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# INTEGRAL ASSESSMENT OF BUSINESS ENVIRONMENT SECURITY

## Abstract

The methodological approach to the integral assessment of business environment security is developed in the article; the blocks of factors of business environment security are identified and the indices which affect the formation of economic security of entrepreneurship are analyzed. The integral indicator for assessing business environment security is based on 6 indicators, which are the most significant elements of the business environment formation: the availability of basic economic freedoms, the favorable organizational conditions for doing business, the state of political and legal system, the level (quality) of life, resource provision and infrastructure development, innovation development. A comparative analysis of the integral indicator of business environment security of Ukraine with the Baltic countries, Black Sea region countries and the Visegrad Group countries is carried out. The article identifies interdependence between the business environment security and the share of unprofitable enterprises. The functional relationship of the business environment security with the number of bankrupt enterprises and the level of enterprises losses is substantiated as well. The model shows that the increase of environmental security leads to the decrease of a number of bankruptcies exponentially. The negative and positive factors which influence the formation of economic security of entrepreneurship are revealed.

## Keywords

business environment security, integral index, factors of  
business environment, economic security assessment,  
development indicators

## JEL Classification

C3, F63, L26, O1

## INTRODUCTION

Trends in the development of the world economy, the nature and features of relationships between business entities, governments' strategies for economic development determine prerequisites for the formation of an entrepreneurial environment. In accordance with such factors, the efficiency of entrepreneurial activity depends directly on the level of security of the existing business environment. The appropriate level of development and security of entrepreneurship is an integral part of market economy system and it corresponds to the important goal of government economic reforms – to create an effective competitive economy, which ensures population's high quality life and is one of the most important conditions of economic and social security of the country. The effectiveness of state regulation measures of entrepreneurial activity forms the conditions which are necessary for activation of entrepreneurship in the country. The role of entrepreneurial economic security is also significant, taking into account current tendencies towards expanding the openness of the economy. Government measures for protection of economic interests of enterprises will ensure their sustainable functioning and development in the conditions of European integration of Ukraine, the formation of a healthy com-

petitive environment and prerequisites for attracting investments into the economy. Modern globalization challenges require from government to react quickly to changes in the level of business environment security and from national business entities to focus on the experience of entrepreneurial subjects in developed countries.

## 1. LITERATURE REVIEW

Despite of the fact that investigations on economic security and business environment security are a relatively new direction in science, there is a number of research papers in this field among national and foreign scientists yet. Economic security is widely discussed on micro-, regional and macro-level – economic security of families, workers, enterprise, region and state (Weller, 2009; Oleynikov, 1997; Vasylytsiv, 2008; Arsić, 2015; Kuratko, 2001; Inglehart, 1994; Mamychyev, 2016; Zerkalov, 2011; Hrunin, 2002; Gospodarik, 2016; Dronov, 2001).

Economic security is determined as an ability to satisfy needs of society on the national and international level (Arhipov, 1994). Zeman et al. (2003) define the economic security as a state where the economy of the object whose security is to be ensured (enterprise, state, group of states, world, individual, family, etc.) is not endangered by threats which significantly reduce or could reduce its performance efficiency necessary for ensuring the defense as well as other security capacities, social reconciliation and competitiveness of the object and its individual components (especially individual companies) on the internal as well as external markets.

Ukrainian scientific papers are mainly focused on enterprise economic security (Kozachenko, 2003; Nyzhnyk, 2013; Boykevych, 2011), while investigations of Russian (Krivorotov, 2011; Pankov, 2011; Bogomolov, 2009) and Western scientists (Neu, 1994; Neocleous, 2006; Ronis, 2011; Shiffman, 2006; Moran, 1993) are devoted to economic security of the state.

As for business environment security its definition and meaning directly depends on the level of economic security. Thus, in particular, Ukrainian and some foreign scientists consider business environment security from the enterprise economic security point of view and define it as security of the internal environment of an enterprise (Kozachenko, 2003; Iliashenko, 2003; Otenko,

2014; Nyzhnyk, 2013; Mamychyev, 2016; Sudakova, 2015; Kuratko, 2001; Petrenko, 2014). Nevertheless, along with the internal environment, business environment security is associated with the external environment (Kryvshchenko, 2014; Vasylytsiv, 2015; Strelcová, 2015; Klopov, 2010; Veretennikova, 2012; Murdoch, 1977; Liutak, 2013) of an enterprise and it is the subject of our research. In this context, business environment security assessment is carried out on the basis of key external environmental factors which affect functioning of the enterprise (Liutak, 2013; Murdoch, 1977; Strelcová, 2015; Milenkovic, 2014) or on the basis of identifying the main threats for the enterprise from this environment (Klopov, 2010; Veretennikova, 2012; Kryvshchenko, 2014; Stetsenko, 2013). Some scientists also determine business environment security as a result of an effective government policy of ensuring economic security (Vasylytsiv, 2015; Stetsenko, 2013; Tymoshenko, 2016). And most of modern foreign investigations are devoted to the analysis of business environment security in the context of the concept of sustainable development (Veselovská, 2017; Sarić, 2013; Meadows, 1998; Bravo, 2013; Sachs, 2014; Van de Kerk, 2007). But meaning of sustainable development is directed to human wellbeing in a country among other factors which, of course, should be the key goal of government policy in order to ensure state security but is not the primary goal of enterprises' efficiency. In conclusion, it should be said that business environment security is not totally equal to sustainable development of a country and is a part of it.

