



JEL P 420

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**PRODUCTION AND FINANCIAL STABILITY OF ENTERPRISE:
ASSESSMENT AND SUPPORT**

**ZINFORMATYZOWANA ANALIZA PROCESU PRODUKCJI
Z UWZGLĘDNIENIEM STABILNOŚCI FINANSOWEJ PRZEDSIĘBIORSTW**

**ПРОИЗВОДСТВЕННО–ФИНАНСОВАЯ УСТОЙЧИВОСТЬ ПРЕДПРИЯТИЯ:
ОЦЕНИВАНИЕ И ЕЕ ОБЕСПЕЧЕНИЕ**

Abstracts

The article deals with the essence of production and financial stability of the enterprise. The integrated evaluation of production and financial stability of the processing industry enterprises is estimated using special cards and the ranking values. Proposed and justified economic decisions to ensure the sustainability of the projected level of the enterprise under different scenarios of their realization.

Keywords: *stability of the enterprise, production and financial stability, integrated assessment of stability, sustainability assessment card.*

Streszczenie

Artykuł dotyczy problematyki istoty produkcji i stabilności finansowej przedsiębiorstwa. Opisano analizę estymacji przeprowadzaną za pomocą specjalnych kart oraz klasyfikację wartości zintegrowanej oceny produkcji i stabilności finansowej przedsiębiorstw przemysłu przetwórczego. Przedstawiono proces podejmowania decyzji ekonomicznych w kwestii zapewnienia trwałości prognozowanego poziomu przedsiębiorczości w ramach różnych scenariuszy ich realizacji.

Słowa kluczowe: *stabilność przedsiębiorstwa, produkcja i stabilność finansowa, analiza stabilności zintegrowanej, karta oceny trwałości.*

Аннотация

В статье рассматривается сущность производственно–финансовой устойчивости предприятия. Проведено оценивание с использованием специальных карт и ранжирование значений интегрированной оценки производственно–

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финансовой устойчивости предприятия перерабатывающей промышленности. Предложены и обоснованы хозяйственные решения для обеспечения прогнозируемого уровня устойчивости предприятия при различных сценариях их реализации.

Ключевые слова: *устойчивость предприятия, производственно–финансовая устойчивость, интегрированная оценка устойчивости, карта оценивания устойчивости.*

Introduction. Steadfast economic development of enterprises ensures macroeconomic stability which is a prerequisite for such development. Enterprises face with the problem of violation the stability of their development in conditions of worsening economic situation in the country. Making effective business decisions that ensure the restoration of production and financial viability, depends on the availability of objective information concerning its real level. Special significance acquire methods viability assessment and development solutions designed to ensure it.

Key aspects of determining the level of sustainability of the enterprise and process management investigated domestic and foreign scientists. A wide range of issues concerning the management company stability and development approaches to its assessment revealed in the works of scientists: N. Alekseenko, O. Aref'eva, O. Bugay, A. Burda, L. Galyuk, A. Hrushevytska, A. Goncharenko, D. Horodyanska, O. Kolodizyev, Y. Simeh, etc. Despite the high level research problems stability of enterprise, including financial, to date there is no clear methodological approach to forming the system of indicators production stability and practical tools to ensure industrial–financial stability of the company, which stipulated the goal of this study.

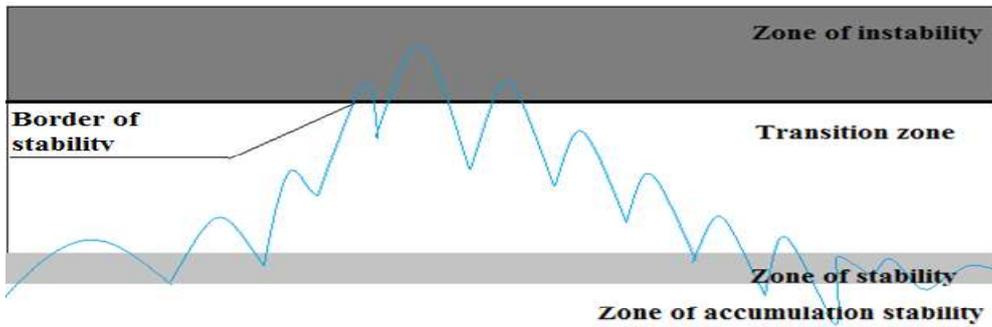
Entities operating under the vicissitudes of the economic environment, namely the constant changes in legislation, dynamic market conditions, rapid technological progress, increased competition and more. Not all companies got into unpredictable situations, able to evaluate the deviation of the economic system of positive balance and the real extent of stability loss, and thus respond with adequate solutions for a return system in optimum condition that is associated with resistance.

The stability of the company – is the system's ability to maintain its usable state with the achievement of planned results. Under economic stability understand the company's ability to resist adverse environmental and ensure development of the company by the optimum functioning of financial and industrial resources of the entity. Also economy of the enterprise, which is able to return to a state of optimum balance in an unfavorable deviation exceed the limits should be regarded as stable.

Production stability – the ability of enterprises to maintain production capacity at a level which ensures uninterrupted process of manufacturing quality products with low production costs. Financial stability – the ability of companies to work with a high level of profitability and maintain an optimal level of liquidity and solvency.

