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COINTEGRATION EVALUATION TOOLS FOR ENTERPRISES STRATEGIC DEVELOPMENT SYSTEM UPGRADING

Abstract. The paper proposes tools for improving the strategic management system for assessing the processes dynamics and the level of their intensity and non-stationarity by local resource components of industrial enterprise as indicators of organizational and economic development and forecasting its change, as well as determining the structure of the strategic management system of enterprise development with emphasis on its resource communication component that will improve the efficiency of information exchange in the management process in the current context of increased importance of information resources as important elements that provide business entities competitive advantages. In this paper, the complex of models of research of development dynamics of enterprise activity spheres is built, which unlike the existing ones takes into account the non-stationary character of the behavior of these processes. This complex is based on the methods of multidimensional analysis, econometric modeling, decision-making. This complex contains the following steps: formation of the information sets of the company's indicators in the main activity spheres; research of development dynamics of enterprise activity spheres on the basis of building of local and complex integral indicator of enterprise development level; simulation of non-stationarity dynamics of activity spheres on the bases of building and analysis of ECM&VAR-models — cointegration and vector autoregressive models; simulation of the enterprise development priorities on the bases of ECM&VAR-models analysis. For improvement of the strategic development management system, a conceptual scheme of the interconnection of processes, tasks, and models was developed, which provides the solution of the following main tasks: factor study of development trends, study of the internal environment and potential for key business factors and its development dynamics and implementation of adequate management decisions for increasing systems activity effectiveness as a whole.

Keywords: cointegration evaluation, effectiveness, enterprise, management, models, strategic development system, tools

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ІНСТРУМЕНТАРІЙ КОІНТЕГРАЦІЙНОГО АНАЛІЗУ В УДОСКОНАЛЕННІ СИСТЕМИ СТРАТЕГІЧНОГО РОЗВИТКУ ПІДПРИЄМСТВ

Анотація. Запропоновано інструментарій удосконалення системи стратегічного управління щодо оцінювання динаміки процесів і рівня їхньої інтенсивності, нестационарності за локальними ресурсними складовими промислового підприємства як індикаторів організаційно-економічного розвитку та прогнозування його зміни, а також визначення структури системи стратегічного управління розвитком підприємства з акцентуванням на її ресурсній та комунікаційній складових, що дозволить підвищити ефективність інформаційного обміну в процесі управління підприємством у сучасних умовах підвищеної значущості інформаційних ресурсів як важливих елементів, що забезпечують конкурентні переваги суб'єктів господарювання. Побудовано комплекс моделей дослідження динаміки розвитку сфер життєдіяльності підприємства, який, на відміну від наявних, ураховує нестационарний характер поведінки таких процесів. Цей комплекс заснований на використанні методів багатомірного аналізу, економетричного моделювання, ухвалення рішень і містить такі етапи: формування інформаційного простору показників ефективності діяльності підприємства за основними сферами життєдіяльності; дослідження динаміки розвитку сфер життєдіяльності підприємства на основі побудови локальних і комплексного інтегральних показників рівня розвитку підприємства; моделювання нестационарної динаміки сфер життєдіяльності на основі ЕСМ- і VaR-моделей; моделювання пріоритетів розвитку підприємства на основі результатів ЕСМ- і VaR-моделей. Для удосконалення системи управління стратегічним розвитком розроблено концептуальну схему взаємозв'язку процесів та інструментів, яка забезпечує вирішення таких основних завдань: факторне дослідження тенденцій розвитку, дослідження внутрішнього середовища і потенціалу за ключовими факторами бізнесу і динамікою його розвитку, довгострокової і короткострокової взаємодії основних компонент системи та розроблення адекватних управлінських рішень для підвищення ефективності діяльності досліджуваних систем у цілому.

Ключові слова: коінтеграційний аналіз, ефективність, підприємство, управління, моделі, система стратегічного управління, інструментарій.

