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INVESTMENT CLIMATE AND INVESTMENT RISKS: DIAGNOSTICS, ASSESSMENT AND ANALYSIS

This paper offers a unique approach grounded in the original AVS-matrix proposed by the authors to the assessment of factors affecting the investment climate, this climate attractiveness and the non-systematic constituent of the investment risk. The matrix determines the factors forming investment climate as they emerge at different hierarchy levels of the economy, i.e. within the system "business – industry – region – national economy (country level)". AVS-matrix assessments of investment climate attractiveness and investment risks prove to be an objective foundation for identification of priorities in implementing reforms of investment policy at all levels of economic hierarchy that will increase investment attractiveness of enterprises, industries (types of businesses), region (territories, lands, federal districts etc.) and national economy as a whole.

Keywords: *investment climate; investment attractiveness; investment risk.*

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ІНВЕСТИЦІЙНИЙ КЛІМАТ ТА ІНВЕСТИЦІЙНІ РИЗИКИ: ДІАГНОСТИКА, ОЦІНЮВАННЯ ТА АНАЛІЗ

У статті запропоновано оригінальний підхід до послідовного оцінювання факторів інвестиційного клімату, його привабливості і несистематичних компонентів інвестиційного ризику на основі розробленої авторами «ABC-матриці», що представляє детермінуючі (формуючі) інвестиційний клімат фактори, їх прояви на різних ієрархічних рівнях управління, тобто в системі «підприємство – промисловість – регіон – національна економіка (на рівні країни)». Одержані за допомогою «ABC-матриці» оцінки привабливості інвестиційного клімату та інвестиційних ризиків складають об'єктивну основу для формування напрямків реформування інвестиційної політики на ієрархічних рівнях управління з метою підвищення інвестиційної привабливості підприємств, галузей промисловості (видів діяльності), регіонів (територій, земель, федеральних округів тощо) та національної економіки в цілому.

Ключові слова: *інвестиційний клімат; інвестиційна привабливість; інвестиційні ризики.*
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ИНВЕСТИЦИОННЫЙ КЛИМАТ И ИНВЕСТИЦИОННЫЕ РИСКИ: ДИАГНОСТИКА, ОЦЕНКА И АНАЛИЗ

В статье предложен оригинальный подход к последовательной оценке факторов инвестиционного климата, его привлекательности и несистематической составляющей инвестиционного риска на основе разработанной авторами «ABC-матрицы», в которой представлены обуславливающие (формирующие) инвестиционный климат факторы в их проявлении на разных иерархических уровнях хозяйствования, т.е. в системе «предприятие – отрасль – регион – национальная экономика (на уровне страны)». Полученные с помощью «ABC-матрицы» оценки привлекательности инвестиционного климата и инвестиционных рисков являются объективной основой для разработки направлений реформирования инвестиционной политики на иерархических уровнях хозяйствования с целью повышения инвестиционной привлекательности предприятий, отраслей (видов деятельности), регионов (территорий, земель, федеральных округов и т.д.) и национальной экономики в целом.

Ключевые слова: *инвестиционный климат; инвестиционная привлекательность; инвестиционные риски.*

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Introduction. The situation emerging in the field of investment in Russia's national economy as a whole, and capital investment in particular, results in the growing depreciation of fixed assets. This is shown in Table 1.

Table 1. **Degree of fixed assets depreciation** *(at the end of a year; %)*

Period	1970	1980	1990	1995	2005	2010	2011	2012
Degree of fixed assets depreciation	25.7	36.2	46.4	39.5	45.2	47.1	47.9	48.6

Source: Russia in figures (2013).

This state of affairs, implying that national economy building on outdated industrial and technological equipment, does not promote the growth of economy of Russia (Aleksandrov and Rozov, 2013).

