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University Financial Support and Academic Ranking: Aspects of Interconnection

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ABSTRACT

Increasing the competitiveness of Russian education is an important national strategic priority, enshrined within the framework of the national project "Education" and the concept of Russia's humanitarian policy abroad. National and international academic rankings, despite the barriers that have arisen are a highly proven information resource in the world for all categories of participants in the higher education system. The **purpose** of the study is to identify whether there is an interconnection between a university's financial support and its position in academic rankings. The authors use the classical correlation analysis, ranking and comparison of universities' funding amounts and their position change in academic rankings. The examined development strategies, competitiveness improvement programs, sustainable development reports of the Russian and world's universities that are constantly improving their positions in the world rankings. Based on the results obtained **conclude** that there is no direct interconnection between universities' funding amounts and their positions in the rankings and a determining factor in the promotion of the universities in the academic rankings. For universities, direct competitive funding algorithms appear to be more effective in achieving the specific objective than regulatory funding. Russian universities seeking to advance in rankings focus on the combined application of mechanisms and sources of funding.

Keywords: university; academic ranking; financial support; promotion in the ranking; state programs for financing universities; financial policy of education

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INTRODUCTION

Increasing the competitiveness of national education and using its potential to expand Russian humanitarian influence in the world is an important state task, enshrined in the Concept of the Humanitarian Policy of the Russian Federation abroad, approved by the Presidential Decree in 2022.[1] National and inter-level academic rankings, despite the geopolitical barriers that have arisen in relation to the latter, remain an effective tool for assessing the competitiveness of higher education institutions in a global and regional context, thanks to a relatively simple and transparent system for determining the position of a particular university in the global/regional educational market in a specific subject area or by a specific criterion. For example, the ranking of universities on the demand of graduates by employers (from the largest recruitment agencies Head Hunter, SuperJob), the rating of ESG and on the realization of the goals of sustainable development (THE Impact Rankings, ESG-ranking RAEX), on media activity (Ministry of Science and Education of Russia, "Medialogia", "Integrum") and others. Thus, the position of universities in international and national rankings is a significant benchmark in strategic development for both educational institutions and national education systems [1].

The relevance of university rankings is confirmed by scientific, theoretical, scientific and practical publications, publicist articles of various scientific and information platforms, in social and professional networks and on websites, in speeches at conferences of representatives of universities, scientific organizations, ministries of education, commercial organizations and accreditation agencies. The number of publications devoted to the rankings of educational organizations in the last 10 years in the international scientific databases Web of Science and Scopus is approaching 10 000 units. They have a wide range of readers, which is confirmed by their high citation.

In February 2024, the President of the Russian Federation V. V. Putin approved the creation in Russia of the ranking of universities of the BRICS countries, the results of which are planned to be presented in October 2024 at the BRICS summit.[2]

MATERIALS AND METHODS

Basic general scientific methods of research — analysis and synthesis, induction and deduction, analogy, abstraction and concretization.

Russian and foreign sources of statistical data and analytics in the field of higher education, the normative and legal framework of regulation of educational activities in Russia and abroad, materials of scientific publications and interviews of leading experts served as the information base of the study.[3]

Scientific and practical search for ways of increasing the international competitiveness of universities, including the identification of factors that most effectively influence the growth of positions in the world and national rankings, are dedicated to the candidate and doctoral dissertations defended in different countries over the last 5 years (in Spain, Great Britain, Lithuania, France, Sweden, Croatia, Scotland, the United States of America, Russia, etc.).[4]

[1] Decree of the President of the Russian Federation from 05.09.2022 No. 611 "On approval of the Concept of the Humanitarian Policy of the Russian Federation abroad". ConsultantPlus.

[2] Session of the Council on Science and Education under the President of the Russian Federation from 08.02.2024. URL: http://kremlin.ru/events/president/news/73407 (accessed on 02.03.2024).

[3] Online conference of Yandex on education 2023. URL: https://yace.yandex.ru/ (accessed on 09.02.2024).

[4] DART-Europe portal. URL: https://www.dart-europe.org (accessed on 10.01.2024).

Assessment of factors affecting the international competitiveness of Russian universities and, as a consequence, on the positions in the rankings of educational organizations, is presented in numerous papers of foreign and Russian authors [2–23].

The geographical location of the university, status (national research, federal, reference, with special status), institutional freedoms in the management of the University, the level of annual income were noted in the papers by D. A. Endovitsky, V. V. Korotkikh, M. V. Voronova as factors that have a significant influence on the international competitiveness of universities [24].

T. N. Gavrilyeva, A. Sugimoto, M. Fujii and others have noted the networking of universities in the sphere of sustainable development as a factor for increasing competitiveness and increasing positions in specialized rankings [25].

R. P. Bulyga, I. F. Vetrova, O. G. Korolev, M. V. Mel'nik have proposed a system of analytical indicators for evaluating the performance of educational organizations, including indicators of financial support and indicators evaluated by ranking agencies [26].

The use of statistical, economic and mathematical and instrumental methods of analysis to assess the degree of influence of individual indicators of the activity of the university on the positions in the rankings is discussed in the papers by E. M. Anokhina, I. P. Boiko, N. B. Boldyreva etc. [27], A. A. Mikryukov, M. S. Gasparian, D. S. Karpov [28], L. V. Konstantinova, E. V. Shubenkova, M. E. Mazurov, A. A. Mikryukov [29], V. M. Moskovkin, H. Zhang [30], T. A. Salimova, I. A. Ivanova, E. A. Sysoeva [31]. The methodology of assessing the "return" of investments in the financing of universities to advance by one point in the international rankings is proposed in the papers by G. A. Agarkov and A. E. Sudakova [32].

With the aim of training professionals in the field of management of economic actors in education, specialized educational programs [5] are opened at universities (Harvard University, University of Sussex, Hebrew University of Jerusalem, the University of Bath, Higher School of Economics, Skolkovo and others). There are training simulators, for example, "University's competitiveness: management simulator" in Skolkovo, allowing to evaluate what results the university will come to with a certain distribution of funding between different directions of the University's activities over several years.

Due to high levels of competition both at the level of educational institutions and national education systems in general, governments in many countries are exploring effective ways to improve the position of their universities in international educational rankings. One of the most successful solutions has been the state programs, which provide additional funding for the country's leading universities in order to improve their effectiveness, resulting in increased international recognition. These programs are often referred to as "excellence initiatives" [33].

Research by J. Salmi, I. D. Frumin [34], who oversaw higher education at the World Bank, shows that at the turn of the 20th and 21st centuries, 13 public funding programs — 13 excellence initiatives — were initiated. Of these, 8 — are in the Asia-Pacific region (Australia, China, Japan, New Zealand, Hong Kong, South Korea), 4 — in Europe (Finland, Denmark, Norway, Ireland) and 1 — in North America (Canada). Between 2005 and 2023 the number of such programs increased to 45. The main increase was in the European region — up to 23 programs (Denmark, France, Germany, Luxembourg, Norway,

[5] Portal for the search of educational programs. URL: https://www.findamasters.com (accessed on 15.01.2024).