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ИНСТРУМЕНТАРИЙ КОИНТЕГРАЦИОННОГО АНАЛИЗА В СОВЕРШЕНСТВОВАНИИ СИСТЕМЫ СТРАТЕГИЧЕСКОГО РАЗВИТИЯ ПРЕДПРИЯТИЙ

Аннотация. Предложен инструментарий усовершенствования системы стратегического управления для оценки динамики процессов, уровня их интенсивности и нестационарности по локальным ресурсным составляющими промышленного предприятия. Построен комплекс моделей исследования динамики развития сфер жизнедеятельности предприятия, который, в отличие от существующих, учитывает нестационарный характер процессов. Данный комплекс основан на использовании методов многомерного анализа, эконометрического моделирования, принятия решений и содержит следующие этапы: формирование информационного пространства показателей жизнедеятельности предприятия; исследование динамики развития сфер жизнедеятельности предприятия на основе построения локальных и комплексного интегрального показателя уровня развития предприятия; моделирование нестационарной динамики сфер жизнедеятельности на основе построения и анализа ЕСМ- и VaR-моделей; моделирование приоритетов развития предприятия. Для усовершенствования системы управления стратегическим развитием разработана концептуальная схема взаимосвязи процессов и инструментов, которая обеспечивает разработку адекватных управленческих решений для повышения эффективности деятельности исследуемых систем в целом.

Ключевые слова: коинтеграционный анализ, эффективность, предприятие, управление, модели, система стратегического управления, инструментарий.

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Introduction. Ukraine's transformational economy is characterized by environment instability and uncertainty, which affects the results of all elements of the country's economy. Therefore, the question of raising the level of managerial decisions, especially strategic ones, which are made in business-production structures of different mission and hierarchy levels, is urgent. This issue is especially urgent for the current Ukrainian economy, which is characterized by long-lasting transformations of the economy sectoral structure, redistribution of property and capital, political conflicts, a significant influence of world financial and economic processes [2; 15].

Due to the instability of environmental conditions and the emergence of extreme conditions of Ukraine business-production structures functioning, it becomes necessary to determine their ability to survive and counteract the negative impacts that threaten of enterprise resource potential destruction, increase the risks and losses during the implementation of management decisions, and so threat to stable and economically safe enterprises operation and development [7; 12]. That is why it is necessary to create an effective and flexible system of strategic development management, the primary task of which is to assess and analyze the development potential (external and internal environment) and to forecast development scenarios in the face of threats [18; 19].

One of the most important means of this problem solution is the implementation of such management type that would largely contain preventive proactive component that would clearly identify strategic alternatives of development in the context of the system's existing potential, which makes possible to prevent or localize crisis phenomena in the activities of enterprises and structures in time [5]. As part of this, problems of modeling strategic alternatives for enterprise development and management have arisen as a tool for achieving more effective management decisions, which is especially relevant today. The dynamism and complexity of these processes require the use of modern management tools for adjustment both directions of current activity and improvement of strategic directions of development.

Analysis of research and problem statement. Nowadays, one of the primary tasks of management is justification, development, and implementation of such management decisions that will ensure not only the functioning but also the progressive development of production systems and business structures, which, first of all, must be directed to the complex solution of production and management problems of management as a single complex.

A lot of economists' papers are devoted to the research of the theory and practice of enterprise development management and complex hierarchical systems. Among the scientific researches in which the solution of this problem was considered, are papers of such Ukrainian scientists as V.A. Zabrodsky, Yu.B. Ivanov, M.O. Kizim, L.M. Malyarets, R.N. Lepa, T.S. Klebanova, V.S. Ponomarenko, O.I. Pushkar, O.V. Raevneva, O.M. Yastremskaya and papers of such foreign scientists as A. J. Strickland, A.A. Thompson and others [6; 7; 10; 12; 15; 17]. Their papers are distinguished by the spectrum of research of modern production problems, the essence of the transformations that take place in it, methods and various aspects of the formation of a mechanism for managing the development of complex hierarchical systems, business, and industrial structures. Existing methods and models of development processes strategic management have significant descriptive component, which is not sufficient basis for the formation of adequate management decisions for identification effective alternatives and development prospects in the face of threats, which will help to localize and prevent crisis problems development. Insufficient study of this process causes problems of its formalization. So, there is a need for the development of modern economic and mathematical models that have preventing properties and compensate for existing concepts disadvantages.

Research results. For improvement of the strategic development management system, a conceptual scheme of the interconnection of processes, tasks, and models was developed, which provides the solution of the following main tasks: factor study of development trends, study of the internal environment and potential for key business factors and its development dynamics for comparative spatial analysis, study of models of long-term basic interaction system components and the degree of their non-stationarity, formation, and implementation of complex development models of operational and strategic in conditions of incomplete information and risks and the implementation

of adequate management decisions for systems effectiveness increasing as a whole. In this paper, the complex of models of research of development dynamics of enterprise activity spheres is built, which unlike the existing ones takes into account the nonlinear character of the behavior of these processes. This complex is based on the methods of multidimensional analysis [6; 9; 11], econometric modeling [3; 4; 8], decision-making [5; 12; 19]. This complex of models is presented in Fig. 1. Let us consider the content of the tasks and models of each of the stages of the proposed complex of cointegration evaluation tools.

