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IMPROVING THE BUSINESS PROCESS BY FINDING ADDITIONAL RESOURCES NEEDED TO INCREASE FINANCIAL POTENTIAL OF INSURANCE COMPANY

Abstract. The article considers the need to manage the financial potential of an insurance company. The analysis of optimization of the business process of financial support for the further development of the insurer has been carried out, deficiencies have been identified regarding the optimal option of attracting additional financial resources and measures for their correction have been developed.

Keywords: insurance company, financial potential, business process, optimal option.

GEL Classification: C38, G22

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ВИЗНАЧЕННЯ РІВНЯ ФІНАНСОВОГО ПОТЕНЦІАЛУ СТРАХОВИХ КОМПАНІЙ ЗА ДОПОМОГОЮ КЛАСТЕРНОГО АНАЛІЗУ

Анотація. У статті розглянуто значення фінансового потенціалу страхових компаній, обрано та проаналізовано ряд показників діяльності страхових компаній: страхові виплати, валові премії, активи, перестраховання та власний капітал, здійснено кластерне групування страхових компаній із застосуванням ППП «STATISTICA». Узагальнені результати кластерного аналізу дозволили виділити на вітчизняному ринку страхування три групи компаній залежно від рівня розвитку їх страхової діяльності.

Ключові слова: страхова компанія, фінансовий потенціал, кластерний аналіз, страхові виплати, валові премії, активи, перестраховання та власний капітал.

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ОПРЕДЕЛЕНИЕ УРОВНЯ ФИНАНСОВОГО ПОТЕНЦИАЛА СТРАХОВЫХ КОМПАНИЙ С ПОМОЩЬЮ КЛАСТЕРНОГО АНАЛИЗА

Аннотация. В статье рассмотрено значение финансового потенциала страховых компаний, выбраны и проанализированы показатели деятельности страховых компаний: страховые выплаты, валовые премии, активы, перестрахование и собственный капитал, осуществлена кластерная группировка страховых компаний с применением ППП «STATISTICA». Обобщенные результаты кластерного анализа позволили выделить на отечественном рынке страхования три группы компаний в зависимости от уровня развития их страховой деятельности.

Ключевые слова: страховая компания, финансовый потенциал, кластерный анализ, страховые выплаты, валовые премии, активы, перестрахование, собственный капитал.

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Introduction. The instability of political and economic areas in the country necessitates a thorough and accurate analysis of the criteria for the provision of financial potential of enterprises. The role of financial potential for insurers is special, because when an insurance service is implemented, the insured pays the insurance premium to the insurer and expects that in the future, upon the occurrence of the insured event, the insurance company will fully or partially cover the losses incurred. The high level of financial potential of an enterprise is one of the most important tasks for the management of an insurance company, because its level will depend on the ability of the insurance company to fulfill its obligations [1].

Ensuring a stable functioning of the insurance market is possible under conditions of further strengthening and improvement of financial potential, liquidity, solvency and competitiveness on the basis of sustainable development of insurers. Under these conditions, it is important to solve a number of theoretical and practical issues of the development of Ukrainian insurance companies.

Analysis of research and problem statement. The formation of finance and growth of insurance companies issue was substantiated in the scientific works by the domestic scientists: V. Bazylevych, V. Baranov, V. Boronos, A. Vasilenko, N. Vnukova, O. Gamankova, O. Zhuravka, O. Kozmenko, G. Kravchuk, N. Nagaychuk, I. Nenno, V. Plisa, I. Pryimak, E. Tereshchenko, N. Tkachenko, V. Fedorenko, V. Furman and others.

It is expedient to develop measures to increase the financial potential of insurance companies based on the carrying out of common features and, on the basis of it, groups for which identical measures and tools can be used. One of such methods is a cluster analysis. The use of methods of cluster analysis for solving specific practical problems was dealt with by such domestic scientists as M.A. Babich, N.A. Volkova, A.V. Voronin, S.S. Garkavenko, G.M. Kvit, A.S. Lavrenko, O.M. Palivoda, L.M. Popova. The purpose of the article is to determine the groups of companies in the domestic insurance market depending on the level of their insurance activities in order to increase the financial potential of insurance companies.

