase in the value-added tax rate, introduced in the Russian Federation from 2019, despite the state budget surplus.

## 4 CONCLUSIONS

Research on the assessment of the condition and structure of the financial system by Russian and foreign scientists is based mainly on the proposal of independent indicators of the financial system's ability to stimulate economic growth – that is, the real sector (Ergungor, 2008; Fircescua, 2012). Such indicators include, in particular, the financial depth coefficient, which is defined as a set of financial requirements and obligations of economic entities to the country's GDP, in other words, the financial depth reflects the ability of financial institutions to provide financing for the activities of households, economic entities and the state (Clarida, 2020; Charbonneau et al., 2017). The authors agree that the availability and accessibility of financial instruments and the development of financial infrastructure give an idea of the financial system's ability to accumulate and distribute financial resources to ensure the necessary economic growth rates for the country. A sufficient value of the financial depth coefficient indicates an increase in the ability of the financial system to service financial resources traded on the financial market, preventing significant and sharp volatility in the quotations of financial instruments and the currency exchange rate (Eggertsson, Juelsrud, Summers, Wold, 2019). The authors believe that the apparatus for assessing the state of the financial system can be very diverse and reflect its goals – the importance of the banking sector, the financial market, financial regulation, and others.

The authors consider the presented results as suitable (at least partially) for assessing the condition of the state's financial system. A significant part of the research conducted by the authors is based (along with the presented ones) on a set of other parameters,

some of which are supplemented by the authors in the methodological part. The assessment of the Russian financial system's condition allows to conclude that the dynamics of its key financial parameters should be assessed as not corresponding to the period of sustainable growth, despite the serious efforts of the authorities to stabilize the domestic financial and economic environment and to neutralize the consequences of unfavorable external conditions that continue to negatively affect the domestic economy.

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