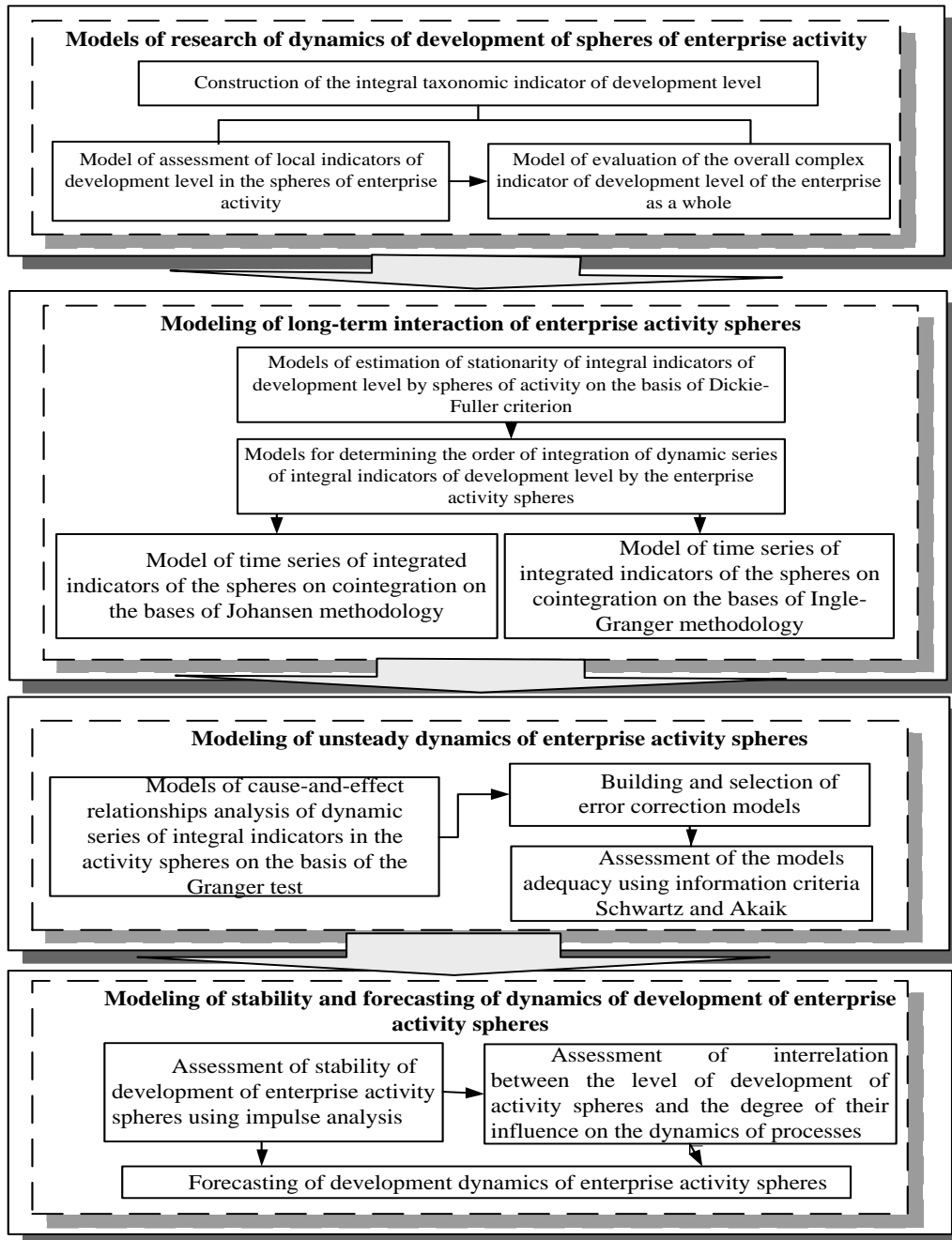


Fig. 1. The complex of cointegration evaluation tools for enterprises strategic development system upgrading

At the first stage of modeling the choice of the most significant indicators for assessing the enterprise activity effectiveness in the main areas of its activity (Finance, Production, Labor) is carried

out. Mathematical tools for solving the problems of this stage are the methods of factor and expert analysis, which make it possible to identify the most significant indicators in these areas. Thus, the result of this stage is the representative system of indicators of enterprise activity effectiveness, both for the study areas and the enterprise as a whole.