Research results. The indicator of financial potential corresponds to the position of the insurance company in the market. The higher the indicator, the higher the place in the rating occupies the subject of entrepreneurship. Accordingly, its performance will be the largest among competitors. Taking into account the uneven development of participants in the insurance market, there is a need for the allocation of homogeneous groups of companies depending on the degree of development of their insurance activities, using cluster analysis methods.

When determining the financial potential of an insurance company, it is expedient to distinguish a number of factors influencing its activity. That is why a number of indicators of the activity of insurance companies for 2016 were selected and analyzed, namely:

- payments (Y_{viplaty}). Insurance payments are monetary amounts paid to the insured or those entitled to this right in case of an insured event [2]. This is a direct indicator of the activity of an insurance company, because its financial potential consists of insurance reserves, insurance payments and other indicators. This is the indicator we build the rating of insurance companies on;

- gross premiums ($X_{\text{ivalovi premii}}$). The economic content of the insurance premium is that it is part of the national income carried out by the insured in order to guarantee his interests in the event of unwanted, unfavorable events (cases of insurance) [3];

- reinsurance ($X_{\text{2perestrahovanie}}$). This is a system of economic relations between insurers, which allows an insurance company that has entered into an insurance contract to transfer its risks to other insurance companies – reinsurers [4]. An additional indicator that determines the place of an insurance company in the market;

- assets (X_{3aktivi}). Means of the insurance company, consisting of fixed assets, intangible assets, long-term financial investments, inventories, costs of future periods, short-term financial investments, cash registers, current accounts, settlements of accounts with founders, etc. That is, an indicator that directly indicates the ability of the insurance company to stay in the market and use available funds;

- equity ($X_{\text{4vlasniy kapital}}$). These are the own sources, which are contributed by its founders and participants to the property of the insurer, or left to them by the insurance company from the net profit received in the course of its economic activity [5].

Data clustering is the task of partitioning a given selection of objects (situations) into a subset called clusters, so that each cluster consists of similar objects, and objects of different clusters differ significantly. Cluster analysis is a multidimensional statistical procedure that collects data that contains information about object selection and then arranges objects in relatively homogeneous clusters. The main objective of the cluster analysis is to find groups of similar objects in the selection [6]. In scientific literature, cluster analysis is designed to split a set of objects into homogeneous groups (clusters or classes). Virtually, this is the task of multidimensional data classification [7].

We use the method of cluster analysis to determine the level of financial potential of insurance companies. To do this, we identified 20 insurance companies in Ukraine [8]:

- PJSC “Insurance Company “INGOSSTRAKH” (hereinafter referred to as INGOSSTRAKH);

- PJSC “Insurance Company “AXA Insurance” (hereinafter – AXA INSURANCE);

- PJSC “Insurance Company “UNIQUA” (hereinafter referred to as UNIQUA);

- PJSC “Insurance Company “PROVIDNA” (hereinafter referred to as PROVIDNA);

- PJSC “Joint-stock insurance company “INGO Ukraine” (hereinafter – INGO UKRAINE);

- PJSC “Insurance Company “Ukrainian Insurance Group” (hereinafter – UKRAYINSKA STRAKHOVA);

- PJSC “Insurance Company “Pzu Ukraine” (hereinafter – PZU UKRAINE);

- PJSC “STR GRU “TAS” (hereinafter – TAS);

- PJSC “Insurance Company “Arsenal Insurance” (hereinafter – ARSENAL INSURANCE);

- PJSC “Ukrainian Insurance Company “Knyazha Vienna Insurance Group” (hereinafter referred to as KNIAZHA);

- PJSC “Alliance Ukraine” (hereinafter – ALLIANZ UKRAINE);

- PJSC “NASK “ORANTA” (hereinafter – ORANTA);
- PJSC “Insurance Company “PERSHA” (hereinafter – PERSHA);
- PJSC “Insurance Company “Universalna” (hereinafter – UNIVERSALNA);
- PJSC “Insurance Company “Alfa Insurance” (Ukraine) (hereinafter – ALPHA INSURANCE);
- PJSC “Insurance Company “Krayina” (hereinafter referred to as the “KRAYINA”);
- PJSC “Insurance Company “VUSO” (hereinafter – VUSO);
- PJSC “Ukrainian Transport Insurance Company” (hereinafter – UTICO);
- PJSC “Ukrainian joint stock company “ASKA” (further – ASKA);
- PJSC “Insurance Company “Colonnade Ukraine” (hereinafter referred to as COLONNEYD UKRAINE).

