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АНТИКРИЗОВИЙ МЕХАНІЗМ ПРОТИДІЇ ВПЛИВУ ЗОВНІШНІМ І ВНУТРІШНІМ ЗАГРОЗАМ ФІНАНСОВОЇ БЕЗПЕКИ ПІДПРИЄМСТВ МАШИНОБУДУВАННЯ

Анотація. Проведене теоретико-аналітичне дослідження, яке передбачало ознайомлення з доробком вітчизняних та закордонних науковців стосовно забезпечення фінансової безпеки підприємств та здійснення оцінки фінансової безпеки машинобудівних підприємств, дало змогу розробити орієнтовані графічні моделі та відповідні їм матриці досяжності, які відображають зв'язки між загрозами, і послугували основою для ієрархічного впорядкування ключових загроз для фінансової безпеки машинобудівних підприємств в Україні. Ієрархічне впорядкування загроз фінансовій безпеці машинобудівних підприємств здійснено на основі застосування методу теорії графів. Усі загрози умовно поділено на дві групи: зовнішні та внутрішні, що пов'язано природою їх виникнення та впливом на фінансову безпеку машинобудівних підприємств. Розроблені моделі дають уявлення про необхідність реалізації захисних заходів щодо ключових загроз, що важливо з погляду обмеженості ресурсів та досягнення максимальної ефективності дій суб'єктів безпеки. Отриманий результат є усередненим для більшості вітчизняних машинобудівних підприємств, адже кожен із них перебуває під впливом зовнішнього середовища та змін, які спричинені внутрішніми процесами. Побудовано антикризовий механізм протидії впливу зовнішнім і внутрішнім загрозам фінансовій безпеці підприємств машинобудування, який враховує сучасні тенденції розвитку галузі. Доведено, що для протидії впливу зовнішнім і внутрішнім загрозам фінансовій безпеці підприємства необхідно застосовувати два протилежні за змістом антикризові плани, які передбачають адаптацію або протидію. Перший – адаптаційний – доцільно використовувати для захисту від дії зовнішніх загроз, коли другий, що передбачає протидію загрозам, може бути обраний за умови суттєвого негативного впливу внутрішніх загроз. В основу запропонованого антикризового механізму покладено необхідність формування системи антикризовогоу правління, яка складається із взаємопов'язаних елементів та передбачає послідовну реалізацію заходів щодо своєчасного виявлення, оцінки та розроблення захисних заходів для формування безпечних умов розвитку машинобудівних підприємств в Україні.

Ключові слова: фінансова безпека підприємства, внутрішні загрози, зовнішні загрози, антикризове управління; антикризовий механізм.

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ANTI-CRISIS MECHANISM OF COUNTERING THE IMPACT OF EXTERNAL AND INTERNAL THREATS OF THE FINANCIAL SECURITY OF MACHINE-BUILDING ENTERPRISES

Abstract. The theoretical and analytical study, which provided for familiarization with the work of domestic and foreign scientists in ensuring the financial security of enterprises and in assessing the financial safety of machine-building enterprises, allowed to develop the oriented graphic models and corresponding matrices of relevance that reflected the links between threats and served as the basis for hierarchical ordering of key threats to the financial security of machine-building enterprises in Ukraine. Hierarchical ordering of threats to the financial security of machine-building enterprises is based on the application of the method of graph theory. All threats are conditionally divided into two groups: external and internal, which is related to the nature of their occurrence and the impact on the financial security of machine-building enterprises. The developed models give an idea of the need to implement protective measures for key threats, which is important in terms of limited resources and to achieve maximum effectiveness of security subjects. The result obtained is averaged for most domestic machine-building enterprises, because each of them is influenced by the external environment and changes caused by internal processes. An anti-crisis mechanism for countering the influence of external and internal threats to the financial security of machine-building enterprises was built, taking into account the current trends in the industry. It is proved that in order to counteract the impact of external and internal threats to the financial security of the enterprise, it is necessary to apply two anti-crisis plans that are opposite in content, which include adaptation or counteraction. The first one is adaptive – it is advisable to use it to protect against external threats, when the second one provides for counteraction to threats, can be elected with a significant negative impact of internal threats. At the heart of the proposed anti-crisis mechanism is the need to form a system of anti-crisis governance, consisting of interrelated elements and provides for the consistent implementation of measures for the timely identification, assessment and development of protective measures to create safe conditions for the development machine-building enterprises in Ukraine.