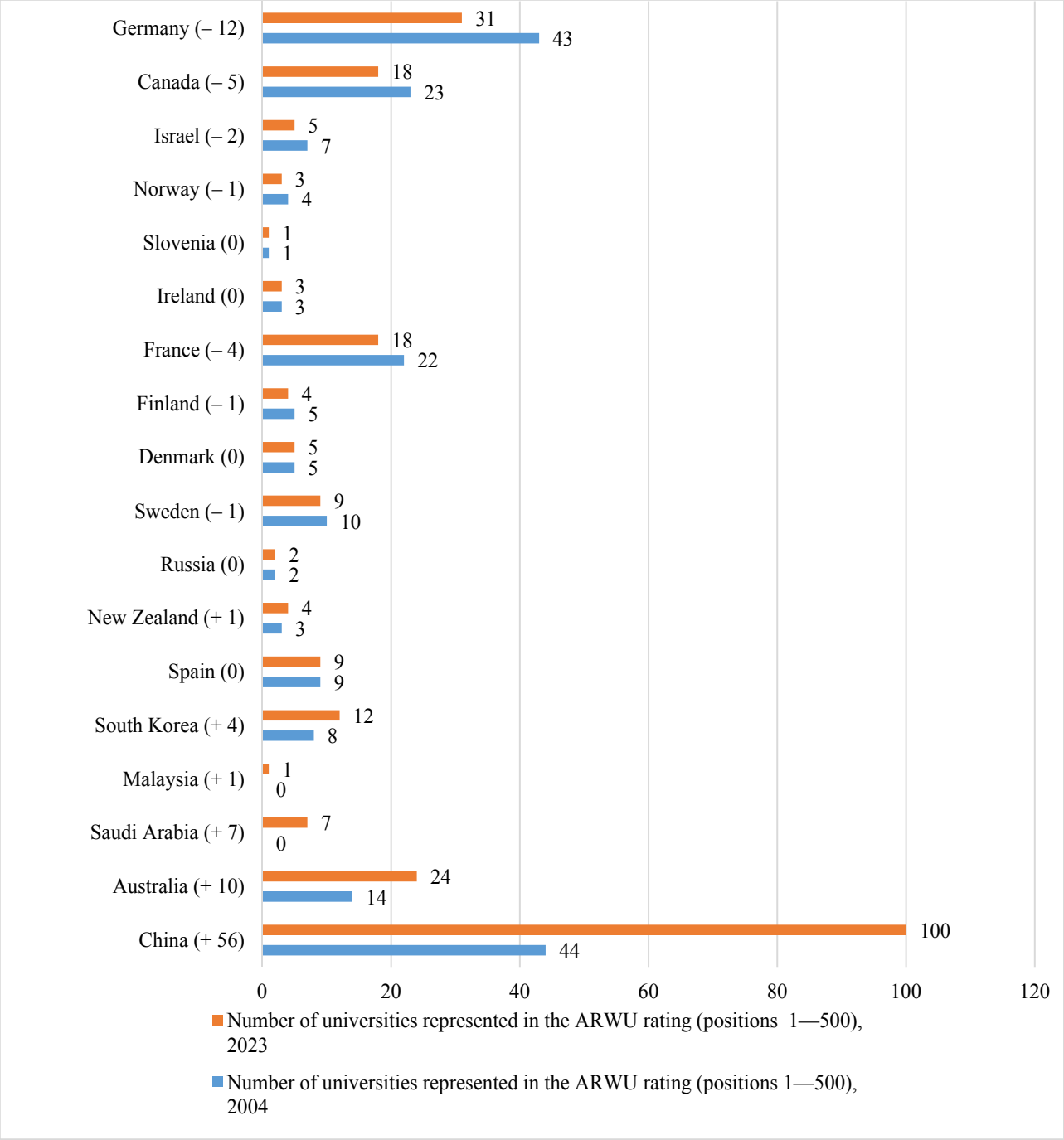


Fig. 1. **Representation in the ARWU Ranking of Universities from Countries that Implemented Excellence Initiatives**

Source: Compiled by the authors based on the results of the Academic Ranking of World Universities. URL: https://www.shanghairanking.com/rankings (accessed on 17.09.2023).

Poland, Russian Federation, Slovenia, Spain, and Sweden). In the Asia-Pacific region, up to 15 programs (China, India, Japan, Malaysia, Singapore, South Korea, Taiwan, and Thailand). New excellence initiatives have emerged in the African region (Nigeria) and the Middle East (Israel, Saudi Arabia), and the Canadian program has continued to develop in North America.[6]

[6] Materials of the Peter the Great St. Petersburg Polytechnic University. Higher education in Europe; 2017. URL: https://www.spbstu.ru/upload/inter/higher-education-europe-2017.