We identify the business environment security as a security of external environment to the enterprise, which is formed under the influence of norms, rules and actions of all economic subjects at national and international levels.

The vast majority of investigations are focused on determining the theoretical and practical bases of business environment security and do not propose certain uniform methodology for assessing it. Developed methods for assessing business environment security have the following peculiarities:

- they are based on the analysis of the internal environment (business entities efficiency) of the enterprise without formalizing the indicators of the external environment (Otenko, 2014);
- they are based on expert assessments only (Veretennikova, 2012);
- they are narrow and use the main macroeconomic indicators and do not have a single integral indicator (Klopov, 2010);
- they do not reveal a clear relationship between the resulting indicator and the effectiveness of the enterprise's activity (Veselovská, 2017).

To sum it up, analysis of scientific researches in the field of business environment security shows lack of a uniform approach to its definition and there is no an integral indicator of business environment security assessment.

## 2. RESEARCH GOAL

The aim of the article is to develop an integral indicator of business environment security of a country, to apply it for the analysis of Ukrainian business environment security in comparison with other countries around the world and to verify the reliability of the assessment model taking into consideration the criteria of current level of business environment security in Ukraine.

## 3. METHODS

The state of business environment security is a complex concept and it is impossible to propose a single universal indicator for its assessment. It may be argued that using any methods for assessing this state, researchers have to rely on abstract models that do not describe the complex reality of economic relationships between business entities and their stakeholders in a proper way, as well as the effect of all factors which influence the security of these subjects. During the evaluation process of entrepreneurial security, it is expedient to use a set of indicators – certain indexes the numerical values of which indicate the level (stage) of de-

velopment of the characterized phenomenon. It is important to note that the indicator reflects only one aspect of development of the research object and during assessing an economic phenomenon, it is important not only to provide the most adequate indicators, but also to substantiate their numeric threshold values. The excess of numeric threshold values indicates a critical change in the parameters of the object.

In order to solve the applied issues of the comparative analysis of business environment security of different countries, using the principle of pragmatism, it is possible to propose a simplified model of the integral indicator which is based on free available statistics – World Bank indexes – quantitative indicators which are calculated according to generally accepted methods and are free in the Internet. The proposed integral indicator is a complex of 6 indexes. Each index in the proposed model characterizes a separate aspect (block of factors) of business environment security in a country. Some of these indexes are used in the same form as they are presented in the original source, as well as others are preliminary transformed into an index based on primary estimates or are calculated in the process of prior integration of individual indexes. The composition of the integral indicator of business environment security is illustrated in Table 1.

The significance of each of the 6 indexes listed in Table 1 is suggested to assume equal in the process of calculating the integral index. This assumption will avoid distortion of the result associated with subjective judgments in the process of assigning ranks to each index. The integral index of business environment security is proposed to be calculated as an area of the hexagon, the peaks of which are deposited in a coordinate system with 6 axes. Every ax corresponds to one of the indexes given in Table 1. A similar approach to the construction of an integral indicator was tested in the process of studying the level of financial system development and demonstrated its adequacy (Oliynyk, 2015). The resulting value of the hexagonal area correlates the maximum possible area (calculated for a hexagon of the maximum size, all vertices of which have a coordinate 1) and is expressed as a decimal fraction (fraction of one). The formula for calculating the integral indicator of business environment security in a country is the following (1):

$$ISI = \frac{1}{2} \cdot [(I_1 \cdot I_2) + (I_2 \cdot I_3) + \dots + (I_6 \cdot I_1)] \times \frac{\sin 60^\circ}{\frac{1}{2} \cdot 6 \cdot \sin 60^\circ} = \frac{(I_1 \cdot I_2) + (I_2 \cdot I_3) + \dots + (I_6 \cdot I_1)}{6} \quad (1)$$

where *ISI* – integral indicator of business environment security of a country,  $I_1, I_2, \dots, I_6$  – the indexes used in the model of the integral index (6 indexes according to Table 1).

It should be pointed out that besides simplicity and accessibility, one of the significant advantages of the proposed model is its visibility, which is provided by the construction of a geometric figure (hexagon) in the form of a petal diagram. The ratio of individual parts of the hexagons of different countries allows to identify those components of business environment which are relatively more (or less) secure.