Keywords: financial security of the enterprise, internal threats, external threats, anti-crisis management; anti-crisis mechanism

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Introduction

In recent years, the domestic economy is experiencing one of the worst times: the intensification of inflationary processes, the low exchange rate of the national currency in relation to the foreign, the decline in the purchasing power of the population, the intensification of labor migration due to easing border crossing conditions and the like. All this forms a very unstable external environment to which it is difficult to adapt to domestic enterprises.

Unfortunately, the number of threats that can affect Ukrainian enterprises only grows and often their influence can be observed precisely in the financial sphere, so ensuring the proper level of financial security for today is one of the most important scientific topics among scientists, in particular: O. Malyk [1] investigated what impact risks, dangers and threats have on the financial security of the enterprise; G. Smokvina [2] investigated the common features of the impact of financial security threats with dangers to economic security; O. Marchenko [3] distributed the directions of increasing the level of financial security from mega-economic to nano-economical; O. Plastun [4] investigated the development of the financial security system of business entities in the sphere of material production, etc.

When it comes about the ensuring the financial security of enterprise, this can not touch such a term as a financial crisis, since preventing its formation is one of the main tasks for the financial security of any enterprise. A financial crisis can result from the impact of both internal and external threats. For its prevention and overcoming, the system of anti-crisis management is applied, which, after the financial crisis in 2008, gained high actualization in research among leading scientists, in particular: N. Yershova [5] investigated the diagnostics in the system of anti-crisis management; V. Sharyi [6] researched anti-crisis tech-

nologies as a mechanism for realizing the goals of public administration; A. Pogrebnyiak [7] has formed conceptual provisions for the formation of the mechanism of anti-crisis management, etc.

Despite the considerable scientific achievement both in the sphere of ensuring financial security and in the sphere of the anti-crisis management system of the enterprise, today one of the largest industries of Ukraine suffers from the influence of a number of external and internal threats, namely, the machine building industry. It is necessary to pay attention to this sector and develop an effective model that would streamline the hierarchical impact of certain external and internal threats on their financial security, with a subsequent definition of which specific anti-crisis measures should be used.

1. Formation of the model of the hierarchy the impact of external threats on the financial security of machine-building enterprises

According to the results of the theoretical and analytical study, which provided for familiarization with the work of domestic and foreign scientists to ensure the financial security of enterprises [8–10] and to assess the financial security of machine-building enterprises, in particular, PJSC «Verkhnodniprovskyi mashynobudivnyi zavod»; PJSC «Hrebinkivskyi mashynobudivnyi zavod»; PJSC «Zavod «TEMP»«; PJSC «Konveier»; PJSC «Krasylivskyi mashynobudivnyi zavod»; PJSC «Novohrad-Volynskyi zavod silhospmashyn»; PJSC «Odeskyi mashynobudivnyi zavod»; PJSC «Poltavskyi mashynobudivnyi zavod»; PJSC «Smilianskyi mashynobudivnyi zavod»; PJSC «Kharkivskyi elektrotekhnichnyi zavod «Ukrelektromash»«, a set of key threats to the financial security of machine-building enterprises was singled out. Conditionally, all threats are divided into external and internal, so their consideration will be carried out consistently. To external threats that most significantly affect the financial security of machine-building enterprises can be attributed:

– the instability of the national financial system, the emergence of threatening crisis trends, shortcomings in the use of modern financial instruments (including international ones);

– the volume of the domestic market and the growth of competition from foreign commodity producers;

– high loan interest rates on loans from commercial banks;

– insufficiently developed legal system for protecting investors' rights;

– illegal activity of criminal structures, competitors, firms and individuals, and corruption in state government agency;

– labor potential migration;

– inflationary processes.

Suppose that the set of certain threats is some set $Z = \{z_1, z_2, ..., z_n\}$ [11]. With this set, we will choose a subset $Z_1 \in Z_2$ of significant threats. For clarity, the mathematical notation of each factor will be supplemented with its mnemonic name:

Table 1

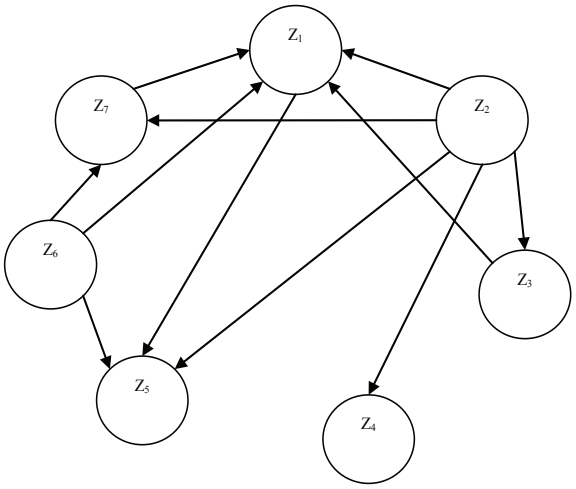
List of external threats to financial security of machine-building enterprises and their mathematical designation