At the second stage of modeling, the enterprise development dynamics in the spheres of its life based on the analysis of integrated indicators of development level is investigated. For a building of integrated indicators, the reiting integrated method is used, which makes it possible to obtain a level quantitative assessment of enterprise development dynamics in the form of integral indicator, synthesizing influence of various factors [6; 9; 17]. The result of this stage is the formation of the system of local indicators (*I_FINANCE*, *I_PRODUCTION*, *I_LABOR*) and complex (general) indicator of enterprise activity effectiveness (*I_COMPLEX*). The implementation of this method was carried out on the initial data of the machine-building enterprise JSC "HARP" in the dynamics of nine years in the monthly context.

At the third stage modeling of non-stationary dynamics of spheres of activity based on construction and analysis of ECM&VAR-models [1; 3; 4] in Eviews [1; 21] is carried out. The choice of this mathematical tool for the research of nonlinear processes is due to the following features of these models [8; 16; 20]:

- is a convenient tool for short-and medium-term forecasting of individual time series;
- makes possible to identify the dynamic interrelation between the current and lag values of the studied indicator;
- is the apparatus of simultaneous modeling a lot of time series using dynamic equations system;
- makes possible to include and investigate the inverse interrelation between indicators and their lag values;
- makes possible to thoroughly describe and interpret the relationship between economic variables.

The algorithm of construction and analysis of ECM&VaR-models include the following steps: [3; 4; 8; 13].

1. Check of the dynamic series of initial indicators for stationarity on the basis of the Dickey — Fuller criterion.
2. Analysis of cause-and-effect relationships in time series based on Granger test.
3. The selection procedure and assessing the adequacy of ECM&VaR-models.
4. Impulse analysis and decomposition of variances.
5. Forecasting based on the constructed ECM&VaR-models.

For checking stationarity one of the most common tests is used (Dickey — Fuller test) or advanced Dickey — Fuller test (ADF-test) [4, 8, 13, 14]. The basis of this test is regression, which has the following form [4; 8]:

$$\Delta Y_t = a_0 + a_1 \cdot t + b \cdot Y_{t-1} + \sum_{i=1}^k c_i \Delta Y_{t-i} + \varepsilon_t, \quad (1)$$

where a_0, a_1, b, c_i — models parameters.

The Mckinnon — ADF — t -statistic is calculated by the formula [4; 8; 14]:

$$ADF\ t - statistic = \left| \frac{b}{S_e(b)} \right|, \quad (2)$$

where b — parameter; $S_e(b)$ — the standard deviation of the parameter.

The testing results of series at lags of delay in 1 month in Eviews [21] are given in *Tabl. 1*.

Table 1

**Results of testing of integrated indicators of the level of development
on stationarity according to Dickey — Fuller criterion**

Testing Equation, Range	<i>I_COMPLEX</i>	<i>I_FIN</i>	<i>I_PROD</i>	<i>I_LABOR</i>	Critical value
Lag time 1					
With intercept $\Delta Y_t = a_0 + b \cdot Y_{t-1}$	-3, 7607	-3, 5631	-2, 7859	-3, 7856	-3, 4928 -2, 8887 -2, 5811
With trend and intercept $\Delta Y_t = a_0 + a_1 \cdot t + b \cdot Y_{t-1}$	-3, 8178	-3, 4995	-2, 7367	-4, 0534	-4, 0468 -3, 4523 -3, 1514
Without intercept $\Delta Y_t = b \cdot Y_{t-1}$	-0, 2751	-0, 5001	0, 2059	-0, 9646	-2, 5852 -1, 9431 -1, 6173

The analysis of the calculated statistics confirm the hypothesis of the nonlinearity of the development of the studied processes. Analysis of the first differences of these time series confirms their stationarity.

The analysis of cause-and-effect interrelations of enterprise spheres of activity was carried out based on the Granger test [1; 8; 14]. According to the Granger test, two equations for different pairs of series are considered:

$$\begin{aligned} Y_t &= a_0 + a_1 y_{t-1} + a_2 y_{t-2} + \dots + a_L y_{t-L} + b_1 x_{t-1} + \dots + b_L x_{t-L} \\ X_t &= a_0 + a_1 x_{t-1} + a_2 x_{t-2} + \dots + a_L x_{t-L} + b_1 y_{t-1} + \dots + b_L y_{t-L} \end{aligned} \quad (3)$$

For the parameters b_1, b_2, \dots, b_L using the F — criterion is checked the hypothesis of equality to zero for each equation. The calculations of the Granger causality statistics for the enterprise activity spheres as a whole with different number of lags in Eviews [21] are given in *Tabl. 2*.