In addition to comparing the level of business environment security of several countries, the proposed model of the integral indicator allows to analyze the dynamics of the level in a particular country. In this case, the integral indicator for a particular country is calculated according to formula (1) for certain years during the analyzed period. Dynamic rows of calculated integral indicators of countries can be compared with each other for the purpose of identifying trends in the level of business environment security and also with dynamic rows of other economic indicators.

## 4. RESULTS

The proposed methodological approach to integral assessment of business environment security allowed to conduct a study based on a comparison of the economy of Ukraine, the Baltic countries, the Visegrad Group and Black Sea region countries (Figure 1, Table 2).

The conducted research indicates factors hindering the formation of economic security in Ukraine: long-term business registration (190th out of 190 countries); insolvency problem (150th out of 190 countries); obtaining a building permit (140th from 190 countries); connection to power supply systems (130th out of 190 countries); international trade (115th out of 190 countries); taxation (84th out of 190 countries); enforcement of contracts (81st out of 190 countries); protection of minority investors (70th out of 190 countries).

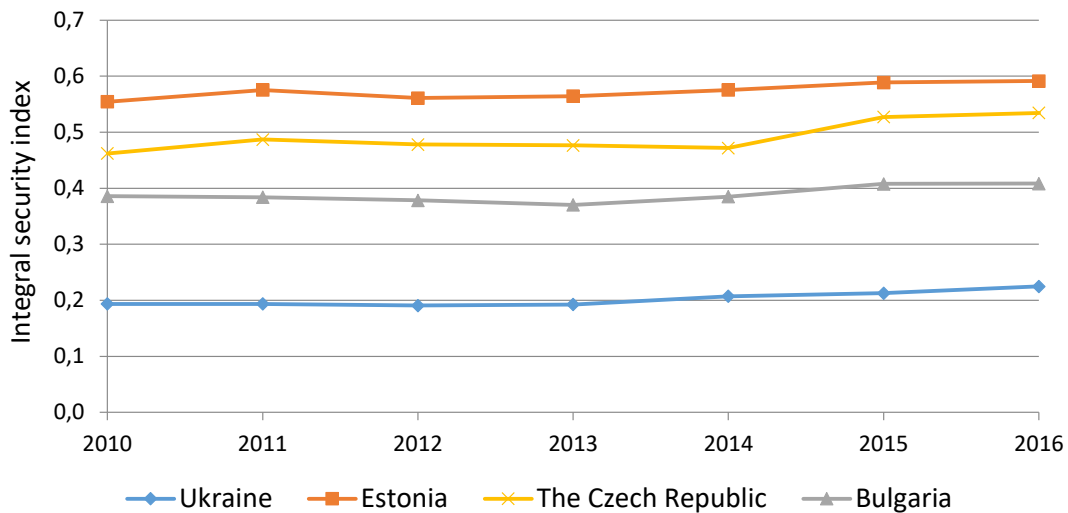
Ukraine has moved to a category of high-growth countries, although in 2016 Ukraine lost three positions in comparison with 2015.

It was a result of negative impact of depopulation processes caused by birth rate decrease, a prolonged armed conflict in Ukraine, the increase of population's migration, which led to a decrease skilled labor in the country and poor quality of political and social institutions. The main forces which influence the process of human develop-

**Table 1.** Elements of the integral index of business environment security

Source: developed by authors on the basis of the World Bank, the Heritage Foundation, the United Nations Development Program, the World Economic Forum, Cornell University, INSEAD and the World Intellectual Property Organization.

| Aspect (factors) of business environment                  | Index   |   |
|---|---|---|
|   | Title   | Peculiarities of definition   |
| 1. The existence of basic economic freedom                | Index of Economic Freedom   | Percentile Rank in the form of a decimal fraction   |
| 2. Favorable organizational conditions for doing business | Doing Business Index  | Rating is based on the primary source of data and is converted into an index based on the total number of countries in it                               |
| 3. The state of political-legal system                    | Political Index consists of set of indexes: Control of Corruption; Political Stability and Absence of Violence/Terrorism; Regulatory Quality; Rule of Law; Voice and Accountability | Percentile Rank of set of indexes according to the primary source of data which are integrated in general index by calculating the mean geometric value |
| 4. Level (quality) of life                                | Human Development Index   | Percentile Rank in the form of a decimal fraction   |
| 5. Resource provision and infrastructure development      | Global Competitiveness Index  | Estimates according to primary source of data which are converted into decimal fraction   |
| 6. Development of innovations                             | Global Innovative Index   | Percentile Rank in the form of a decimal fraction   |



**Figure 1.** Dynamic of the integral index of business environment security in Ukraine and the countries-leaders of the groups

ment in Ukraine are the executive branch (36%); the legislative branch (30%); the oligarchs (13%); non-governmental organizations and the conflict with Russia (6%); the positive influence of the USA (5%) and the EU (4%) into the economy of the country.