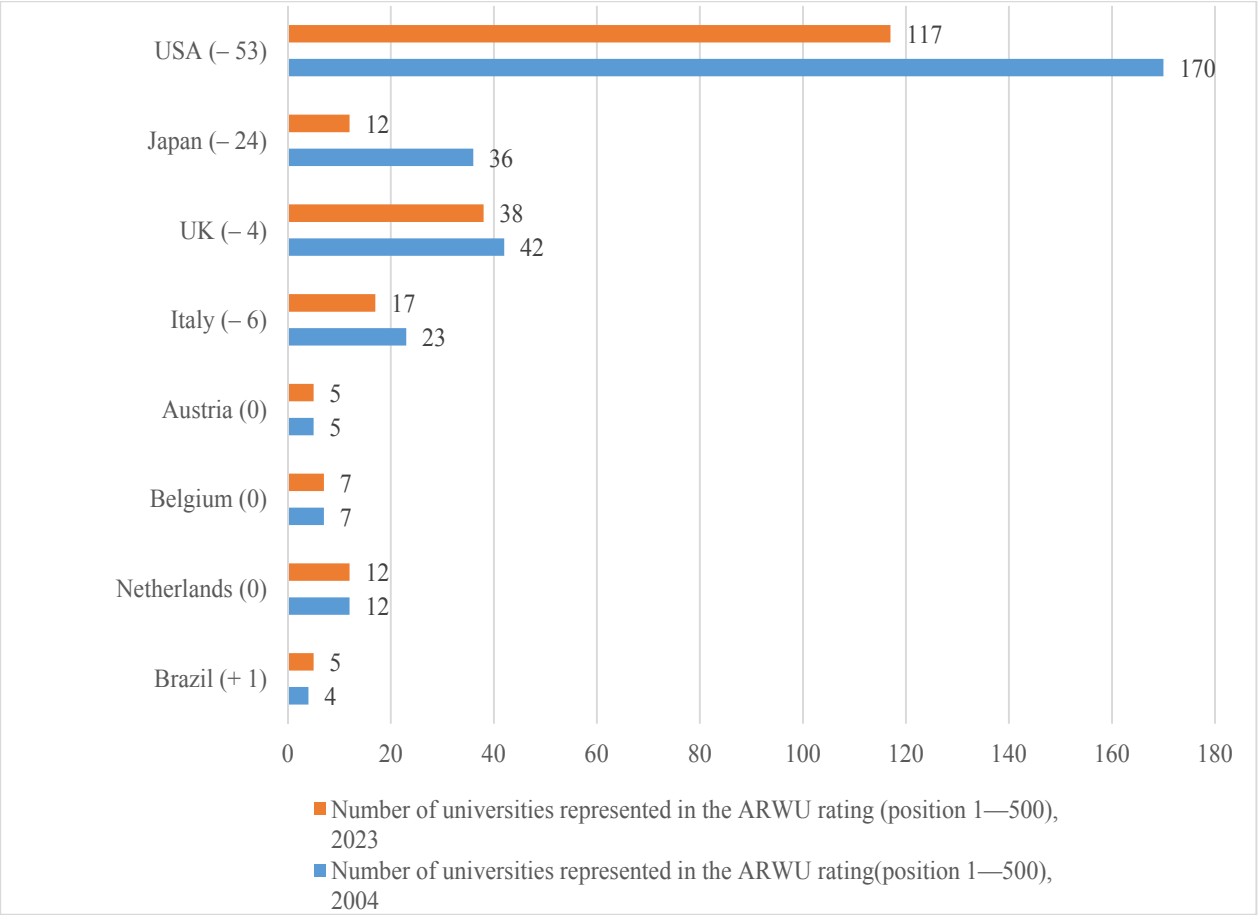


Fig. 2. **Representation in the ARWU Ranking of Universities from Countries that not Implemented Excellence Initiatives**

Source: Compiled by the authors based on the results of the Academic Ranking of World Universities. URL: https://www.shanghairanking.com/rankings (accessed on 17.09.2023).

The above data show that, while at the beginning of the 21st century, a relatively small number of countries realized the need to enhance the competitiveness of their national systems, at the present stage, the majority of both developed and developing countries have begun to fully support the innovative development of higher education institutions and have formed their own excellence initiatives [35]. Study of methodology and analysis of implementation of Russian excellence initiatives, such as the "5–100" project and the Priority 2030 strategic academic leadership program [36–39].

It should be noted that the main purpose of the "5–100" project — entering the top 100 world rankings of ARWU (Shanghai Rating), THE and QS — has not been fully achieved. One of the main reasons experts and the participants of the Russian initiative of excellence called "insufficient budget of the project — 80 billion rubles were allocated to 21 universities for a short period — for only 7 years" [40, 41].

State funding for excellence initiatives varies significantly from country to country. The minimum budget for excellence initiatives was less than 20 million dollars (e.g. in Denmark and Germany). The average level of funding was between 20 million dollars and 100 million dollars (e.g. in the Russian Federation, Spain), and a maximum

pdf; Internet portal for searching educational programs. URL: https://www.findamasters.com (accessed on 10.01.2024).

budget of more than 100 million dollars was allocated to initiatives of superiority by countries such as China, France, and Singapore.[7]

Analysis of the effectiveness of state programs of support of higher education is a complex and complex process, because, firstly, the effect of the modernization of the national education system can be observed after a sufficiently long period of time, and secondly, evaluation of the performance of universities should be based on a large number of different criteria. This is due to the fact that many excellence initiatives have indeed had a significant qualitative effect on the development of national education systems, but attempts to evaluate their effectiveness have been negligible [33].

Within the framework of the present study, the task is to analyze the relationship between the financial support of universities and the dynamics of their positions in the international ranking. A statistical analysis of the data shown in *Fig. 1* and *2* shows that many government funding programs for leading universities in order to improve their effectiveness and rank international recognition in different countries have indeed achieved significant results in terms of university representation in world educational rankings. *Fig.1* and *2* show countries grouped by excellence initiatives implemented between 2004 and 2023, and the increase in the number of universities in these countries in the top-500 of the Shanghai International Education Rankings (ARWU) for the period indicated.

Universities from Africa, Asia, Europe, America, Oceania and Russia were selected to analyze the keys of universities successfully advancing in the world rankings (*Fig. 1* and *2*). Russian universities are represented by individual participants of the programs "5–100" and "Priority 2030", as universities that received additional funding, including for increasing competitiveness and promotion in the ranking. The dynamics of advancement of Russian universities in the most famous, large-scale and long-standing international and Russian rankings QS, THE, RAEX were analyzed.

RESULTS AND DISCUSSION

Despite the active scientific controversy about the non-objectivity of the indicators used, approaches to assessment, subjectiveness of weighting factors, etc. "international educational rankings are today a very important indicator of the competitiveness of the universities of a particular country and an indication of the level of development of the educational system and even the national innovation system of the States of the world as a whole" [42]; "global university rankings encourage national governments to strengthen policies with regard to so-called world-class universities, the position of universities in the world ratings largely reflect the ability of the countries they represent to influence world processes" [33]. The transformation of universities into world-class universities is a global trend of the last decade, which has become one of the main vectors of national strategies. This gave impetus to the emergence and development of academic excellence initiatives worldwide (currently available in approximately 30 countries). In fact, it is programs of state financial support selected on a competitive basis of universities, giving the universities the opportunity to develop at a faster pace. Let us note some of them:

- Russian Federation: project "5–100", "Priority 2030", among indicators of which — mandatory presence in world ratings or indicators taken into account by world rating agencies;
- China: World Class project 2.0;
- Germany: Exzellenzinitiative;

[7] Materials of the Peter the Great St. Petersburg Polytechnic University. Higher education in Europe; 2017. URL: https://www.spbstu.ru/upload/inter/higher-education-europe-2017.pdf ; Internet portal for searching educational programs. URL: https://www.findamasters.com (accessed on 10.01.2024).

Table 1

Russian Universities Participation Dynamics in Rankings by Year

Ranking	Number of Russian universities, ranked in world rankings				
	2019	2020	2021	2022	2023
QS WUR	27	25	32	48	48
THE WUR	35	39	48	100	103
ARWU	11	11	9	10	9

Source: Compiled by the authors based on the results of the QS World University Rankings, The Times Higher Education World University Rankings, Academic Ranking of World Universities. URL: https://www.topuniversities.com/qs-world-university-rankings; https://www.topuniversities.com/qs-world-university-rankings; https://www.shanghairanking.com/rankings (accessed on 31.01.2024) [43].

- France: Excellence Initiatives (IDEX);
- Poland: Leading National Research Centers (KNOWs);
- UK: Research Excellence Framework etc. [35].[8]

The main objectives of excellence initiatives in all countries of the world as a whole are the following:

- restructuring (modernization) of the education and research system;
- increasing the competitiveness and recognition of academic reputation and research in an environment of international competition;
- improving the quality of education and research;
- expanding internationalization;
- growth of university positions in national and world rankings.

It is worth to mention that the last objective is an indicator of the successful implementation of the four previous. The popularity of rankings and their number is growing every year: at the moment already 60 rankings from 35 countries of the world (all rankings of universities and schools issued by the Russian agency RAEX, including the international rating "Three university missions", "Ranking of the best universities of Russia", ESG-ranking and many others) approved IREG. Positions in the leading world rankings of universities, first of all in such as the Times Higher Education World University Ranking (THE), Academic Ranking of World Universities (ARWU), QS World University ranking (QS), are one of the main indicators of the influence of Russian universities participation in the world academic agenda. These rankings will be reviewed in the study together with the national RAEX ranking.