Table 2

Granger test for analysis of causal interrelations of integrated indicators

Null hypothesis	F-Fisher statistics	Probability	F-Fisher statistics	Probability
	Lag time 1		Lag time 12	
<i>I_COMPLEX</i> does not Granger Cause <i>I_FIN</i>	1, 72332	0, 19216	1, 63409	0, 10158
<i>I_FIN</i> does not Granger Cause <i>I_COMPLEX</i>	0, 67707	0, 41248	1, 04800	0, 41642
<i>I_PROD</i> does not Granger Cause <i>I_FIN</i>	5, 47625	0, 02119	2, 12441	0, 02565
<i>I_FIN</i> does not Granger Cause <i>I_PROD</i>	0, 93657	0, 33541	1, 03239	0, 42974
<i>I_LABOR</i> does not Granger Cause <i>I_FIN</i>	2, 80744	0, 09683	0, 31854	0, 98379
<i>I_FIN</i> does not Granger Cause <i>I_LABOR</i>	1, 97338	0, 16307	0, 82799	0, 62148
<i>I_PROD</i> does not Granger Cause <i>I_COMPLEX</i>	3, 23937	0, 07479	1, 43692	0, 16993
<i>I_COMPLEX</i> does not Granger Cause <i>I_PROD</i>	0, 61291	0, 43547	1, 03966	0, 42351
<i>I_LABOR</i> does not Granger Cause <i>I_COMPLEX</i>	3, 39351	0, 06830	0, 38763	0, 96384
<i>I_COMPLEX</i> does not Granger Cause <i>I_LABOR</i>	1, 54866	0, 21613	1, 85561	0, 05527
<i>I_LABOR</i> does not Granger Cause <i>I_PROD</i>	0, 11538	0, 73478	0, 35919	0, 97331
<i>I_PROD</i> does not Granger Cause <i>I_LABOR</i>	0, 00674	0, 93472	2, 00494	0, 03619

The analysis of this table makes possible to draw the following conclusions about the interaction and causality of the studied activity spheres in Eviews [21] (*Tabl. 3*).

Table 3

Granger test conclusions about the interaction and causality

Lag delay	Description
1 month	— the sphere of production and labor forces causes changes in the financial sphere; — dynamics of production and labor force causes changes in enterprise general condition; — the general condition of the enterprise causes changes in the dynamics of the financial and labor resources.
2 months	— the dynamics of the spheres of production, labor resources usage and general condition causes changes in the dynamics of the financial sector; — the dynamics of production, labor resources usage and the financial sector causes changes in the dynamics of enterprise general condition; — the financial sector is the cause of changes in the dynamics of production and labor resources usage.
6 months	— the dynamics of production and enterprise general condition is the reason for changes in the dynamics of the financial sector; — the state of the financial sector is the cause of changes in the dynamics of production, which causes changes in enterprise general condition.
12 months	— the dynamics of production affects in the financial sector and labor resources; — the dynamics of enterprise general condition changes in the financial sector, the labor resources and the dynamics of production; — the dynamics of production and the state of the financial sector cause changes in enterprise general condition.

The analysis of cause-and-effect interrelations in the dynamics of the activity spheres is the basis for the choice of the type and order of VAR model which can be written as [1; 4; 8; 13]:

$$Y_{1t} = \gamma_{10} - \gamma_{12}Y_{2t} + \beta_{11}Y_{1,t-1} + \beta_{12}Y_{2,t-1} + u_{1t}, \quad (4)$$

$$Y_{2t} = \gamma_{20} - \gamma_{21}Y_{1t} + \beta_{21}Y_{1,t-1} + \beta_{22}Y_{2,t-1} + u_{2t},$$

where $\gamma_{10}, \gamma_{20}, \gamma_{12}, \gamma_{21}, \beta_{11}, \beta_{21}, \beta_{22}$ — coefficients reflecting the interrelation between the current and lagged values of indicators. It is assumed that Y_{1t} and Y_{2t} are stationary processes; random variables (errors) — u_{1t} and u_{2t} is white noise and is not correlated with each other.

The results of the construction of the second-order interrelation VaR-model of the enterprise activity spheres dynamics in Eviews [21] are shown in Fig. 2.

