

## Original Paper

doi [10.15826/recon.2022.8.1.004](https://doi.org/10.15826/recon.2022.8.1.004)

UDC 332

JEL H74, H77



## The impact of institutions on regional credit ratings in Russia

A.A. Mikhaylova<sup>1</sup> ✉, E.N. Timushev<sup>1,2</sup><sup>1</sup> RANEPa Institute of Applied Economic Research, Moscow, Russia; e-mail: aam@irof.ru<sup>2</sup> Institute of Socio-Economic and Power Problems of the North, Komi Research Centre of the Ural Branch of the Russian Academy of Sciences, Syktyvkar, Russia

### ABSTRACT

**Relevance.** Institutions of a fiscal system play a significant role in regional credit ratings. This is reflected in the low creditworthiness of Russian regions from the international perspective.

**Research objective.** The paper discusses the role of the institutional factors in the credit ratings assigned to Russian regions by Russian and international agencies.

**Data and Methods.** The study analyzes the rating methodology adopted by Russian and international credit rating agencies and tests the presence of the institutional factors by conducting a formal regression analysis based on the data from the budgetary systems of Russia and the United States.

**Results.** We demonstrate that international agencies value institutional factors, while Russian agencies use formal quantitative indicators. By applying comparative regression analysis to the economic and fiscal indicators of Russian regions and U.S. states, we found that The Big Three (Fitch Ratings, S&P Global Ratings and Moody's Investors Service) rate Russian regions lower than U.S. states, although the formal indicators between the two fiscal systems at the regional level do not differ as much.

**Conclusions.** We conclude that the lower creditworthiness of Russian regions in the international perspective reflects the weakness of the institutions in the Russian budgetary system. Practically, the assessment of regional creditworthiness in Russia by the international agencies highlights the areas of intergovernmental fiscal relations that need improvement, most notably the insufficient tax and spending autonomy of local and regional governments.

### KEYWORDS

debt sustainability; credit rating functions; rating methodology; institutions of the budgetary system; discretionary federal aid; soft budget constraints; Russian regions; U.S. states

### ACKNOWLEDGEMENTS

This research was funded by the Russian Presidential Academy of National Economy and Public Administration as part of the state assignment.

### FOR CITATION

Mikhaylova, A.A., & Timushev, E.N. (2022). The impact of institutions on regional credit ratings in Russia. *R-economy*, 8(1), 43–56. doi: 10.15826/recon.2022.8.1.004

## Влияние институтов на региональные кредитные рейтинги в России

А. А. Михайлова<sup>1</sup>, Е. Н. Тимушев<sup>1,2</sup><sup>1</sup> Институт прикладных экономических исследований РАНХиГС, Москва, Россия; e-mail: aam@irof.ru<sup>2</sup> Институт социально-экономических и энергетических проблем Севера Коми научного центра Уральского отделения РАН, Сыктывкар, Россия

### АННОТАЦИЯ

**Актуальность.** Значительную роль в региональных кредитных рейтингах играют институты фискальной системы. Это находит отражение в низкой кредитоспособности российских регионов с международной точки зрения.

**Цель исследования.** В статье рассматривается роль институциональных факторов в кредитных рейтингах, присваиваемых регионам России российскими и международными агентствами.

**Данные и методы.** В исследовании анализируется методология рейтингов, принятых российскими и международными рейтинговыми агентствами, и проверяется наличие в ней институциональных факторов путем проведения регрессионного анализа на основе данных бюджетных систем России и США.

**Результаты.** Мы показываем, что международные агентства оценивают институциональные факторы, в то время как российские агентства используют формальные количественные показатели. Применив сравнительный регрессионный анализ к экономическим и фискальным пока-

### КЛЮЧЕВЫЕ СЛОВА

долговая устойчивость; функции кредитного рейтинга; методология рейтинга; институты бюджетной системы; дискреционная федеральная помощь; мягкие бюджетные ограничения; российские регионы; штаты США

### БЛАГОДАРНОСТИ

Данное исследование профинансировано РАНХиГС в рамках реализации государственного задания.

зателям регионов России и штатов США, мы обнаружили, что «большая тройка» (Fitch Ratings, S&P Global Ratings и Moody's Investors Service) оценивает российские регионы ниже, чем штаты США, хотя формальные показатели между двумя фискальными системами на региональном уровне различаются не так сильно.

**Выводы.** Делается вывод, что более низкая кредитоспособность российских регионов в международной перспективе отражает слабость институтов российской бюджетной системы. На практике оценка региональной кредитоспособности в России международными агентствами выявляет области межбюджетных отношений, которые нуждаются в улучшении, в первую очередь недостаточную налоговую и расходную автономию местных и региональных органов власти.

#### ДЛЯ ЦИТИРОВАНИЯ

Mikhaylova, A.A., & Timushev, E.N. (2022). The impact of institutions on regional credit ratings in Russia. *R-economy*, 8(1), 43–56. doi: 10.15826/recon.2022.8.1.004

## 制度因素对俄罗斯地区信用评级的影响

米哈伊洛娃<sup>1</sup>, 季穆舍夫<sup>1, 2</sup>

<sup>1</sup> 俄罗斯总统国民经济和公共管理学院应用经济研究系, 莫斯科, 俄罗斯, 邮箱: aam@irof.ru

<sup>2</sup> 俄罗斯科学院乌拉尔分院北科米共和国社会经济和能源问题研究所, 瑟克特夫卡尔, 俄罗斯

#### 摘要

**现实性:** 财政机构在区域信用评级中发挥着重要作用。从国际角度来看, 俄罗斯地区信用评级是低的。

**研究目标:** 本文研究了俄罗斯及国际机构信用评级中的制度因素对俄罗斯地区的作用。

**数据和方法:** 该研究分析了俄罗斯和国际评级机构采用的评级方法, 并根据俄罗斯和美国预算系统的数据进行回归分析, 检查其中是否存在制度因素的影响。

**研究结果:** 我们表明, 国际机构评估受制度因素影响, 而俄罗斯机构使用正式的量化指标。通过对俄罗斯地区和美国各州的经济和财政指标进行比较回归分析, 我们发现三大巨头(惠誉评级、标准普尔全球评级和穆迪投资者服务公司)对俄罗斯各地区的排名低于美国各州, 尽管两个财政系统之间在地区层面的正式指标没有那么大的差异。

**结论:** 从国际角度看, 俄罗斯地区的信用度较低, 这反映了俄罗斯财政系统机构的薄弱。国际机构对俄罗斯地区信用偿还能力进行实际研究, 发现预算关系需要改善。首先, 地方和区域当局的税收和支出自主权不足。

#### 关键词

债务可持续性, 信用评级功能, 评级方法, 预算系统, 机动联邦援助, 软预算限制, 俄罗斯各地区, 美国各州

#### 供引用

Mikhaylova, A.A., & Timushev, E.N. (2022). The impact of institutions on regional credit ratings in Russia. *R-economy*, 8(1), 43–56. doi: 10.15826/recon.2022.8.1.004

## Introduction

Debt sustainability, the ability to fulfill debt obligations in time, is a condition for broader fiscal sustainability, the ability of a state to function as the provider of public goods. However, the sustainability of world budgetary systems today is threatened by such factors as increasing public debt in times of low economic growth, aging population, or pandemics (Klimanov et al., 2021). These factors negatively affect labor productivity and the stability of financial markets<sup>1</sup>. The degree of debt sustainability is gauged by the value of credit rating, which estimates the risk of default on debt obligations.