THE, QS, ARWU rating indicators provide a basis for evaluating the growth indicators that universities are directing their funding, including the additional funding received within the framework of state financial support programs. The world rankings in question have a relatively similar set of indicators and evaluation methodologies developed over more than fifteen years of analysis and ranking of universities. In general, they evaluate the same main directions of the activities of universities, differing only by the number of indicators and sometimes differences in

[8] Materials of the Peter the Great St. Petersburg Polytechnic University. Higher education in Europe; 2017. URL: https://www.spbstu.ru/upload/inter/higher-education-europe-2017.pdf Internet portal for searching educational programs. URL: https://www.findamasters.com (accessed on 10.01.2024).

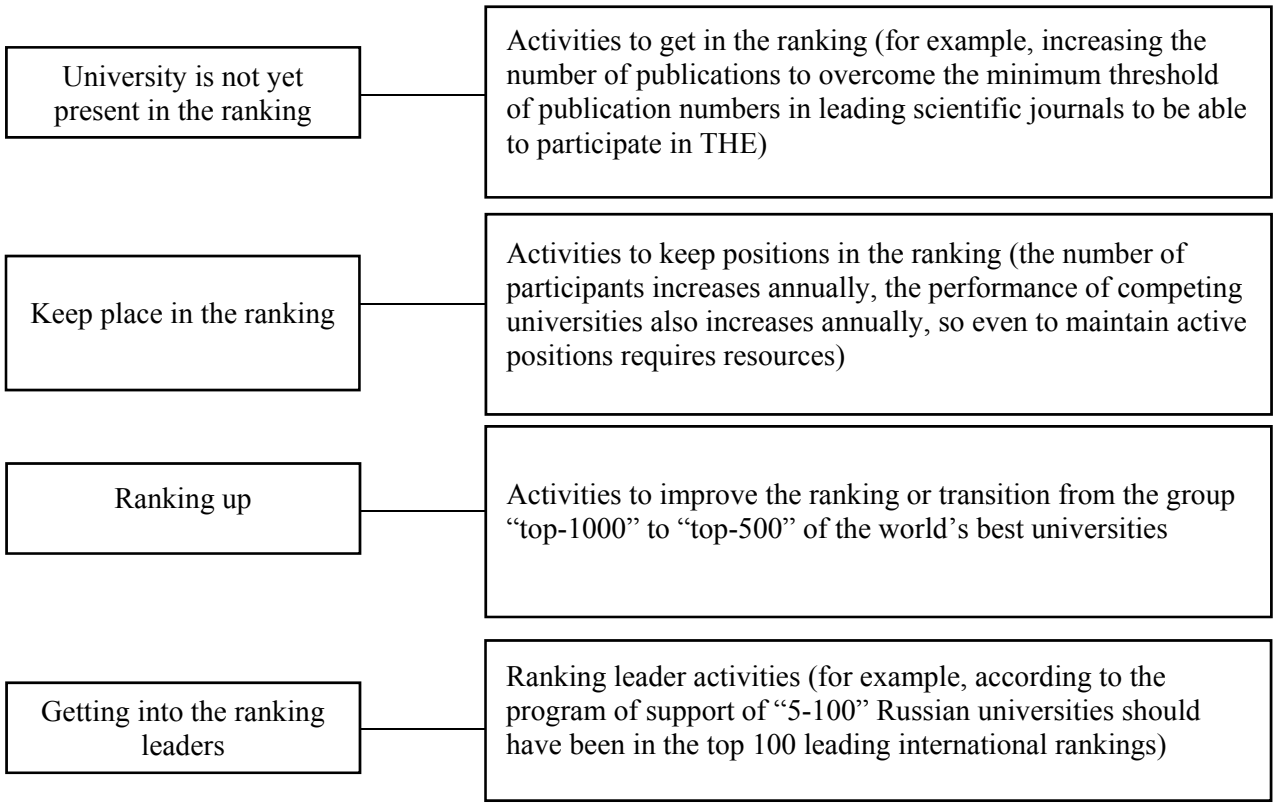


Fig. 3. **University Goals for Positioning in Rankings**

Source: Compiled by the authors.

the methodology of calculation of some of them. The level of international interaction of the university is assessed by the rating agencies by assessing the number of foreign students and staff who have chosen the place of work and study of the evaluated university, the share of publications with foreign authors. Indicators of scientific activity traditionally include the level of productivity and citation of publications of university authors, income from scientific research, and the results of the survey of representatives of the academic world. The level of educational activity is assessed by analyzing the number of students per teacher, the proportion of teachers with academic degrees and the income of the university per employee, the results of academic surveys. The link with employer organizations is also used by assessing their funding of university projects, the results of employer surveys. There are specific indicators characteristic of only one ranking. For example, the ARWU rating, in addition to the number and citation of publications, evaluates the presence of Nobel Prize or Fields Medal to university staff and graduates.[9]

It was revealed that the main directions of expenditure of funds by universities to improve positions in the main world rankings are: increased publishing activity (number of scientific publications and quotations of the university authors), active international integration, including the growth of the number of foreign scientific and pedagogical staff and students, growth of university's reputation in the academic community and in the community of

[9] World University Rankings Times Higher Education Methodology. URL: https://www.timeshighereducation.com/world-university-rankings/world-university-rankings-2023-methodology (accessed on 15.01.2024). QS World University Rankings Methodology. URL: https://www.topuniversities.com/qs-world-university-rankings/methodology (accessed on 08.07.2023). Academic Ranking of World Universities Methodology. URL: https://www.shanghairanking.com/methodology/arwu/2023 (accessed on 15.01.2024).

Table 2

Trend of the Achievement of 5–100 and Priority 2030 Positions by Individual Universities Participating in the Project in the QS, THE, RAEX Rankings