Table 1 shows the performance of insurance companies (insurance premiums, gross premiums, assets, reinsurance and equity) for 2016.

Table 1

Indicators of the activity of insurance companies for 2016, thousand UAH

The company name	Y_viplaty	X1_valovi premii	X2_perestrahovanie	X3_aktivi	X4_vlasniy kapital
INGOSSTRAKH	1136199	1479194	6244	832585	376668
AXA INSURANCE	601896	1400430	42370	1432887	608453
UNIQUA	482183	1064115	202762	1163545	404098
PROVIDNA	387693	786642	33099	802353	465949
INGO UKRAINE	368357	903449	237984	1498527	612898
UKRAYINSKA STRAKHOVA	321085	745944	78929	805794	265142
PZU UKRAINE	314406	1120361	601495	1207179	245080
TAC	262224	763238	96590	864825	387297
ARSENAL INSURANCE	243454	1211259	565910	726822	257489
KNYAZHA	185767	434880	92281	444787	131720
ALLIANZ UKRAINE	341369	123235	65562	171213	66632
ORANTA	149940	508651	39817	631176	247814
PERSHA	116885	362492	111542	409560	122385
UNIVERSALNA	128273	501721	123056	602933	267095
ALPHA INSURANCE	120237	476363	13608	328708	155588
KRAYINA	115752	293714	13953	240902	122951
VUSO	104053	352822	78490	295547	163613
UTICO	71509	290433	37086	379303	202597
ASKA	92791	603748	429016	869841	177812
COLONNEYD UKRAINE	64938	148071	7531	295373	182529

On the basis of the analysis of the system of performance indicators of twenty insurance companies of Ukraine, an analysis that serves as the basis for assessing their financial potential was conducted.

With the help of STATISTICA version 6.0 [9], a software complex designed for statistical analysis and a wide range of functions, a study on the availability of clusters among the above-mentioned insurance companies in Ukraine was conducted.

In fig. 1 shows a dendrogram of classification by the Ward method. The analysis of this dendrogram allows us to recognize three groups (clusters) of homogeneous states in the observed set of data. This allowed using cluster analysis to distinguish in the domestic insurance market three groups of companies depending on the level of development of their insurance activities.

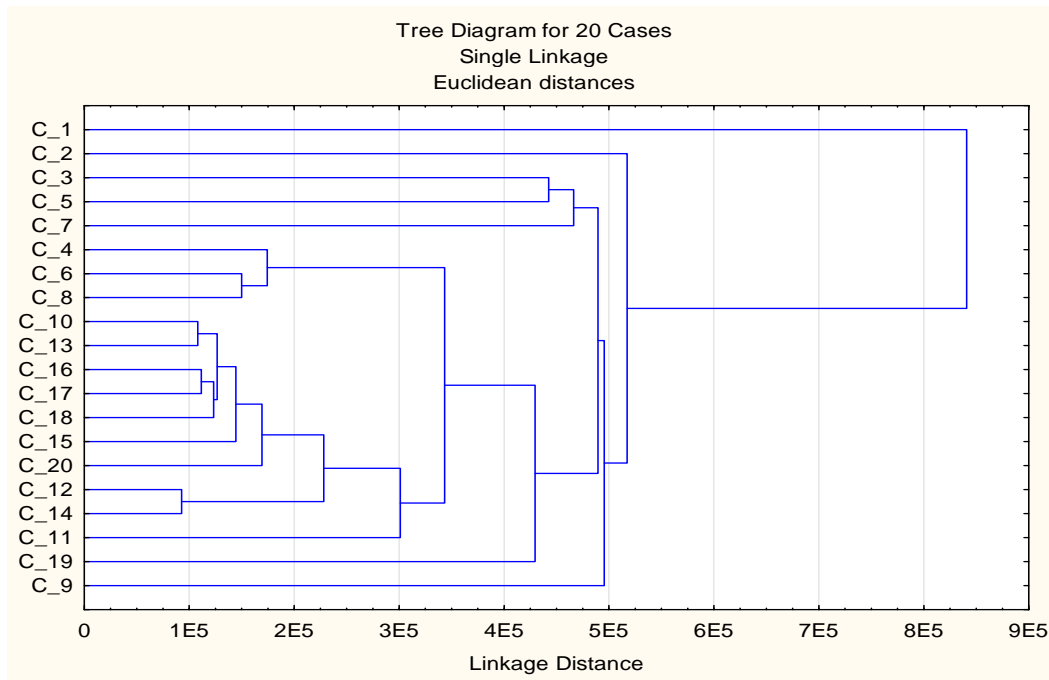


Figure 1. Dendrogram of the classification of the domestic insurance market by the Ward method