In academic literature there is still no clear understanding of what characteristics are important while assigning a rating symbol. The set of determinants roughly overlap from source to source, but usually we are talking about formal quantitative indicators. In this paper, however, the main focus of interest is institutional factors of credit ratings and the way they are determined by international and Russian rating agencies. Russian regional authorities issuing regional bonds have been increasingly seeking for external opinion on their creditworthiness from both international market players, such as Fitch Ratings, S&P Global Ratings and Moody's Investors Service, or "The Big Three", and Russian rating agencies such as ACRA<sup>2</sup>, Expert RA<sup>3</sup>. Thus, the purpose of the

<sup>1</sup> Global Economic Prospects. (2020). Slow Growth, Policy Challenges. January. World Bank; Debt. Use It Wisely. (2016). Fiscal Monitor Reports. IMF, October

<sup>2</sup> Analytical Credit Rating Agency (ACRA). URL: <https://www.acra-ratings.ru>

<sup>3</sup> <https://www.raexpert.ru>

paper is to determine the place of institutional factors in assigning regional credit ratings.

In our research we confirm that institutional conditions play an important role in the world practice of assessing the creditworthiness of regions. First, by analyzing the rating agencies' methodology we found that international credit ratings are mainly based on the institutional factors related to the borrower. Primary attention is paid to the distribution of revenue and expenditure powers, for instance, the degree of tax autonomy. Russian agencies, on the other hand, mainly use formal quantitative indicators. Next, we discover that The Big Three assign a lower rating to the Russian regions compared to the U.S. states, despite the lack of visible advantages of the latter in formal indicators. In our opinion, this reflects the low fiscal powers of Russian regional authorities, especially regarding the regional tax policy. In debt policy particularly, the absence of fiscal powers and rise of federal loans results in the low efficiency of managing accumulated liabilities and further uncertainty of federal discretionary financial assistance.

In the context of the current macroeconomic instability and turbulence caused by the military conflict in Ukraine, the short-term credit ratings of Russian regions will be significantly downgraded. At the same time, the conclusions drawn from the study are based on the long-term trends which reflect the basic characteristics of the system of inter-governmental relations and stay relevant regardless of external shocks.

### Theoretical framework

It is known that the institutional structure of intergovernmental fiscal relations, especially the high probability of debt repayment, has a very strong impact on the credit rating (Beck et al., 2017). External debt repayment most often has a positive effect on the rating. Increased attention to the specifics of intergovernmental fiscal relations is even more important when assessing "cooperative" federal systems (Baskaran, 2012). The paper by R. Laulajainen (1999), for example, also being one of the first dedicated to the ratings of Russian regions, notes the low variability of the credit ratings of German lands comparing to the ratings of the U.S. states.

Credit rating is an informed but subjective opinion from a credit agency about the borrower's credit risk, which is the risk of the inability to fulfill financial obligations in a timely and complete

manner. This opinion is expressed in a formally determined order; is future-oriented, standardized and consistent; promotes information transparency; and reflects the relative likelihood of the borrower's default in comparison with the highest level of creditworthiness.

In short, the borrower's credit rating is the measure of the likelihood of default (Tennant, Tracey, 2016. P. 16). However, the concept of credit rating is quite complex. Firstly, the probability of default is not measured on a scale from 0 to 1, but only with respect to other objects and to the standard ("AAA" rating). In other words, agencies seek to assess only the ordinal relative level of creditworthiness without reference to any quantitative scale, including and even more so, the size of creditors' potential losses<sup>4</sup> (Bhatia, 2002). Secondly, the rating considers not only the ability, but also the consent of the borrower to fulfill the obligations (Tennant, Tracey, 2016. P. 17). Finally, as a rule, rating is relevant only when a lender belongs to the private sector, but not the governmental or international organizations.

Moody's and Fitch on the websites list other credit rating limitations. Thus, credit rating:

- does not assess past events (except for credit history),
- is not intended for individual persons,
- must be applied along with other factors when making an investment decision,
- reflects only credit risks of the borrower,
- is based on primary data provided by the borrower.

Despite these limitations, credit rating is an ***informed*** opinion. It performs several important functions, including the functions that are common for the borrower, lender and financial intermediary and those that are relevant to only one of them (Table 1). At a basic level, these functions are providing liquidity, information, and benchmark.

The obvious advantage of obtaining the credit rating is to borrow at an affordable price. Ratings also have broader effects since an external assessment that accompanies rating stimulates transparency of the budgetary process and identifies the areas that threaten fiscal sustainability. This is useful not only to the market, but also to the subject of assessment from the administrative point of view (Liu, Tan, 2009). The issue of the regional credit rating, therefore, can be considered as a process

<sup>4</sup> IMF Global Financial Stability Report. (2010). Sovereigns, Funding and Systemic Liquidity. IMF



which supports fiscal decentralization by ensuring the sustainability of the budgetary system.

The drawbacks of the rating practice are also examined but mainly at the country level. A major shortcoming of ratings is the existence of undisclosed subjective factors leading to biased estimates. This topic is discussed by Tennant, Tracey (2016); Zheng (2012); De Moor et al. (2018), who confirmed the systematic underestimation of the creditworthiness of less developed countries. Another downside of credit ratings is associated with the volatility that occurs in the financial market if the rating downgrades<sup>5</sup>.

<sup>5</sup> IMF Global Financial Stability Report. (2010). Sovereigns, Funding and Systemic Liquidity. IMF

## Method and Data

We analyze the rating methodology adopted by Russian and international credit rating agencies and test the presence of the institutional factors by conducting formal regression analysis based on the data from the budgetary systems of Russia and the United States.

The paper uses the most recent available data on the major credit rating factors such as the size and dynamics of the economy, debt, deficit, and interest expenses (Cantor, Packer, 1996; Afonso, 2003; Gaillard, 2009) (Table 2). Additionally, the indicators of regional specialization in natural resource extraction, a measure of poverty, and fiscal decentralization indicators are considered. We also

Table 1

### Credit rating functions

Common functions	Specific functions for:		
	Borrower	Lender	Financial intermediary
Market liquidity	...	...	...
Information transparency	Demonstration of creditworthiness (minimize the cost of funding, extend duration, enhance diversification of sources)	Independent assessment of creditworthiness	Indication of credit risk, determination of the interest rate (cost of borrowing)
Standard for making investment decisions	Enlarge a list of creditors	Encourage comparison of the choices of investment	Securitization

Source: compiled by the authors based on: Understanding Ratings. S&P Global Ratings. URL: <https://www.spglobal.com/ratings/en/about/understanding-ratings>; IMF Global Financial Stability Report. (2010).

