The use of the balanced scorecard method in evaluating the investment attractiveness of the region comprising the RF arctic zone

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Abstract. The article discusses the balanced scorecard as a method that allows an area’s investment attractiveness to be evaluated with account of the interests and information needs of all stakeholders in an investment chain. With regard to regions constituting the Russian Federation’s Arctic Zone, the balanced scorecard uses as its underlying indicators 1) availability of natural resources, 2) manufacturing and financial performance, 3) political, economic and social situation, and 4) growth prospects. The article further provides the rationale for the expediency of the balanced scorecard method as a tool for ranking the Russian Arctic regions’ investment appeal with account of investing actors’ interests.

1. Introduction

For regional economic systems to become more investment worthy, they need to be supported by appropriate evaluation tools, whose application would be able to meet the information needs of the investing actors. One such tool is offered by the balanced scorecard system and its ability to satisfy the information needs of each specific user category. This study has as its goal the development of a BSC-based methodology for ranking Russian regions according to their investment appeal. Its methodological framework encompasses inclusive approach to investment attractiveness as a quantifiable phenomenon, balanced scorecard approach (BSC), and foreign and domestic practices of rating areas’ investment performance.

The study has among its main deliverables the BSC-based rating model that allows for rating the Russian regions’ investment attractiveness while also meeting the information requirements of all participants of the investment process. The criteria used in our BSC-based investment attractiveness rating model offer a helpful tool for evaluating also the performance of the regional authorities towards enhanced investment worthiness, which, in turn, highlights the relevance and timeliness of this study.

When shaping their investment decisions, investors – and most notably international ones – are mainly guided by global rankings, a fact that explains why Russian ranking systems should draw more extensively on international ranking methodologies. At the same time, domestic ranking...
methodologies should build on Russian regions’ current economic situation in order to avoid methodological flaws.

The fact that the current Russian ranking tables feature on their top positions regions with low rates of economic growth and on their lowest positions those with swiftly growing economies, may be due to the neglect of some particular factors that appear to have a significant effect on this particular region’s investment attractiveness.

The analysis of previous domestic and international research indicates the expediency of current methodologies for ranking regions’ investment attractiveness, although the estimates they generate may not be able to satisfy the information needs of all the user categories [1, 2]. Therefore, a BSC-based methodology is needed that would rank the Russian regions’ investment worthiness and be informative to all actors in an investment chain. Contrary to the domestic methodologies, the international BSC-based rankings of areas’ investment worthiness have as their essential concept the balance of interests among investors, population and authorities. The balanced nature of a scorecard manifests itself in its ability to embrace all sides of ‘investment attractiveness’ as a complex economic category, on the one hand, and to satisfy the information needs of all participants in an investment chain (private investors, population, public administration) so as to achieve the balance of their interests. Despite being an effective performance management tool widely used by commercial and non-commercial (governmental) organizations, the BSC model has not been applied to measuring areas’ investment attractiveness, which adds to the relevance and novelty of this research topic [3].

2. Methods and Materials
The studies into the evolution of the Balanced Scorecard concept identify three stages in its development. Balanced Scorecard has evolved from a simple matrix-based performance evaluation approach to a strategy performance management tool. Initially proposed by D Norton and R Kaplan as a ‘four perspective’ approach to corporate performance measurement, BSC is used for appraising financial performance, internal business processes, learning and growth, and customer behavior, giving the key stakeholders a full picture of the performance [4, 5].

The second generation of BSC models had evolved from an approach to indicator selection to a “strategic linkage model”, the latter being regarded by some of the authors as representing the second BSC design approach [6-8].

The third generation of BSC models builds on the refined version of the second generation and seeks to achieve higher accuracy by giving greater functionality to the strategic objectives and processes such as modeling, analyzing and coordinating interrelationships across time. In their studies, R. Kaplan and D. Norton focused on ways to reflect the cause-effect chains existing among key indicators and objectives. They saw the cause-effect chains as an important attribute of the BSC model that are responsible for the ultimate choice of indicators and corporate strategies. A number of key indicators were identified as crucial to the attainment of specific strategies. In the 1990s, the BSC models were added with visual presentation of the strategies and their performance indicators, while later modifications of the BSC have made it a highly effective performance management tool [9]. This study aims to apply the BSC model to measuring the investment attractiveness of the regions comprising the Arctic Zone of the Russian Federation.

The design of our balanced scorecard model revolves around the core principle of meeting the information needs of all participants in an investment chain (investors, regional authorities and population).