Mathematical notation	Name of the threat	Mnemonic name
Z_1	the instability of the national financial system, the emergence of threatening crisis trends, shortcomings in the use of modern financial instruments (including international ones)	INF
Z_2	the volume of the domestic market and the growth of competition from foreign commodity producers	DM
Z_3	high loan interest rates on loans from commercial banks	LC
Z_4	insufficiently developed legal system for protecting investors' rights	LS
Z_5	illegal activity of criminal structures, competitors, firms and individuals, and corruption in state government agency	IA
Z_6	labor potential migration	ML
Z_7	inflationary processes	IP

At the first stage, the subset of threats Z1 and possible interrelations between them are represented as an oriented graph (Graph 1), at the vertices of which the elements of the subset Z1 are placed, the arcs connect adjacent pairs of vertices (zi, zj) for which the connection is defined. It indicates a certain dependence of one threat (the beginning of the arrow) on the other (the end of the arrow).

Based on the constructed graph, we construct the binary matrix of the dependence A for the set of vertices Z1 as follows [11].

$$a_{ij} = \left\{ \begin{array}{l} \text{1, if the criterion (vertex) and depends on the criterion (the vertex)j;} \\ \text{0, if the criterion (vertex) and does depend on the criterion (the vertex)j.} \end{array} \right\}$$



Graph 1. Graph of links between external threats for the financial security of machine-building enterprises

The matrix A of dimension 7 × 7 elements is placed in the table, adding to it an information line and a column with the names of threats (Table 2).

Table 2

The binary dependence matrix

		1	2	3	4	5	6	7
		INF	DM	LC	LS	IA	ML	IP
1	INF	0	0	0	0	1	0	0
2	DM	1	0	1	1	1	0	1
3	LC	1	0	0	0	0	0	0
4	LS	0	0	0	0	0	0	0
5	IA	0	0	0	0	0	0	0
6	ML	1	0	0	0	1	0	1
7	IP	1	0	0	0	0	0	0

On the basis of the matrix A, we construct the attainability matrix as follows. We form the binary matrix (I + A), where I – is the identity matrix. As a result, the reachability matrix must satisfy condition:

$$(I+A)^{k-1} \le (I+A)^{k} = (I+A)^{k+1}.$$

The actual construction of the binary matrix is reduced to filling the table (Table 3), similar to the one above, the binary elements of which are determined by the following rule:

$$b_{ij} = \left\{ \begin{array}{l} 1, \text{ if from i can be accessed in j;} \\ 0, \text{ otherwise.} \end{array} \right\}$$

Table 3

Reach matrix

		1	2	3	4	5	6	7
		INF	DM	LC	LS	IA	ML	IP
1	INF	1	0	0	0	1	0	0
2	DM	1	1	1	1	1	0	1
3	LC	1	0	1	0	0	0	0
4	LS	0	0	0	1	0	0	0
5	IA	0	0	0	0	1	0	0
6	ML	1	0	0	0	1	1	1
7	IP	1	0	0	0	0	0	1

The vertex zj is reached from the vertex zi, if in the graph (see Graph 1) there exists a path that leads from the vertex zi to the vertex zj. Such a vertex is called attainable. We denote the subset of such vertices by S (zi). Similarly, the vertex zi is the predecessor of the vertex zj, if it reaches its vertex. Let the set of vertex-predecessors form a subset of P (zi).

Finally, a section of subsets of vertices of achievable and vertex-predecessors, that is, a subset

$$R(z_i) = S(z_i) \cap P(z_i), \qquad (1)$$

whose vertices are not reached with any of the vertices of the set Z1 that remain, determines a certain level of the priority hierarchy of the action of threats related to these vertices. An additional condition in this case is to ensure equality.

$$P(z_i) = R(z_i). \qquad (2)$$

The implementation of the set of the above actions gives the first level (the lowest in terms of the importance of influence on the process under investigation) threat hierarchy. To determine it on the basis of the preliminary matrix, we construct table 4.