The changing direction of foreign direct investment (FDI), especially after the crisis, has started to attract more attention in literature. N. Bayraktar (2013) has investigated the link between FDI and "ease of doing business" indicators, as one possible source of changing directions in FDI. Moreover, backwardness is accompanied by a significant outflow of foreign investments from Russia's national economy along with their low inflow. For example, in 2010–2012 the inflow of foreign investment first grew from 114,746 mln USD in 2010 to 190,643 mln USD in 2011, then falling to 154,570 mln USD in 2012 (Russian Statistical Yearbook, 2013). At the same time, the investment outflow in 2010 was 96,222 mln USD, growing to 151,673 mln USD in 2011 and sloping to 149,908 mln USD in 2012 (Russian Statistical Yearbook, 2013). Thus, the net inflow of foreign investment spiked from 18,524 mln USD in 2010 to 38,970 mln USD in 2011, plummeting to 4,662 mln USD in 2012. As for FDI their inflow was 13,810 mln USD, 18,415 mln USD and 18,666 mln USD respectively, with figures for the outflow being accordingly 10,271 mln USD, 19,040 mln USD and 17,426 mln USD. A simple estimation shows that the outflow of foreign investment came on top of its inflow in 2011, while in 2012 the inflow of investment was only slightly higher than its outflow (Russian Statistical Yearbook, 2013). Besides, the share of foreign investments into the production of machinery and equipment was insignificantly low: 1.5% in 2010, 0.6% in 2011 and 0.9% in 2012 (On foreign investments in 2013). Early statistical data on foreign investments in 2013 are also far from encouraging as their inflow was 170.2 bln USD growing by 10.2% compared to 2012, while the outflow registered 201.6 bln USD was 34.6% against 2012.

The current state of affairs is far from promoting fundamental renovation of fixed capital through innovations. This calls for significant improvement in attractiveness of investment climate implying a more supporting environment for investment at all hierarchy levels of the economy. Moreover, while attracting foreign investments, greater importance is attached to investment climate at regional and national levels along with the situation in specific businesses and industries.

Factors shaping the investment climate. The problem of shaping the attractive investment climate is essentially the matter of methodology. The integration of Russia into the world economy pushes investors towards internationally adopted methods used to assess the investment climate in terms of its attractiveness and risks. This methodology is primarily based on the assessment of factors enabling or inhibiting investments into national economy, region, industry and particular enterprises.

In this relation for Russia and other countries alike, the urgency to analyze and identify factors inherent in investment climate, facilitating or inhibiting the advancement of investment processes at all levels of hierarchy in national economies comes increasingly into the agenda.

Despite considerable research efforts and with due respect to significant contribution of participating academia and practitioners from different countries, it should be admitted that the methodology of diagnostics and facilitation of attractive investment climate, as well as methods of investment risks identification have not been sufficiently explored. This holds back the work on validated and conclusive measures needed to reform investment policy turning it towards supportive investment climate, investment risks reduction and finally towards better investment decisions. This is acknowledged by M. Bromwich (1996), an internationally recognized expert in investment analysis, who points out that the existing and well-described methods "are applied partly for their simplicity and partly for the reason that academic research has yet to offer methods capable of bringing practical advantages". His words are still meaningful today.

Thus, the development of relevant methodology to recognize, identify and assess factors determining investment climate, as well as the validation of means to enhance its attractiveness are indispensable for accelerating investment processes.

The second side of this problem is the relevance of methods used to assess the investment risks driven by the nature of investment attractiveness of enterprises, industries, regions and countries.

Consequently, while developing the methodology for diagnostics of investment climate we build on the earlier hypothesis positing that factors forming investment climate, firstly, have different manifestations at the levels of economic hierarchy, and secondly, in their turn influence the character and the level of the investment risks determined. Thus, we explore the aforementioned linkages within the system "*factors – levels – risks*". In our analysis we assume that in making the best investment decisions we should not be guided by the simplicity of the described methods. Instead, "in making decisions a well disciplined approach is advisable" along with the fact that only evaluation of highly diverse information "can lead to a better decision if only because it ... exposes the decision making person to a larger scope of relevant information" (Bromwich, 1996).

Let us first turn to the factors driving investment climate. Methodologies of investment climate assessment offered by various researchers identify a set of such factors leaving them basically unstructured. It appears that this so-called "commingled" methodology of accounting factors inherent in investment climate is underproductive when applied to the problem at hand. Obviously, different factors arise from different sources and are different in their nature, form of their manifestation and influence on investment climate. That is why, firstly, all groups of factors that in some way and according to their essential features collectively determine investment attractiveness, we organize into 4 groups: economic (Damiano, 2014; Dollar et al., 2006); administrative and legislative (Djankov et al., 2010; Shah Nazaria et al., 2014); resource and technical (Pitt et al., 2012); social and ecological (Hanna, 2010; Fuss et al., 2008). And secondly, we examine the manifestation of these groups of factors at different levels of economic hierarchy where investment climate is generated, i.e.

within the integral system "*enterprise — industry — region — country (national economy)*".

