DOI: 10.55643/fcaptp.2.49.2023.4022

Halyna Yaremko

PhD in Education, Head of the Department of Foreign Languages, Lviv Polytechnic National University, Lviv, Ukraine; e-mail: <u>halyna.v.yaremko@lpnu.ua</u> ORCID: 0000-0003-2257-2264

(Corresponding author)

Mariia Voloshyn

PhD in Philology, Associate Professor of the Department of Foreign Languages, Lviv Polytechnic National Univesity, Lviv, Ukraine; ORCID: <u>0000-0002-9403-3959</u>

Oksana Bilyk

PhD in Education, Associate Professor of the Department of Foreign Languages, Lviv Polytechnic National University, Lviv, Ukraine; ORCID: 0000-0001-6042-1147

Halyna Drapaliuk

Senior Lecturer of the Department of Foreign Languages, Lviv Polytechnic National University, Lviv, Ukraine; ORCID: <u>0000-0003-4273-4996</u>

Iryna Say

Lecturer of the Department of Foreign Languages, Lviv Polytechnic National University, Lviv, Ukraine; ORCID: 0000-0002-1503-2959

Received: 01/02/2023 Accepted: 10/04/2023 Published: 30/04/2023

© Copyright 2023 by the author(s)

This is an Open Access article distributed under the terms of the <u>Creative Commons.CC-BY 4.0</u>

TRENDS IN FINANCIAL SECURITY RESEARCH: A BIBLIOMETRIC ANALYSIS

ABSTRACT

Achieving financial security becomes one of the main tasks of the government, business management, investors and citizens. However, at the same time, the very comprehension of the essence of such security is ambiguous, as well as the mechanism for achieving it. The purpose of the article is to identify the trends and key areas of financial security research by conducting a bibliometric analysis of scientific publications that are indexed in the Scopus database. A thorough review of the evolution of financial security research was conducted from 1951 to March 2023. 2,515 publications indexed in the Scopus that contain the term "financial security" in their titles, abstracts and keywords were analyzed. The VOSviewer software was used to build network maps of the relationship between keywords, visualize the relationships between scholars from different countries, and build a network map of the relationship between keywords in chronological order. The results showed that since the beginning of the 90s of the 20th century, the number of publications on financial security has been increasing annually; the term "financial security" is used in the research of various fields of science; the majority of publications on financial security appeared between 2014 and 2020. The leadership of such research belongs to the USA, the United Kingdom and China. Visualization of the network map of common words based on bibliographic data allowed us to single out 11 clusters that characterize the key areas of financial security research. The following keywords were identified in each cluster: employment security, financial efficiency and stability, life safety, financial risks, social security, financial technologies, psychological state, economic security, family and personal security, financial literacy, and the covid-19 pandemic. The obtained results will contribute to a better understanding of global trends by researchers as well as promote future research in the field of financial security.

Keywords: financial security, Scopus database, VOSviewer software, publication activity, citations, bibliometric network map, bibliometric analysis

JEL Classification: C38, D14, G01, G32, G53

INTRODUCTION

There is no exact data on where and when the term "financial security" was first used. The analysis of literary sources shows that using the concept of "financial security" traced its roots to the 1950s of the 20th century. Historically and logically, the problem of economic (including financial) security is connected with the formation and development of statehood and the nation's awareness of its financial and economic interests. However, this problem has never disappeared from society's view and has been brought to the fore in different periods. When studying economic security, scholars pay special attention to the study of the experience of the United States [23; 30]. Financial aspects play an important role in the structure of economic security. The term "financial security" is believed to have been first used by American politicians and scholars who were analyzing issues related to the country's financial security.

The peak of interest in the problem of the scientific study of financial security dates from the late 80s and early 90s of the twentieth century. This was due to the monetary and structural crisis of the 70s, the debt crisis of the 80s, and, ultimately, the collapse of the CMEA and the USSR in the early 90s, which led to greater openness of national economies and to economic integration. All of this was accompanied by the increase in the interdependence between states and the globalization of the world economy [15; 30; 32]. Since then, the term "financial security" has been actively used in both scientific and practical areas related to economics and finance.