Table 4

Calculation table

i	$S(z_i)$	$P(z_i)$	$S(z_i) \cap P(z_i)$
1	1, 5	1, 2, 3, 6, 7	1
2	1, 2, 3, 4, 5, 7	2	2
3	1, 3	2, 3	3
4	4	2, 4	4
5	5	1, 2, 5, 6	5
6	1, 5, 6, 7	6	6
7	1, 7	2, 6, 7	7

The second column of this table is the numbers of the individual elements of the corresponding rows of the access matrix, the third is the numbers of the individual column elements of this matrix. Equality (2) is satisfied for the 2nd – the volume of the domestic market and the growth of competition from foreign commodity producers (DM) and the 6th – migration of labor potential (ML) threats. According to the hierarchy analysis method [12], these threats are among the lowest priority level of influence on the financial security of machine-building enterprises. Next, from table 4, we remove rows 2 and 6, and in the i-th columns we delete the figures 2 and 6. We get the table 5, which is the basis for calculating the second iteration of finding the threat numbers, which determine the next level of the hierarchy.

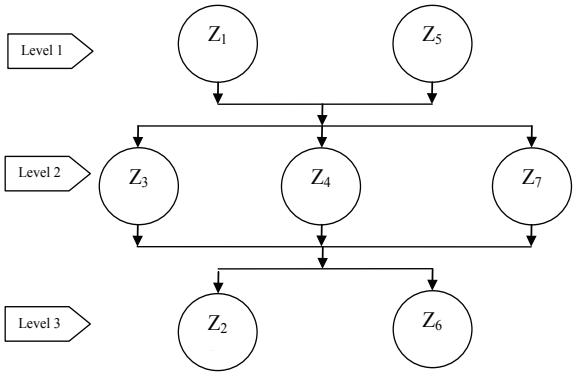
Table 5

Calculation table

i	$S(z_i)$	$P(z_i)$	$S(z_i) \cap P(z_i)$
1	1, 5	1, 3, 7	1
3	1, 3	3	3
4	4	4	4
5	5	1, 5	5
7	1, 7	7	7

In the second iteration, equality (2) is fulfilled for the 3rd – high loan interest rates on loans from commercial banks (LC), 4th – insufficiently developed legal system for protecting investors' rights (LS) and 7th – inflationary processes (IP) threats. These threats determine the next level of the hierarchy. Therefore, we delete rows 3, 4 and 7 from table 5, and in figures 3, 4 and 7 in columns 2 and 3. Without further calculations, we can state that the highest level of the hierarchy will be occupied by the first – the instability of the national financial system, emergence of threatening crisis trends, shortcomings in the use of modern financial instruments (including international ones) (INF) and the fifth – the illegal activities of criminal structures, competitors, firms and individuals and corruption in state government agency (IA) threats.

Having located threats at certain levels, we get a hierarchically structured model (Graph 2), which simulates the priority of their impact on the financial security of machine-building enterprises.



Graph 2. Model of the hierarchy the impact of external threats on the financial security of machine-building enterprises

2. Formation of the model of the hierarchy the impact of internal threats on the financial security of machine-building enterprises

At the next stage of the study, our attention was focused on internal threats of the financial security of machine-building enterprises, which include:

– insufficient amount of own circulating assets;

– growth in volume and a decrease in the quality of receivables and payables;

– use of ineffective instruments for risk management;

– lack of an effective system for motivating employees of financial departments;

– inefficient accounting and analytical support;

– dependence on external sources of financing;

– decrease in profitability of financial and economic activity.

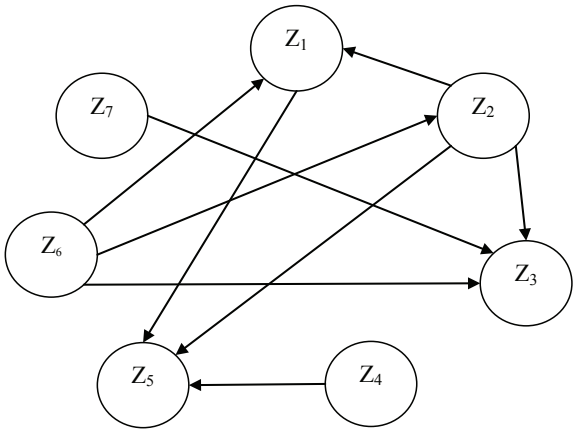
For each threat, its mathematical designation is defined (Table 6).