Factors of influence on production and financial stability of enterprises are seen as levers that affect the long–term economic stability and derive economic stability parameters for optimum or desired level (Figure 2). It is necessary to assess the impact of factors not only one of the components of economic stability, and consider the "chain reaction", which is under the influence of a factor. Production sustainability of the enterprise, which ensured uninterrupted operations of an industrial enterprise, the degree of capacity utilization, the presence of standing orders for manufactured products, largely depends on the types of stability of enterprise, as organizational, technical, techno– logical, investment and innovation. These types of stability determine the effectiveness of the production process and the company's ability to compete in market conditions (Figure 3). Research of production and financial stability of enterprise enables to find out by what is supported and what determines the stability

the company; the conditions under which it is achieved; the need to maintain stable situation; period, which covered the process.



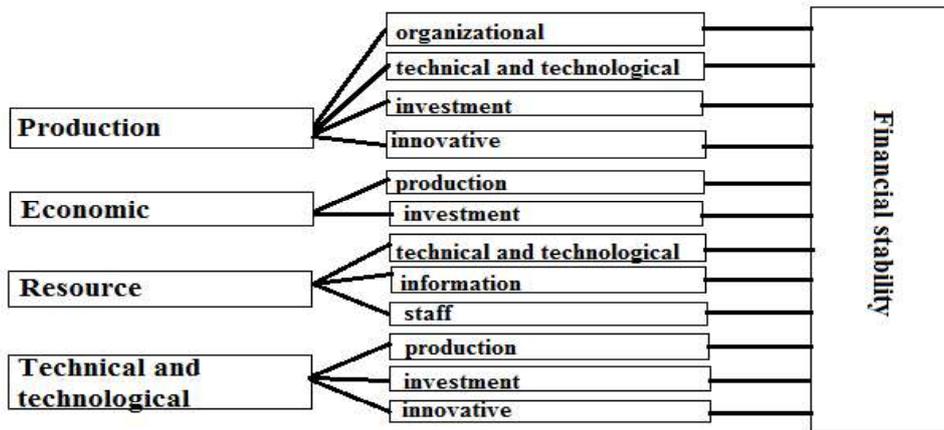
Source: [2]

Figure 1. Graphical interpretation of the economic stability of enterprise



Source: developed by the authors

Figure 2. Key internal and external impact factors on production and financial stability of the enterprise



Source: [5].

Figure 3. The relationship between the components of the economic stability of enterprise

Methods of evaluation of production and financial viability is based on an integrated approach that is most appropriate for dynamic analysis of the relationships between the components of sustainability.

In this method it is important to set evaluation parameters used, allowing to reasonable conclusions.

Testing methods of research production and financial stability conducted an example of processing industry – sugar plant in city Dubno (LLC "SP NYVA"), which is part of JSC "UkrLandFarming", and to some extent may represent the situation in the industry. The main company products is sugar. During the processing of sugar beet is also a by-products, namely beet pulp (dry and granular); molasses. Related products of the company are slaked lime and electricity.

In Ukraine, the actual amount of sugar is higher than the amount that is needed for the domestic market. Exports of sugar is low, the state can not buy excess sugar, to create normal conditions for the further development of the industry. These aspects have become the driving force for the problem glut sugar market and the closure of a large number of plants. Restoration of Ukrainian export of beet sugar, increasing its competitiveness and promoting advancement in the food markets of foreign countries is one of the starting position of the sugar industry. Analysis of the industry has found a number of problems faced by every company in the normal course of business, namely the poor quality of sugar beet as a result of reduced sugar content; excessive fuel consumption in the production process due to imperfect equipment; crisis of overproduction of sugar. These reasons were catastrophic for many companies in this industry.

The analysis of major technical and economic indicators LLC "SP NYVA" (Table 1) showed inefficient use of resources of the enterprise in 2010–2012, lower productivity by 6%, assets – by 26% mainly due to the use of equipment worn by 56%. The negative trend prevailing in the dynamics of specific consumption, which increased by 64% in 2012 and amounted to 1,43 UAH/UAN of out-

puts. In addition, during this period there was a reduction of current assets (30%); significant receivables and further increase it in 2013 to almost 96%. Also, since 2012 the company bought bills periodically. To reduce the losses the company decides to preserve production activities for 2013–2014. But even that decision did not save the company from losses because the lion's share belongs financial costs such as interest payments on loans. Also during 2013 and 2014 the company almost fully implemented products produced in 2012. The difficult situation in the sector, significant losses of the plant in 2012 led to its preservation in 2013–2014. Therefore, in this period, the company was engaged only sale of stocks of finished products, but the situation did not prevent him getting even more significant losses.

Evaluation of the production stability of enterprise conducted on the basis of indicators characterizing condition, movement and the impact of fixed assets (Table 2). The company uses a fairly old equipment, the degree of wear for the years 2010–2014 which increased more than 3 times. However, there is a gradual replacement of worn-out vehicles at a new, as evidenced by the advance of the coefficient update over rate of disposal.

In the enterprise activity was not a modest decrease in the stability of profitability (95% in 2014 compared to 2010). This slight variation of the indicator of production shows the willingness of enterprises to make products. In general, the composite index of total industrial stability of enterprise drastically decreased from 0,68 to 0,074 due to the termination of production.