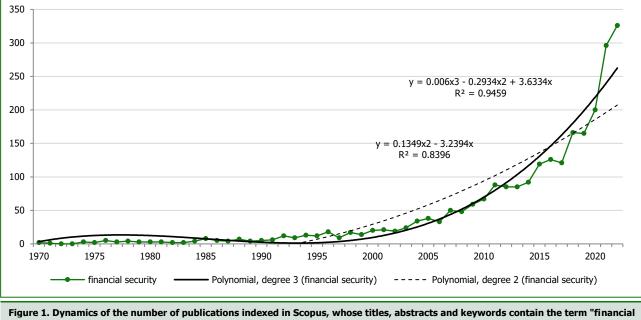
Subsequently, the introduction of the principles of market economy, the expansion of private property and the development of the business environment, public interest in the field of scientific research on financial security at the level of enterprises or individuals increased.

Ensuring financial security at all levels of management is an urgent issue not only for Ukraine but also for all countries. Today, the functioning of the financial system of any country depends on global instability, political relations between countries, economic problems, hostilities, the spread of the COVID-19 pandemic, force majeure events and other factors. Thus, it is impossible to solve the socio-economic, technological, environmental or other problems of a country, region or business without ensuring their financial security.

The analysis of literary sources confirms that the understanding of the concept of "financial security" in scientific circles is quite fragmentary. There are many interpretations of this concept, proposed by various scholars. However, in connection with the constant changes that are taking place on a global scale, the expansion of the sphere of influence due to the use of the latest digital financial technologies, as well as due to the emergence of financial crises and financial conflicts, there is a growing need and demand for a more thorough study of the essence of the concept of "financial security". Under the influence of many factors, the emphasis of scientific research is also changing, facts that were previously unknown are being discovered, new scientific schools are being formed and areas of research in the field of financial security are being considered. In the context of the growing importance of financial security and the increasing need to develop a scientific approach to this issue, the study of the publication activity of scholars and researchers in this field becomes an important scientific and practical task.

LITERATURE REVIEW

The growing interest of society in the scientific study of financial security is evidenced by the rapid growth in the level of publication activity, which can be seen in Figure 1.



security". (Source: built on the basis of the Scopus database)

As we can see from Figure 1, the number of publications indexed in Scopus, whose titles, abstracts and keywords contain the term "financial security", has been growing at a very high rate since the beginning of the 90s of the twentieth century. This is graphically confirmed by the nature and direction of the curves of polynomial functions of the 2nd and 3rd degree, built on the basis of data on the number of publications.

The study of financial security is gaining popularity for several reasons [4; 18; 31]:

- the development of new financial instruments and technologies, which creates new financial risks and threats. The study of financial security helps understand the nature and causes of these risks and develop effective measures to prevent their emergence;
- the complexity of the world economy functioning. The study of scientific sources allows governments and entrepreneurs to obtain relevant theoretical and practical knowledge necessary to understand the principles of the world economy functioning and allows them to make effective decisions regarding the development of financial strategies;
- the need of governments and businesses to ensure financial stability. The study of financial security helps anticipate the onset of financial crises and minimize the consequences of their occurrence.

Based on the amplitude in Figure 1, the three stages of scientific interest in the study of financial security can be identified:

The first stage (the 70s – early 90s of the 20th century) was a stage of the emergence of theoretical and practical interest in the scientific study of financial security;

The second stage (the early 90s – 2003) was a stage of moderate growth. This stage is characterized by low dynamics of the number of scientific publications devoted to the topic of financial security;

The third stage (since 2004) is a stage of active development of scientific research.

The sectoral structure of publication activity on the topic of financial security is quite diversified (Figure 2).