Let us consider the applicability of the balanced scorecard to evaluating the investment attractiveness of Russian regions.

The configuration of our BSC is defined by a number of factors that are crucial to a region’s investment attractiveness (manufacturing and financial performance; natural resources; political, economic and social situation; and prospects of growth).

As socioeconomic development progresses differently in different regions of the RF Arctic Zone, the indicators for inclusion into the BSC should be those that are seen as crucial to the area’s
investment worthiness in this given time period. Such indicators should also meet the information needs of all the user categories and be structured around a set of perspectives, each of which is determined by region’s economy-specific characteristics and is linked with its investment activity level. Based on this, specific sub-indicators will be identified to quantify the economy-specific characteristics [10].

The resultant balanced scorecard is based on four key perspectives that are broken down into 35 sub-indicators grouped around 12 overall performance indicators. It allows for tracing the dynamics of the investment attractiveness of the Russian regions, evaluating the performance of the regional investment policies, and ranking of the regions based on their scores.

When determining the overall investment attractiveness score of each Russian Arctic region, the sub-indicators on the BSC are to be converted into relative values using the multivariate mean formula, with prior standardizing to be performed by way of normalizing the numerical values of each sub-indicator to a particular target value, which, in turn, is a way to avoid influence from the average investment attractiveness score across Russia. The target values of the indicators are defined as ‘best values’ (i.e. highest for direct indicators and lowest for reverse indicators) shown over a given time period; in some cases, standard values can be used as target values.

In calculating the sub-indicators, we made use of an extensive information array, that included the official federal statistical data in order to increase the objectivity, repeatability and transparency of the proposed method and to avoid methodological incoherence: of the 35 sub-indicators, 33 (94%) have been calculated based on the data from the Federal State Statistics Service, while the final score has been derived from two indicators (6%).

The proposed BSC allows to identify the trends within the investment attractiveness of each particular Russian region without being influenced by the dynamics of the remaining regions.

The BSC-based actions to regulate investment governance in the Russian regions of the Arctic Zone should involve the following steps. First, the desired performance should be quantified and monitored for those indicators that best reflect the region’s investment dynamics (this step includes also benchmarking against the performance of economically developed countries). Then, the investment attractiveness will be analyzed for deviations from its target values and conclusions will be made as to the challenges of regional investment policies. Finally, based on the analysis, investment policy priorities will be identified towards a more efficient investment activity. The analytical capacity of the balanced scorecard method allows its use also as a tool for developing recommendations as to how investment attractiveness can be raised in the regions of the Russian Arctic Zone in a more effective way.

3. Results and Discussion

The proposed balanced scorecard has been piloted to RF Arctic regions. Their investment attractiveness was measured and rated over the period from 2011 to 2018 (figure 1).

Figure 1. 2018 investment attractiveness rating of the regions comprising the RF Arctic Zone.
The study made use of the empirical data obtained from the Russian Federal State Statistics Service, previous studies into the sector-specific performance of the regions under analysis, as well as current investment-related legislations and regulatory frameworks.

The top three ranking regions are Krasnoyarsk Territory (1.664), Yamal-Nenets Autonomous Area (1.036), and Murmansk Region (0.706). Komi Republic (0.655), Arkhangelsk Region (excl. Nenets Area) (0.642) and Republic of Karelia (0.631) rank in the middle, with the Republic of Sakha (Yakutia) (0.577), Chukotka Autonomous Area (0.502), and ranking lowest Nenets Autonomous Area (0.488).

Let us consider the example of one Russian Arctic region, Nenets Autonomous Area, to find out why its investment policy may be underperforming.

Despite being ranked the eight worst investment destination in the Russian Arctic over the period from 2016 to 2017, the Nenets Autonomous Area (NAA) has shown a 30pct decrease in its overall score due to a decrease in Manufacturing and Finance (a 73pct reduction) and Political, Economic and Social situation (a 50pct reduction), while at the same scoring higher in Natural Resources (a 54pct increase) and Growth (a 29pct increase) – an indication of imbalance in NAA’s economy. As can be seen from the balanced scorecard results, NAA’s investment attractiveness is influenced mostly by factors attributable to natural resources, economic development prospects and employee satisfaction: these three indicators have the highest scores (1.220; 0.620). The lowest scoring perspective is Manufacturing and Finance (0.089), indicating a serious underperformance in this area. Its negative dynamics is primarily due to a 4.2-fold decrease in the sub-indicator scores (their sum total is the lowest among all other perspectives), which enables a conclusion that NAA’s financial performance is rather unstable. As can be seen from the Manufacturing and Financial Performance Indicators chart (Fig. 2), NAA’s actual ROI of employees is very close to target level and its budget is well balanced. At the same time, there are major deviations from the target values in overdue accounts payable, wear of fixed assets, return on assets and profitability of sales (products and services), which explains why NAA scores low in manufacturing and financial performance.