Table 2

### Indicators and descriptive statistics of credit rating factors, %

Indicator	Median		Coeff. of variation		Source (regions of Russia / U.S. states)
	Regions of Russia	U.S. states	Regions of Russia	U.S. states	
Debt, share of own budget revenues, %	52.6	87.4	54.5	46.5	Ministry of Finance of Russia / (Kaplan, 2020)
Deficit, share of own budget revenues (“–” means surplus), %	6.9	–2.6	86.4	–379.9	Federal Treasury of Russia / (Kaplan, 2020)
Interest expenses, share of own budget revenues, %	1.4	3.4	71.0	51.7	Federal Treasury of Russia / (Kaplan, 2020)
Share of intergovernmental transfers in total revenues, %	33.8	33.4	52.4	15.8	Federal Treasury of Russia / (Kaplan, 2020)
Share of intergovernmental transfers (issued) in total expenditures, %	32.0	22.7	60.2	27.2	Federal Treasury of Russia / (Kaplan, 2020)
Share of capital expenditures in total expenditures, %	7.2	7.5	60.2	27.9	Treasury of Russia / (Kaplan, 2020)
Average annual personal income, thousand rubles / person	307.3	1046.0	36.9	10.7	Federal State Statistic Service / Bureau of Economic Analysis (BEA)
Share of social payments in personal income, %	21.0	17.9	20.1	20.2	Federal State Statistic Service / BEA
Share of natural extraction industry in the Gross regional product, %	1.7	0.5	163.0	186.3	Federal State Statistic Service / BEA
Unemployment rate, %	6.5	6.0	66.9	20.4	Federal State Statistic Service / BEA
Budget revenues, thousand rubles per person	46.6	162.0	42.7	25.5	Federal Treasury of Russia / (Kaplan, 2020)

Source: compiled and calculated by the authors. Federal State Statistic Service, Pew Charitable Trusts (data of population size). Note: statistics based on average data for 2008–2017.

include less common economic and fiscal indicators such as the unemployment rate (Boumparis, Milas, Panagiotidis, 2017) and the share of capital expenditure (Poghosyan, 2012). The descriptive statistics and the correlation coefficients are calculated based on average data for 2008–2017. The conversion into rubles was made on the basis of Purchasing Power Parity (PPP), according to the World Bank International Comparison Program. For both countries, interregional differences are taken into account through the so-called budget spending index for Russia and the regional price parity index for the United States. Thus, every effort was made to ensure the comparability of the indicators for Russia and the United States.

Russia and the United States differ significantly in terms of budget revenues, which can be explained by the differences in personal income. The differentiation in relative indicators is not so significant. On the one hand, the countries are similar in terms of intergovernmental fiscal transfers in total revenue, regional capital expenditures and unemployment rates, although these indicators reveal a large interregional differentiation in Russia. Russia lags by regional budget deficit, a share of social payments in personal income and has a greater natural resource sector of the economy. On the other hand, in the United States regional debts are larger and interest costs higher, plus a smaller share of regional spending is done through intergovernmental fiscal transfers. In sum, Russian regions are not very far behind the U.S. states in the formal indicators, which usually play the biggest role in the assignment of a credit rating.

To test whether the general approach to the ranking of Russian regions differs from that of the U.S. states, we are going to estimate the coefficients of the CR model (1) using a simple cross-sectional regression by ordinary least squares method (OLS). The estimates are computed based on the annual data for 2018. In this model the value of credit rating of Russian regions and U.S. states serves as a dependent variable. In order to transform the rating from the alphanumeric to numerical value, we are going to adopt the approach from the information site of Trading Economics, where “100” is attributed to the highest rating “AAA”, “95” to “AA”, and so on<sup>6</sup>. We examine the regional ratings from S&P for both Russia and the U.S. However, if there are several ratings of a

Russian region (from Fitch and/or Moody’s), we choose the lower one before the conversion. On the other side of the model there is a vector ( $X$ ) of the general economic and budget indicators (see Table 2), which are traditionally viewed to be the main predictors.

$$CR_j = \alpha_0 + \sum_{m=1}^n \alpha_m \cdot X_{jm} + \beta \cdot D(Russia)_j + \varepsilon. \quad (1)$$

The OLS technique, despite its simplicity, can yield reliable results which do not differ much from more complex approaches (for example, ordinal probit or logit regressions) (Cantor and Packer, 1996), which is why this technique was applied both in early similar studies and in later works (Afonso, 2003; Chee, Fah, Nassir, 2015). The choice of OLS is additionally justified by the fact that we are interested in the significance of the dummy variable indicating the region of Russia –  $D(Russia)$ .

## Results

The sovereign rating of Russia has been at a very low level even before the recent downgrading (as of February–March 2022). Before that, it had varied from “BBB–” to “BBB”. Considering the national ceiling, ratings of Russian regions from national and international agencies do not differ much (see Figure 1 and 2). Only every third Russian region has been assigned a credit rating from a Russian agency, and only one in four has a credit rating from a foreign one. The North Caucasus the Far Eastern regions have received the least coverage (Mikhaylova A., Timushev E., 2021), while the regions of the Volga and Ural Federal districts, have got the greatest coverage. The highest positions in the credit ratings are held by Moscow and St. Petersburg, by oil-producing regions, such as the Yamalo-Nenets Autonomous District and Tyumen Region, and several highly developed regions such as the republics of Bashkortostan and Tatarstan. The fact that both the structure of the economy and the quality of public administration play a significant role in assessing regional creditworthiness is supported by the findings of Romanova and Ponomareva (2021).

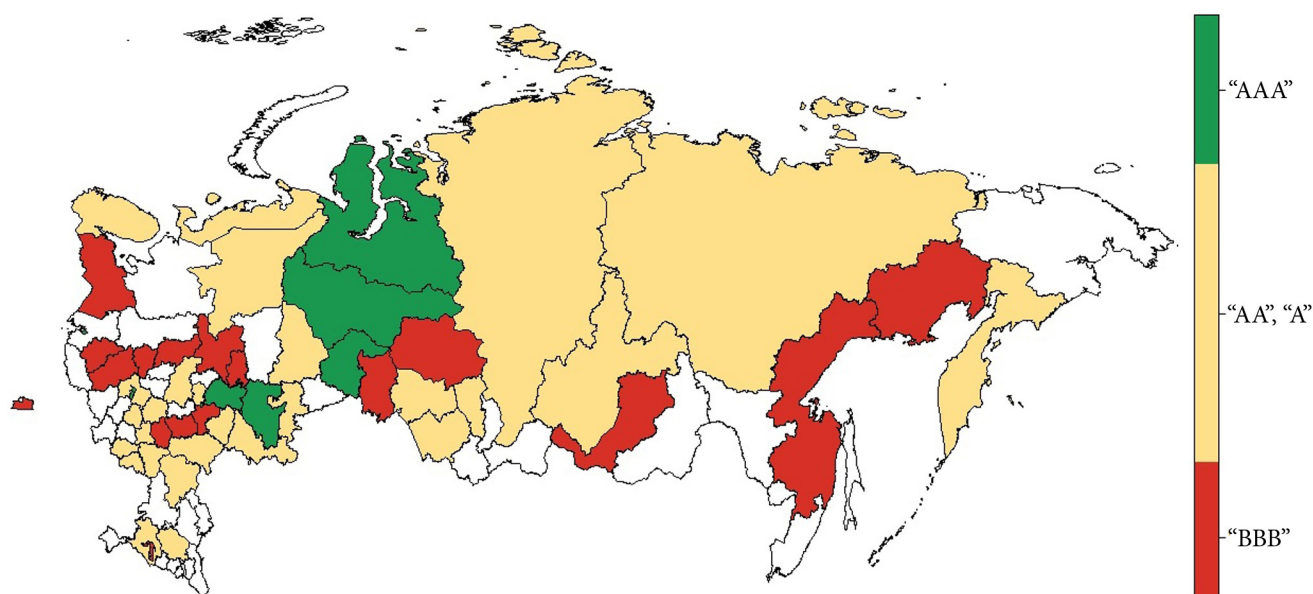
The U.S. states are less differentiated in terms of creditworthiness (Fig. 3). The amount of debt, which is one of the main factors considered in a credit rating, can be predicted by roughly classifying the U.S. states as conservative and liberal. The former, such as Wyoming, Nebraska, and