Table 6

List of internal threats to financial security of machine-building enterprises and their mathematical designation

Mathematical notation	Name of the threat	Mnemonic name
Z_1	insufficient amount of own circulating assets	CA
Z_2	growth in volume and a decrease in the quality of receivables and payables	DQ
Z_3	use of ineffective instruments for risk management	RM
Z_4	lack of an effective system for motivating employees of financial departments	ME
Z_5	inefficient accounting and analytical support	AAS
Z_6	dependence on external sources of financing	ES
Z_7	decrease in profitability of financial and economic activity	DP

We build a graph of links between internal threats to the financial security of machine-building enterprises according to the methodological foundations described above (Graph 3).



Graph 3. Graph of links between internal threats for the financial security of machine-building enterprises

Based on the graph (Graph 3), we form the binary matrix of the dependence (table 7).

Table 7

The binary dependence matrix

		1	2	3	4	5	6	7
		CA	DQ	RM	ME	AAS	ES	DP
1	CA	0	0	0	0	1	0	0
2	DQ	1	0	1	0	1	0	0
3	RM	0	0	0	0	0	0	0
4	ME	0	0	0	0	1	0	0
5	AAS	0	0	0	0	0	0	0
6	ES	1	1	1	0	0	0	0
7	DP	0	0	1	0	0	0	0

Having lowered the moment of constructing the reachability matrix, we form the first calculation table for internal threats to the financial security of machine-building enterprises (table 8).

Table 8

Calculation table

i	$S(z_i)$	$P(z_i)$	$S(z_i) \cap P(z_i)$
1	1, 5	1, 2, 6	1
2	1, 2, 3, 5	2, 6	2
3	3	2, 3, 6, 7	3
4	4, 5	4	4
5	5	1, 2, 4, 5	5
6	1, 2, 3, 6	6	6
7	3, 7	7	7

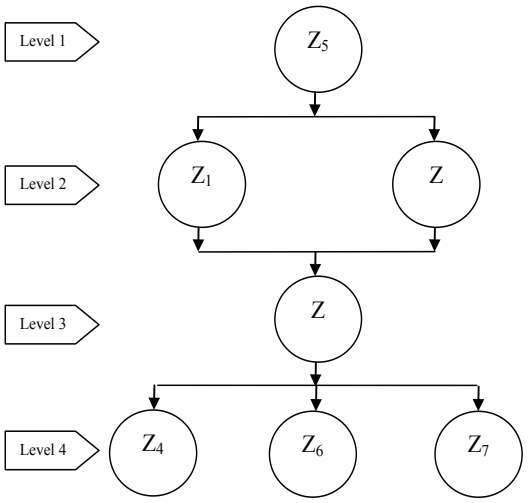
Equality (2) is satisfied for the 4th – lack of an effective system for motivating employees of financial departments (ME), 6th – dependence on external sources of financing (ES) 7th – decrease in profitability of financial and economic activity (DP) threats. These internal threats form the lowest level of priority for the impact on the financial security of machine-building enterprises. Next, we remove rows 4, 6 and 7 from table 8, and delete the digits 4, 6, and 7 in the ith columns. We obtain table 9, which is the basis for calculating the second level of the threat hierarchy.

Table 9

Calculation table

i	$S(z_i)$	$P(z_i)$	$S(z_i) \cap P(z_i)$
1	1, 5	1, 2	1
2	1, 2, 3, 5	2	2
3	3	2, 3	3
5	5	1, 2, 5	5