The financial stability of the company reflects a state of its financial resources with which it freely maneuvering cash, can by their effective use to ensure the smooth process of production and sales. The analysis of liquidity and financial stability of LLC "SP NYVA" has shown that most indicators do not meet there commended values and are negative trend changes (Table 3).

For the last three years the company had insufficient liquidity (from 0,972 to 0,791), its

indicating inability to repay its obligations to creditors. Concentration ratio of equity (coefficient of autonomy) and significantly deteriorated sharply (from -0,655 to 0,172), indicating a reduction in the financial stability of the company. For the purpose of structuring indicators generated maps evaluation of produc-

tion and financial stability of the company, whose analysis allows us to identify it level (tab. 4–5). Almost all indicators of industrial stability (except coefficient update) in 2013–2014 for LLC "SP NYVA" are characteristic as critical level of stability.

Table 1. Major technical and economic indicators of LLC "SP NYVA"

№	Indexes	Units of measurement	Years					The growth rate, %			
			2010	2011	2012	2013	2014	2011/2010	2012/2011	2013/2012	2014/2013
1.	The volume of output at producer prices (excluding VAT)	th. UAH	391553	431632	446819	–	–	110,24	103,52	–	–
2.	Volume production by type: white Sugar	th. tons	56603,6	68421,2	73053	–	–	120,88	106,77	–	–
2.1											
2.2	Treacle (molasses)	th. tons	14770,6	14772,8	14617	–	–	100,01	98,95	–	–
2.3	beet pulp	th. tons	174,3	245,7	363,2	–	–	140,96	147,82	–	–
3.	Revenue from product sales (including VAT)	th. UAH	456018	262621	294829	639234	29285	57,59	112,26	216,82	4,58
4.	Revenue from product sales (excluding VAT)	th. UAH	380015	149518	249457	511387	23428	39,35	166,84	205	4,58
5.	Number of employees	person	427	472	516	142	119	110,54	109,32	27,52	83,8
6.	Productivity per employee	th. UAH /person	916,9	914,5	865,9	–	–	99,74	94,69	–	–
7.	Payroll	th. UAH	8467,6	13858,9	17350,4	3283	2407	163,67	125,19	18,92	73,32
8.	Wage per month	UAH	1652,5	2446,84	2802,07	1926,6	1686	148,07	114,52	68,76	87,51
9.	Value of fixed assets	th. UAH	33017,5	43274	50974	56112	56190,5	131,06	117,79	110,08	100,14
10.	Cost of sales	th. UAH	345007	90091	227383	474265	22176	26,11	252,39	208,58	4,68
11.	The cost of production of the elements	th. UAH	289926	262673	441525	97307	420222	90,6	168,09	22,04	431,85
112.	Costs of production for 1 UAN	UAN/UAN	0,87	0,69	1,43	–	–	79,31	207,25	–	–
13.	Profit (+) loss (-) from sales	th. UAH	35008	39880	22074	37122	1252	113,92	55,35	168,17	3,37
14.	Financial expenses	th. UAH	25295	56888	62894	119177	122424	224,90	110,56	189,49	102,72
15.	Total profit (+) loss (-)	th. UAH	2896	1613	(67445)	(286176)	(323615)	55,7	-4181	424,31	113,08
16.	Net profit (+) loss (-)	th. UAH	2356	1202	(67445)	(286176)	(323615)	51,02	-5611	424,31	113,08
17.	Assets	UAN/UAN	11,51	3,46	4,89	9,11	0,42	30,02	141,64	186,23	4,57
18.	Profitability of production (by total revenue)	%	10,15	14,10	9,71	7,83	5,65	138,96	68,85	80,63	72,13

Source: Calculated by authors.

The overall level of stability of production of LLC "SP NYVA" for the period analyzed, has negative trend from low to critical level. Consolidated financial stability ratio declined from mid-level to critical. This indicates a lack of opportunities for economic growth company, which in turn is a reflection of the general crisis in the sector. Production and financial stability of the enterprise assessed by a system of indicators. In this case, when the number of parameters is quite large, they have a different nature, reflecting the different characteristics of the phenomenon, there is the problem of constructing generalized index, by which could be carry out the necessary ranking. Calculation of the standard range of variation and gave Euclidean

distance to calculate the integrated assessment components of sustainability – industrial and financial. To determine the integrated comprehensive assessment calculated a weighted average of these components with the same degree of importance. The resulting integrated assessment of changes have normalized range from 0 up to 1 (Table 6).

The calculated integrated comprehensive assessment of production and financial stability shows that the LLC "SP NYVA" in 2010–2011 was the average level stability in 2012 – low (due in particular to crisis processes in the company and the inability to fully implement their products) and in the 2013–2014 level of stability of enterprise is assessed as critical

(reason is the preservation of industrial activity in the years and significant financial loss).

Thus, the calculated value of this indicator fully the conclusions derived from the assessment card production and financial stability of enterprise (Figure 4). In order to improve production and financial stability of the LLC

"SP NYVA" we have proposed and justified a number of economic decisions, technical, financial and innovative character, namely: comprehensive introduction of several sets of equipment; factoring receivables; establishing biofuel production from waste sugar production.