NAA’s score in Natural Resources is close to target level (1.220), indicating natural resources having a positive effect on the area’s investment attractiveness. Its 1.5-fold increase is due to NAA being well endowed with energy, communications and own financial resources, with per capita electricity production exceeding the target value by 3.0 times. At the same time, there has been a 9pct decrease in labour force participation rate, enabling a conclusion that NAA’s personnel policies can be underperforming and there may be a lack of human resources. The 2012-2018 availability of internal corporate funds is found to be exceeding the target value with only minor fluctuations (corporate funds have shown a marked increase over 2017-2018). The Natural Resources chart (Fig. 2) shows near-target performance in corporate finance, per capita electricity production and labour force participation rate.

Of all the four perspectives, the highest score is attained by Political, Economic and Social perspective, alongside with Natural Resources. This is primarily due to a significant increase in employee satisfaction, GRP/average wage growth ratio, and population with income above subsistence line (0.910). Together with the increase in unemployment rate (a 9pct increase), the decrease in prospects of the economic growth (a 2.6-fold decrease) has had a negative effect, caused by lower scores in property relations, openness of economy and entrepreneurship development (0.240) and indicating inadequacies in the development of NAA’s market institutions. Positive dynamics is shown by GRP per capita (a 1.8-fold increase), which is near target. As can be seen from the Political, Economic and Social Perspective chart (figure 2), there are major deviations from the target levels in unemployment rate, disease incidence rate and entrepreneurship development.
Figure 2. Sub-indicators comprising the investment attractiveness BSC for Nenets.

Positive dynamics has been shown also by Growth, a perspective crucial to the prospects of NAA’s economic development. The highest scoring indicator within Growth is innovational potential, indicating an effectively performing R&D agenda. There is a 24pct increase in renewal of fixed assets, which brings this indicator closer to the target level and describes the current level of technical upgrade as advanced.

A positive impact on NAA’s investment attractiveness is produced by the increase in investment
requirement (a 11pct increase) which exceeds its target value by 1.5 times. At the same time, technological innovation expenditure and R&D expenditure remain consistently low, as does the infrastructural capacity (0.002), underlining the need to upgrade the area’s transport infrastructure. The share of university-trained employees approximates the target value, counteracted by low performance (10 times lower than the target level) in skill formation, which suggests the need for training in accordance with the needs of industries. The analysis of Growth Perspective indicators (figure 2) reveals a significant deviation from the target values in skill formation, density of communication routes, R&D and technological innovation expenditures.

The disparity between performance scores within the BSC perspectives (Natural Resources Perspective score 15 times higher than Manufacturing and Financial Performance and 2.7 time higher than Growth) indicates an imbalance in the regional investment policy that harnesses NAA’s efforts to increase its investment attractiveness.

4. Conclusion

Regions’ efforts towards an effective investment policy – the policy that would take into account the interests of the state, private businesses and population – should be underpinned by the balanced scorecard approach as an effective tool for evaluating area’s investment attractiveness. The proposed balanced scorecard system for evaluating Russian Arctic regions’ investment attractiveness is intended primarily for state regulators of investment policies and represents, particularly, a tool for evaluating the performance of regional investment governance. The study sees its contribution to the regional socio-economic growth as providing an investment policy effectiveness appraisal tool for use by regions of the RF Arctic Zone.

This study has among its main deliverables the rating methodology which is based on BSC approach and takes into account the interests of all actors in an investment chain.

The study is novel in that it is one of the few in the field to include the regions of the RF Arctic Zone and has achieved a balanced scorecard-based tool for quantifying their investment attractiveness based on four perspectives – Manufacturing and Finance, Natural Resources, Political, Economic and Social Performance, and Growth (intellectual potential, innovation, infrastructural capacity).

The study further represents a concrete step towards development of investment attractiveness rating methods that take into account the interests of actors in an investment chain.

The practical significance of the study lies in the applicability of its outcomes to similar ratings designed to measure the investment attractiveness of other Russian regions.

Further research in this area will relate to updating the proposed balanced scorecard with regard to some of the local industries with tangible effect on the investment attractiveness of the regions comprising the RF Arctic Zone.

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