<sup>6</sup> URL: <https://tradingeconomics.com/country-list/rating> (accessed: 07.03.2022)

Tennessee, generate less debt than the latter, such as Massachusetts, Connecticut, Illinois. The liberal states, however, lead in the level of personal income, which is also a significant factor. The U.S. states with developed extractive industries, such as Wyoming, North Dakota, Alaska, Oklahoma, and New Mexico, generally accumulate relatively little debt, but some of them bear high interest

expenses, and are also at the bottom of the list in terms of personal income. These features prevent them from getting the highest credit rating.

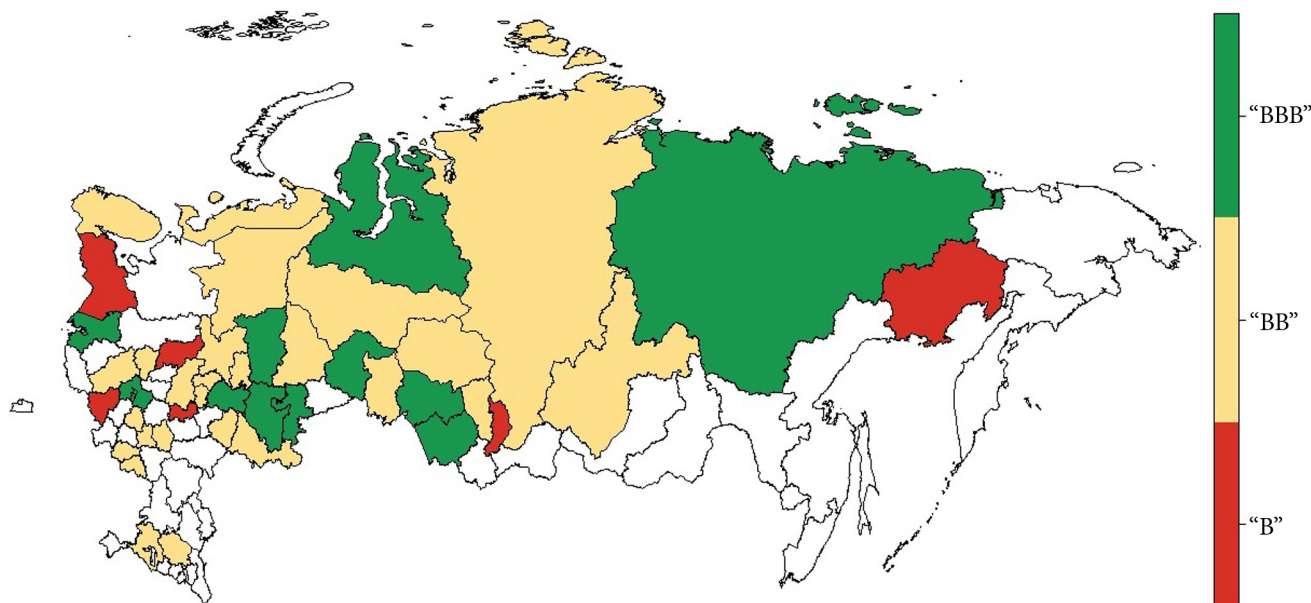
Russian rating agencies, as a rule, use quantitative indicators to estimate creditworthiness (Table 3). International agencies, in turn, use not only a lot of quantitative but also qualitative indicators.



**Figure 1.** Credit ratings of Russian regions (from Russian agencies)

Source: ACRA, Expert RA.

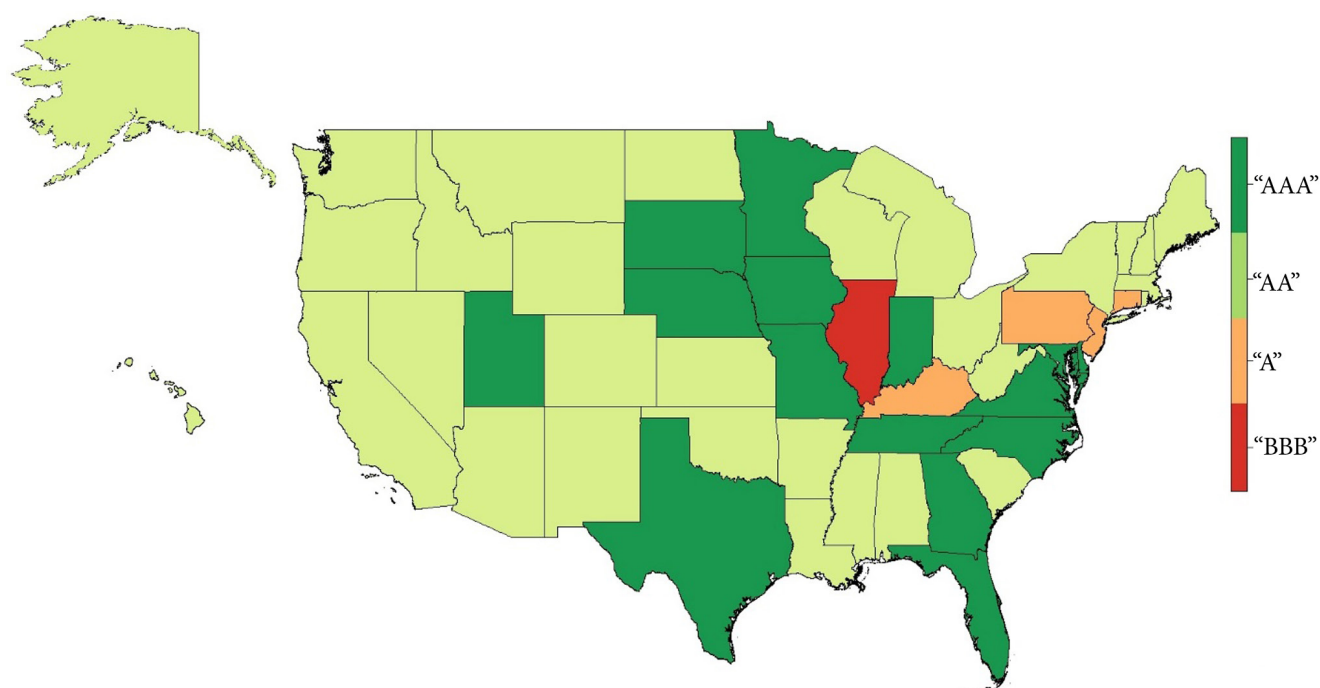
Note: The average value is calculated if for the respective region there are several ratings by different agencies, as of spring 2020.