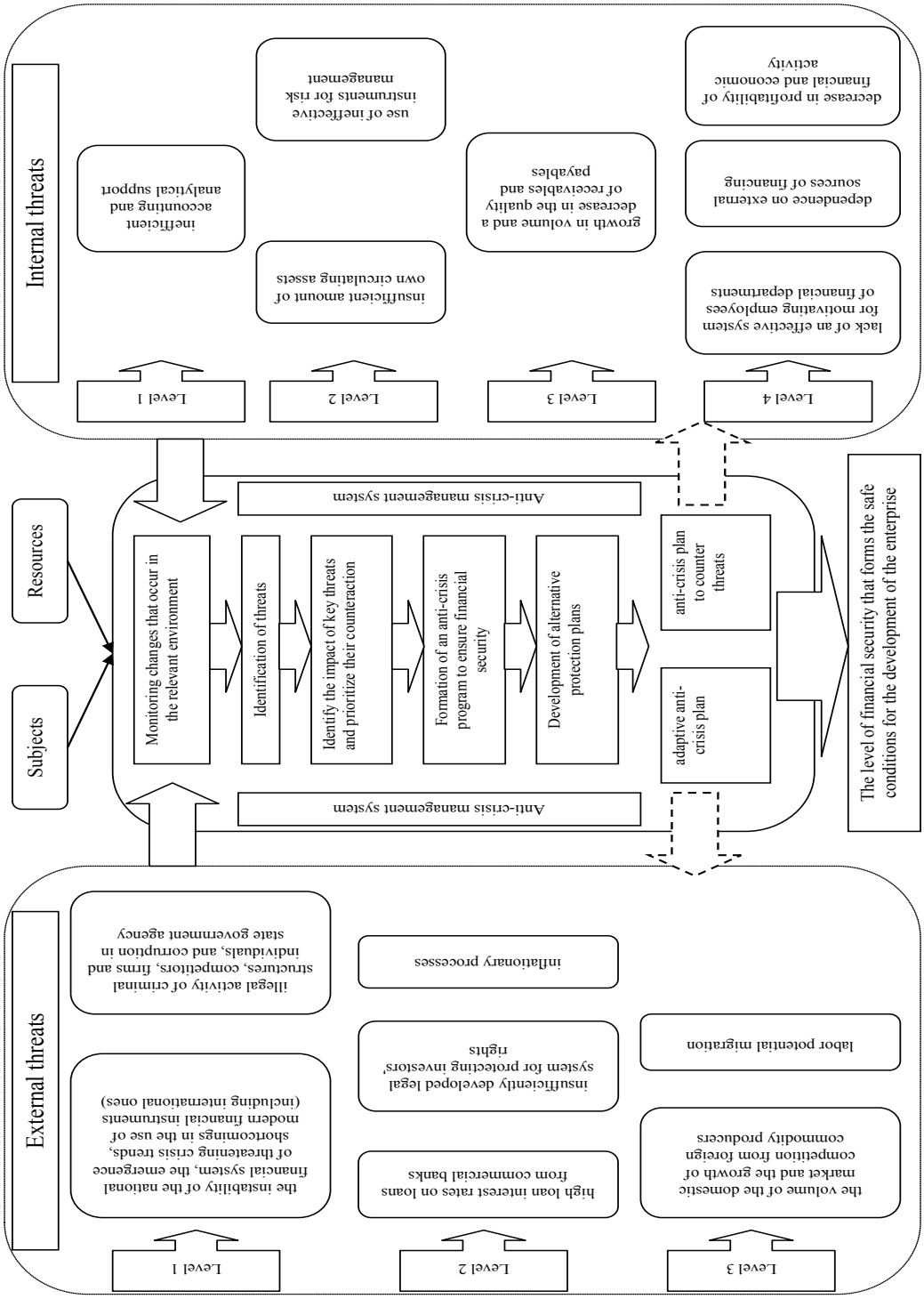
The second level of the hierarchy forms the 2nd – growth in volume and a decrease in the quality of receivables and payables (DQ) threat. Without further intermediate calculations, it is possible to construct a structured model (Graph 4), which characterizes the priority of the impact of threats on the financial security of machine-building enterprises.



Graph 4. Model of the hierarchy the impact of internal threats on the financial security of machine-building enterprises

3. Anti-crisis mechanism to counter the impact of external and internal threats to the financial security of the machine-building enterprises

Applying the theory of graphs, we were able to order hierarchically the external and internal threats identified by us and determine the priority of each of them influence the financial security of engineering enterprises. The results of this research make it possible to form a modern mechanism (the threats were formed based on the results of an analysis of the activities of the selected group of machine-building enterprises in the period 2013-2017) to protect against these threats through the use of the system of anti-crisis management (Graph 5).



Graph 5. Anti-crisis mechanism to counter the impact of external and internal threats to the financial security of the machine-building enterprises

Anti-crisis measures that can be applied to the enterprise differ in the dependent type of threats at the moment that most affect its financial security. Therefore, we saw two anti-crisis plans that must be applied in the event of an impact of a particular threat:

1. Adaptive anti-crisis plan, which must be used in case of significant influence from external threats. The problem is that, basically, the enterprise simply can not put up any counteraction to the influence of a large number of external threats. For example, an enterprise can not affect the level of inflation or stop labor migration throughout the country. So in that case, the only way out is to comply with the adaptation plan, which involves the development of appropriate adaptation programs.

2. An anti-crisis plan to counter threats can be chosen to protect against the impact of internal threats, since this type of threat can be effectively controlled and prevented from internal services of the enterprise.