Table 2. Analysis of production stability

№	Indexes	2010	2011	2012	2013	2014	The growth rate, %			
							2011–2010	2012–2010	2013–2010	2014–2010
1	Coefficient of wear funds	0,17	0,21	0,37	0,52	0,56	23,53	117,65	205,88	229,41
2	Renewal rate funds	0,46	0,14	0,3	0,0023	0,0014	-69,5	114,29	-99,23	-39,13
3	Factor retirement funds	0	0,02	0,1	0	0,0007	2,00	10,00	0	0,07
4	Life assets ratio	0,83	0,79	0,62	0,48	0,44	-4,82	-25,30	-42,17	-46,99
5	Return on assets	1,06	0,92	0,43	0,66	0,02	-13,1	-59,16	-37,60	-97,90
6	Assets, UAH/UAH	11,86	9,97	8,77	–	–	-15,9	-26,05	–	–
7	Capital intensity, UAH/UAH	0,08	0,1	0,11	–	–	25,00	37,50	–	–
8	Factor of production	0,84	0,8	0,77	0,75	0,68	-4,76	-8,33	10,71	-19,05
9	Stability factor profitability	1,76	1,41	2,01	0,91	0,097	-19,9	14,20	-48,30	-94,49
10	The overall level of production stability	0,68	0,44	0,52	0,09	0,074	-35,3	-23,53	-86,76	-89,12

Source: Calculated by authors.

Table 3. Analysis of liquidity and financial stability of LLC "SP NYVA"

Indexes	Years					The growth rate, %			
	2010	2011	2012	2013	2014	2011/2010	2012/2010	2013/2010	2014/2010
1.1. Liquidity indicators									
Current ratio	1,117	1,552	0,972	0,791	0,821	38,94	-12,98	-29,19	-26,50
Quick ratio	0,507	0,608	0,285	0,747	0,788	19,92	-43,79	47,34	55,42
Absolute liquidity ratio	0,001	0,002	0,004	0,001	0,0004	100	-99,21	-99,80	-99,92
Agility of working capital	0,105	0,074	-0,028	-0,517	-0,685	-29,52	-126,7	-592,4	-752,4
The coverage ratio of reserves	1,117	1,552	0,972	0,791	0,621	38,94	-12,98	-29,19	-44,40
The coefficient of financial autonomy	0,182	0,122	0,017	-0,473	0,27	-32,97	-90,66	-359,89	48,35
1.2. Financial soundness indicators									
Concentration ratio of equity	0,172	0,129	0,017	-0,473	-0,655	-25,00	-90,12	-375	-481,2
Financial dependence ratio	0,818	0,878	0,983	1,473	1,27	7,33	20,17	80,07	55,26
Agility equity ratio	0,525	2,757	-1,626	-0,579	-2,69	425,14	-409,7	-210,29	-612,38
Concentration ratio of debt	0,783	0,927	0,983	1,432	1,874	18,39	25,54	82,89	139,34
The ratio of debt and own funds	4,494	7,175	58,881	-3,316	-5,41	59,66	1210,2	-173,79	-220,38
Coefficient provide own funds	0,105	0,074	-0,028	-0,517	-0,622	-29,52	-126,6	-592,38	-692,38
Consolidated financial stability ratio	3,2	2,03	1,59	0,24	0,17	-36,6	-50,3	-92,5	-94,68

Source: Calculated by authors.

Table 4. Map of assessing the production stability LLC "SP NYVA"

Stability level	Coefficient of wear					Renewal rate					Factor disposal					Coefficient of life					Profitability				
	Years					Years					Years					Years					Years				
	2010	2011	2012	2013	2014	2010	2011	2012	2013	2014	2010	2011	2012	2013	2014	2010	2011	2012	2013	2014	2010	2011	2012	2013	2014
High																									
Average																									
Low																									
Critical																									

Stability level	Assets					Factor of production					Stability factor profitability					The overall level of production stability				
	Years					Years					Years					Years				
	2010	2011	2012	2013	2014	2010	2011	2012	2013	2014	2010	2011	2012	2013	2014	2010	2011	2012	2013	2014
High																				
Average																				
Low																				
Critical																				

Source: Formed and calculated by authors, based on [1].

The economic solution for improving the technical base of the company consists in the implementation of such complex sets of equipment: 1) set of equipment for control of water treatment processes and drying pulp, which will increase the output of sugar at 0,05%, and reduce the cost of natural gas for drying pulp at 30 m³ per 1 ton (Table 7); 2) syrup filtration station, which will increase the volume of sugar II–category 10 th. tons by improving treatment of syrup. Sugar II–category more expensive than sugar III–category average of 500 UAH/t (Table 8); 3) a set of equipment to improve the vacuum and thin film devices, implementation of which will reduce fuel costs for processing sugar beet 14.5 m³ per tonne (Table 9).

Economic efficiency of the proposed technical solutions determined based on performance calculations investments, net present value and discounted payback period on investment (Table 10). Each of the sets of

equipment is beneficial for the company, and the fastest payback set of equipment to improve the vacuum and thin film devices.

The study showed that in recent years the functioning of the enterprise are financial difficulties, particularly because of the diversion of funds from the turnover. One of the reasons is the inefficient use of working capital and an increase in receivables. For effective management of working capital enterprise should be used to refinance factoring receivables. Factoring is an operation that combines a number of intermediary service fees, credit working capital entity.