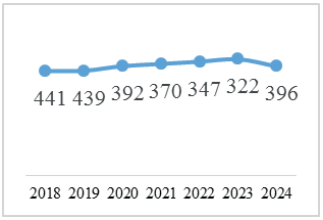
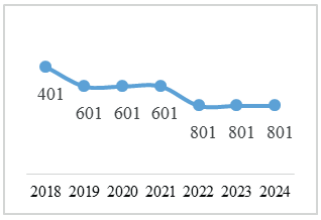
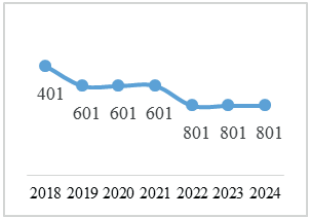
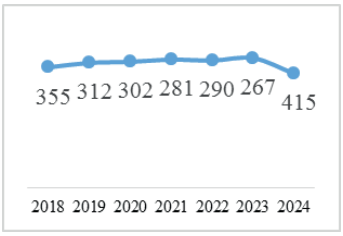
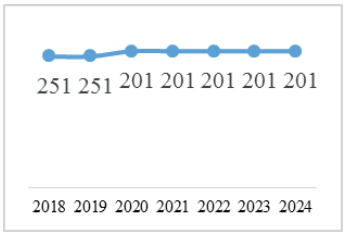
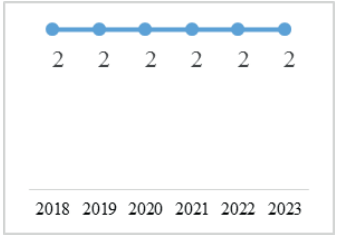
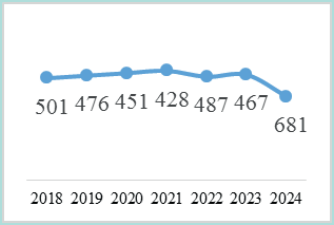
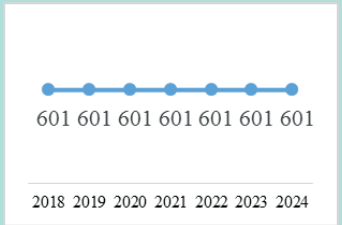
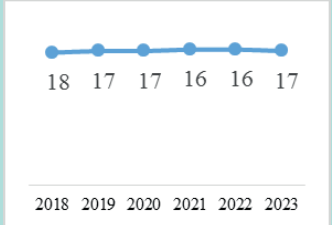
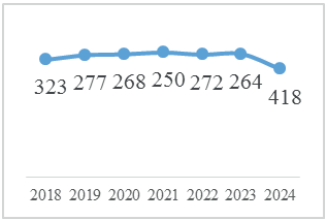
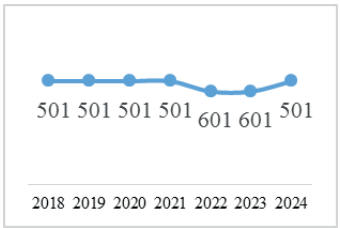
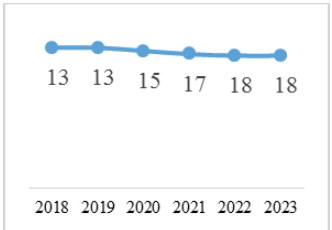
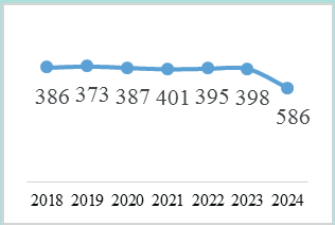
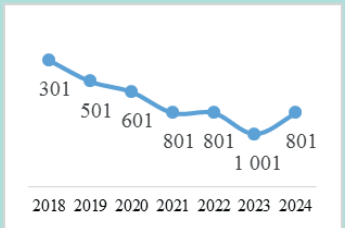
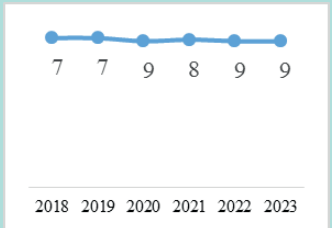
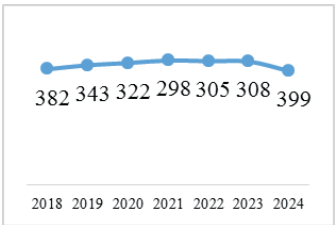
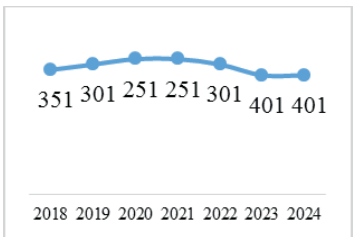
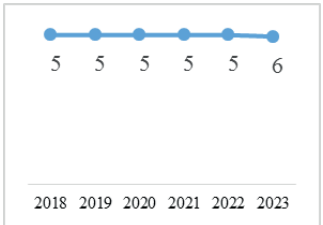
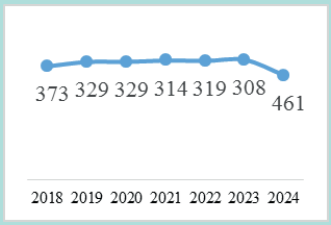
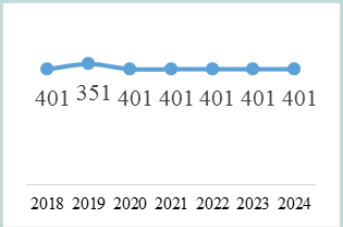
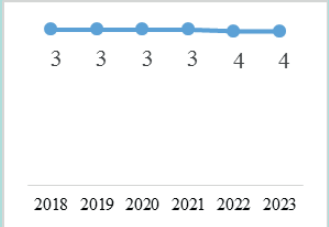
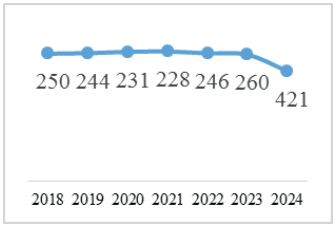
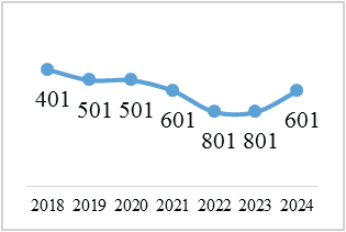
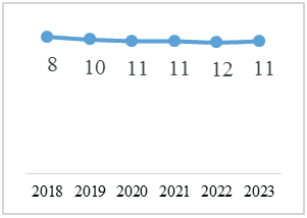
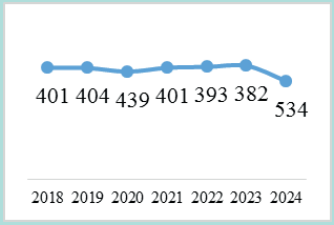
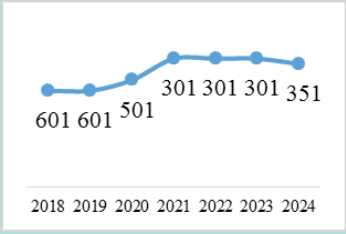
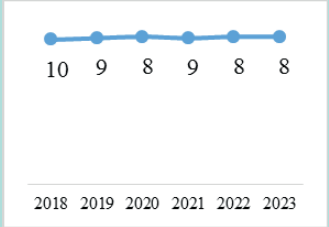
University	Trend of position dynamics in the QS ranking	Trend of position dynamics in THE ranking	Trend of position dynamics in the RAEX rating
Kazan Federal University			
MIPT			
MISIS			
Tomsk State University			
Tomsk Polytechnic University			
HSE			

Table 2 (continued)

University	Trend of position dynamics in the QS ranking	Trend of position dynamics in THE ranking	Trend of position dynamics in the RAEX rating
MEPhI			
Novosibirsk State University			
St. Petersburg Polytechnic University			

Source: Compiled by the authors based on the results of the QS World University Rankings, The Times Higher Education World University Rankings, The best universities in Russia RAEX-100. URL: https://www.topuniversities.com/qs-world-university-rankings; https://www.topuniversities.com/qs-world-university-rankings; https://raex-a.ru/rankings/#r_11550 (accessed on 31.01.2024).

employers (representatives of state bodies and business), information openness.

Despite the significant dynamics of advancement of Russian universities in the world rankings, the share of universities represented in the top-300 remains extremely small and is less than 1% (*Table 1*).

Analysis of documents on planning of current activities and long-term development (programs, strategies, plans, road maps) of Russian and foreign universities confirmed the understanding of universities of the importance of planning indicators evaluated by rating agencies in their strategic documents.

