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INFLUENCE EXTERNAL AND INTERNAL FACTORS TO FINANCIAL SECURITY OF ENTERPRISE

Abstract. Macroeconomic indicators of economic development undoubtedly affect the development of the industry. For a quantitative analysis of the impact of external macroeconomic factors on the development of agriculture built regression equation. Independent variables chosen main macroeconomic indicators of economic development, dependent variables selected volume of industrial products.

For the evaluation and forecasting system of financial security used econometric methods, due to the stochastic nature of the factors of the enterprise and its threats to financial security. Application of methods of correlation–regression analysis makes it possible to evaluate the impact of changing market conditions on the level of financial security, to analyze causal relationships between indicators of financial security, to assess the strength and direction of these relationships, consider several possible futures of the economic system.

Research interdependence of external and internal factors of financial security company showed that on financial security of the enterprise impact indicators such as the consumer price index; index growth of public debt; index of growth the original value of fixed assets in Ukraine. Three–dimensional surface of the regression allows to analyze the causal relationships between the studied indicators, to assess the strength and direction of these relationships, consider possible options for the future of financial security.

Keywords. financial security, external factors, internal factors, enterprises, macroeconomic indicators

JEL classification: E20, E23, G38

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ВПЛИВ ЗОВНІШНІХ ТА ВНУТРІШНІХ ФАКТОРІВ НА ФІНАНСОВУ БЕЗПЕКУ ПІДПРИЄМСТВА

Анотація. Досліджено взаємозалежність зовнішніх та внутрішніх факторів фінансової безпеки підприємства. Доведено, що на фінансову безпеку підприємств впливають індекс споживчих цін; індекс росту державного боргу; індекс росту первісної вартості основних

засобів України. Побудована тривимірна поверхня регресії дозволяє провести аналіз причинно–наслідкових зв’язків між досліджуваними індикаторами, оцінити силу та напрям цих взаємозв’язків, розглянути можливі варіанти майбутнього рівня фінансової безпеки.

Ключові слова. фінансова безпека, зовнішні фактори, внутрішні фактори, підприємство, макроекономічні показники
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ВЛИЯНИЕ ВНЕШНИХ И ВНУТРЕННИХ ФАКТОРОВ НА ФИНАНСОВУЮ БЕЗОПАСНОСТЬ ПРЕДПРИЯТИЯ

Аннотация. Исследована взаимосвязь внешних и внутренних факторов на финансовую безопасность предприятия. Доказано, что на финансовую безопасность предприятий влияют индекс потребительских цен; индекс роста государственного долга; индекс роста первоначальной стоимости основных средств Украины. Построена трехмерная поверхность регрессии, которая позволяет провести анализ причинно–следственных связей между исследуемыми факторами, оценить силу и направление этих взаимосвязей, рассмотреть возможные варианты будущего уровня финансовой безопасности.

Ключевые слова. финансовая безопасность, внешние факторы, внутренние факторы, предприятие, макроекономические показатели
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Introduction. Financial security of enterprise is an important component of financial security of the country and maintain its sustainable level becomes meaningful for the further economic development of Ukraine. The financial security system of business entities must combined heritage of modern economics and work permanently but not on the fact the crisis. One of the solutions to these and other problems is the evaluation, forecasting and strategy to ensure the financial security business entities. That is, warning of the crisis, reducing the risk of bankruptcy will provide its own effective activity.

Brief Literature Review. Theoretical research in the area of financial security of the state industry and of enterprise engaged scientists such as G.M. Azarenkova [1], O.I. Baranowski [2], K.V. Orekhova[6] O.M. Bilomistnyy [3], K.S. Goryacheva [4], T.V. Klimenko [5], and others.

Setting objectives. Aim of the article is the evaluation impact of external and internal factors on the financial security of enterprise.

Results. Financial Security Studies in recent years have gained independence and isolation from the concept of economic security, which until recently was identification. However, many scientific studies it focuses on the notion of financial safety of the territory (state or region), while as a fundamentally important issue is the study of theoretical and methodological foundations of financial safety field.

It should be noted that the national literature paid insufficient attention to the financial security of enterprise as a management object, but exactly the mechanism of providing Financial Security able to limit and prevent the financial crisis and small imbalances using self–adjustability system before they give rise to any irreparable consequences [5, с. 247].

Under financial safety of enterprise we suggest to understand balanced state of a stable enterprise development, which characterized the result of management decisions aimed at the protection of real and potential threats external and internal character, and ensuring efficient use of financial resources and increasing business value.