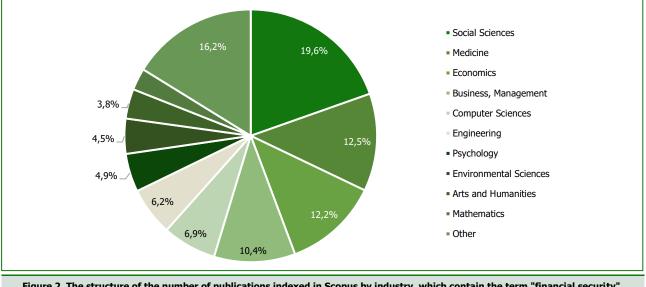


Figure 2. The structure of the number of publications indexed in Scopus by industry, which contain the term "financial security". (Source: built on the basis of the Scopus database)

As we can see from Figure 2, the term " financial security " is most often found in publications concerning the field of "social sciences" (856 publications or 19.6%). This term is the object of research in other fields as well, including medicine (544 publications or 12.5%), economics, econometrics and finance (532 publications or 12.2%), business, management and accounting (452 publications or 10.4%). The term "financial security" is used in the study of various branches of science and is a key term in the study of non-financial sciences, such as computer science, engineering, psychology, etc. For example, the most cited publication (1,070 citations) in the field of "computer science" in Scopus is an article by a Taiwanese scholar M.S. Lee [17] Factors Influencing the Adoption of Internet Banking: An Integration of TAM and TPB with Perceived Risk and Perceived Benefit. Based on the theory of acceptable risk, the scholar proposed a theoretical model to explain the intention of customers to use online banking and proved that the intention to use online banking is negatively affected mainly by security/privacy risk, as well as financial risk. In the field of "psychology", the most cited article in Scopus (150 citations) is the article by English scholars R.D. Wiggins, F.D.P. Higgs, M. Hyde, D. Blane [33], who studied financial security as one of the factors that affects the quality of life of people at an early age. Thus, the above confirms the multidisciplinary nature of the term "financial security".

The ranking of scientific publications on financial security by the number of citations in the Scopus database is shown in Table 1.

No.	Publication title	Authors	Publication source	Year of pub- lication	Number of citations
1	2016 Alzheimer's disease facts and figures	Gaugler J., James B., Johnson T., Scholz K., Weuve J.	Alzheimer's and De- mentia [8]	2016	1,809
2	E-satisfaction: An initial examination	Szymanski D.M., Hise R.T.	Journal of Retailing [26]	2000	1,210
3	Factors influencing the adoption of Internet banking: An integration of TAM and TPB with perceived risk and perceived benefit	B Lee Ming-Chi Research and Applie		2009	1,070
4	Pricing derivatives on financial securities subject to credit risk	Jarrow R.A., Turnbull S.M.	The Journal of Finance [14]	1995	1,024
5	Subjective social status: Its determinants and its association with measures of ill- health in the Whitehall II study	Singh-Manoux A., Adler N.E., Marmot M.G.	Social Science and Med- icine [22]	2003	683
6	Wisdom of crowds: The value of stock opin- ions transmitted through social media	Chen H., De P., Hu Y., Hwang BH.	Review of Financial Studies [3]	2014	465
7	Explaining entrepreneurial intentions by means of the theory of planned behaviour	Van Gelderen M., Brand M., Van Praag M., Bodewes W., Poutsma E., Van Gils A.	Career Development In- ternational [28]	2008	417
8	Barriers and benefits in the adoption of e- government Gilbert D., Balestrini P., Littleboy D.		International Journal of Public Sector Manage- ment [9]	2004	363
9	The heritability of life history strategy: The K-factor, covitality, and personality	Figueredo A.J., Vásquez G., Brumbach B.H., Schneider S.M.	Social Biology [6]	2004	267
10	How am I doing? Perceived financial well-be- ing, its potential antecedents, and its rela- tion to overall well-being	potential antecedents, and its rela-		2018	239

Table 1. The ranking of scientific publications on financial security by the number of citations.