Thus, we offer methods and methodology that essentially differ from other ways of assessing investment climate and its attractiveness. They assume an integrated approach to economic, administrative and legislative, social and ecological and resource and technological factors in their relation to the levels of economic hierarchy: entry level (enterprise) — industry (type of business activity) — region — national economy (country level) (Aleksandrov et al., 2013).

In such a system, enterprise level is the key one providing an object for investment. Therefore, its investment attractiveness is determined, on the one hand, by its position within the system "*enterprise — industry — region — national economy*", and on the other by the nature and manifestation of a set of factors inducing/inhibiting the investment inflow. The objectives of this paper restrict our intention to explore in detail all the main factors consolidated into 4 groups including institutional factors reflecting political and economic situation in the country under analysis. Such a study would require a separate paper. Moreover, such factors have already come under examination in chapters 3—4 of our monograph (Aleksandrov et al., 2014).

AVS-matrix and assessment of investment climate attractiveness. The foregoing approach can be easily modelled as a matrix featuring groups of factors that on the one hand integrate to shape investment climate and its attractiveness at a respective level of economic hierarchy (horizontally), while on the other hand determine the nature of manifestation and interdependency of each group of factors at their respective level, i.e. vertically (Figure 1).

		GROUPS OF INVESTMENT CLIMATE FACTORS			
		Administrative and legislative *(A)*	Economic *(E)*	Resource and technical *(T)*	Social and ecological *(S)*
HIERARCHY LEVELS OF ECONOMY	Business *(B)*	*A/B*	*E/B*	*T/B*	*S/B*
	Industry *(I)*	*A/I*	*E/I*	*T/I*	*S/I*
	Region *(R)*	*A/R*	*E/R*	*T/R*	*S/R*
	National economy *(N)*	*A/N*	*E/N*	*T/N*	*S/N*

Figure 1. **AVS-matrix: groups of investment climate factors at the hierarchical levels of economy,** *authors'*

Thus, this matrix enables the integrated analysis of a set of administrative and legislative, economic, resource and technological, social and ecological aggregated factors determining the nature of investment climate at a respective economic hierarchy level.

Each of the 16 cells of the matrix formed by the crossing of its rows and columns demonstrates the interrelation between a level and a factor. Its analysis allows:

1) reveal the composition, structure and nature of manifestation for each of the 4 groups of factors at a relevant economic level and the mechanism of interrelations within each group of factors characterizing specific level of economy — vertical analysis (for example, see Figure 1 for the legal and administrative group of factors, vertical *A/B – A/I – A/R – A/N*);

2) determine the nature of horizontal interrelations between the 4 groups of factors at each economic level – horizontal analysis (for example, see Figure 1 for regional level, horizontal *A/R – E/R – T/R – S/R*) and eventually to determine the investment climate attractiveness for each economic level;

3) display and assess systemic (institutional) factors, while identifying factors for each cell of the matrix, such as tax administration; corruption, criminal and political constituents as influencing the essential inner qualities of specific groups of factors at relevant levels – indepth analysis;

4) define the *objective preconditions and abstract possibility* for the emergence of factors of particular groups and levels restricting and inhibiting investments and to determine *sufficient conditions* for them to fulfill;

5) elaborate, with the help of matrix analysis, measures aimed to alleviate the effect of factors prohibiting and restricting investments, and consequently to define priorities of reforms targeting investment policy at all economic hierarchy levels.

Fostering of attractive investment climate requires a solution based on an indepth analysis of prohibiting and restricting factors and their specific manifestations at relevant levels (i.e., for a particular cell of the matrix). This analysis establishes:

1) the degree of objectivity for each factor, i.e. "genetically" predetermined thus generating an abstract possibility for real barriers and restrictions to arise;

2) the reasons for the abstract possibility to evolve into real factors obstructing investment;

3) and as a consequence, credible options to resist the influence of inhibiting and restricting factors so that to minimize or even eliminate their adverse impact on the nature of investment process.

Thus, the group of economic factors features a number of barriers and restrictions rooted in an objective state of market relations and their trends. T. Kinda (2010) also shows that constraints related to investment climate hamper FDI.

Legislative and administrative barriers and restrictions present a different example being to a great extent of superstructural nature. This means they are superimposed and thus not always relevant. For example, M. Azzimonti (2011) shows that excessive taxation reduces the return on physical capital and hence investment rates, which slows down growth along the transition. In the long run, output, consumption and welfare are inefficiently low. The larger is the degree of polarization, the greater is the inefficiency. Political stability mitigates the effects of polarization by making the incumbent internalize the dynamic inefficiencies introduced by the choice of growth-retarding policies.