Analyzing the data, we obtain the distances matrix (Fig. 2) and the union matrix (Fig. 3). When forming a cluster with insurance companies and evaluating its financial potential, there is a need to justify the approach to developing management decisions for each cluster.

Case No.	Euclidean distances (Spreadsheet21)																			
	C_1	C_2	C_3	C_4	C_5	C_6	C_7	C_8	C_9	C_10	C_11	C_12	C_13	C_14	C_15	C_16	C_17	C_18	C_19	C_20
C_1	0	840878	865410	1024449	1214105	1104765	1147199	1133905	1098817	1487179	1734195	1404620	1593964	1431698	1529925	1691507	1634950	1668363	1440408	1801604
C_2	840878	0	517176	916834	586621	1009778	810367	946538	1029594	1520381	1893418	1331293	1612698	1357887	1584620	1765929	1684654	1669787	1243325	1825730
C_3	865410	517176	0	498989	442517	538344	466360	489589	650185	1042501	1422151	867939	1132208	883713	1127363	1301442	1214750	1204294	743117	1361676
C_4	1024449	916834	498989	0	749832	220292	807763	174385	730857	638417	1000550	459059	729189	485677	699178	866124	786747	771062	603941	921929
C_5	1214105	586621	442517	749832	0	808180	634252	709500	969395	1271230	1642973	1062274	1341012	1074199	1368181	1519028	1430910	1387543	887016	1532503
C_6	1104765	1009778	538344	220292	808180	0	758169	149940	682635	513203	911294	343395	605952	374065	597406	768256	687247	676266	454563	833976
C_7	1147199	810367	466360	807763	634252	758169	0	722925	495439	1157507	1545083	1023966	1226656	1005914	1256092	1420078	1320836	1324206	681229	1481782
C_8	1133905	946538	489589	174385	709500	149940	722925	0	676189	596184	1000377	393310	677782	412396	671159	841365	753591	730276	456685	889657
C_9	1098817	1029594	650185	730857	969395	682635	495439	676189	0	962174	1337483	887929	1030429	853388	1014481	1190408	1090292	1131779	661296	1290655
C_10	1487179	1520381	1042501	638417	1271230	513203	1157507	596184	962174	0	448473	240202	108092	228160	162014	269465	192069	215123	577362	359093
C_11	1734195	1893418	1422151	1000550	1642973	911294	1545083	1000377	1337483	448473	0	655932	411909	646943	457183	301095	366143	404201	961886	330524
C_12	1404620	1331293	867939	459059	1062274	343395	1023966	393310	887929	240202	655932	0	304049	92820	320319	464694	384214	345344	475023	505284
C_13	1593964	1612698	1132208	729189	1341012	605952	1226656	677782	1030429	108092	411909	304049	0	279251	173806	206643	126686	141932	611969	275951
C_14	1431698	1357887	883713	485677	1074199	374065	1005914	412396	853388	228160	646943	92820	279251	0	316733	455161	360470	330796	429525	494136
C_15	1529925	1584620	1127363	699178	1368181	597406	1256092	671159	1014481	162014	457183	320319	173806	316733	0	205319	144562	205585	694883	335720
C_16	1691507	1765929	1301442	866124	1519028	768256	1420078	841365	1190408	269465	301095	464694	206643	455161	205319	0	111513	167337	817007	174218
C_17	1634950	1684654	1214750	786747	1430910	687247	1320836	753591	1090292	192069	366143	384214	126686	360470	144562	111513	0	123291	718314	221011
C_18	1668363	1669787	1204294	771062	1387543	676266	1324206	730276	1131779	215123	404201	345344	141932	330796	205585	167337	123291	0	702474	169206
C_19	1440408	1243325	743117	603941	887016	454563	681229	456685	661296	577362	961886	475023	611969	429525	694883	817007	718314	702474	0	846229
C_20	1801604	1825730	1361676	921929	1532503	833976	1481782	889657	1290655	359093	330524	505284	275951	494136	335720	174218	221011	169206	846229	0