	I_FIN	I_PROD	I_LABOR
I_FIN(-1)	-0, 091250	0, 075983	0, 137877
I_FIN(-2)	-0, 161755	-0, 096301	-0, 022599
I_PROD(-1)	-0, 364931	-0, 459734	-0, 027861
I_PROD(-2)	0, 011616	-0, 057491	0, 097872
I_LABOR(-1)	0, 153146	0, 052171	-0, 213969
I_LABOR(-2)	0, 024703	-0, 032407	-0, 106234
C	0, 001662	0, 002616	-0, 000174
R-squared	0, 613025	0, 649495	0, 668976
Adj. R-squared	0, 558720	0, 597423	0, 611975
F-statistic	32, 081306	21, 870934	34, 210078
Akaike AIC	-2, 853770	-3, 518445	-2, 972817
Schwarz SC	-2, 676839	-3, 341514	-2, 795886
Akaike Information Criteria		-9, 558004	
Schwarz Criteria		-9, 027212	

Fig. 2. VaR(2)-model of interrelation of enterprise activity spheres

The general view of the cointegration model (ECM) of interrelation between the complex and local components of the enterprise activity spheres can be represented in the following form [4; 8; 14]:

$$\Delta I_{-FIN_t} = a_{10} + \sum_{i=1}^k a_{11}(i)\Delta I_{-FIN_{t-i}} + \dots + \sum_{i=0}^k a_{14}(i)\Delta I_{-ZAG_{t-i}} - \lambda_1 \hat{u}_{1,t-1} + \varepsilon_{1t} \quad (5)$$

$$\Delta I_{-ZAG_t} = a_{40} + \sum_{i=0}^k a_{41}(i)\Delta I_{-FIN_{t-i}} + \dots + \sum_{i=1}^k a_{42}(i)\Delta I_{-ZAG_{t-i}} - \lambda_4 \hat{u}_{4,t-1} + \varepsilon_{4t},$$

where $\Delta I_{-FIN_t}, \dots, \Delta I_{-ZAG_t}$ — variables of the model; $a_{i0}, a_{ij}(i)$ — model parameters; $\hat{u}_{1,t-1}, \dots, \hat{u}_{4,t-1}$ — deviation from long-term equilibrium; $\lambda_1, \dots, \lambda_4$ — coefficients reflecting the speed of the system adaptation and determining the stability of the model; $\varepsilon_{1t}, \dots, \varepsilon_{4t}$ — errors; $\hat{u}_{1,t-1} = I_{-FIN_{t-1}} - \gamma_0 - \gamma_1 I_{-VIR_{t-1}} - \dots - \gamma_3 I_{-ZAG_{t-1}}$ — long-term equilibrium equation (cointegration equation) normalized by variable I_{-FIN} .

On the bases of analysis of the adequacy of the constructed models and their characteristics in Eviews [21], the model of the interrelation between the general state and local activity spheres with 12-month lags was chosen for further research. The type of this model and its characteristics are shown in *Tabl. 4*.

Table 4

ECM (12)- model of the interrelation between enterprise activity spheres

Long-term equilibrium equation (cointegration equation) normalized by variable I_FIN									
Cointegrating Eq:	CointEq1								
I_FIN(-1)	1.000000								
I_COMPLEX (-1)	-3.097507								
I_PROD (-1)	0.307227								
I_LABOR (-1)	1.023260								
Error Correction:	D(I_FIN)	D I_COMPLEX	D(I_PROD)	D(I_LABOR)					
CointEq1	-0.241704	-0.258475	0.018730	-1.000714					
Model of interrelation of complex and local components of enterprise activity spheres									
	I_FIN	I_COM	I_PR	I_LB		I_FIN	I_COM	I_PR	I_LB
I_FIN(-1)	1,546	1,143	0,808	-1,299	I_PROD (-1)	1,709	0,819	0,235	-2,555
I_FIN(-2)	-0,691	0,048	0,071	-0,032	I_PROD (-2)	-0,859	-0,079	0,031	-0,858
.....
I_FIN(-12)	-0,515	-0,489	-0,455	-0,550	I_PROD (-12)	-0,617	-0,902	-0,886	-1,254
I_COMPLEX (-1)	-4,445	-3,076	-1,682	2,597	I_LABOR (-1)	0,738	0,528	0,296	-0,402
I_COMPLEX (-2)	0,909	-0,753	-0,486	-0,569	I_LABOR (-2)	-0,085	0,132	0,028	0,048
.....
I_COMPLEX (-12)	1,232	1,404	1,419	1,654	I_LABOR (-12)	-0,216	-0,207	-0,182	-0,169
R-squared	0,530	0,551	0,521	0,597					
F-statistic	11,079	11,178	11,044	11,421					
Log likelihood	170,49	207,225	196,47	185,38					
Akaike AIC	-2,558	-3,331	-3,105	-2,871					
Schwarz SC	-1,241	-2,014	-1,787	-1,554					
Akaike Information Criteria					-17,5315				
Schwarz Criteria					-12,15491				

Economic interpretation of the simulation results is based on the principle of «data explain themselves», which is the basis of VaR-modeling. Stability analysis of VaR-models is a necessary condition for their practical application [4; 8]. Stability means that the sequence of external shocks to the VaR system has a finite downward effect. Graphs of the impulse responses functions for the studied enterprise activity spheres were built in Eviews [21] are shown in *Fig. 3*.