So T.P. Wisniewskia and S.K. Pathana (2014) examine the role that political factors play in investment location decisions of multinational enterprises.

The solution on elimination or alleviation of legislative and administrative barriers can be found in adequate reforms of industrial and investment policy developed and implemented at all levels of economy in any country.

At the same time, it is rather difficult to find ways to resist the entry barriers and restrictions caused by resource and technology and social and ecological groups of factors. Nevertheless, their effects can be offset by institutional measures within the framework of regional investment policy.

A complete and extended analysis of the system of factors for each of the 16 cells of the AVS-matrix as interrelated with each other and levels of economy, as well as the resulting set of integrated measures required for the development and introduction of investment policy at national and regional levels of economy, would fall beyond the scope of this paper. Still, the original concept of investment attractiveness analysis set forth in the paper can be used as the basis for further assessment of the non-systematic constituent of investment risks as well as for further research on specific institutional measures aimed at:

- reforming economic policy (including industrial and investment policies) in the national economy, at regional, industrial and enterprise levels;
- improving national and regional legislation with a view to ensure investment attractiveness and significant increase in investment activity at all levels of economic hierarchy, the top priority being industrial enterprises of all sectors).

Application of AVS-matrix to investment risk assessment. There are many methods of investment risk assessment. G. Savoiu and M. Țaicu (2014) identify several econometric models for FDI focused on the country risk, which can also signal other macroeconomic indicators in Czech Republic, Hungary, Poland, Romania, Russia and Slovak Republic, using data from the World Bank and major rating agencies.

We offer to focus on the feasibility of using the matrix not only to foster enabling investment climate solutions but also to improve methodology for non-systematic (diversifiable) constituent of investment risks.

Risks can significantly influence the real value of expected return on investment in projects under assessment. They manifest themselves as discount rates. In the internationally adopted methodology the rate value is mostly assessed through CAPM (capital asset pricing model). E. Nichol and M. Dowling (2014) test the profitability and investment factors contribution to asset pricing models. Their asset pricing models share a common core of the addition of profitability and investment as factors, but differ in implementation.

CAPM is formularized as:

$$r = r_f + \beta \times (r_m - r_f), \tag{1}$$

where r — discount rate as the price of equity capital; r_f — risk-free interest rate, "risk-cleared"; r_m — average market yield; β — the measure of systematic risk.

We do not challenge the relevance of this method to determine the level of systematic risks. At this, the level of systematic risks is universally established as essentially the same for different economic operators. While the level of the second constituent of general risk, i.e. non-systematic risk, significantly varies even for businesses similar in their scale and sphere of operations, the more so for different spheres. Certain data proving that the share of non-systematic (diversifiable) risk in the overall risk exceeds 65% for developed countries and reach 76.1% or more for foreign investments, the need for appropriate non-systematic risk assessment is obvious (Elton and Gruber, 1995).

As for the approaches to risk assessment adopted in Russia, which are not essentially different from those internationally acknowledged, they recommend accounting for 3 types of risks in connection with investment project implementation (Guidelines for evaluating an investment projects effectiveness approved by Ministry of Economy, Ministry of Finance and State Construction Committee of Russia, 1999):

- country risk;
- project participants reliability risk;
- planned project performance risk.

Remarkably, this approach leaves out the assessment of several key factors (Figure 1) determining risks for specific enterprise (business), industry and region. As justly pointed out by E.A. Helfert (1996), internationally acknowledged expert and analyst, "the risk of a company (the uncertainty of making profit) and its ability to service its debts are closely connected with specific features of the sphere or spheres of its business, Moreover, the general economic environment is also relevant".

It should be noted that by their definition participants reliability risks along with all other risks are the elements of the overall non-systematic risk, that is, the resulting ***project performance risk (the risk of not yielding the return)***. The proposed original methodology regarding enterprise level (business level) risks as seamlessly integrating all factors responsible to some extent for the project participant reliability risks thus reducing the element of subjectivity in expert assessment.