The most cited (189 citations) is the 2016 Alzheimer's Disease Facts and Figures publication by American researchers [8], who in their study considered the financial impact of Alzheimer's disease on families, including the annual expenses of the families and the difficult decisions that families often have to make in order to pay these costs. The researchers considered these expenses as an important factor that affects the financial security of families of people with Alzheimer's disease and other dementias. It should be noted that the approaches to the study of financial security began with its research at the level of a family or an individual and are reflected in the first published works by American researchers in the 1950s, such as M. Carter [2] and G. Galphin [7] Ways of Including Education for Family Financial Security (1951), F. Wilhelms [34] Family Financial Security Education (1952), L. Dunstall [5] Financial Security for Nurses (1954). In the second place, we have the publication by American researchers D. Szymanski and R. Hise E-satisfaction: An Initial Examination [26] (1,210 citations). In this study, researchers found that financial security, along with convenience and website design, is the dominant factor in consumer satisfaction in the case of e-retailing. In the third place, we have the publication Factors Influencing the Adoption of Internet Banking: An Integration of TAM and TPB with Perceived Risk and Perceived Benefit [17], which was cited 1,070 times. The main content of this publication was described above.

The rating of authors who have at least 5 publications on financial security in Scopus is given in Table 2.

No.	Authors	Country	Number of published works	Author's h-index in the Sco- pus database	
NO.	Autiors	Country	Number of published works		
1	Zimon, Grzegorz	Poland	11	12	
2	Grinstein-Weiss, Michal	USA	6	21	
3	Michalos, Alex C.	Canada	6	28	
4	Britchenko, Igor	Poland	5	10	
5	Davydenko, Nadiia	Ukraine	5	5	
6	Labonte, Marc	USA	5	1	
7	Lee, Matthew T.	USA	5	19	
8	Lusardi, Annamaria	USA	5	38	
9	McNeely, Eileen	USA	5	20	
10	Mitchell, Olivia S.	USA	5	34	
11	VanDerWeele, Tyler J.	USA	5	72	
12	Weziak-Bialowolska, Dorota	Poland	5	16	

The analysis of publication activity confirmed that there has been a growing scientific interest in the study of financial security starting from the 2000s. At the same time, we can observe the multidisciplinary nature of the research and the geography of scholars and researchers who study this topic is diversified.

AIMS AND OBJECTIVES

The purpose of the article is to identify trends and key areas of financial security research by conducting a bibliometric analysis of scientific publications that are indexed in the Scopus scientometric database.

METHODS

The article uses the method of bibliometric analysis to identify trends and key areas of financial security research. Bibliometric analysis is a popular research method for analyzing large volumes of scientific data. This method allows one to reveal evolutionary nuances and identify new directions of research in the field under study. Bibliometric analysis is an attempt to quantify the academic quality of journals or authors using statistical indicators such as citation rates. It is used to identify and analyze the connections and impact of publications in a certain field of research by the content of publications, references, citations and (co)authorship. The bibliometric analysis allows one to study all publications related to a certain topic or field.

Data on scientific publications which are published and indexed in the Scopus scientometric database were chosen as the information base of the study. The Scopus database was chosen because, according to the study [11], it contains more journals and citations than the Web of Science, and there is also a 95% match between Scopus publications and those published on the Web of Science [27].

The search for scientific publications in Scopus was carried out using the key term "financial security" in titles, abstracts and keywords. The research period was chosen from 1951 to March 5, 2023. The results of the analysis are presented based on the results of the search query as of March 5, 2023. In order to exclude publications that contain the words "financial" or "security" separately, the command " " was used in the search bar. This made it possible to exclude from the search results the terminology containing other combinations of the above words, such as financial position, financial indicator or economic security, social security, etc. The total sample of the study numbered 2,755 publications. After that, the sample was limited only to publications of such types as "Article", "Conference Paper", "Book Chapter" and "Book". The new sample consisted of 2,515 publications. In order to identify the dynamics of the number of indexed publications by the researched topic, analysis of the affiliation with the country, journal, and sectoral structure of publication activity, and highlighting the contribution of individual researchers in the field of financial security by the number of citations and published works, the analysis tools provided by the Scopus database were used.