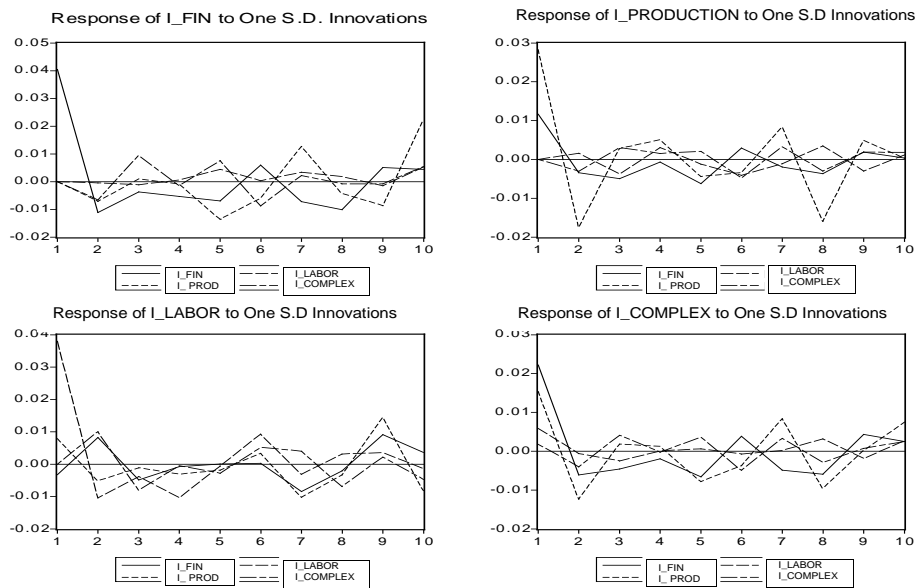


Fig. 3. Impulse responses functions

Analysis of the function of the financial sector proves that the shock changes in this area cause more negative than positive consequences in the dynamics of the behavior of other areas. The research of the dynamics of longer period shows that fluctuations decrease and approach zero, which confirms the stability of system development, as vibrations are damped and the system reaches a certain steady state.

Thus, the decomposition of variances [4; 8; 20] makes it possible to estimate the proportion of variance due to shocks of various variables, and accordingly to assess the degree of influence of interrelations between the spheres on the bases of analysis of their indicators. Analysis of variance decomposition characterizes the relative importance of the factors influencing the dynamics of change (variance) of a particular process of the system

Graphs of the decomposition of the variances of the spheres in Eviews [21] are shown in Fig. 4.