It appears that the matrix approach can be successfully applied to integrated assessment of non-systematic risks, considering that the latter are largely driven by the same factors as the investment climate. The assumption is based on the fact that groups of factors exposed by AVS-matrix on the one hand determine the investment climate attractiveness, while on the other, manifesting the level of non-systematic (diversifiable) investment risks encountered by enterprise (business), industry, region, country. The result will be obtained if each AVS-matrix cell shows risks determined by each factor at its respective level, adding them up by rows (added up risks of each level) and by columns (added up risks of all groups). Thus, AVS-matrix will facilitate the analysis of the role played by each group of factors as they determine non-systematic risks normally considered by the cumulative method of determining the discount rate and making the investment decision. This will lead to appropriate assessment of the overall risk and of the efficiency of investment projects for a specific enterprise of a specific industry in a specific region and country eventually enhancing investment motivation. The analytical estimation of the investment risk is obtained through the addition of a term expressing the non-systematic (diversifiable) risk level to the level of systematic risk. The translation of CAPM formula (1) will result in formula:

$$r = r_f + \beta \times (r_m - r_f) + r_B + r_I + r_R + r_N, \quad (2)$$

where for the diversifiable risk: r_B – discount rate determining the risk of investment into a specific enterprise (venture); r_I – discount rate determining the industry-specific risk; r_R – discount rate determining the region-specific risk; r_N – discount rate determining the country-specific risk.

The terms expressing the level of non-systematic risks should be assessed using data obtained through the analysis of AVS-matrix and exposed in it. The transformed matrix demonstrates this option (Figure 2).

In this case, as follows from the matrix and according to the agreed notations, the expression (2) can be written as:

$$r = r_f + \beta \times (r_m - r_f) + r_L; \quad (3)$$

$$r = r_f + \beta \times (r_m - r_f) + r_F, \quad (4)$$

where r_L — the discount rate determining risks and their sum by levels, formula (5); r_F — the discount rate determining risks and their sum by factors, formula (6):

$$r_L = r_B + r_I + r_R + r_N; \tag{5}$$

$$r_F = r_A + r_E + r_T + r_S. \tag{6}$$

<table>
<tr><td colspan="2" rowspan="2"></td><td colspan="4">GROUPS OF INVESTMENT CLIMATE FACTORS</td><td rowspan="2">r_L</td></tr>
<tr><td>Administrative and legislative (A)</td><td>Economic (E)</td><td>Resource and technical (T)</td><td>Social and ecological (S)</td></tr>
<tr><td rowspan="4">HIERARCHY LEVELS OF ECONOMY</td><td>Business (B)</td><td>A/B</td><td>E/B</td><td>T/B</td><td>S/B</td><td>r_B</td></tr>
<tr><td>Industry (I)</td><td>A/I</td><td>E/I</td><td>T/I</td><td>S/I</td><td>r_I</td></tr>
<tr><td>Region (R)</td><td>A/R</td><td>E/R</td><td>T/R</td><td>S/R</td><td>r_R</td></tr>
<tr><td>National economy (N)</td><td>A/N</td><td>E/N</td><td>T/N</td><td>S/N</td><td>r_N</td></tr>
<tr><td colspan="2">r_F</td><td>r_A</td><td>r_E</td><td>r_T</td><td>r_S</td><td>$r_L = r_F$</td></tr>
</table>

Figure 2. **AVS-matrix: analysis of investment climate factors in the form of investment risks,** *authors'*

Thus, for each level formulas (3)–(6) consider and sum up discount rates expressing non-systematic risks both by levels of business operations (formulas (3) and (5)) and by groups of factors (formulas (4) and (6)). The equation $r_L = r_F$ proves the identity of the two approaches.

The way of assessment for each of the terms appearing in respective matrix cells and in the respective formulas (5) and (6) should be considered separately.

Presence of a specific risk factor and the risk premium level will be established in the real world by expert assessments of the groups of factors driving the investment climate. The subjectivity of this assessment can be regarded as its downside.

It stands to reason that prior to the application of the proposed original methodology it would be advisable to minimize the impact of subjectivity. This requires a clear structure and exposure of factors determining investment climate, with further exposure of the constituents of non-systematic risk (in each cell of AVS-matrix).