The business environment security in Ukraine and the countries-leaders of the groups in 2016 (Figure 2) indicates that Ukraine occupies the lowest level in terms of all components. In particular, the tax system has an important influence on enterprises activity in

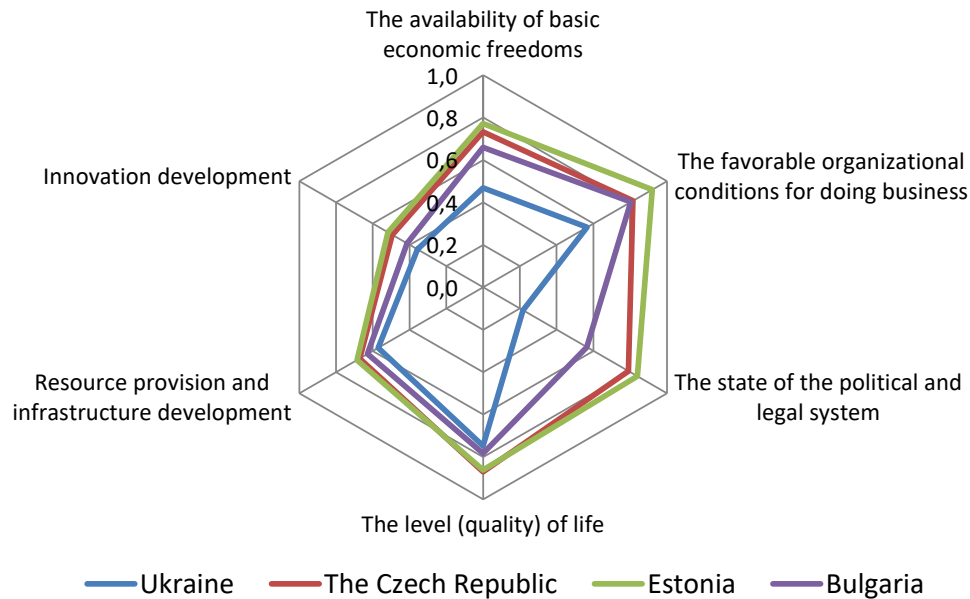
Ukraine. The average Ukrainian enterprise pays over 28 tax types per year. Over 490 hours are spent on filling documents and making payments per year.

The main negative indicators that influenced the low level of business environment security in Ukraine are: the index of financial freedom; good faith of the authorities, investment freedom; judicial effectiveness. The comparison of Ukraine’s regulatory effectiveness with the countries of Eastern Europe shows indicators with certain differences:

**Table 2.** Integral indicator of business environment security

Source: developed by the authors on the basis of the World Bank, of the State Statistics Service of Ukraine

| Country                           | Year  |       |       |       |       |       |       |
|-----------------------------------|-------|-------|-------|-------|-------|-------|-------|
|                                   | 2010  | 2011  | 2012  | 2013  | 2014  | 2015  | 2016  |
| Ukraine                           | 0.503 | 0.503 | 0.495 | 0.500 | 0.538 | 0.553 | 0.584 |
| <b>The Baltic countries</b>       |       |       |       |       |       |       |       |
| Estonia                           | 1.441 | 1.495 | 1.458 | 1.466 | 1.495 | 1.530 | 1.537 |
| Latvia                            | 1.196 | 1.215 | 1.239 | 1.280 | 1.277 | 1.276 | 1.286 |
| Lithuania                         | 1.252 | 1.279 | 1.283 | 1.256 | 1.344 | 1.350 | 1.368 |
| <b>The Visegrad Group</b>         |       |       |       |       |       |       |       |
| The Czech Republic                | 1.201 | 1.265 | 1.243 | 1.238 | 1.226 | 1.369 | 1.389 |
| Slovakia                          | 1.196 | 1.198 | 1.160 | 1.191 | 1.154 | 1.204 | 1.227 |
| Poland                            | 1.080 | 1.104 | 1.136 | 1.165 | 1.225 | 1.268 | 1.280 |
| Hungary                           | 1.178 | 1.193 | 1.159 | 1.214 | 1.128 | 1.117 | 1.140 |
| <b>Black Sea region countries</b> |       |       |       |       |       |       |       |
| Romania                           | 0.968 | 1.017 | 0.950 | 0.945 | 0.953 | 1.052 | 1.078 |
| Bulgaria                          | 1.002 | 0.998 | 0.983 | 0.963 | 1.000 | 1.060 | 1.061 |
| Turkey                            | 0.777 | 0.810 | 0.886 | 0.885 | 0.913 | 0.888 | 0.863 |



**Figure 2.** Business environment security in Ukraine and the countries-leaders of groups in 2016

- Freedom of business: in Ukraine it was 56.8 points, whereas in Lithuania – 80; Hungary – 70.6; Poland – 68.7 points. The lag of Ukraine was 23.20 points compared with Lithuania.
- Freedom of the labor market: in Ukraine – 47.9 points; Hungary – 63.8; Poland – 58; Lithuania – 60.0. The lag of Ukraine was 15.90 points compared with Hungary.
- Monetary freedom: Ukraine – 66.9 points; Hungary – 88.3 points; Poland – 85.2 points. The lag of Ukraine was 21.40 points compared with Hungary.