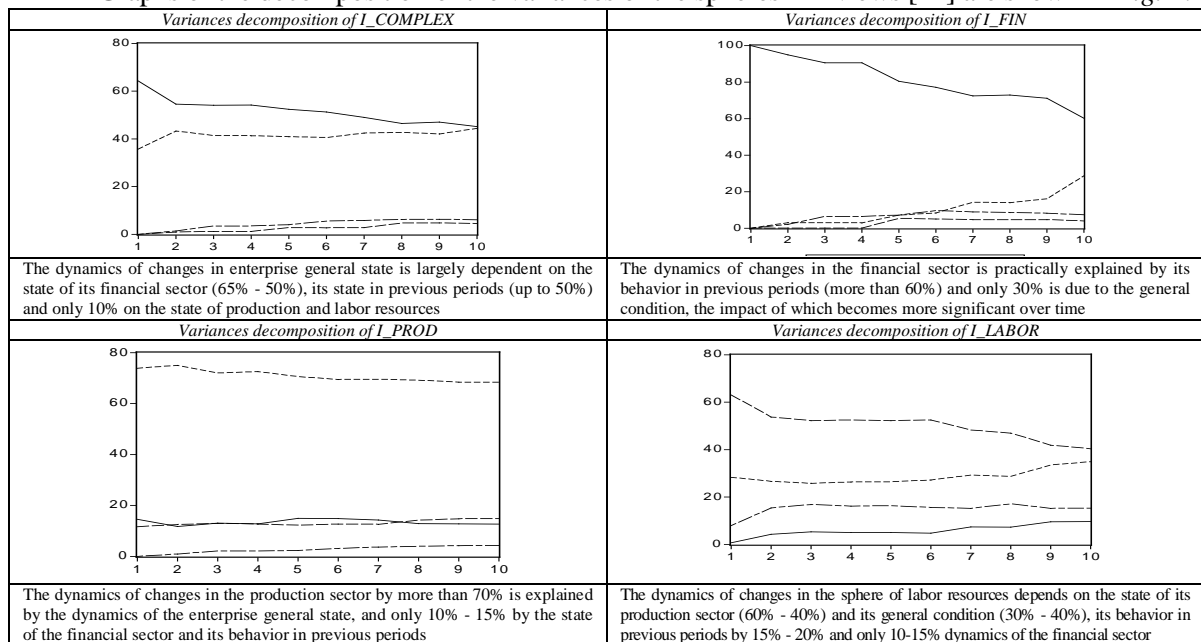


Fig. 4. Graph of variances decomposition

Forecasts based on VaR-models are necessary for the analysis of trends in the enterprise development in future and decision-making for the formation and selection of priorities of enterprise development. Graphs in Eviews [21] of actual and forecasted values of integrated indicators in the spheres of enterprise activity are shown in Fig. 5.

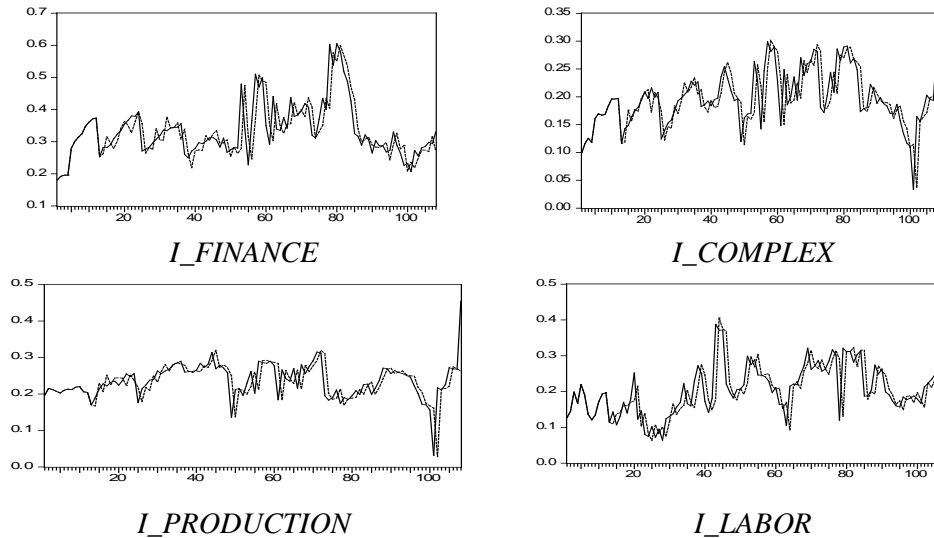


Fig. 5. Graphs of forecast and actual values of changes in the integral indicators of the spheres of enterprise activity

Conclusions. The paper proposes tools for improving the strategic management system for assessing the processes dynamics and the level of their intensity and non-stationarity in local resource components of an industrial enterprise as indicators of organizational and economic development and forecasting its change with emphasis on its resource communication component that will improve the efficiency of information exchange in the management process in the current context of increased importance of information resources as important elements that provide competitive advantages for business entities.

The proposed set of models of non-stationary dynamics of development of the enterprise activity spheres is effective tool for complex study of trends in enterprise development, as it makes possible to identify and predict unsteady cyclic processes in general and for individual local spheres, to determine their characteristic trends, the interrelation, and interdependence of the behavior of the system trajectories, which is the basis for formation of a set of programs and preventive measures for managing the enterprise development for different time intervals.

The advanced methodological recommendations for assessing the dynamics of development of the organizational and economic development management system of the enterprise make possible to carry out additional assessment of efficiency not only through indicators in a specific period, but also taking into account the processes characterizing the duration of delay of the management system's response to the events in internal or external environment based on taking into account the components influence level on each other.

The practical value of the results is that they make it possible to use systematically modern approaches to managing the enterprise strategic development and can be implemented in practical activities as separate industrial enterprises, business structures, and complex business-production systems. The application of the proposed methodological developments and tools makes possible to increase the efficiency of monitoring and control of the components of organizational and economic transformations and their dynamism to provide the necessary level of strategic development intensity, as well as to ensure the enterprise competitiveness in external and internal markets.

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