Russia's orientation towards getting universities in the top of the world's rankings implies their transformation. This model entails a more adaptive organizational structure of university management capable of responding effectively to changes in the external environment.

Main forms of impact of rankings on public management of universities:

- the approach by which funding is allocated in accordance with the status in the ranking or in relation to specific indicators assessed by the ranking agencies;
- the merger of universities in order to combine existing financial, human resources, scientific, reputational and other resources, allowing the synergistic effect to expand the window of opportunities for raising positions in the rankings (experience of the UK and Russia on the establishment of reference universities; this form of impact

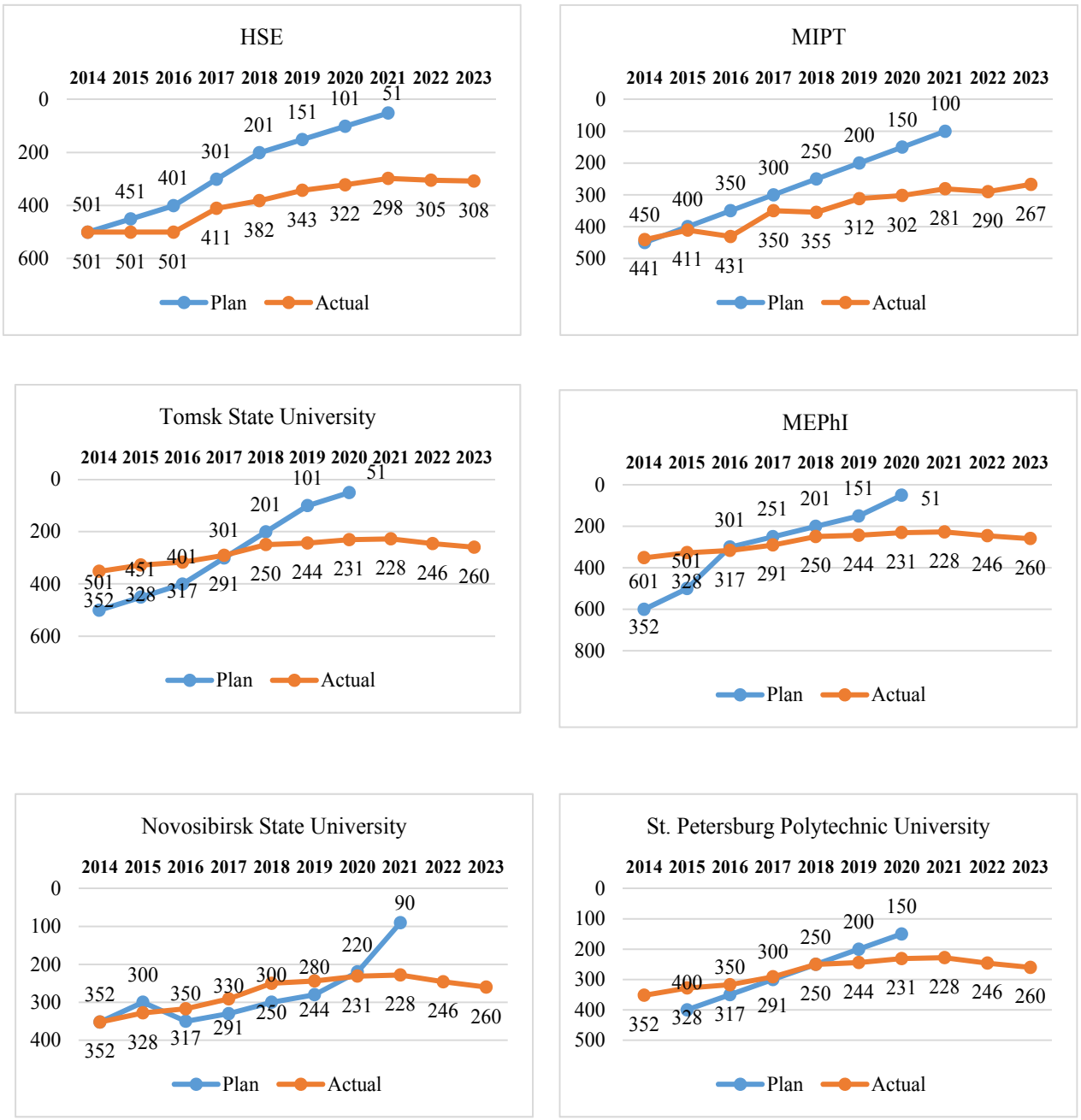


Fig. 4. **Achievement of 5–100 and Priority 2030 Planed Positions by Individual Universities Participating in the Project in the QS**

Source: Compiled by the authors based on the results of the QS World University Rankings. URL: https://www.topuniversities.com/qs-world-university-rankings (accessed on 15.06.2023) [32]. Data on the planned values in Fig. 4 are presented until 2021, as starting with the 2022 rating the format of the representation of Russian universities on the official QS website has changed, universities have largely shifted from planning specific targets in their development programs to planning activities to advance in the ranking, including by shifting the focus from promotion in the QS world ranking of universities to the subject. This period is also due to the fact that the "5–100" university support program was in place from 2012 to 2020. The QS rating is more relevant to the purpose of the study than THE or ARWU rating also for several reasons: due to the set of indicators faster to in the QS ranking; THE rating has an entry threshold in terms of the number of articles in the international quotation databases, and Russian universities were only at the beginning of the path of activation of publications in the journal Web of Science and Scopus. However, the information shown in Fig. 3 illustrates that the majority of universities that participated in the "5–100" university financial support program between 2012 and 2020 failed to meet their targets.

Table 3

Calculation of Return on Investment in Promotion Per 1 Position on the Example of the QS Rating

Indicator	2024	2023	2022	2021	2020	2019	2018
Kazan Federal University							
University income, thous. rubles	13 504 122	11 828 205.9	10 920 432.1	10 580 390.4	9 359 186.6	8 690 898.8	8 694 769.5
Number of positions in the ranking, place	1401	1401	1201	1001	1001	1001	1001
University position in the ranking, place	396	322	347	370	392	439	441
Return of investments of the university in promotion to one position, thous. rubles to one place in the ranking	13 436.94	10 962.19	12 787.39	16 767.66	15 368.12	15 464.23	15 526.37
Dynamics of positions, places	–74	25	23	22	47	2	–
Investment dynamics, thous. rubles	2474.74	–1825.20	–3980.26	1399.53	–96.11	–62.14	–
MIPT							
University income, thous. rubles	8 356 846	6 972 764.7	7 631 538.5	6 589 617.4	6 857 114.2	5 706 607.1	6 392 736.2
Number of positions in the ranking, place	1401	1401	1201	1001	1001	1001	1001
University position in the ranking, place	681	467	487	428	451	476	501
Return of investments of the university in promotion to one position, thous. rubles to one place in the ranking	11 606.73	7 465.49	10 688.43	11 500.20	12 467.48	10 869.73	12 785.47
Dynamics of positions, places	–148	23	–9	21	10	43	–
Investment dynamics, thous. rubles	4741.38	–1244.87	–2529.49	1192.56	2442.84	–704.55	–
MISIS							
University income, thous. rubles	8 356 846	6 972 764.7	7 631 538.5	6 589 617.4	6 857 114.2	5 706 607.1	6 392 736.2
Number of positions in the ranking, place	1401	1401	1201	1001	1001	1001	1001
University position in the ranking, place	681	467	487	428	451	476	501