The main factors influenced this result are significant losses in Ukraine's production and exports and a significant outflow of capital, which has exacerbated pressure on the currency and reserves. Also ineffectiveness of the legislative framework significantly influenced the result of Ukraine's index of economic freedom.

Based on the research, it is necessary to propose urgent implementation of structural reforms in order to reduce the level of corruption and to open the economy of the country for foreign investments.

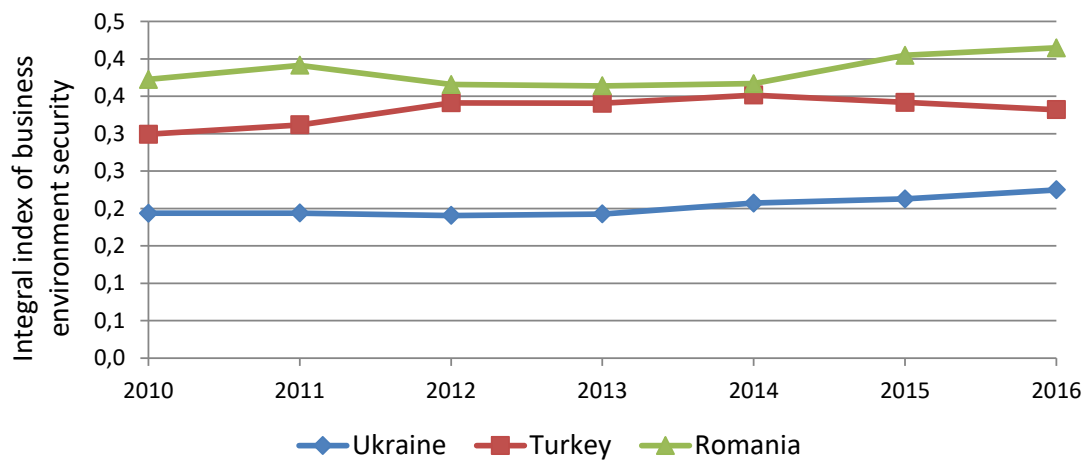
During the past years, Ukraine shows the lowest level of economic freedom in Europe. One of

the factors is a lack of investment freedom, which negatively affects productivity, including such an important industry as agriculture. A lack of modernization in the agricultural sector has led to Ukraine's losses in its long-term position as a leader in agriculture in Europe.

Among the main risks for Ukrainian business environment it is necessary to mention an unstable global macroeconomic situation in the world, a decrease of prices for main Ukrainian export goods, a decrease of trade relationships with Russia, a war in Donbass and reforms without achievements of expected results. However, there are also positive factors that can greatly influence the business environment security – opening the free trade zone with the European Union, as well as possible investments from China into the Ukrainian agricultural sector of economy.

The current research also allowed to determine so-called “countries-outsiders” (Turkey and Romania) among studied groups which have stable tendency of the lowest integral indexes of business environment security (Figure 3).

The business environment security in Ukraine and “countries-outsiders” in 2016 (Figure 4) confirms that the level of quality of life, the development of innovations and resource provision is practically



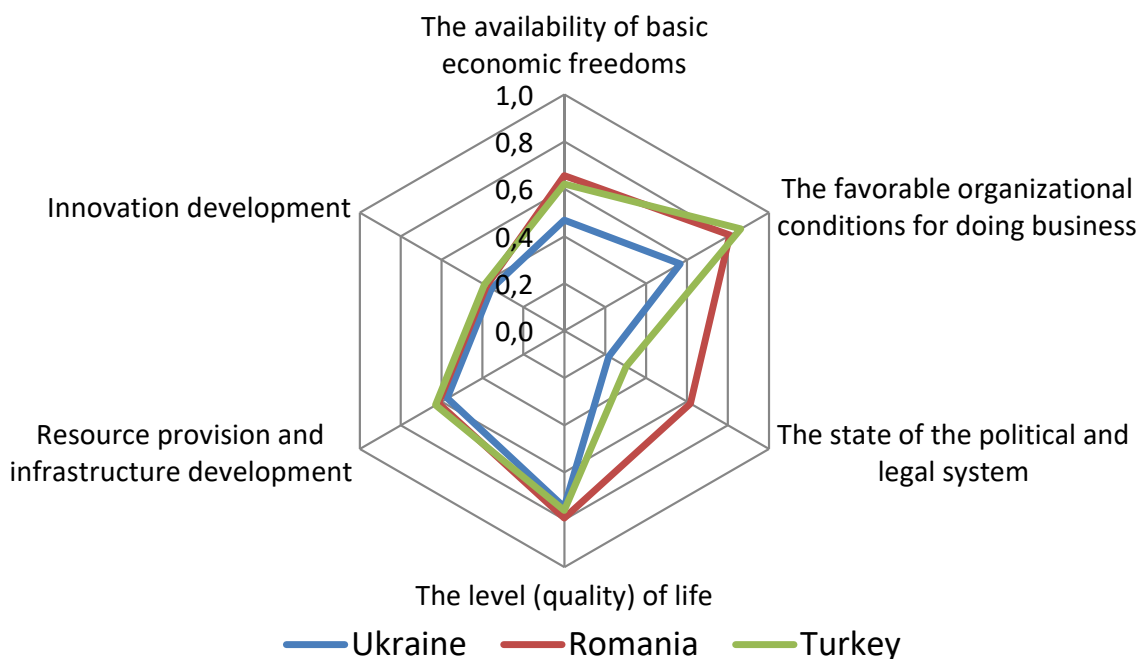
**Figure 3.** Dynamic of the integral indicator of business environment security in Ukraine and “countries-outsiders”