**Figure 2.** Credit ratings of Russian regions (from international agencies)

Source: Fitch, S&P, Moody's.

Note: The average value is calculated if for the respective region there are several ratings by different agencies, as of spring 2020.



**Figure 3.** U.S. states credit ratings

Source: S&P Global Ratings.

Note: as of spring 2020.

Table 3

**Key elements of rating agency methodologies**

Indicator	ACRA	Expert RA	Fitch	S&P	Moody's
<b>Economy</b>	+	+	+	+	+
<b>Institutional sphere (distribution of powers)</b>	–	–	+	+	+
<i>Budget – quantitative indicators</i>					
Debt	+	+	+	+	+
Deficit	+	+	+	+	+
Interest expenses	+	+	+	+	+
Share of capital expenditures	+	+	–	–	–
Share of own budget revenues	+	+	–	–	–
Share of intergovernmental transfers in total revenues	–	+	–	–	–
Liquidity	+	+	+	+	–
<i>Budget – qualitative indicators</i>					
Financial market and banking sector development	–	–	–	+	–
Compliance with budgetary legislation	+	–	–	–	–
Planning	+	–	–	–	–
Risk monitoring, prudential measures	–	–	+	–	–
Duration of debt	+	–	–	–	–
State of budgetary organizations	–	–	+	–	+
Creditor debt	+	–	–	–	+
Contingent liabilities	–	–	+	+	–
Tax incentives	+	–	–	–	–
Capital expenditure status	–	–	–	–	+
Dependence on intergovernmental transfers and stability of the flow	–	–	–	+	–
Federal funds availability	–	–	–	+	–

Sources: compiled by the authors.



However, the main difference of The Big Three is the use of the indicators of institutions. These indicators are primarily aimed at establishing the institutional nature of the fiscal structure and intergovernmental relations that affect the issuer's ability to meet debt obligations (Table 4). According to our results, the nuances of institutional structure include a wide range of aspects and details of intergovernmental fiscal relations: rules for distribution of revenues (tax autonomy) and expenditures (independence in the choice of directions and volumes), stability and acceptability of the tax burden, structural deficit, efficiency of the intergovernmental fiscal transfers system,

existence of fiscal rules, quality of financial management, role of capital expenditures, and degree of fiscal discipline.

Regardless of the rating agency, the credit ratings of both Russian regions and the U.S. states are inversely associated not only with the amount of debt, but also the interest expenses and unemployment rate. However, in general, the credit ratings of the U.S. states are characterized by a much lower correlation with the selected indicators (Table 5). On the contrary, for Russian regions the resulting correlation coefficients confirm our expectations since the higher are the ratings, the higher are the level of personal income

Table 4

## Institutional sphere

Factor	Fitch	S&P	Moody's
<i>Regulation of powers</i>			
Distribution of revenue and expenditure powers (stability and predictability of revenue powers, unambiguity and invariability of powers)	+	+	+
Manageability of budget parameters (breadth of revenues and expenditure powers, ability to manage expenditure obligations)	–	–	+
Ability to control costs within programs, reduce costs	+	–	–
Accounting for the size of regulatory public obligations	+	–	–
Accounting for discretionary spending	+	–	–
Balance of estimates of revenues and expenses	–	+	–
Tax authority (tax rates, base and deductions)	+	–	–
Ability to increase current revenues	+	–	–
Acceptability (point of view of taxpayers) of tax burden increase	+	–	–
<i>Distribution of powers, compliance with norms, intergovernmental transfers</i>			
Existence of budget rules	+	–	–
Deficit and debt prudential standards (positive factor)	–	+	–
Mechanism of intergovernmental transfers – stimulating and stabilizing (positive factor)	+	–	–
Mechanism of intergovernmental transfers – equalizing and balancing	+	–	–
<i>Financial management, including planning</i>			
Management based on reliable information	–	+	+
Long term planning	–	+	+
Reasonable assumptions and forecast parameters	–	+	+
Conservative forecast of volatile tax revenues	–	+	+
Disclosure of capital expenditure management policy	–	+	+
Correspondence of capital expenditures to the goals of state programs	–	+	+
Quality of liquidity management	–	+	+
Internal audit, structuredness (approval process) of revenue and expense management	–	+	+
<i>Budget investment</i>			
Stability of the budgetary investment policy (the low level of investment now may require significant growth in the future)	+	–	–
<i>Debt</i>			
Conservative borrowing, fiscal discipline	+	+	–
Risk appetite in the debt policy (market risk, refinancing risk, creditor structure risk)	–	+	–
Risks of underfunding and bankruptcy avoided	–	–	+
Liquidity			
Solvency (including retrospective and “bad” credit history)	–	+	–

Sources: compiled by the authors.



and the share of capital expenditures. A reverse relationship with ratings is observed for intergovernmental transfers to regional budgets and social transfers to individuals. The affiliation of the agency (Russian or international) for the ratings of Russian regions is irrelevant.

The estimates of the CR model (see (1) above) show significant and negative coefficients for the

dummy variable  $D$  (*Russia*) (Table 6). The dummy variable retains the “minus” sign even when we factor in the sovereign rating of Russia (“BBB”) as a “ceiling” for the regional ratings. We are doing so by equating it to the “AAA” rating and recalculating the Russian regional ratings based on the number of steps of deviation from this highest rating. This operation significantly increases the

Table 5

## Paired correlation with the credit rating

Indicator	Russian regions		U.S. states
	ACRA, Expert RA	Fitch, S&P, Moody's	S&P
Debt, share of own budget revenues	−0.64	−0.73	−0.37
Deficit, share of own budget revenues	−0.70	−0.71	−0.37
Interest expenses, share of own budget revenues	−0.44	−0.61	−0.42
Share of intergovernmental transfers in total revenues	−0.54	−0.38	0
Share of intergovernmental transfers (issued) in total expenditures	−0.19	0	0
Share of capital expenditures in total expenditures	0.38	0.27	0
Average annual personal income	0.46	0.50	0
Share of social payments in personal income	−0.56	−0.52	0
Share of natural extraction industry in the Gross regional product	0.20	0	0
Unemployment rate	−0.40	−0.36	−0.40

Source: calculated by the authors.

Note: Only significant correlation coefficients (by Student's t-test). Calculations are based on the average data for 2008–2017.