To ensure effective management of financial security of enterprise appropriate use the resource–functional method evaluation of financial security that allows us not only to measure the parameters of financial stability and independence, but also through instruments of economic and mathematical modeling – to develop mechanisms for improving the economic system through indirect research object knowledge [4, c. 291].

For the increase of financial security of the business entity most expedient is the use of model of estimation and prognostication of external and internal threats of environment. Under prognostication of Financial Security threats understand continuous monitoring of indicators of external and internal environment. For this purpose we suggest to use the model of identification and assessment of threats financial security represented on rice 1.

The system of internal and external threats is dynamic. Therefore at determination of descriptions of threats of enterprise it follows to go out from possibility of quantitative estimation of indexes. During the management of financial security most appropriate direction problem solving is the prediction of the external and internal environment.

Macroeconomic indicators of economic development undoubtedly affect the development of the agricultural sector. For the mathematical expression of this effect we propose to use the regression equation, because any economic process, especially if it can be fully expressed through quantitative characteristics, are often subjected to mathematical modeling and forecasting.

The first phase evaluated the impact of volume of industrial products (works, services) of various industries (independent variables) on volume of industrial products of agriculture (dependent variable).

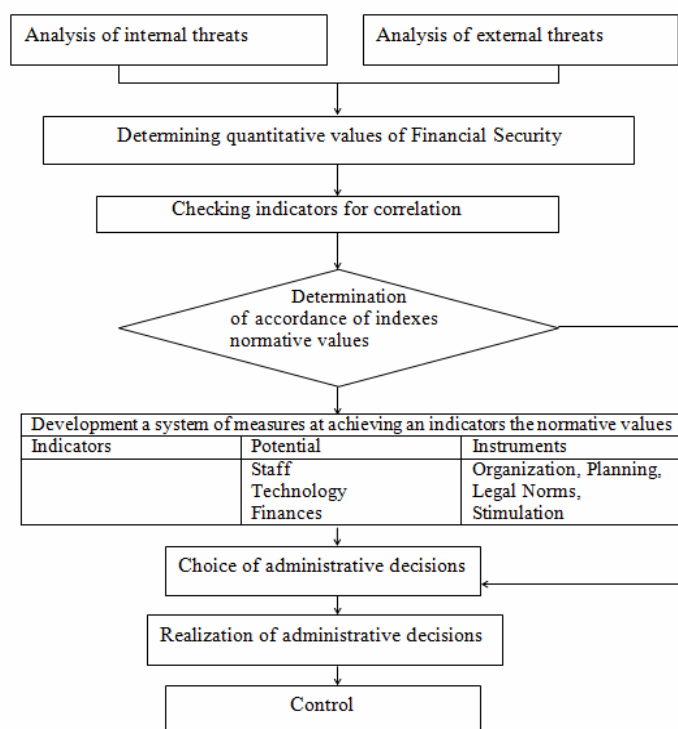


Figure 1. – The model of identification and assessment of threats financial security

For evaluation density of communication between the Y and the selected indicators for research analyzed rates of pair correlation and investigated factors for multicollinearity.

Using data analysis in EXCEL analyzed the impact of volume of industrial products (works, services) of various industries on the volume of industrial products (works, services) of agriculture from 2002 to 2013. Regression equation is:

$$Y = 41281,7 + 1,4893X2 - 1,7129X7 + 3,5862X13 \quad (1)$$

Where X2 – mining industry and development of quarries

X7 – production of coke and oil refining

H13 – manufacture of electrical equipment

The biggest impact on agriculture has production of electrical equipment, because if the volume of sales of electrical equipment will grow by 1 mln. UAH, the volume of industrial products (works, services) of agriculture will increase by 3,5862. UAH. According to regression equation, production of coke and oil refining has a negative impact on agriculture, because increasing the volume of sales by 1 million. UAH the volume of industrial products (works, services) of agriculture will be reduced on 1,7129. UAH. The smallest and positive impact on agriculture has the mining industry and development of quarries, including the extraction of minerals that occur naturally in the form of solid rocks (coal and ore) in liquid (oil) and gaseous (natural gas). If the volume of sales of mining industry and development of quarries will grow by 1 mln. UAH, the volume of industrial products (works, services) of agriculture will increase by 1,489,300. UAH.

The value of the coefficient of multiple correlation is 99.63%. This indicates that 99.63% variability of Y explained by the dynamics factors included in the regression model. The coefficient of determinacii shows that the factors plugged in a model are on 99.26 % determine the level of the probed index, and only a 0,74% dynamics of Y – explained influence of factors which are not taken into account in a model.