the same, although by indicators of availability of basic economic freedoms, the favorable organizational conditions for doing business and the state of political-legal system Ukraine is far behind Turkey and Romania.

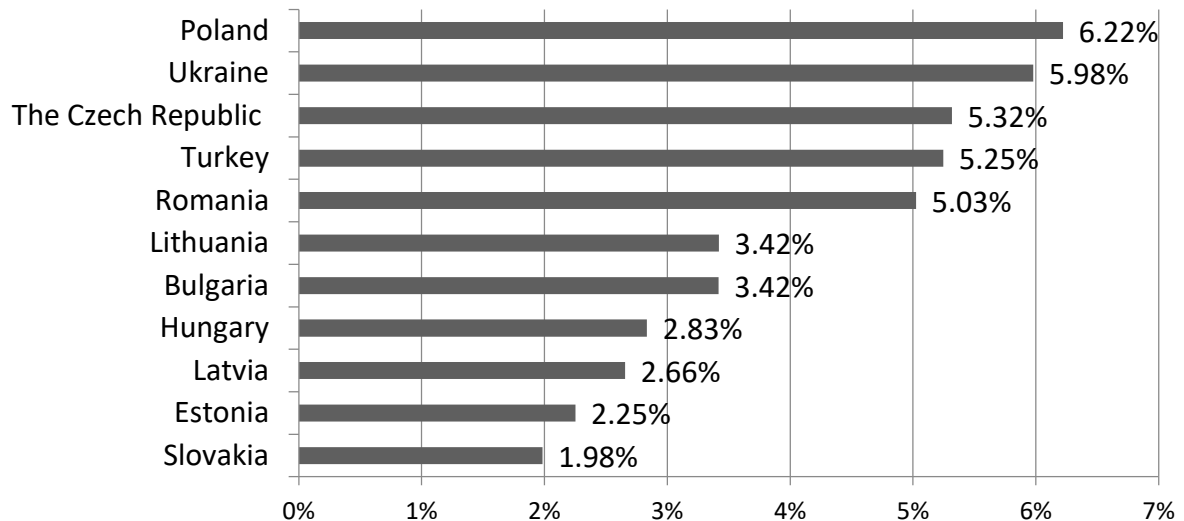
The negative factors of Ukrainian business environment security should be supplemented with problems in the fight against corruption, weak ju-

dicial system, political instability, obsolete norms of the Labor Code, significant government influence to prices through state-owned companies.

One of the important characteristics of business environment security in the country is stability of its level, which is possible to be characterized by the coefficient of variation of the integral security index (Figure 5).