Table 3 (continued)

Indicator	2024	2023	2022	2021	2020	2019	2018
Return of investments of the university in promotion to one position, thous. rubles to one place in the ranking	11606.73	7465.49	10688.43	11500.20	12467.48	10869.73	12785.47
Dynamics of positions, places	–214	20	–59	23	25	25	–
Investment dynamics, thous. rubles	4141.24	–3222.94	–811.78	–967.28	1597.75	–1915.74	–
Tomsk State University							
University income, thous. rubles	10864840.7	9737234.6	6235755.7	6013337.5	5953784.2	4279534.9	4403649.9
Number of positions in the ranking, place	1401	1401	1201	1001	1001	1001	1001
University position in the ranking, place	418	264	272	250	268	277	323
Return of investments of the university in promotion to one position, thous. rubles to one place in the ranking	11052.74	8563.97	6712.33	8007.11	8122.49	5910.96	6495.06
Dynamics of positions, places	–154	8	–22	18	9	46	–
Investment dynamics, thous. rubles	2488.77	1851.64	–1294.78	–115.38	2211.53	–584.10	–
Tomsk Polytechnic University							
University income, thous. rubles	6904135.8	5480919.5	5494621.7	5730805.2	5295025.6	5336328	6019164.2
Number of positions in the ranking, place	1401	1401	1201	1001	1001	1001	1001
University position in the ranking, place	586	398	395	401	387	373	386
Return of investments of the university in promotion to one position, thous. rubles to one place in the ranking	8471.33	5464.53	6817.15	9551.34	8623.82	8497.34	9787.26
Dynamics of positions, places	–188	–3	6	–14	–14	13	–
Investment dynamics, thous. rubles	3006.81	–1352.62	–2734.19	927.52	126.48	–1289.92	–

Table 3 (continued)

Indicator	2024	2023	2022	2021	2020	2019	2018
HSE							
University income, thous. rubles	30 288 521.1	27 720 873.7	24 336 388.6	21 547 521.1	21 547 521.1	16 222 774.8	13 957 791.4
Number of positions in the ranking, place	1401	1401	1201	1001	1001	1001	1001
University position in the ranking, place	399	308	305	298	322	343	382
Return of investments of the university in promotion to one position, thous. rubles to one place in the ranking	30 228.06	25 362.19	27 161.15	30 650.81	31 734.20	24 654.67	22 548.94
Dynamics of positions, places	–91	–3	–7	24	21	39	–
Investment dynamics, thous. rubles	4865.87	–1798.96	–3489.66	–1083.39	7079.53	2105.74	–
MEPhI							
University income, thous. rubles	7 859 391.1	6 539 240.1	6 956 088	6 805 526.5	6 289 948.8	5 032 908.8	5 216 843.8
Number of positions in the ranking, place	1401	1401	1201	1001	1001	1001	1001
University position in the ranking, place	461	308	319	314	329	329	373
Return of investments of the university in promotion to one position, thous. rubles to one place in the ranking	8 361.05	5 982.84	7 886.72	9 906.15	9 360.04	7 489.45	8 307.08
Dynamics of positions, places	–153	11	–5	15	0	44	–
Investment dynamics, thous. rubles	2378.22	–1903.88	–2019.43	546.11	1870.60	–817.63	–
Novosibirsk State University							
University income, thous. rubles	4 723 772.3	4 038 090.3	4 359 099.1	4 306 827.9	3 750 158.5	3 187 684.1	3 216 993.6
Number of positions in the ranking, place	1401	1401	1201	1001	1001	1001	1001

Table 3 (continued)

Indicator	2024	2023	2022	2021	2020	2019	2018
University position in the ranking, place	421	260	246	228	231	244	250
Return of investments of the university in promotion to one position, thous. rubles to one place in the ranking	4820.18	3539.08	4564.50	5571.58	4870.34	4210.94	4283.61
Dynamics of positions, places	–161	–14	–18	3	13	6	–
Investment dynamics, thous. rubles	1281.10	–1025.42	–1007.07	701.24	659.39	–72.67	–
St. Petersburg Polytechnic University							
University income, thous. rubles	12937710.1	11562405.2	10812832.3	11181730.4	10455351.7	8219020.7	7929772
Number of positions in the ranking, place	1401	1401	1201	1001	1001	1001	1001
University position in the ranking, place	534	382	393	401	439	404	401
Return of investments of the university in promotion to one position, thous. rubles to one place in the ranking	14922.39	11346.82	13382.22	18636.22	18603.83	13767.20	13216.29
Dynamics of positions, places	–152	11	8	38	–35	–3	–
Investment dynamics, thous. rubles	3575.57	–2035.40	–5254.00	32.39	4836.62	550.92	–

Source: Author's calculations based on the Main Information and Computing Center of the Ministry of Science and Higher Education of the Russian Federation data. URL: http://indicators.miccedu.ru (accessed on 31.01.2024).

is also among other criteria used by the Ministry of Science and Education of Russia to combat inefficient universities).

The general aspects of the planning of the rating positions of the university are:

1) the planned ranking indicators should be consistent with the university's development forecast;

2) the planning of non-financial rating indicators must be carried out through financial indicators.

Today's universities need a flexible approach to their funding strategy depending on where each ranking starts (*Fig. 3*). Higher competing universities and priority for analysis by rating agencies indicators may vary depending on the rating: international, subject, sustainable development, etc.

It is also necessary to implement a systematic monitoring of the conformity of the planned values with the results achieved,

Table 4

Calculation of Return on Investment in Promotion Per 1 Position on the Example of THE Ranking

Indicator	2024	2023	2022	2021	2020	2019	2018
Kazan Federal University							
University income, thous. rubles	13 504 122	11 828 205.9	10 920 432.1	10 580 390.4	9 359 186.6	8 690 898.8	8 694 769.5
Number of positions in the ranking, place	1501	1501	1201	1001	1001	1001	1001
University position in the ranking, place	801	801	801	601	601	601	401
Return of investments of the university in promotion to one position, thous. rubles to one place in the ranking	19 291.60	16 897.44	27 301.08	26 450.98	23 397.97	21 727.25	14 491.28
MIPT							
University income, thous. rubles	13 760 323.2	10 449 045.6	9 528 324.6	9 351 851.8	8 245 492.9	6 444 418.3	6 497 365.3
Number of positions in the ranking, place	1501	1501	1201	1001	1001	1001	1001
University position in the ranking, place	201	201	201	201	201	251	251
Return of investments of the university in promotion to one position, thous. rubles to one place in the ranking	10 584.86	8 037.73	9 528.32	11 689.81	10 306.87	8 592.56	8 663.15
MISIS							
University income, thous. rubles	8 356 846	6 972 764.7	7 631 538.5	6 589 617.4	6 857 114.2	5 706 607.1	6 392 736.2
Number of positions in the ranking, place	1501	1501	1201	1001	1001	1001	1001
University position in the ranking, place	601	601	601	601	601	601	601
Return of investments of the university in promotion to one position, thous. rubles to one place in the ranking	9 285.38	7 747.52	12 719.23	16 474.04	17 142.79	14 266.52	15 981.84
Tomsk State University							
University income, thous. rubles	10 864 840.7	9 737 234.6	6 235 755.7	6 013 337.5	5 953 784.2	4 279 534.9	4 403 649.9
Number of positions in the ranking, place	1501	1501	1201	1001	1001	1001	1001
University position in the ranking, place	501	601	601	501	501	501	501