Figure 2. Classification matrix

linkage distance	Amalgamation Schedule (Spreadsheet21)																			
	Single Linkage Euclidean distances																			
	Obj. No. 2	Obj. No. 3	Obj. No. 4	Obj. No. 5	Obj. No. 6	Obj. No. 7	Obj. No. 8	Obj. No. 9	Obj. No. 10	Obj. No. 11	Obj. No. 12	Obj. No. 13	Obj. No. 14	Obj. No. 15	Obj. No. 16	Obj. No. 17	Obj. No. 18	Obj. No. 19	Obj. No. 20	
92620.47	C_14																			
108091.7	C_13																			
111512.9	C_17																			
123290.8	C_17	C_18																		
126685.9	C_13	C_16	C_17	C_18																
144561.5	C_13	C_16	C_17	C_18	C_15															
149940.4	C_8																			
169205.8	C_13	C_16	C_17	C_18	C_15	C_20														
174385.2	C_6	C_8																		
228159.9	C_13	C_16	C_17	C_18	C_15	C_20	C_12	C_14												
301094.7	C_13	C_16	C_17	C_18	C_15	C_20	C_12	C_14	C_11											
343394.9	C_6	C_8	C_10	C_13	C_16	C_17	C_18	C_15	C_20	C_12	C_14	C_11								
429524.6	C_6	C_8	C_10	C_13	C_16	C_17	C_18	C_15	C_20	C_12	C_14	C_11	C_19							
442516.5	C_5																			
466359.7	C_5	C_7																		
489588.9	C_5	C_7	C_4	C_6	C_8	C_10	C_13	C_16	C_17	C_18	C_15	C_20	C_12	C_14	C_11	C_19				
495438.9	C_5	C_7	C_4	C_6	C_8	C_10	C_13	C_16	C_17	C_18	C_15	C_20	C_12	C_14	C_11	C_19	C_9			
517175.7	C_3	C_5	C_7	C_4	C_6	C_8	C_10	C_13	C_16	C_17	C_18	C_15	C_20	C_12	C_14	C_11	C_19	C_9		
840877.7	C_2	C_3	C_5	C_7	C_4	C_6	C_8	C_10	C_13	C_16	C_17	C_18	C_15	C_20	C_12	C_14	C_11	C_19	C_9	

Figure 3. The union matrix

The graph for mean values for state clusters is shown in Fig. 4. Analyzing the chart, we can conclude that most clusters differ in the X3–assets, then X1–gross premiums and very small differences in the median for Y– payments and X4–equity.