**Figure 4.** Business environment security in Ukraine and “countries-outsiders” in 2016



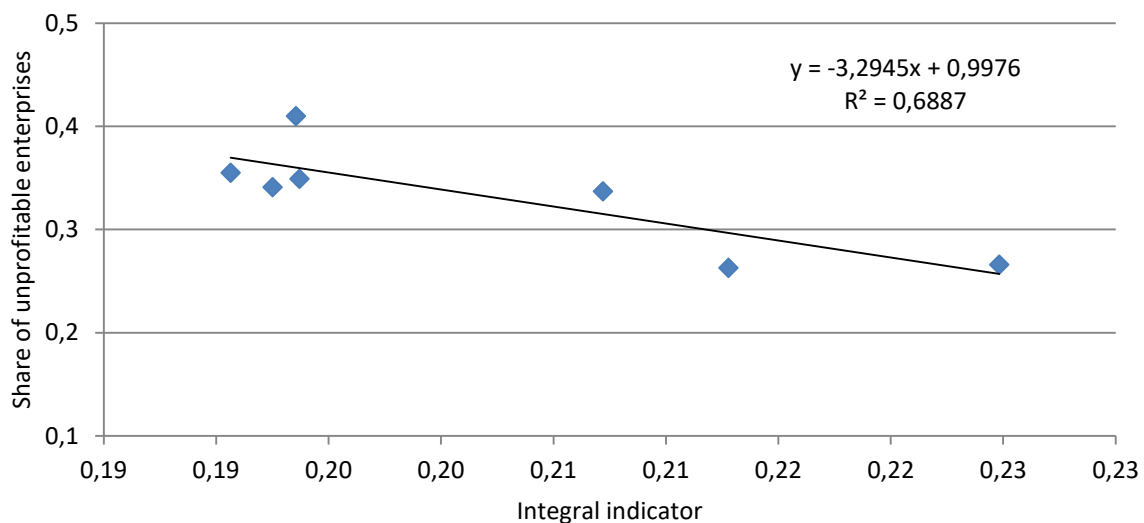
**Figure 5.** Stability of the level of business environment security, %

According to this characteristic, Ukraine does not have the last position in the group of comparable countries. Despite of the complex socio-political processes in Ukraine the stability of level of business environment security is the same as in Poland and the Czech Republic.

largely determined by the presence of natural resource factors, in modern conditions it is mostly determined by technological and institutional factors – the level of technology, scientific intellectual potential, the level of education, infrastructure development and the economic policy of the state.

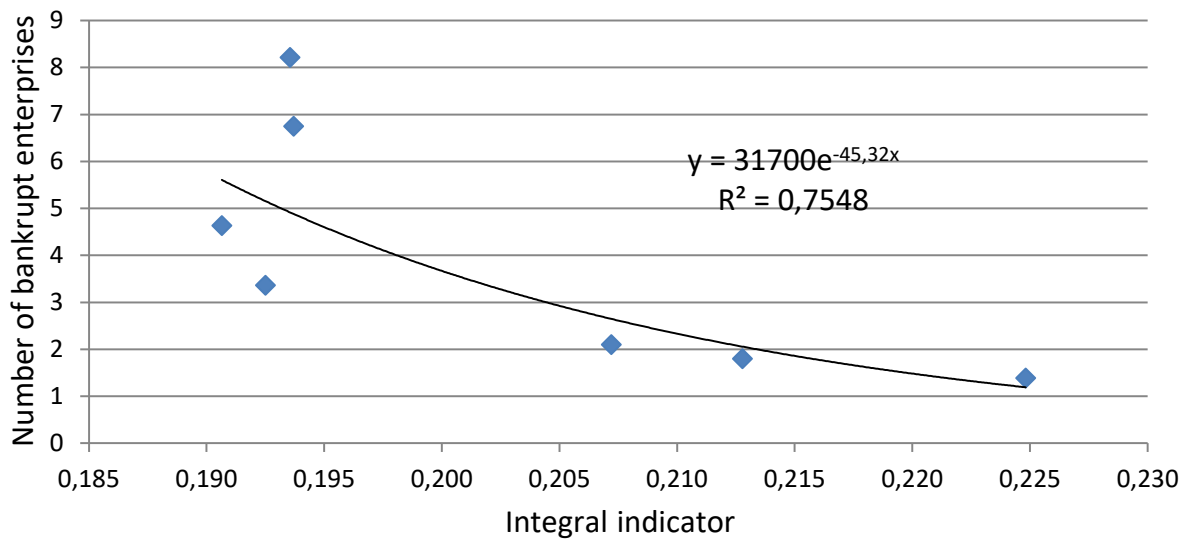
Ukraine’s choice of the European integration vector of development and the course on radical economic reforms confirms the intention of the country to increase the degree of integration into the global economy and the level of its international competitiveness, which will give the opportunity to provide dynamic economic growth and high level of welfare in the long term. Indeed, if the country’s international competitiveness was

According to experts’ estimates, the most problematic factors for doing business in Ukraine are (in order of decreasing): corruption, complicated access to finance, inflation, political instability, high tax rates, state bureaucracy, complexity of tax legislation, currency market regulation, restrictive regulation of the labor market, inadequate capacity for innovation, inadequate infrastructure quality, crime, poor quality of health care.