Table 4 (continued)

Indicator	2024	2023	2022	2021	2020	2019	2018
Return of investments of the university in promotion to one position, thous. rubles to one place in the ranking	10 864.84	10 819.15	10 392.93	12 026.68	11 907.57	8 559.07	8 807.30
Tomsk Polytechnic University							
University income, thous. rubles	6 904 135.8	5 480 919.5	5 494 621.7	5 730 805.2	5 295 025.6	5 336 328	6 019 164.2
Number of positions in the ranking, place	1401	1401	1201	1001	1001	1001	1001
University position in the ranking, place	586	398	395	401	387	373	386
Return of investments of the university in promotion to one position, thous. rubles to one place in the ranking	8 471.33	5 464.53	6 817.15	9 551.34	8 623.82	8 497.34	9787.26
HSE							
University income, thous. rubles	30 288 521.1	27 720 873.7	24 336 388.6	21 547 521.1	21 547 521.1	16 222 774.8	13 957 791.4
Number of positions in the ranking, place	1501	1501	1201	1001	1001	1001	1001
University position in the ranking, place	401	401	301	251	251	301	351
Return of investments of the university in promotion to one position, thous. rubles to one place in the ranking	27 535.02	25 200.79	27 040.43	28 730.03	28 730.03	23 175.39	21 473.53
MEPhI							
University income, thous. rubles	7 859 391.1	6 539 240.1	6 956 088	6 805 526.5	6 289 948.8	5 032 908.8	5 216 843.8
Number of positions in the ranking, place	1501	1501	1201	1001	1001	1001	1001
University position in the ranking, place	401	401	401	401	401	351	401

Table 4 (continued)

Indicator	2024	2023	2022	2021	2020	2019	2018
Return of investments of the university in promotion to one position, thous. rubles to one place in the ranking	7144.90	5944.76	8695.11	11342.54	10483.25	7742.94	8694.74
Novosibirsk State University							
University income, thous. rubles	4723772.3	4038090.3	4359099.1	4306827.9	3750158.5	3187684.1	3216993.6
Number of positions in the ranking, place	1501	1501	1201	1001	1001	1001	1001
University position in the ranking, place	601	801	801	601	501	501	401
Return of investments of the university in promotion to one position, thous. rubles to one place in the ranking	4723772.3	4038090.3	4359099.1	4306827.9	3750158.5	3187684.1	3216993.6
St. Petersburg Polytechnic University							
University income, thous. rubles	12937710.1	11562405.2	10812832.3	11181730.4	10455351.7	8219020.7	7929772
Number of positions in the ranking, place	1501	1501	1201	1001	1001	1001	1001
University position in the ranking, place	351	301	301	301	501	601	601
Return of investments of the university in promotion to one position, thous. rubles to one place in the ranking	11250.18	9635.34	12014.26	15973.90	20910.70	20547.55	19824.43

Source: Author's calculations based on the Main Information and Computing Center of the Ministry of Science and Higher Education of the Russian Federation data. URL: http://indicators.miccedu.ru (accessed on 31.01.2024).

with mandatory analysis of the causes of the deviations and the adoption of corrective measures, if necessary.

The choice of Russian universities, the dynamics of which are discussed below (*Table 2*), corresponds to the objectives of this article and is determined by the participation of these universities in the state support programs "5–100" (from 2012 to 2020), "Priority 2030" (from 2021); the reflection in their development programs of activities to promote in the ratings; the annual submission by universities of data on their activities to rating agencies for participation in the ranking, etc.

It is important to note that the analysis of the methods of the QS, THE and RAEX ratings in order to ensure comparability of the data were brought to the unity periods (years), which included the performance indicators of the universities, on the basis of which the results of the rankings were summarized and monitoring of the Ministry of Science and Education of Russia was carried out. Each ranking agency, in accordance with its rating methodology, uses different periods of time for the analysis that underlie the published ranking results. In *Tables 3* and *4* calculation "Returns from investments in promotion for 1 position" in the scope of this article also brought into line the periods analyzed by rating agencies with the data monitoring university corresponding to these periods. For example, the ranking agency Times Higher Education uses actual performance to prepare and publish the Times Higher Education World University Rankings 2024 universities 2022. Therefore, to calculate the effectiveness of investments for promotion on one position, the data of the Ministry of Science of Russia of monitoring of the activities of universities "Monitoring 2023" are accepted, because it contains data on the income of the universities in 2022 (from the statistical form No.1 — Monitoring).

Scientists of the Ural Federal University propose the following approach: they compare information about the university budget for the year and the position of the universities in the ranking in the year being analyzed. The methodology proposed by them to estimate the "return on investment on promotion by one ranking position" for growth by one point in international ratings is calculated as the ratio of the amount of funding of the university to the difference between the lowest possible position in the rating to be analyzed and the position actually occupied by the University. Therefore, the "return" for each ruble invested in different ratings will be different due to different indicators used in the rating. For example, the growth of the university ratings used by THE requires greater financial investments than the growth in QS or national ratings (e.g. RAEX). This is confirmed by the number, places, and years of entry and dynamics of the movement of universities in the rankings (trends are presented in *Table 3*). Primary entry in the ranking also requires less financial costs than growing and strengthening the University's ranking position. This illustrates the analysis of the results of the calculation of the return of investment on promotion on one position on the example of nine universities that successfully realize their promotion in the world rankings QS and THE (*Table 3, 4*).

According to the results of the analysis of development strategies, competitiveness improvement programs, reports on sustainable development of universities in Russia and the world, successfully implementing promotion in the world rankings, identified four areas of activity for financing development and intensification of promotion to the world community:

- educational;
- scientific;
- personnel;
- reputational.

However, the existing principles of university funding generally focus on the university's current level of functioning. Therefore, when planning to promote the rating positions of the university, it is necessary to take into account the following:

- the transformation of non-financial indicators into financial indicators in the medium term;
- the possibility of determining the planned budget affecting the achievement of the sub-target in the medium term;
- the application of thresholds for planned indicators;
- the establishment of minimum profitability of paid educational and other services.

CONCLUSION

The study of development strategies, programs to increase competitiveness, reports on sustainable development of universities of Russia and the world, successfully implementing promotion in the world rankings, did not reveal a stable relationship between the volumes of funding of the university and its promotion in rankings. It is not the amount of funding, but the effective financial management and financial policy of the university, with the existing mechanism of public funding of universities, that currently determine the possibility of promoting the University in academic rankings. In these circumstances, direct competitive funding algorithms appear to be more effective in achieving the specific objective than regulatory funding. Russian universities seeking to advance in the ratings are focused on the combined application of mechanisms and sources of financing (normative financing, targeted subsidization, attracting new formats and types of financial support), which corresponds to modern international practice.

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