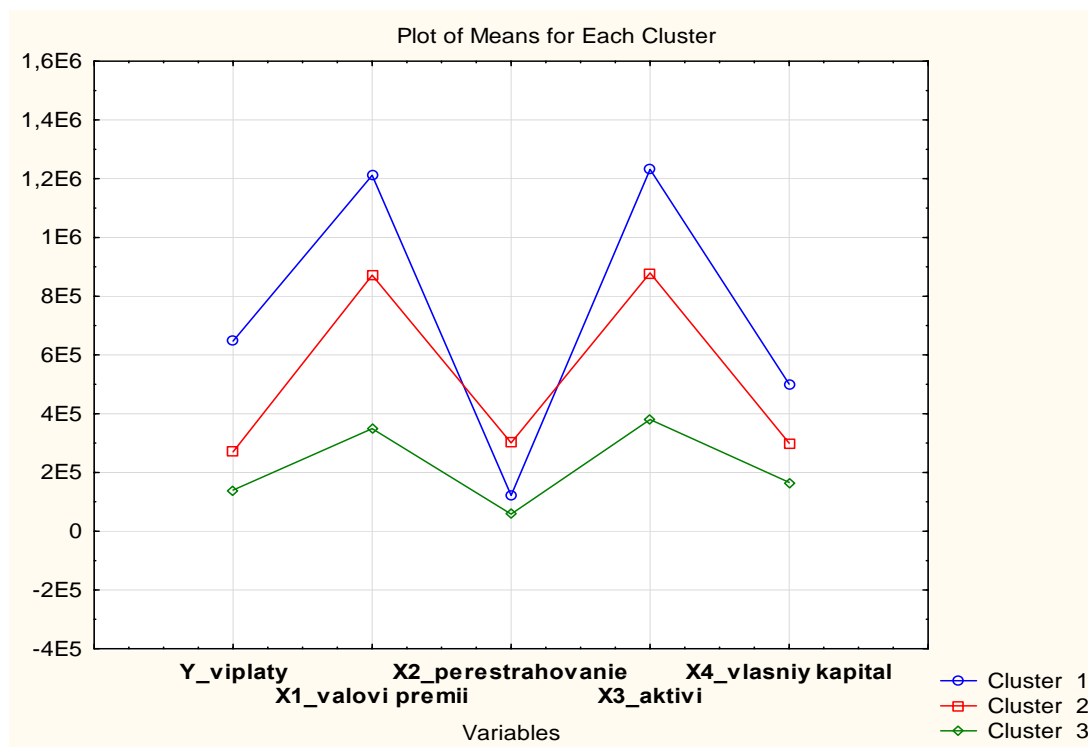


Figure 4. Graph of average values of cluster states

From Fig. 4, it can be seen that the Y–payout ratio best describes the belonging of the objects to the cluster. We have three clusters.

Cluster №1 includes the following insurance companies: INGOSSTRAKH; AXA INSURANCE; UNIQUA; INGO

The cluster number 2 contains the following insurance companies: PROVIDNA; UKRAINIAN INSURANCE; PZU UKRAINE; TAS; ARSENAL INSURANCE; ASKA

The largest – cluster number 3 contains the following companies: KNIAZHA; ALLIANCE UKRAINE; ORANTA; PERSHA; UNIVERSALNA; ALPHA INSURANCE; KRAYINA; VUSO; UTICO; KOLONNEYD UKRAINE.

Thus, the cluster number 3 (10 insurance companies) has the largest distance from the center, and cluster number 1 and number 2 (4 and, respectively, 6 insurance companies) have the highest level of analyzed indicators. The cluster number 1 consists of companies with the highest place in the ranking.

That is, summing up the conducted research, we can conclude about the activities of insurance companies, its indicators and market position.

The data of intergroup and intergroup dispersion indicate the significant affiliation of insurance companies to the cluster by gross premiums. Depending on the object's belonging to a particular cluster, you can formulate recommendations for choosing strategies for managing the financial potential of insurers.

By studying descriptive statistics, we formulate indicators and compare them among other clusters. The results of this analysis conclude that the effective performance of various indicators of the insurance company.

In tabl. 2–4 shows descriptive statistics for each cluster.

Table 2

Descriptive statistics for the cluster 1

Descriptive Statistics for Cluster 1 (Spreadsheet1) Cluster contains 9 cases			
	Mean	Standard – Deviation	Variance
Y	56049,4	37730,3	1,423577E+09
X1	347067,3	149719,2	2,241583E+10
X2	96709,2	97110,2	9,430389E+09
X3	764842,4	150488,6	2,264681E+10
X4	255112,2	117380,5	1,377817E+10

Table 3

Descriptive statistics for the cluster 2

Descriptive Statistics for Cluster 2 (Spreadsheet21) Cluster contains 6 cases			
	Mean	Standard – Deviation	Variance
Y_viplaty	270275,5	100599,1	1,012019E+10
X1_valovi premii	871865,3	238220,1	5,674883E+10
X2_perestrahovanie	300839,8	260665,5	6,794648E+10
X3_aktivni	879469,0	168746,5	2,847540E+10
X4_vlasniy kapital	299794,8	105950,9	1,122559E+10

Table 4

Descriptive statistics for the cluster 3

Descriptive Statistics for Cluster 3 (Spreadsheet21) Cluster contains 10 cases			
	Mean	Standard – Deviation	Variance
Y_viplaty	139872,3	78888,5	6,223401E+09
X1_valovi premii	349238,2	137612,1	1,893710E+10
X2_perestrahovanie	58292,6	42132,5	1,775145E+09
X3_aktivni	379950,2	148221,0	2,196948E+10
X4_vlasniy kapital	166292,4	60959,1	3,716015E+09

Conclusions. Thus, the cluster number 1 has the highest level of indicators, the recommendations for these insurance companies is to maintain an adequate level of management of financial potential and increase accordingly the performance of its activities. Cluster №3 has average results of indicators, and therefore it is recommended to pay attention to the management of the financial potential of insurance companies and influence the further results of work. As for the cluster number 2, the companies with the lowest indicators belong to it. The managers of these companies need to review company management strategies, pay attention to a range of services that provide companies and enhance their competitiveness.