AVS-matrix and step-by-step method of investment risk assessment. As stated above, the process of expert assessment of factors (regarded here first and foremost as inhibiting and restricting factors determining investment risks) is of a subjective nature being guided by personal and professional characteristics of experts. Besides, insufficient integrity and lack of content exposure of the factors and reasons accounting for their inhibiting and restricting character prevent adequate assessment of the influence of both factors and their groups on investment climate. This, in turn, impairs the investment risk assessment. However, the subjectivity inherent in expert assessment could be sufficiently lowered while rendering expert assessments more reliable and credible. In our estimation this would involve the following measures within the proposed methodology:

STEP 1. To introduce a clear structure of factors driving investment climate presented in each cell of the matrix. That is, for each matrix cell the number of factors (for example, 5) should be unambiguously defined and standardised. These should be the factors that expose the group of a specific cell to its fullest.

STEP 2. To expose the composition of each of the 5 factors, i.e. give a clear definition of their constituents. We shall call them subfactors or characteristics.

STEP 3. To set the assessment values for each of the five factors, e.g. from 0 to 1 scores $(x \in 0 \div 1)$, where 0 implies the least and 1 — the most attractive value of the factor for prospective investor. The assessment of each of the 5 factors should be expressed as a decimal fraction.

In application of the proposed original methodology the experts' functions are limited to the third step exclusively. All other steps are taken by way of elemental arithmetic and for the benefit of the investor.

As for the first step, each of the groups of factors determining investment climate at a specific level of economic management is represented in a particular cell of the AVS-matrix by 5 (as agreed here) key factors.

STEP 4. To sum up the resulting score ranging from 0 to 5 $(X_{FL} \in 0 \div 5)$ for a particular group of factors at the corresponding level, i.e. the assessment of the group influence for specific group of factors at each level, coming up to X_{FL} for a particular cell of AVS-matrix.

$$X_{FL} = \sum_{i=1}^{5} x_i . \tag{7}$$

STEP 5. To sum up all assessments exposed in matrix cells thus defining the integral indicator of investment climate attractiveness, firstly, by rows (X_{0-20}). That is by economic management levels (which is of interest for the assessment of all 4 constituents of non-systematic risk). And, secondly, to sum up columns, i.e. by the groups of factors (also X_{0-20}). Finally, to obtain the value for the integral indicator (X_{0-80}).

		GROUPS OF INVESTMENT CLIMATE FACTORS				X_L
		Administrative and legislative *(A)*	Economic *(E)*	Resource and technical *(T)*	Social and ecological *(S)*	
HIERARCHY LEVELS OF ECONOMY	Business *(B)*	X_{AB} *(0÷5)*	X_{EB} *(0÷5)*	X_{TB} *(0÷5)*	X_{SB} *(0÷5)*	$\boldsymbol{X_B}$ ***(0÷20)***
	Industry *(I)*	X_{AI} *(0÷5)*	X_{EI} *(0÷5)*	X_{TI} *(0÷5)*	X_{SI} *(0÷5)*	$\boldsymbol{X_I}$ ***(0÷20)***
	Region *(R)*	X_{AR} *(0÷5)*	X_{ER} *(0÷5)*	X_{TR} *(0÷5)*	X_{SR} *(0÷5)*	$\boldsymbol{X_R}$ ***(0÷20)***
	National economy *(N)*	X_{AN} *(0÷5)*	X_{EN} *(0÷5)*	X_{TN} *(0÷5)*	X_{SN} *(0÷5)*	$\boldsymbol{X_N}$ ***(0÷20)***
X_F		$\boldsymbol{X_A}$ ***(0÷20)***	$\boldsymbol{X_E}$ ***(0÷20)***	$\boldsymbol{X_T}$ ***(0÷20)***	$\boldsymbol{X_S}$ ***(0÷20)***	$\boldsymbol{X_\Sigma}$ ***(0÷80)***

Figure 3. **AVS-matrix: calculation of the integral indicator of investment climate attractiveness (X_Σ) for levels (X_L) and groups of factors (X_F),** *authors'*

The resulting figure will show the integral assessment X_Σ of investment climate for various investment objects, and will finally ground a well-informed investment decision and a choice of the investment object offering the most lucrative investment climate. The higher is the integral indicator of investment climate attractiveness, the more lucrative is the investment object under assessment. Besides, the proposed methodology offers managerial bodies at all economic levels a powerful tool for assessing the degree of influence on investment climate attractiveness in each group of factors. This, in turn, will allow elaborating relevant measures enhancing investment attractiveness of enterprises, industry, region and the country.

AVS-matrix put forward by the authors offers more than an algorithm of choosing the most lucrative investment object being instrumental for drawing up investment policy reforms.