The basis of factoring is assignment of first creditor claims a debt of a third person for lender to the previous or subsequent compensation cost of such debt first creditor. Analysis of current assets LLC "SP NYVA" showed that in 2013 and 2014 the company invested in inventories, although this period production activities are not carried out.

Table 5. Map of assessing the financial stability of LLC "SP NYVA"

Stability level	Current Ratio					Quick ratio					Maneuverability of working capital					The coefficient of financial autonomy					Concentration ratio of equity				
	Years					Years					Years					Years					Years				
	2010	2011	2012	2013	2014	2010	2011	2012	2013	2014	2010	2011	2012	2013	2014	2010	2011	2012	2013	2014	2010	2011	2012	2013	2014
High																									
Average																									
Low																									
Critical																									

Stability level	Agility equity ratio					Return on equity					Return on total capital					Consolidated financial stability ratio				
	Years					Years					Years					Years				
	2010	2011	2012	2013	2014	2010	2011	2012	2013	2014	2010	2011	2012	2013	2014	2010	2011	2012	2013	2014
High																				
Average																				
Low																				
Critical																				

Source: Formed and calculated by authors based on [1].

Table 6. Integrated assessment of production and financial stability LLC "SP NYVA"

A component of stability	Integrated assessment				
	2010	2011	2012	2013	2014
Production stability	0,42	0,32	0,26	0,21	0,201
Financial stability	0,43	0,48	0,31	0,28	0,17
Integrated comprehensive assessment of industrial – financial stability	0,426	0,406	0,282	0,243	0,185

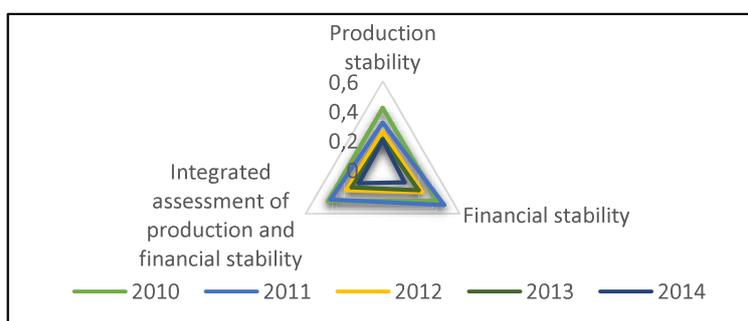
Source: Calculated by authors.

There was increase in accounts receivable, including outstanding. Large maturities of receivables arising from the low rate of turnover. This means that happens crediting buyers and as a result – the diversion cash flows of business. The use of factoring services will allow the company to obtain significant economic benefits, such as increased working capital turnover, a long-term without security, improved balance sheet liquidity, reduce credit load, stability and predictability of cash flows.

Using the services of a factoring company receives from firms factor of 80% of the payment for goods shipped, representing 79824 th. UAH (Table11). Another 20% deduction of the com-

mission, the company returns after a repayment of debt. Thus, the company can immediately cover their costs and attract money received from the factor, which is not observed in the case of commercial loans now.

Given the fee for factoring services (79824 * 0,02 = 1596 th. UAH) and commission payments (19556 * 0,01 = 19556 th. U.), the company needs to pay 1791 th. UAH. in general, the use of a factoring transaction will positively affect the company and receivables will reduce it to 9367 th. UAH., as the bank-factor will assume a certain percentage of debt (Table12).



Source: Calculated by authors.

Figure 4. Ranking of values integral evaluation of production and financial stability of the LLC "SP NYVA"

Table 7. Assessment of the effect of installing equipment for control of water treatment processes and pulp drying

Indicator	Indicator value
Save by reducing the cost of gas	
Saving gas m ³ / t	30
The daily capacity of the plant drying pulp tons / day	106
Duration of drying pulp days	80
The price of gas, th. / th.m ³	4,472
Saving th. UAH	1137,68
The effect is obtained by increasing the release of sugar	
Increasing the amount of sugar output,%	0,05
The amount of sugar beet processed per season, th. tons	415,156
The planned cost of sugar, UAH / t	5800
Effect th. UAH.	1203,95
The overall effect, th. UAH.	2341,63

Source: Calculated by authors

Table 8. Evaluation of the effect of the introduction of filtering stations syrup

Indicator	Indicator value
The effect of the introduction of syrup filtration stations	
The volume of sugar II–category compared to III–category, th. tons	10
Changes in the price of sugar II–category compared to III–category, th UAH. /t	500
Effect th. UAH.	5000

Source: Calculated by authors.

Table 9. Evaluation of the effect of the introduction of vacuum equipment set

Indicator	Indicator value
Saving fuel	
Continuarion of Table 9	
1	2
Reduced fuel consumption m ³ / t	14,5
The price of gas, th. UAH / th.m ³	4,472
The amount of sugar beets are processed per season, tone	415156
Saving th. UAH.	26920,38

Source: Calculated by authors.

Table 10. Calculation efficiency of measures and the timing of payback

№	The cost of equipment taking into account the interest on the loan, th. UAH	The effect obtained 1 year after installation, th. UAH	The effect is obtained for the following year after installation considering depreciation, th. UAH	NPV, th. UAH	The payback period on investment, years
Set 1	1440,09	2341,63	2128,75	3030,3	1,6
Set 2	8229,06	5000	4545,45	1316,4	1,7
Set 3	31476,15	26920	24472,73	19916,6	1,2

Source: Calculated by authors.