Thus, on the basis of analysis of the characteristics of each cluster, variants of influence of the insurance company's activity indicators on its financial potential were revealed, interaction of the indicators and place of the company in the market was investigated.

Література

1. Крупка, М. І. Формування фінансового потенціалу інвестиційної діяльності в економіці України [Текст] : монографія / М. І. Крупка, Д. В. Демчишак, М. І. Кульчицький. – Львів : ЛНУ ім. Івана Франка, 2011. – 404 с.
2. Ткаченко, Н. В. Страхування [Текст] : навчальний посібник / Н. В. Ткаченко. – К. : Ліра-К, 2007. – 375 с.
3. Осадець, С. С. Страхова справа [Текст] : підручник / С. С. Осадець. – Вид. 2-ге, перероб. і доп. – К. : КНЕУ, 2002. – 599 с.
4. Возняк, Г. В. Фінансовий потенціал підприємств регіону: підходи до розуміння [Текст] / Г. В. Возняк // Вісник Університету банківської справи Національного банку України. – 2010. – № 2 (8). – С. 27–45.
5. Терещенко, Е. Ю. Економічна сутність фінансового потенціалу підприємства [Електронний ресурс] / Е. Ю. Терещенко // Проблемы формирования новой экономики XXI века : Первая Международная научно-практическая конференция, 19 декабря 2008 г. – Режим доступа: http://www.confcontact.com/2008dec/7_tereshchenko.php.
6. Кластерный анализ [Электронный ресурс] // Студопедия. – Режим доступа: http://studopedia.net/4_24446_klasterniy-analiz.html.
7. Кластерный анализ [Электронный ресурс] // Центр Статистических Технологий. – Режим доступа: <http://www.nickart.spb.ru/analysis/cluster.php>.
8. Рейтинг страхових компаній–2016 [Електронний ресурс] // Forbes Україна. – Режим доступа: <http://forbes.net.ua/ua/business/1398567-rejting-strahovih-kompanij-2016>.
9. Халафян, А. А. Statistica 6.0. Статистический анализ данных [Текст] : учебник. – 3-е изд. – Москва : Бином–Пресс, 2007. – 512 с.

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References

1. Krupka, M. I., Demchyshak, D. V., & Kulchytskyi, M. I. (2011). *Formuvannia finansovoho potentsialu investitsiinoi diialnosti v ekonomitsi Ukrainy*. Lviv: LNU im. Ivana Franka.
2. Tkachenko, N. V. (2007). *Strakhuvannya*. Kyiv: Lira-K.
3. Osades, S. S. (2002). *Strakhova sprava*. (2nd ed.). Kyiv: KNEU.
4. Vozniak, H. V. (2010). Finansovyi potentsial pidpryemstv rehionu: pidkhody do rozuminnia. *Visnyk Universytetu bankivskoi spravi Ukrainy NBU*, 2(8), 27–45.
5. Tereshchenko, E. Yu. (2008, December 19). Economichna sutnist finansovoho potentsialu pidpryemstva. *Problemy formirovaniia novoi ekonomiki XXI veka*. Available at: http://www.confcontact.com/2008dec/7_tereshchenko.php
6. Klasterniy analiz. *Studopediia*. Available at: http://studopedia.net/4_24446_klasterniy-analiz.html
7. Klasterniy analiz. *Sait statisticheskikh tekhnologii*. Available at: <http://www.nickart.spb.ru/analysis/cluster.php>
8. Reiting strahovykh kompanii 2016. *Forbes Ukraina*. Available at: <http://forbes.net.ua/ua/business/1398567-rejting-strahovih-kompanij-2016>
9. Halafian, A. A. (2007). *Statistica 6.0. Statisticheskii analiz dannykh*. (3rd ed.). Moskva: Binom–Press.

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