If the value of investment climate integral indicator X_{Σ} tends to 0, i.e. the investment climate is utterly unattractive for investors, the share of non-systematic risk will tend to 100%. An investment object under assessment can be regarded as utterly unattractive and, consequently, the non-systematic risk will be at its highest.

As for the maximum marginal indicator X_{Σ} reaching 80, i.e. indicating utterly attractive investment climate, this value is regarded as theoretically feasible and serves as a benchmark.

Thus, the higher is the investment climate attractiveness, the lower is the level of non-systematic risk, and vice verse, the decline of investment attractiveness of an investment object increases the share of non-systematic risk.

STEP 6. To convert the data of AVS-matrix (Figure 3) into a rating system from 0 to 1 in order to move from scores of assessment to risk premium (as the discount rate (risk premium) is expressed in per cent).

Let us compare the estimated values of factors exposed in AVS-matrix cells with the benchmark using it as the comparative base. For our case, the maximum value of the integral indicator of investment climate attractiveness is 80. Thus, in order to define the deviation of each factor of the investment climate from the benchmark, the value of each AVS-matrix cell should be divided by 80.

$$A_{FL} = \frac{X_{FL}}{80}. \tag{8}$$

That is, all the original values of investment climate assessment X_{FL} exposed in the 16 cells of the matrix should be divided by the benchmark assessment value of 80. The procedure holds for the data exposed in 9 resulting cells of the matrix X_L and X_F and their integral assessment value of X_{Σ}.

Thus, we obtain the assessments of investment climate attractiveness ranging from 0 to 1 (Figure 4), explored at different levels of economic management and groups of factors respectively ranging from 0 to 0.25, the value of the integral indicator of investment climate attractiveness A_{Σ} ranging from 0 to 1. The value indicating the most attractive investment climate and the lowest possible non-systematic risk will come up to 1.

STEP 7. To convert, as recommended by the algorithm below, the scores of assessment of investment climate attractiveness into premium for non-systematic risks expressed in %.

STEP 8. To convert at this final stage the investment climate attractiveness assessment scores as presented in Figure 4 into risk premium.

		GROUPS OF INVESTMENT CLIMATE FACTORS				A_L
		Administrative and legislative *(A)*	Economic *(E)*	Resource and technical *(T)*	Social and ecological *(S)*	
HIERARCHY LEVELS OF ECONOMY	Business *(B)*	A_{AB}	A_{EB}	A_{TB}	A_{SB}	$\boldsymbol{A_B}$ ***(0÷0,25)***
	Industry *(I)*	A_{AI}	A_{EI}	A_{TI}	A_{SI}	$\boldsymbol{A_I}$ ***(0÷0,25)***
	Region *(R)*	A_{AR}	A_{ER}	A_{TR}	A_{SR}	$\boldsymbol{A_R}$ ***(0÷0,25)***
	National economy *(N)*	A_{AN}	A_{EN}	A_{TN}	A_{SN}	$\boldsymbol{A_N}$ ***(0÷0,25)***
A_F		$\boldsymbol{A_A}$ ***(0÷0,25)***	$\boldsymbol{A_E}$ ***(0÷0,25)***	$\boldsymbol{A_T}$ ***(0÷0,25)***	$\boldsymbol{A_S}$ ***(0÷0,25)***	$\boldsymbol{A_\Sigma}$ ***(0÷1)***

Figure 4. **AVS-matrix: assessment of investment climate attractiveness in the rating system 0 ÷1 (the maximum integral benchmark value is 1),** *authors'*

To do this we should draw on the data of matrices displayed in Figures 3 and 4. Formula (9) will be used to determine the result of multiplication of the risk-free discount rate by the ratio of shares of each factor (X_{FL}/X_Σ) and the calculated integral indicator of investment climate (A_Σ):

$$r_{ji} = \frac{X_{ji}/X_\Sigma}{A_\Sigma} \times r_f, \tag{9}$$

where X_{ji} is the respective matrix cell as featured in Figure 3 (levels (i) – group of factors (j)); X_Σ is the integral cumulative assessment of investment climate attractiveness ranging from 0 to 80 estimated according to the matrix displayed in Figure 3; A_Σ – integral cumulative assessment of investment climate attractiveness ranging from 0 to 1 estimated according to the matrix featured in Figure 4; r_f – risk-free discount rate (in %).

The introduction of the index D_{ji} for the share of each factor will lead to

$$D_{ji} = X_{ji}/X_\Sigma. \tag{10}$$

This allows estimating the risk premium for groups of factors taking into account that finally r_L matches r_F (Figure 5).