An important place in the implementation of each anti-crisis plan to protect against the impact of threats on the financial security of machine-building enterprises is the amount of available resources. The main ones that should be used by subjects of anti-crisis management are not only financial but also personnel, information and so on. That is, the effectiveness of the implementation of the anti-crisis mechanism depends on the clarity of the formation of the system of anti-crisis management and the allocated resources for the implementation of anti-crisis plans.

Conclusions

The theoretical and analytical study allowed to develop oriented graphic models and corresponding access matrices that reflect the connection between threats and served as the basis for hierarchical ordering of key threats to the financial security of machine-building enterprises in Ukraine.

We consider it expedient to emphasize that out of the entire set of threats we have identified only the most significant ones, which are subsequently hierarchically ordered by applying the theory of graphs. The result obtained is averaged for most domestic machine-building enterprises, because each of them is influenced by the external environment and changes caused by internal processes.

Our anti-crisis mechanism for countering external and internal threats to the financial security of machine-building enterprises provides for the formation of the system of anti-crisis management, the result of which is the development of two options for anti-crisis plans, which makes it possible to ensure the level of financial security necessary to create safe conditions for the development of the enterprise.

Further investigation requires the issue of the formation of effective resource support for the process of applying anti-crisis measures in the system of ensuring the financial security of machine-building enterprises.

List of Reference

1. Малик О. В. Формування механізму управління фінансовою безпекою підприємства: дис. … канд. екон. наук / Хмельницький національний університет. 2015. URL: http://www.khnu.km.ua/root/res/2-21-36-10.pdf
2. Смоквіна Г. А. Фінансова безпека як стратегічна складова економічної безпеки України. *Економіка промисловості та організація виробництва*. № 3 (13). 2014. URL: http://economics.opu.ua/files/archive/2014/No3/30-36.pdf
3. Марченко О. В. Можливості підвищення фінансової безпеки підприємств будівельної галузі в сучасних умовах. *Бізнесінформ*. № 9. 2014. URL: http://business-inform.net/export_pdf/business-inform-2014-9_0-pages-157_161.pdf
4. Пластун О. Л. Розвиток системи фінансової безпеки суб'єктів підприємництва сфери матеріального виробництва: дис. … канд. екон. наук / Українська академія банківської справи Національного банку України. Суми, 2007. URL: https://essuir.sumdu.edu.ua/bitstream/123456789/51464/1/plastun_financial_safety.pdf
5. Єршова Н. Ю. Діагностика у системі антикризового управління машинобудівними підприємствами: дис. … канд. екон. наук / Харківський політехнічний інститут. Харків, 2009. URL: http://www.kpi.kharkov.ua
6. Шарий В. І. Антикризові технології як механізм реалізації цілей державного управління: дис. … канд. екон. наук / Національна академія державного управління при президентові України. К., 2006. URL: http://academy.gov.ua/NMKD/library_nadu/Avtoreferat/e4b7b2e4-b2bb-44e2-a95b-fda31763bb02.pdf
7. Погребняк А. Ю. Механізм антикризового управління на підприємствах машинобудування: дис. … канд. екон. наук / Національний технічний університет України «Київський політехнічний інститут». К., 2016. 234 с.

8. Мандзіновська Х. О., Штангрет А. М. Фінансова безпека машинобудівного підприємства: Методичні засади формування та забезпечення. Львів: Укр. акад. друкарства, 2016. 226 с.
9. Штангрет А. М., Караїм М. М. Антикризове управління фінансовою безпекою підприємства: теоретичні аспекти. *Економічний вісник університету.* Переяслав-Хмельницький. 2013. № 20/1. С. 178–182.
10. Штангрет А. М. Методичні аспекти управління фінансовою безпекою підприємств. *Науковий вісник НЛТУ України*. 2013. Вип. 23.2. С. 328–335.
11. Лямец В. И., Тевяшев А. Д. Системный подход: вступительный курс. 2-е изд., перераб. и доп. Харьков: ХНУРЕ, 2004. 448 с.
12. Сеньківський В. М. Модель їєрархії критеріїв якості книжкових видань. *Наукові записки* (Укр. акад. друкарства). 2007. Вип. 11. С. 73–80.