**Figure 6.** Relationship between the level of business environment security and the share of unprofitable enterprises in Ukraine





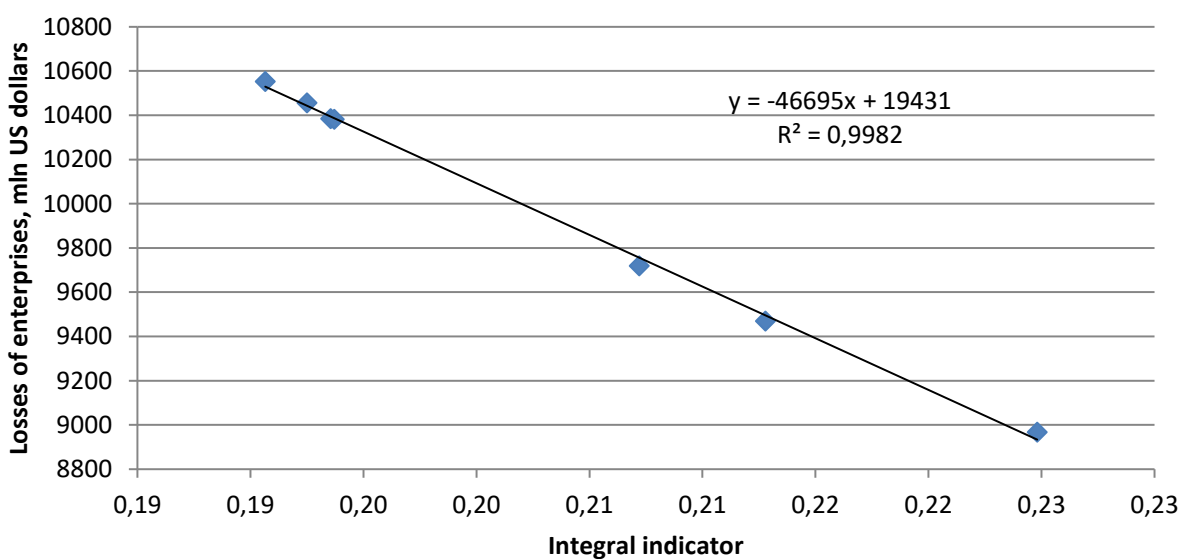
**Figure 7.** Relationship between the level of business environment security and the number of bankrupt enterprises in Ukraine

Implementation of integral assessment to business environment security allowed revealing the relationship between the level of security and the share of unprofitable enterprises (Figure 6); the relationship between the level of business environment security and the number of bankrupt enterprises (Figure 7).

The model indicates that if business environment is secure, the share of unprofitable enterprises is lower.

The model shows that if business environment is secure, the number of bankrupt enterprises is lower, as well as the increasing of environmental security leads to decreasing the number of bankruptcies exponentially.

Figure 8 shows relationship between the level of business environment security and the volume of enterprise losses: improving the business environment security is accompanied by reduction in the volume of enterprise losses.



**Figure 8.** Relationship between the level of business environment security and the volume of enterprise losses

## CONCLUSION

In current economic conditions of transitional processes in the world and national economies, great attention should be paid to evaluation of business environment security. Concepts of enterprise economic security and business environment security are relatively new in investigations of national and foreign scientists. As for Ukrainian researches, they are mainly focused on the internal factors which determine business security of enterprise. Recent research results of foreign scientists are devoted to the analysis of business environment security from the sustainable development point of view.

We have identified the business environment security as a security of external environment to the enterprise, which is formed under the influence of norms, rules and actions of all economic subjects at national and international levels. According to our investigations, we have determined the necessity of taking into account the complex of external factors which influence business environment security.

In order to ensure the assessment of level of entrepreneurial economic security, it is proposed an integrated index of business environment security. The integral indicator for assessing business environment security is based on 6 indexes. They are the most significant elements of the business environment formation: the availability of basic economic freedoms, the favorable organizational conditions for doing business, the state of political and legal system, the level (quality) of life, resource provision and infrastructure development, innovation development. The conclusion about the level of entrepreneurial security can be based on several directions using the integral indicator:

- comparison of the integral indicator of different countries;
- comparison of dynamic of the integral indicator in a certain country to identify factors which determine the dynamic of business environment security;
- determination of the adequacy of the proposed indicator by identifying the functional dependence between the results of calculations by the model and the share of unprofitable and bankrupt enterprises.

In order to verify validity of integral index, some data of the number of unprofitable and bankrupt enterprises in Ukraine were used. The research result has shown the inverse relation between them: if business environment is secure the number of unprofitable and bankrupt enterprises is lower.

The proposed integral index was used to conduct research based on data of Ukraine, the Baltic countries, the Visegrad Group and Black Sea region countries. According to our research, Ukraine has the lowest level of business environment security (0.584 in 2016) among all investigated countries. Ukraine also was compared to so called countries-leaders and countries-outsiders of investigated groups of countries and it is far behind Turkey and Romania (countries-outsiders) by indicators of availability of basic economic freedoms, the favorable organizational conditions for doing business and the state of political-legal system.

The factors hindering the formation of business environment security in Ukraine are long-term business registration; insolvency problem; obtaining a building permit; connection to power supply systems; international trade; taxation; enforcement of contracts; protection of minority investors.

The advantages of the proposed model are its visibility, simplicity and availability of data for calculation, as well as for checking the adequacy of the model to existing trends in the national economy.

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