Bibliographic data were further processed and analyzed using the VOSviewer software. VOSviewer is a software tool for building and visualizing bibliometric network maps. These networks may, for example, include journals, researchers, or individual publications, and they may be built on the basis of citations, bibliographic coupling, co-citation, or co-authorship. The VOSviewer software was developed by the staff of the Centre for Science and Technology Studies (CWTS) at Leiden University (https://www.cwts.nl). The tool allows one to work with descriptions of bibliographic records from various sources (Scopus, WoS, Dimensions, CrossRef, Medline and others), is regularly updated, is distributed for free and does not require installation (https://www.vosviewer.com).

The VOSviewer software was used to build network maps of the relationship between keywords, visualize the relationships between researchers from different countries, and build a network map of the relationship between keywords in chronological order.

RESULTS

Using the VOSviewer software, a network map of the relationship between keywords was built based on bibliographic records from the Scopus database. In order to carry out a more detailed analysis, a limit was set, according to which the term should occur at least five times. Thus, among 6,206 keywords, 204 met the threshold value. The keywords were checked for relevance, that is the ones unrelated to financial security, in particular, country names, were excluded. After that, the total number of keywords was reduced to 190.

The visual results of the obtained bibliometric network map are shown in Figure 3. The bibliometric network map reflects the usage frequency of terms by the size of the circle and the intensity of the relationship and allows to track the variants of terms combinations both within clusters and between them. The colour of the circle indicates a keyword belonging to a certain cluster. In turn, the size of the circle corresponds to the appearance frequency of the corresponding keyword in scientific publications, the larger the diameter of the circle, the more often this term is found. The links in the map show the co-occurrence of keywords in publications. At the same time, the shorter the distance between the keywords, the stronger the connection between them [29].

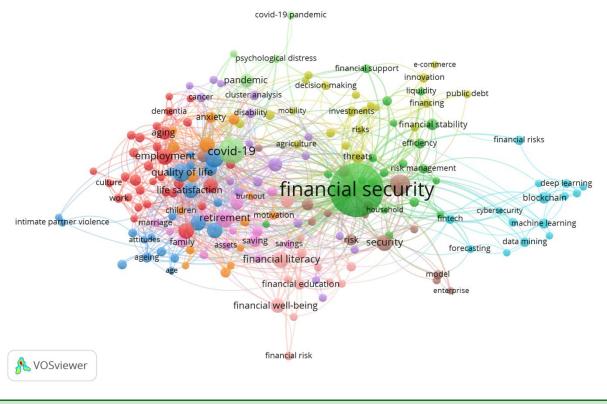


Figure 3. A network map of the relationship between keywords. (Source: built on the basis of the Scopus database using VOSviewer software)

Using the VOSviewer software, the keywords were grouped into 11 clusters. Each of the clusters symbolizes the direction of scientific research in the field of financial security. Let us analyze each of the clusters.

The largest cluster (red) comprises 31 keywords. The grouped keywords in this cluster indicate that scholars consider and evaluate financial security through a set of socio-economic parameters such as poverty, employment, income, unemployment, health care quality, mortality, etc. Financial security is considered a determinant of influence on the level and quality of the population's life.

The second largest cluster (green) consists of 22 keywords and indicates a strong connection between financial security research from the point of view of achieving financial stability, efficient use of financial resources, and providing financial support in financial crises.

The third cluster (navy blue), which combines 21 keywords, indicates research on life safety in relation to financial security. Financial security affects people's health, quality of life, their well-being, etc.

The fourth cluster (yellow), which also combines 21 keywords, indicates the study of financial security in relation to the analysis of financial risks, investment risks, innovation financing risks, etc.

The fifth cluster (purple) includes 18 keywords. The cluster indicates that scholars pay considerable attention to the role of health care, health insurance, and social policy in the system of financial security of the state.

The keywords from the sixth cluster (blue) indicate that scholars were paying attention to the study of financial security in relation to the use of financial and information technologies, in particular, such as blockchain, machine learning, data analysis, deep learning, and others.