The got model (2.) is adequate and it can be used for prognostication of the financial state on a next year. Fig. 2 reviews constructed three–dimensional surface model (1), depending on the changes of the development of industries allows to determine level of developed agriculture, to analyze causal relationships between indicators, to assess the strength and direction of these relationships, consider several options the future of the economic system.

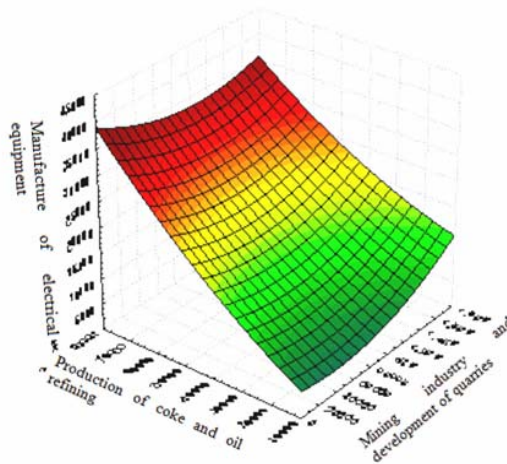


Figure 2. Three–dimensional model Review

Macroeconomic indicators of economic development undoubtedly affect the development of the industry. For a quantitative analysis of the impact of external macroeconomic factors on the development of agriculture built regression equation. Independent variables chosen main macroeconomic indicators of economic development, dependent variables selected volume of industrial products (works, services) of agriculture from 2002 to 2013.

For evaluation density of communication between the Y and the selected indicators for research analyzed rates of pair correlation and investigated factors for multicollinearity.

With data analysis in EXCEL constructed regression equation (2), which is:

$$Y = 35719,61 + 0,185694 X9 + 0,020771 X11 \quad (2)$$

Where X9 – capital investment;

X11 – the cost of fixed assets.

Based on equation (2), the regression coefficient of capital investment is much greater than the regression coefficient of fixed assets, but on the volume of industrial production of agriculture has a significant impact value of fixed assets. This is due to the fact that the actual value of fixed assets over the period exceeds the capital investment.

The value of the coefficient of multiple correlation is 98.73%. This indicates that 98.73% variability of Y explained by the dynamics factors included in the regression model. The coefficient of determinacii shows that the factors plugged in a model are on 97.48 % determine the level of the probed index, and only a 2,52% dynamics of Y – explained influence of factors which are not taken into account in a model.

The got model (2) is adequate and it can be used for prognostication of the financial state on a next year.

Undoubtedly macroeconomic processes of economic development affect the development of the company. For a quantitative analysis of the impact of major macroeconomic indicators of economic development on the volume of industrial products (works, services) of the agricultural sector has been chosen Agricultural limited liability "Nadiya" (LLC "Nadiya").

To build economic and mathematical model as the dependent variable use coefficient of independence LLC "Nadiya" because this indicator is most fully characterizes the state of financial security. As independent variables chosen various macroeconomic factors such as: X1 – the consumer price index; X2 – the unemployment rate; X3 – index of population growth; X4 – an index of urban population growth; X5 – index of growth of the rural population; X6 – the index of growth of gross domestic product; X7 – index growth of public debt; X8 – index of growth of the gross external debt; X9 – the index of growth of the money supply; X10 – the index of export growth; X11 – index of growth the original value of fixed assets in Ukraine.

For evaluation density of communication between the Y and the selected indicators for research analyzed rates of pair correlation and investigated factors for multicollinearity

Table 1

Correlation matrix of influence macroeconomic indicators of the economy by a coefficient of independence LLC "Nadiya".

	Y	X1	X2	X3	X4	X5	X6	X7	X8	X9	X10	X11
Y	1,00											
X1	-0,81	1,00										
X2	-0,01	0,42	1,00									
X3	0,02	0,10	0,41	1,00								
X4	-0,14	0,17	0,63	0,90	1,00							
X5	0,31	0,54	0,25	0,56	0,14	1,00						
X6	-0,03	0,48	0,48	0,39	0,14	0,62	1,00					
X7	0,46	0,28	0,38	0,36	0,32	0,22	0,09	1,00				
X8	0,17	0,29	0,62	0,22	0,05	0,58	0,57	0,27	1,00			
X9	0,29	0,05	0,16	0,67	0,52	0,51	0,71	0,01	0,40	1,00		
X10	0,08	0,24	0,17	0,41	0,34	0,29	0,84	0,18	0,30	0,63	1,00	
X11	-0,55	0,51	0,39	0,37	0,43	0,01	0,20	0,28	0,07	-0,18	0,25	1,00

Consequently, on financial security of LLC "Nadiya" impact indicators such as: X1 – the consumer price index; X7 – index growth of public debt; X11 – index of growth the original value of fixed assets in Ukraine.