Table 11. Financing of working capital of LLC "SP NYVA" and its impact on the change in net revenues from sales in 2015

№	Indicator	Financing of working capital	
		When factoring	Without factoring
1	Net sales revenue (annual), th. UAH.	399131	399131
2	Net sales revenue (average per month) th. UAH.	33260	33260
3	Cost of sales (average per month) th. UAH.	30317	30317
4	Net proceeds from sales (3 months), th. UAH.	99780	99780
5	Cost of sales (3 months), th. UAH.	90951	90951
6	Funds received after the shipment of goods, th. UAH.	79824	–
7	Estimated net revenue (2015), th. UAH.	399131	299351

Source: Calculated by authors.

Table 12. Influence on the use of factoring receivables LLC "SP NYVA"

№ п/п	Indicator	Years		Deviation
		2014	2015	2015/2014
1	Net sales revenue, th. UAH.	23428	399131	375703
2	Current assets, th. UAH.	286658	342021	55363
3	The average annual value of accounts receivable, th. UAH.	259025	161036	–97989
4	Accounts receivable for goods and services, th. UAH.	31222	21855	–9367
5	Accounts receivable turnover ratio	0,09	2,48	2,38
6	Maturity of accounts receivable, days	360	145,24	–214,76
7	The diversion ratio of current assets	0,9	0,48	–0,4328

Source: Calculated by authors.

To increase production and financial stability of LLC "SP NYVA" advisable due to horizontal diversification based biofuel production. At the present stage of development of the state (in terms of reduction of mineral resources, high dependence on imported oil, changing the structure of agricultural production, disparity in product prices of energy, industrial and agricultural sectors) biofuels is a key factor of new trends in the agricultural sector of Ukraine.

In terms of sugar mill combination of sugar and bioethanol from sugar beet processing intermediates contribute to solving food and energy problems, improve profitability. Bioethanol – is dewatered ethyl alcohol obtained by fermentation of sucrose, which in turn produce starch from cereals or from sugar solutions. Most economically feasible production of ethanol juice and green syrup for reduced sugar production cycle. When processing 1 ton of molasses can get 227 liters of

bioethanol.

In order to be able to produce and sell biofuels, the company must consistently receive the following documents: a certificate that is an alternative fuel; license to produce bioethanol; license for sale; certificate of registration in the state register of producers. The cost of the license to produce bioethanol and the possibility of its further implementation is about 1500 th. UAH. Production of bioethanol will help get an additional income of 4716 th. UAH (Table13). Given that this is one of the priorities in the production of biofuels, ethanol producers are exempt from taxation income from the sale of ethanol by 2020.

The implementation of each of these solutions positively affect the efficiency potential of LLC "SP NYVA" (Table14) and provides increased its production and financial stability.

Developing effective business decisions for the company (as weakly-formalized system) based on an analysis of its processes is to use cognitive approach that allows us to understand the logic of the system under influence of many interrelated factors. According to this approach is based fuzzy cognitive model for evaluating financial stability of the company. By defining a set of factors internal and external environment affecting the financial stability of LLC "SP

NYVA" (Table 15) formed cognitive map of the situation. Rule-based fuzzy inference modeled effects between factors. Analysis of Dynamic constructed cognitive maps (Fig. 7) can detect the problem structure (system), to find the most important factors affecting it, to assess the effect of factors (concepts) to each other. The calculations revealed that significant influence (0,6 to 0,8) for the financial stability of LLC "SP NYVA" do factors such as income from the sale of finished goods, cost of sales, sources of own funds and current assets.

Effective business decisions to improve the financial viability expedient design based options (scenarios) of the situation by using scenario modeling. Algorithm forecasting of production and financial stability of the LLC "SP NYVA" based on exponential growth compared to the average of the industry made it possible to predict the most likely scenarios. We consider three scenarios that may arise in the implementation of the proposed economic decisions: 1– sustainable growth dynamics of the company; 2 – loss of stability now because of mistakes; 3 – restore the viability after approval of errors.

Graphic representation of possible scenarios for the LLC "SP NYVA" with the real data on the impact of the financial performance of sustainability component shown in figure 5.

Table 13. Calculation of efficiency of bioethanol production

Indicator	Indicator value
Molasses obtained during the operating cycle of production, tons	14617
Exit liters of ethanol from 1 ton of molasses	227
The cost of bioethanol UAH / liter	8
Produced bioethanol for the selling price, th. UAH	26544,47
The cost of all production, th. UAH	446819,47
Total costs (production + licensing),th. UAH	451536
Gross income, th.UAH	4716,53

Source: Calculated by authors.

The analysis showed that under these conditions the most effective and likely to have enterprise version 1 – restore the value of assets and achieve steady state bifurcation interval that is fast changing the parameters of behavior with little change in its parameters using the proposed economic decisions.