As follows from the formula (9), we adopt the discount rate for risk-free investments r_f as the reference rate in our estimations considering that most methodologies use this value as a reference rate while estimating the non-systematic risk premium (Guidelines for evaluating an investment projects effectiveness..., 1999).

At the same time, it is necessary to emphasize that the constituents of non-systematic risk should be objectively assessed over different ranges. In the above cited methodology much as in the works of other authors some constituents range in assessments from 3–5 to 18–20%, while others show the 50% divergence. Moreover, it is recommended to make industry-specific allowances (Guidelines for evaluating an investment projects effectiveness..., 1999). Thus, it would stand to reason if the results estimated using the formula (8) were adjusted on the ground of the experience accumulated by the investment community and the data obtained in the course of the research. This adjustment can be achieved involving particular coefficient, indexed e.g. as α_i, that will act as an adjustment coefficient different in value for each economic management level. That is, the coefficient allows adjusting risk premiums for them to reflect specific conditions of each level.

		GROUPS OF INVESTMENT CLIMATE FACTORS				r_L
		Administrative and legislative *(A)*	Economic *(E)*	Resource and technical *(T)*	Social and ecological *(S)*	
HIERARCHY LEVELS OF ECONOMY	Business *(B)*	$(D_{AB}/A_\Sigma)\cdot r_f$	$(D_{EB}/A_\Sigma)\cdot r_f$	$(D_{TB}/A_\Sigma)\cdot r_f$	$(D_{SB}/A_\Sigma)\cdot r_f$	r_B
	Industry *(I)*	$(D_{AI}/A_\Sigma)\cdot r_f$	$(D_{EI}/A_\Sigma)\cdot r_f$	$(D_{TI}/A_\Sigma)\cdot r_f$	$(D_{SI}/A_\Sigma)\cdot r_f$	r_I
	Region *(R)*	$(D_{AR}/A_\Sigma)\cdot r_f$	$(D_{ER}/A_\Sigma)\cdot r_f$	$(D_{TR}/A_\Sigma)\cdot r_f$	$(D_{SR}/A_\Sigma)\cdot r_f$	r_R
	National economy *(N)*	$(D_{AN}/A_\Sigma)\cdot r_f$	$(D_{EN}/A_\Sigma)\cdot r_f$	$(D_{TN}/A_\Sigma)\cdot r_f$	$(D_{SN}/A_\Sigma)\cdot r_f$	r_N
r_F		r_A	r_E	r_T	r_S	$r_L = r_F$

Figure 5. **AVS-matrix: calculation of discount rate (risk premium) determining non-systematic risks of investment,** *authors'*

However, practical application of the proposed methodology requires further research and falls beyond the scope of problems addressed by this paper.

It is also significant that following Figure 5, the assessment of non-systematic risk for both level-specific and factor-specific approaches yields the same results. This means that both approaches are ultimately equivalent and both enable the analysis of non-systematic risk value considering elements induced by level-specific conditions and by the factors shaping the nature of investment climate.

Conclusion. It should be first of all emphasized that the approach put forward in the paper is not in contradiction, and moreover, is aligned with the generally admitted and wide-spread methodology developed by the UNIDO and used for assessment of investment effectiveness in terms of relevant discount rate reflecting risk evaluation with reference to many standard schemes and methods such as NPV, IRR and others used for evaluation and ranking of investment projects (Behrens and Hawranek, 1995).

The developed step-by-step algorithm forms the basis for further elaboration of an applied computer programme designed to simplify and facilitate the evaluation of investment risks. The programme unit can be integrated into the COMFAR programme developed by the UNIDO for feasibility study and ranking of investment programmes.

It also appears that the application of the approach we have put forward, firstly, allows identifying the inhibiting and restricting factors of investment activity, elaborating appropriate measures to enhance investment attractiveness of national economics, territories, industries and enterprises; secondly, offers the opportunity to set appropriate goals and draw up measures fostering the reforms of investment policy;

thirdly, apart from adequate assessment of investment risks, allows ascertain the extent to which the setting of national, regional and industry economy influences the opportunities of a specific enterprise in mitigating its investment risks – and consequently to attract investments; and fourthly, will afford elaborating level-specific effective measures that would motivate and encourage the input of particular factors while stemming or eliminating (where feasible) the influence of the factors determining enhanced non-systematic risk and inhibiting investments.

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