References

1. Malyk O. V. (2015) Formuvannja mehanizmu upravlinnja finansovoju bezpekoju pidpryjemstva [Formation of the mechanism of financial security management of the enterprise]: dys… kand. ekon. nauk / Khmel'nyc'kyj nacional'nyj universytet, Khmel'nyc'kyj URL: http://www.khnu.km.ua/root/res/2-21-36-10.pdf [in Ukr.]
2. Smokvina G. A. (2014) Finansova bezpeka jak strategichna skladova ekonomichnoji bezpeky Ukrajiny [Financial security as a strategic component of Ukraine's economic security] *Ekonomika promyslovosti ta organizacija vyrobnyctva [Economics of industry and organization of production]*, 3, URL: http://economics.opu.ua/files/archive/2014/No3/30-36.pdf [in Ukr.]
3. Marchenko O. V. (2014) Mozhlyvosti pidvyschennja finansovoji bezpeky pidpryjemstv budivel'noji galuzi v suchasnyh umovah [Possibilities of increasing financial safety of the enterprises of the building industry in modern conditions] *Biznesinform,* 9, URL: http://business-inform.net/export_pdf/business-inform-2014-90-pages-157_161.pdf [in Ukr.]
4. Plastun O. L. (2007) Rozvytok systemy finansovoji bezpeky sub'jektiv pidpryjemnyctva sfery material'nogo vyrobnyctva [Development of the system of financial security of subjects of entrepreneurship in the sphere of material production]: dys… kand. ekon. nauk / Ukrajins'ka akademija bankivs'koji spravy Nacional'nogo banku Ukrajiny, Sumy URL: https://essuir.sumdu.edu.ua/bitstream/123456789/51464/1/plastun_financial_safety.pdf [in Ukr.]
5. Yershova N. J. (2009) Diagnostyka u systemi antykryzovogo upravlinnja mashynobudivnymy pidpryjemstvamy [Diagnostics in the system of anti-crisis management machine-building enterprises]: dys… kand. ekon. nauk / Kharkivs'kyj politehnichnyj instytut. Kharkiv URL: http://www.kpi.kharkov.ua [in Ukr.]
6. Sharyi V. I. (2006) Antykryzovi tehnologiji jak mehanizm realizaciji cilej derzhavnogo upravlinnja [Anti-crisis technologies as a mechanism for realization of the goals of state administration]: dys… kand. ekon. nauk / Nacional'na akademija derzhavnogo upravlinnja pry prezydentovi Ukrajiny, Kyjiv URL: http://academy.gov.ua/NMKD/library_nadu/Avtoreferat/e4b7b2e4-b2bb-44e2-a95b-fda31763bb02.pdf [in Ukr.]
7. Pogrebnyiak A.Y. (2016) Mehanizm antykryzovogo upravlinnja na pidpryjemstvah mashynobuduvannja [Mechanism of anti-crisis management at the machine-building enterprises]: dys… kand. ekon. nauk / Nacional'nyj tehnichnyj universytet Urkajiny «Kyjivs'kyj politehnichnyj instytut», Kyjiv, 234 [in Ukr.]
8. Mandzinovs'ka Kh. O., Shtanhret A. M. (2016) Finansova bezpeka mashynobudivnoho pidpryyemstva: Metodychni zasady formuvannya ta zabezpechennya [Financial safety of the machine-building enterprise: Methodological principles of formation and provision] *Naukovi zapy'sky'* (*Scientific papers*), L'viv, 226 [in Ukr.]
9. Shtangret A. M., Karajim M. M. (2013) Antykryzove upravlinnja finansovoju bezpekoju pidpryjemstva: teoretychni aspekty [Anti-crisis management of financial security of the enterprise: theoretical aspects] *Ekonomichnyj visnyk universytetu (Economics Bulletin of University)*. Perejaslav-Khmel'nyc'kyj, 20/1, 178–182 [in Ukr.]
10. Shtangret A. M. (2013) Metodychni aspekty upravlinnja finansovoju bezpekoju pidpryjemstv [Methodological aspects of the management of financial security of enterprises] *Naukovyj visnyk NLTU Ukrajiny (Scientifics Bulletin of NFTU of Ukraine)*, 23.2, 328–335 [in Ukr.]
11. Lyamecz V. Y., Tevyashev A. D. (2004) Sy'stemnij podhod: vstupy'tel'nij kurs. 2-e y'zd. [The system approach: the introductory course. 2nd ed.], pererab. i dop. Khar'kov, 448 [in Russ.]
12. Sen'kivs'ky'j V. M. (2007) Model' yiyerarxiyi kryteriyiv yakosti knyzhkovy'x vydan' [Model of the hierarchy of quality criteria for books] *Naukovi zapy'sky'* (*Scientific papers*),11, 73–80 [in Ukr.]

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