Table 6

## Estimates of regression coefficients

Variables	Credit ratings of Russian regions and U.S. states	
	Nominal	Recalculated for Russian regions when the sovereign rating of Russia serves as a “ceiling”
Constant	116.4 *** (10.1)	116.4 *** (10.1)
Debt, share of own budget revenues	−6.4 * (3.7)	−6.4 * (3.7)
Deficit, share of own budget revenues	−0.5 (4.7)	−0.5 (4.7)
Interest expenses, share of own budget revenues	−75.3 (93.6)	−75.3 (93.6)
Share of intergovernmental transfers in total revenues	6.2 (6.6)	6.2 (6.6)
Share of intergovernmental transfers (issued) in total expenditures	9.2 (7.1)	9.2 (7.1)
Share of capital expenditures in total expenditures	61.0 *** (19.8)	61.0 *** (19.8)
Average annual personal income	−0.0 * (0.0)	−0.0 * (0.0)
Share of social payments in personal income	−30.6 (22.0)	−30.6 (22.0)
Share of natural extraction industry in the Gross regional product	−3.9 (4.1)	−3.9 (4.1)
Unemployment rate	−137.0 *** (47.1)	−137.0 *** (47.1)
D (Russia)	−58.9 *** (7.0)	−18.9 *** (7.0)
R <sup>2</sup> adjusted	0.93	0.44
Jarque-Bera test	0.00	0.00
Breusch-Pagan test	0.01	0.01
Durbin-Watson test	0.79	0.79
Number of observations	95	95

Source: authors' calculations on one-year data (2018).

Note: Only significant regression coefficients, standard errors are in parenthesis. \* – coefficients significant at the level of 10%; \*\* – at the level of 5%; \*\*\* – at the level of 1%. Heteroskedasticity-consistent estimators (obtained by using the function “vcovHC”, type=“HC0” in R programming language). The p-value is specified for the tests, and high values indicate that the prerequisites of regression analysis are met.

ratings of Russian regions and thus weakens the probability of getting the “minus” sign for a factor unaccounted for in our model when controlling for the main determinants of the rating.

This finding suggests that, from the perspective of international agencies, Russian regions have significantly lower creditworthiness than U.S. states, all other things being equal. Although the robustness check by various tests indicates that there is a risk of missing predictors and the possibility of overestimating the standard errors, the normalized coefficient of determination is relatively large. There is no autocorrelation of errors, and the risk of endogeneity is by definition very small, because it is the regional debt that drives the rating and not vice versa. In our opinion, Russian regions' lower creditworthiness as perceived by The Big Three may reflect the weakness of the institutions of the budgetary system.

## Discussion

In almost every aspect of the institutional environment of the Russian budgetary systems, some shortcomings were detected.

**First**, the subnational debt policy, including the part that is realized by the federal authorities, arguably plays the most prominent role in shaping the regional creditworthiness.

In the U.S., the federal government hasn't paid off the regional debt since 1840s after assuming the debt of the states after the War of 1812 and in 1836 for the District of Columbia (Henning C.R., Kessler M., 2012). As a result, since then, numerous states have adopted balanced budget amendments and similar provisions in the state law requiring balanced budgets. Such federal and state policy measures became possible because the debt was held by few states and was relatively small, it was held by domestic lenders, and it didn't affect the production of national public goods.

In Russia, regional debt is again on the rise due to the Covid-19 crisis. However, these days it is increasingly financed through federal budget loans, which simultaneously raises the prospect of a federal bail-out. The role of informal positions of regional authorities and the interregional competition over lobbying for additional federal transfers have increased (Pobedin A., Balynskaya N. & Williams D., 2021). Experts from Fitch, S&P and Moody's are most likely to account for these possible discretionary decisions, i.e. the possibility of external bail-out. However, such an explanation still requires further discussion, given that the

likelihood of federal support is more often associated with a rise in credit ratings. On the one hand, other aspects of the institutional fiscal structure in Russia may be so bad that, in the eyes of the experts, they even override the positive factor of potential federal support. On the other hand, given the current relatively low level of regional debt, federal assistance may not seem necessary or even likely, and therefore is not reflected in the rating. It is more likely, however, that the very option of federal assistance in the regional debt policy in reality brings instability to the formal rules and shows the low level of autonomy of regional authorities (Klimanov V., Kazakova S., & Mikhaylova A., 2020). In the short term, it might be beneficial both for the borrower and the lender; in the long term, however, increased uncertainty reduces the efficiency of resource allocation as indicated by the abundant literature on soft budget constraints (Sinelnikov-Murylev S. et al., 2006; Pettersson-Lidbom, Dahlberg, 2003). Such a system is characterized by ineffective budgetary expenditures and reduced incentives to mobilize regional budget revenues. Moreover, the financial assistance given to one region must be paid for by the taxpayers of other regions. From the macro-perspective, public goods are produced above the optimal level.

**Second**, the system of intergovernmental relations, primarily intergovernmental transfers, is the area where the two systems surprisingly share the most common characteristics. On the one hand, in both systems, regional governments to a great extent rely on federal transfers, and the network intergovernmental transfers are very complex (Watts R.L., Vigneault M., 2020). While in the U.S. the conditionality of federal-state transfers is widespread (Boadway R., Watts R.L., 2004), in Russia, the share of non-earmarked transfers diminishes as well. On the other hand, although the number of categorical grants is higher in the U.S. (1,299 as of 2017 according to (Kincaid J. 2020)), block grants there also seem more prevalent compared to the Russian budgetary system. Moreover, the intergovernmental relations in Russia are accompanied by excessive red tape (Starodubtsev A., 2020), while in the U.S. such negotiations occur through informal party, associational, and customary channels (Kincaid J., Leckrone J.W., 2022).

**Third**, the framework of accepting spending obligations needs to be considered. In the U.S., the federal government possesses constitutionally delegated limited powers, while all residual powers

belong to the states (Kincaid J., 2020). In contrast, according to A. Starodubtsev (2020), the Russian Constitution creates a lot of uncertainty regarding subnational responsibilities. The Constitution provides a broad list of the Russian Federation's areas of competence and specifies the spheres of shared responsibilities where the federal government establishes legal frameworks. Thus, the regional and local authorities' discretion in setting the spending parameters becomes very limited.

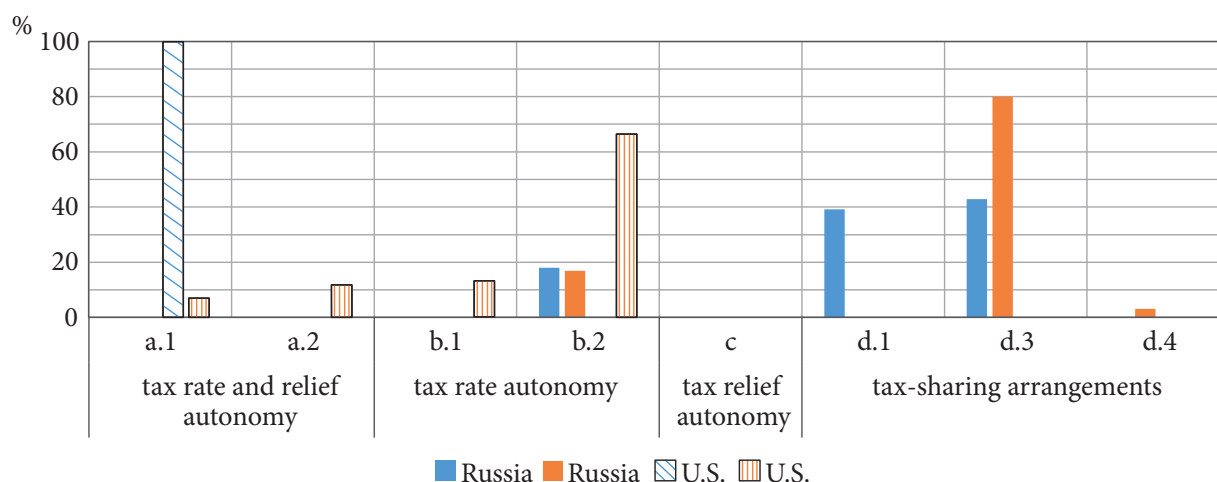
**Fourth**, the tax autonomy of regional governments is arguably a major aspect of intergovernmental relations. R. Boadway (2006) describes it as “the most relevant indicator of the degree of decentralization”. Indeed, even under a subnational spending autonomy, a centralized tax system might have a negative impact on economic growth (Mitra A., Chymis A., 2021).