The lowest impact have indicators such as: X2 – the unemployment rate; X3 – index of population growth; X4 – an index of urban population growth; X5 – index of growth of the rural population; X6 – the index of growth of gross domestic product; X8 – index of growth of the gross external debt; X9 – the index of growth of the money supply; X10 – the index of export growth.

With data analysis in EXCEL analyzed influence of macroeconomic indicators of the economy by a coefficient of independence LLC "Nadiya" from 2002 to 2013. Regression equation is:

$$Y = 1,331581 - 0,004689 X1 + 0,190155 X7 - 0,169605 X11 \quad (3)$$

This suggests that if the consumer price index will increase by 1 unit, the coefficient of independence reduced by 0.004689 units, if the index growth of public debt will increase by 1 unit, the coefficient of independence will increase by 0.190155 units, if the index of growth the original value of fixed assets in Ukraine will increase by 1 unit, the coefficient of independence reduced by 0.169605 units.

The value of the coefficient of multiple correlation is 91.18%. This indicates that 91.18% variability of Y explained by the dynamics factors included in the regression model. The coefficient of determinacii shows that the factors plugged in a model are on 83,14 % determine the level of the probed index, and only a 16,86% dynamics of Y – explained influence of factors which are not taken into account in a model.

The got model (3) is adequate and it can be used for prognostication of the financial state on a next year.

Anticipating threats according to this model for LLC "Nadiya" we can define such external threats that have a strong impact now and can cause a decrease of financial security in the future. These threats include: the sharp increase in the consumer price index (that if the consumer price index will increase by 1 unit, the coefficient of independence reduced by 0.004689 units), reducing public debt growth index (if the index growth of public debt will increase by 1 unit, the coefficient of independence will increase by 0.190155 units, that these funds will increase financing the agricultural sector) and a sharp increase in initial cost of fixed assets Ukraine (if the index of growth the original value of fixed assets in Ukraine will increase by 1 unit, the coefficient of independence reduced by 0.169605 units).

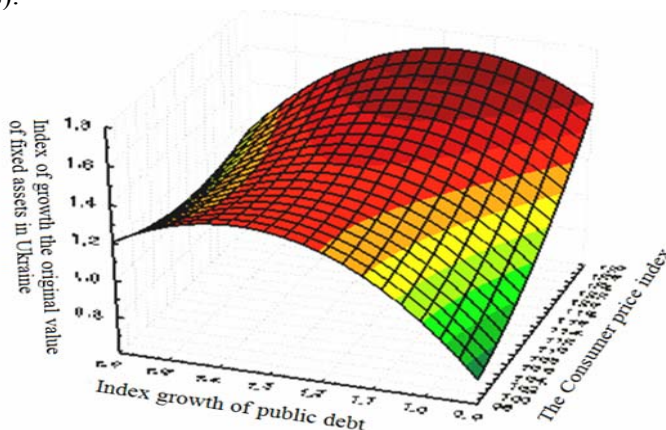


Figure 3. Three-dimensional model Review

On the figure 3 the three-dimensional surface of review of interdependence of model (3) indexes is built, depending on the change of macroeconomic indexes of development of economy, allows to estimate the level of financial security to analyze the causal relationships between

indicators, to assess the strength and direction of these relationships, consider several possible options for the future of the economic system.

Thus, for the evaluation and forecasting system of financial security should be used econometric methods, due to the stochastic nature of the factors of the enterprise and its threats to financial security. Application of methods of correlation–regression analysis makes it possible to evaluate the impact of changing market conditions on the level of financial security, to analyze causal relationships between indicators of financial security, to assess the strength and direction of these relationships, consider several possible futures of the economic system.

Conclusions. Research interdependence of external and internal factors of financial security company showed that on financial security of LLC "Nadiya" impact indicators such as the consumer price index; index growth of public debt; index of growth the original value of fixed assets in Ukraine. Three–dimensional surface of the regression allows to analyze the causal relationships between the studied indicators, to assess the strength and direction of these relationships, consider possible options for the future of financial security. Further studies will be used to justify the choice of strategy to improve financial security.

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