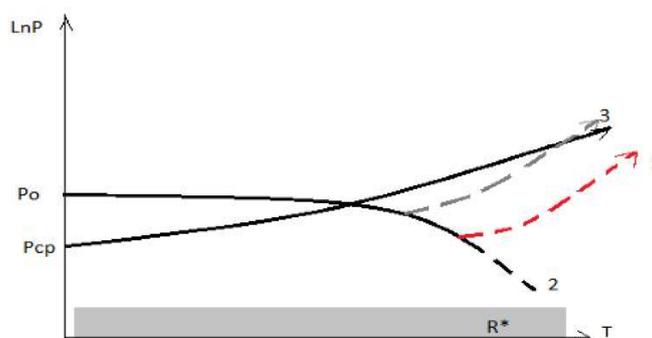
Ranking values integrated comprehensive evaluation of production and financial stability of the LLC "SP NYVA" with the introduction

of economic decisions and qualitative interpretation of the band changes its values are shown in Figure 6.

The combination of technical and economic solutions that are proposed for implementation in LLC "SP NYVA" allow to improve the technical base and improve the solvency and liquidity, respectively, increases the stability of the company. Designed forecast of production stability is 0,407; financial stability –

0,320. Expected integrated evaluation of production and financial stability of LLC "SP NYVA" may increase to 0,364, which is al-

most 2 times, which in turn characterized as satisfactory viability.



Source: The authors constructed on the basis of [2]

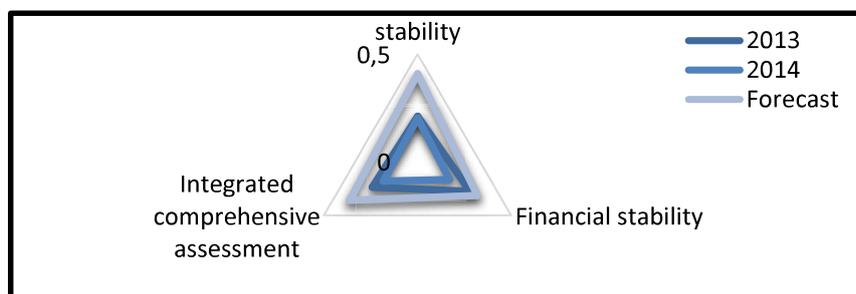
Figure 5. Development LLC "SP NYVA" with the various options developments

Table 14. Evaluation the impact of the proposed measures on efficiency potential of the company

№	The content of the event	Indexes	Indicator value		Influence	
			Before	After		
			Implementation		absolute value	relative value,%
1	Equipment for the control of water treatment and pulp drying	1. Costs for gas, th. UAH	37922,56	36784,88	-1137,68	3
		2. The volume of production, th. UAH	1168848	1170051,9	+1203,9	0,103
		3. Prime cost, th. UAH	935078,4	933940,72	-1137,68	0,122
	Station filtering syrup	1. Cost of products, th. UAH	935078,4	935078,4	0	0
		2. Proceeds from sales (VAT) th. UAH	1263816,9	1268816,9	+5000	0,396
		3. Proceeds from the sale of productions (excluding VAT) th. UAH	1011053,5	1015053,52	+4000	0,395
		4. Return products,%	8,125	8,553	+0,428	5,265
	Improve the vacuum and film sets	1. Costs for gas, th. UAH	37922,56	11002,18	-26920,3	29
		2. The volume of production, th. UAH	1168848	1168848	0	0
3. Prime cost of products, th. UAH		935078,4	908158,02	-26920,3	2,879	
2	Factoring receivables	1. Koeffitsiyent turnover of receivables	5,7	2,48	-3,22	43,5
		2. Maturity of receivables	360	145	-215	40,2
		3. Koeffitsiyent distraction current assets	0,9	0,48	-0,45	53,3
3	Production of bioethanol	1. Capital expenditures, th. UAH	1500			
		2. Revenue from sales * th. UAH	294829	446819,47	151990	151,5
		3. Cost of sales * th. UAH	441525	451536	+10011	102,3
		4. Savings income tax th. UAH	0	849	+849	-

* –indicators at 2012,

Source: Calculated by the authors.



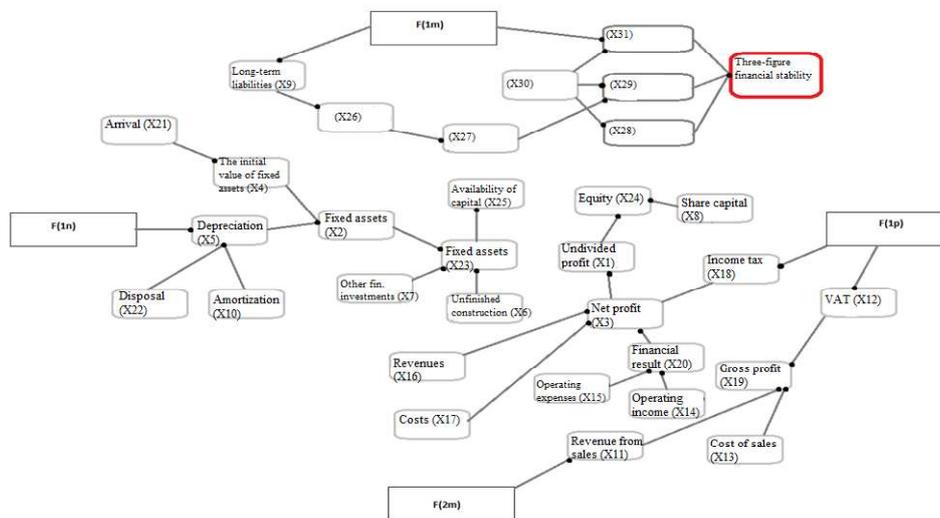
Source: Calculated by authors.