In analyzing and quantifying sub-central **tax autonomy**, the approach by the OECD (“A Taxonomy of Tax Autonomy”) is extremely helpful. First introduced in 1995, the methodology was later modified and since 2002 it has remained essentially intact. The methodological guide and regular reports could be found at the OECD official website<sup>7</sup>. This classification basically shows how much of a discretion (in terms of the share of total tax revenues) and of what type the state (local) governments possess, meaning their ability to accumulate tax revenues. The OECD's classification basically distinguishes five main categories of tax autonomy. These categories are ranked

<sup>7</sup> URL: <https://www.oecd.org/tax/federalism/fiscal-decentralisation-database/> (accessed: 06.03.2022)

in decreasing order from “a” to “e” and indicate whether the subnational government determines the tax rate and/or tax base (by defining tax reliefs) and if there is a tax-sharing arrangement of some sort. Inside each category there are at least two sub-positions. In this paper in order to assess the subnational tax autonomy in Russia, we mostly rely on the working paper by S. Dougherty et al. (2019). Their research reproduces the method of systematization of tax powers of subnational governments by the OECD, presents the most recent data on state and local tax autonomy in the world as well as the tax autonomy of U.S. local governments – overall for U.S. and for local governments of each state.

We could see how much lower is both the regional and local tax autonomy of Russian subnational governments compared to their counterparts in the United States (Fig. 4). Essentially, in Russia about 80% of tax revenues on both levels are collected through some kind of tax-sharing arrangements. Regional governments in Russia possess the most autonomy over various taxes levied on small and medium-sized enterprises but these revenues are comparatively small (18%). Approximately the same share of total tax revenues at the local level is collected through various property taxes. By contrast, the U.S. states exercise total tax power (determine both the tax rates and tax base), while the local governments themselves set the rates for all type of taxes. Moreover, the American tax system is administratively decentralized (Watts R.L., Vigneault M., 2020).



**Figure 4.** Assessment of subnational tax autonomy in Russia and the United States

Source: For the U.S. – OECD, (Dougherty et al., 2019), for Russia – authors' calculations.

Note: Data for the U.S. only available for 2014. For Russia we rely on the data for the fiscal year of 2020.



## Conclusions

We have found that the creditworthiness of Russian regions is underestimated in comparison with the U.S. states even when other rating factors are considered. This contradiction can be explained by the shortcomings in the system of intergovernmental fiscal relations in Russia. These shortcomings belong to the institutional sphere.

Institutions of the fiscal system play a significant role in assigning the regional credit ratings. According to our results, the credit ratings of Russian regions assigned by international agencies are negatively affected by the institutional problems in the system of intergovernmental fiscal relations. We have identified the following disadvantages in all the major aspects of the institutional environment of the Russian budgetary system: federal regulation of the debt policy leaves little room for regional maneuvering in using intergovernmental transfers and creates excessive dependence of regional governments on federal authorities; the choice of spending parameters is limited; and, perhaps most importantly, regional and local governments have little tax autonomy. Under such conditions, discretionary decisions about the provision of federal financial assistance

seem quite likely but at the same time the overall uncertainty in the system becomes very high. In all likelihood, this situation is reflected in the low creditworthiness of Russian regions when seen from the international perspective. In practice this could have implications for regional fiscal authorities, primarily in terms of the cost of funding. However, lower ratings combined with the understanding of methodological tools can help better understand the shortcomings in the distribution of powers and intergovernmental fiscal relations in Russia.

The Big Three, assigning regional credit ratings in Russia, exemplify the important informational function of credit rating. Therefore, the general understatement of regional ratings in Russia by the international agencies should be viewed positively since it allows us to identify the weaknesses of the budgetary system and search for ways to address them.

Since the end of February 2022, the political factor has become dominant in determining the credit rating of Russia and its regions. Meanwhile, we hope that in peacetime, when the situation stabilizes, our findings will be relevant for the future budget policy.

## References

- Afonso, A. (2003). Understanding the determinants of sovereign debt ratings: Evidence for the two leading agencies. *Journal of Economics and Finance*, 27(1), 56–74. doi: [10.1007/BF02751590](https://doi.org/10.1007/BF02751590)
- Baskaran, T. (2012). Soft budget constraints and strategic interactions in subnational borrowing: Evidence from the German States, 1975–2005. *Journal of Urban Economics*, 71(1), 114–127. doi: [10.1016/j.jue.2011.07.003](https://doi.org/10.1016/j.jue.2011.07.003)
- Beck, R. et al. (2017). Determinants of sub-sovereign bond yield spreads – The role of fiscal fundamentals and federal bailout expectations. *Journal of International Money and Finance*, 79, 72–98. doi: [10.1016/j.jimonfin.2017.08.003](https://doi.org/10.1016/j.jimonfin.2017.08.003)
- Bhatia, A.V. (2002). *Sovereign Credit Ratings Methodology: An Evaluation*. IMF Working Paper, no. WP/02/170.
- Boadway, R. (2006). The principles and practice of federalism: Lessons for the EU? *Swedish Economic Policy Review*, 13, 9–62.
- Boadway, R., Watts, R.L. (2004). *Fiscal Federalism in Canada, The USA, And Germany*. IIGR, Queen's University Working Paper, 6.
- Boumparis, P., Milas, C., & Panagiotidis, T. (2017). Economic policy uncertainty and sovereign credit rating decisions: Panel quantile evidence for the Eurozone. *Journal of International Money and Finance*, 79, 39–71. doi: [10.1016/j.jimonfin.2017.08.007](https://doi.org/10.1016/j.jimonfin.2017.08.007)
- Cantor, R., & Packer, F. (1996). Determinants and Impact of Sovereign Credit Ratings. *FRBNY Economic Policy Review*, 2(2), 37–54.
- Chee, S.W., Fah, C.F. and Nassir, A.M. (2015). Macroeconomics Determinants of Sovereign Credit Ratings. *International Business Research*, 8(2), 118–125. doi: [10.5539/ibr.v8n2p42](https://doi.org/10.5539/ibr.v8n2p42)
- De Moor, L. et al. (2018). Subjectivity in sovereign credit ratings. *Journal of Banking and Finance*, 88, 366–392. doi: [10.1016/j.jbankfin.2017.12.014](https://doi.org/10.1016/j.jbankfin.2017.12.014)

- Dougherty, S., Harding, M., Reschovsky, A. (2019). *Twenty years of tax autonomy across levels of government*. OECD Working Papers on Fiscal Federalism, 29. doi: [10.1787/ca7ebc02-en](https://doi.org/10.1787/ca7ebc02-en)
- Gaillard, N. (2009). The determinants of Moody's sub-sovereign ratings. *International Research Journal of Finance and Economics*, 31, 194–209.
- Henning, C. R., Kessler M. (2012). Fiscal Federalism: US History for Architects of Europe's Fiscal Union. *SSRN Electronic Journal*. doi: [10.2139/ssrn.1982709](https://doi.org/10.2139/ssrn.1982709)
- Kaplan, J. (2020). *Annual Survey of State Government Finances 1992-2018*. Ann Arbor, MI, Inter-university Consortium for Political and Social Research. doi: [10.3886/E101880V3](https://doi.org/10.3886/E101880V3)
- Kincaid, J. (2020). *United States of America. Polarization Between Democratic and Republican States*. In: The Forum of Federations Handbook of Federal Countries 2020. Palgrave. 367–384.
- Kincaid, J., Leckrone, J.W. (2022). *COVID-19 and American federalism. First-wave responses*. In: Chattopadhyay R. et al. (eds.) *Federalism and the Response to COVID-19. A Comparative Analysis*. Routledge. 239–249.
- Klimanov, V., Kazakova, S., & Mikhaylova, A. (2020). Economic and Fiscal Resilience of Russia's Regions. *Regional Science, Policy and Practice*, 4(12), 627–640. doi: [10.1111/rsp3.12282](https://doi.org/10.1111/rsp3.12282)
- Klimanov, V., Kazakova, S., Mikhaylova, A., & Safina A. (2021). Fiscal resilience of Russia's regions in the face of COVID-19. *Journal of Public Budgeting, Accounting & Financial Management*, 1(33), 87–94. doi: [10.1108/JPBAFM-07-2020-0123](https://doi.org/10.1108/JPBAFM-07-2020-0123)
- Laulajainen, R. (1999). Subnational credit ratings – Penetrating the cultural haze. *GeoJournal*, 47, 501–510. doi: [10.1023/A:1007006323030](https://doi.org/10.1023/A:1007006323030)
- Liu, L. and Tan, K. S. (2009). *Subnational Credit Ratings: A Comparative Review*. World Bank Policy Research Working Papers, 5013. doi: [10.1596/1813-9450-5013](https://doi.org/10.1596/1813-9450-5013)
- Mikhaylova, A., & Timushev, E. (2021). Determinants of Credit Ratings of Russia's Regions. *Regionology = Russian Journal of Regional Studies*. 29(2), 355–379. (In Russian). doi: [10.15507/2413-1407.115.029.202102.355-379](https://doi.org/10.15507/2413-1407.115.029.202102.355-379)
- Mitra, A., & Chymis, A. (2021). Federalism, but how? The impact of vertical fiscal imbalance on economic growth. Evidence from Belgium. *Economics & Politics*, ecpo.12200. doi: [10.1111/ecpo.12200](https://doi.org/10.1111/ecpo.12200)
- Pettersson-Lidbom, P., & Dahlberg, M. (2003). *An Empirical Approach for Evaluating Soft Budget Constraints*. Uppsala University Working Paper Series, no. 28.
- Pobedin, A., Balynskaya, N., & Williams, D. (2021). Socio-economic consequences of the first and second waves of the pandemic in Russian regions. *R-Economy*, 3, 146–157. doi: [10.15826/recon.2021.7.3.013](https://doi.org/10.15826/recon.2021.7.3.013)
- Poghosyan, T. (2012). *Long-Run and Short-Run Determinants of Sovereign Bond Yields in Advanced Economies*. IMF Working Papers, 12(271). doi: [10.5089/9781475529142.001](https://doi.org/10.5089/9781475529142.001)
- Romanova, O., & Ponomareva, A. (2021). The Structural Factor of Regional Economic Stability in Russia during the Coronacrisis Period. *R-Economy*, 3, 158–168. doi: [10.15826/recon.2021.7.3.014](https://doi.org/10.15826/recon.2021.7.3.014)
- Sinelnikov-Murylev, S. et al. (2006). *The problem of soft budget constraints of Russian regional authorities*. Moscow: Gaidar Institute. (In Russian).
- Starodubtsev, A. (2020). *Russia (Russian Federation). Autonomy for a Very Few Constituent Units*. In: The Forum of Federations Handbook of Federal Countries 2020. Palgrave. 287–300.
- Tennant, D., & Tracey, M. (2016). *Sovereign Debt and Credit Rating Bias*. Palgrave Macmillan US.
- Watt, R.L., & Vigneault, M. (2020). *Fiscal Federalism in the United States*. Queen's University Working Paper. November.
- Zheng, L. (2012). Are Sovereign Credit Ratings Objective? A Tale of Two Agencies. *Journal of Applied Finance and Banking*, 2(5), 43–61.

### Information about the authors

**Anna Mikhaylova** – PhD in economics, associate professor, leading researcher, RANEPa Institute of Applied Economic Research (82-1, Vernadsky Avenue, Moscow, 119571, Russia); e-mail: aam@irof.ru

**Evgeny Timushev** – PhD in economics, researcher, Institute of Socio-Economic and Power Problems of the North, Komi Research Centre of the Ural Branch of the Russian Academy of Scienc-

es (26, Kommunisticheskaya street, Syktyvkar, Komi Republic, 167982, Russia); RANEP Institute of Applied Economic Research (82-1, Vernadsky Avenue, Moscow, 119571, Russia); e-mail: evgeny\_timushev@mail.ru

ARTICLE INFO: received February 16, 2022; accepted March 21, 2022

### Информация об авторах

**Михайлова Анна Александровна** – кандидат экономических наук, доцент, ведущий научный сотрудник, Институт прикладных экономических исследований РАНХиГС (Россия, 119571, г. Москва, проспект Вернадского, д. 82, стр. 1); e-mail: aam@irof.ru

**Тимушев Евгений Николаевич** – кандидат экономических наук, научный сотрудник, Институт социально-экономических и энергетических проблем Севера Коми научного центра Уральского отделения Российской академии наук (167982, Россия, г. Сыктывкар, ул. Коммунистическая, 26); Институт прикладных экономических исследований РАНХиГС (Россия, 119571, г. Москва, проспект Вернадского, д. 82, стр. 1); e-mail: evgeny\_timushev@mail.ru

ИНФОРМАЦИЯ О СТАТЬЕ: дата поступления 16 февраля 2022 г.; дата принятия к печати 21 марта 2022 г.

### 作者信息

**米哈伊洛娃·安娜·亚历山德罗芙娜** – 经济学博士，副教授，首席研究员，俄罗斯总统国民经济和公共管理学院应用经济研究系（俄罗斯，邮编：119571，莫斯科市，维尔纳德斯基街82号，1单元）；邮箱：aam@irof.ru.

**季穆舍夫·叶夫根尼·尼古拉耶维奇** – 经济学博士，研究院，俄罗斯科学院乌拉尔分院北科米共和国社会经济和能源问题研究所（俄罗斯，邮编：167982，瑟克特夫卡尔市，共产主义街26号）；俄罗斯总统国民经济和公共管理学院应用经济研究系（俄罗斯，邮编：119571，莫斯科市，维尔纳德斯基街82号，1单元）；邮箱：evgeny\_timushev@mail.ru.