Figure 6. Ranking integrated assessment values industrial and financial stability after the introduction of economic decisions

Table 15. Factors internal and external environment and the extent of their impact on the financial stability of the LLC "SP NYVA"

	Показники	2010		2011		2012		2013		2014	
		Value	Influence	Value	Influence	Value	Influence	Value	Influence	Value	Influence
X1	Undivided profit	55165	+0,2	56367	+0,2	-11566	-0,3	-297442	-0,3	-617865	-0,3
X2	Fixed assets	31499	+0,4	26716	+0,4	28161	+0,4	25554	+0,4	24773	+0,4
X3	Net profit	2356	+0,1	1202	+0,1	-67445	-0,3	-286176	-0,3	-323615	-0,3
X4	The initial value of fixed assets	40649	+0,3	45899	+0,3	56049	+0,3	56175	+0,3	56206	+0,3
X5	Depreciation of fixed assets	9150	+0,1	19183	+0,1	27888	+0,1	30621	+0,1	31433	+0,1
X6	Unfinished construction	4182	+0,3	4182	+0,3	4801	+0,3	4690	+0,3	4690	+0,3
X7	Other financial investments	2711	+0,2	4096	+0,2	0	-	0	-	1844712	+0,2
X8	Share capital	26071	+0,2	26073	+0,2	26073	+0,2	26073	+0,2	26073	+0,2
X9	Long-term liabilities	0	-	180000	+0,5	0	-	149722	+0,5	146230	+0,5
X10	Amortization	4073	+0,1	10131	+0,1	10303	+0,1	2782	+0,1	859	+0,1
X11	Revenue from sales	456018	+ 0,7	262621	+ 0,7	294829	+ 0,7	639234	+ 0,7	29285	+ 0,7
X12	VAT	76003	+0,2	113103	+0,2	45372	+0,2	127846	+0,2	5857	+0,2
X13	Cost of sales	345007	+0,6	109638	+0,6	227383	+0,6	474265	+0,6	22176	+0,6
X14	Operating income	38605	+0,1	54148	+0,1	38544	+0,1	7228	+0,1	155643	+0,1
X15	Operating expenses	46688	+0,1	25762	+0,1	53609	+0,1	210789	+0,1	457746	+0,1
X16	Revenues	1349	+0,1	130	+0,1	1613	+0,1	115	+0,1	101672	+0,1
X17	Costs	25378	+0,1	66783	+0,1	76067	+0,1	119690	+0,1	425287	+0,1
X18	Income tax	540	+0,1	411	+0,1	0	-	0	-	0	-
X19	Gross profit (loss)	35008	+0,2	39880	+0,2	22074	+0,2	37122	+0,2	1252	+0,2
X20	Financial result from operating activities	26925	+0,3	68266	+0,3	7009	+0,3	-166439	-0,2	-300851	-0,2
X21	Ratio of fixed assets arrival	0,46	+0,2	0,14	+0,2	0,3	+0,2	0,0023	+0,2	0,0014	+0,2
X22	Factor disposals	0	+0,1	0,02	+0,1	0,1	+0,1	0	+0,1	0,0007	+0,1
X23	Fixed assets and other intangible assets	38392	+ 0,7	34994	+ 0,7	32962	+ 0,7	30244	+ 0,7	1874175	+ 0,7
X24	Equity	42659	+ 0,7	227261	+ 0,7	-23602	-0,7	-157153	-0,7	-2611358	-0,7
X25	The availability of working capital	4267	+0,8	192267	+0,8	-56564	-0,7	-187397	-0,7	-4485533	-0,7
X26	Own and long-term sources of loan stocks	42659	+0,8	407261	+0,8	-23602	-0,8	-7431	-0,8	-2465128	-0,8
X27	The total value of the main sources of reserves and costs	407720	+ 0,7	638791	+ 0,7	830586	-0,7	593943	-0,7	0	-0,7
X28	Excess or lack their own sources of long-term debt	-78879	-1	18598	+1	-609970	-1	-25968	-1	-2481270	-1
X29	Excess or lack of overall value of the main sources of building supplies	286182	+1	250128	+1	244218	+1	575406	+1	-16142	-1
X30	Inventories and costs	121538	-0,7	388663	-0,7	586368	-0,7	18537	-0,7	16142	-0,7
X31	Excess or lack of working	-117271	-1	-196396	-1	-642932	-1	-205934	-1	-	-1
X32	Three-figure financial stability	0,0,1		0,1,1		0,0,1		0,0,1			

Source: Calculated by authors.



Source: authors formed on the basis of [2]

Figure 7. Dynamic model of influence factors external and internal environment on the financial stability of LLC "SP NYVA"

Conclusions. Particular relevance to modern business practice acquires study methodological principles of assessment of viability and develop effective business decisions because they directly affect the functioning of the company and its resistance to external and internal threats. Using maps evaluation of production and financial stability of the company and its integrated assessment allows us to identify the

level of sustainability of the company, which in turn reduces the risk of delayed response and inefficient decision-making.

The monitoring indicators of production and financial stability that correlate with the level of pay, and identify negative trends of change will allow the company to make high quality preventive anticrisis decisions.

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