Within the seventh cluster (orange), scholars were studying certain psychological states. This cluster combines such concepts as depression, anxiety, social support, resilience, HIV and others.

The eighth cluster (brown) indicates that financial security was studied from the point of view of risk management, strategy development and insurance. Financial security is considered in relation to economic security.

The ninth cluster (pink) indicates that financial security was studied from the point of view of family and personal security, in particular, the following keywords were found to be the most common: pension, wealth, assets, savings, family, elderly, marriage and others.

The tenth cluster (beige) is related to the study of financial literacy, financial well-being, financial education, financial inclusion, personal finance, etc.

The eleventh cluster (yellow-green) is the smallest and combines 5 keywords related to the coronavirus, the COVID-19 pandemic and psychological stress. As you can see, the separation of the study of financial consequences of the spread of the COVID-19 pandemic into a separate cluster, as well as the fact that the term "covid-19" is the second (62 times) most frequently used after "financial security", indicates the relevance of this area of research, which, in our opinion, will continue to develop.

The generalized characteristics of clusters of keyword combinations in scientific research on financial security are presented in Table 3.

No.	Cluster colour	Conventional cluster name (security area)	The most used term	Number of key- words	Related keywords			
1	red	employment secu- rity	employment	31	poverty, employment, gender, ageing, income, unem- ployment, health equity, mortality			
2	green	financial efficiency and stability	efficiency	22	financial resources, financial stability, financial crisis, financial safety, financial support			
3	navy blue	life safety	mental health	21	stress, health, quality of life, life satisfaction, well-be- ing, ageing, older people			
4	yellow	financial risks	threats	21	investments, risks, financing, innovations			
5	purple	social security	social security	18	disability, public health, health insurance, social pol- icy, banks			
6	blue	financial technolo- gies	blockchain	15	fintech, forecasting, machine learning, data mining, deep learning			
7	orange	Person's psycho- logical state	depression	15	anxiety, social support, resilience, HIV			
8	brown	economic security	economic security	15	security, insurance, risk, management, strategy			
9	pink	family and per- sonal security	retirement	14	pensions, wealth, assets, saving, family, savings, older adults, marriage			
10	beige	financial literacy	financial literacy	13	financial well-being, financial education, finance, fi- nancial capability, financial inclusion, personal finance			
11	yellow-green	covid-19 pandemic	covid-19	5	coronavirus, pandemic, psychological distress			

Table 3. The characteristics of clusters of keyword combinations in scientific research.

The following countries are among the leaders in terms of the number of publications indexed in Scopus, which contain the term "financial security": the USA (781 publications or 31.1% of the total), the United Kingdom (231 publications or 9.2%), China (189 publications or 7.5%), Australia (149 publications or 5.9%), Canada (145 publications or 5.8%), the russian federation (135 publications or 5.4%), Ukraine (120 publications or 4.8%) and India (104 publications or 4.1%). In other countries, less than 100 publications were published (Figure 4).

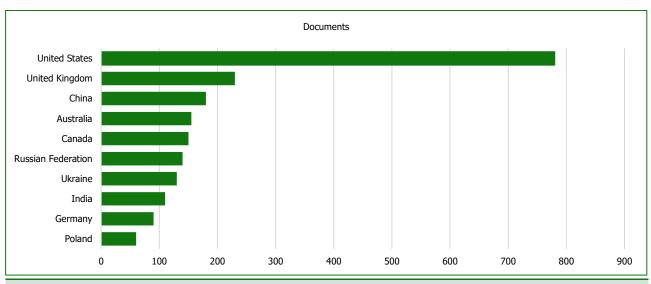


Figure 4. TOP-10 countries by the number of publications indexed in Scopus, which contain the term "financial security". (Source: built on the basis of the Scopus database)

To visualize the interaction between the countries based on the criterion of co-authorship between the scholars, a network map was constructed using the VOSviewer software (Figure 5). The minimum number of 5 publications for one country was chosen as the limiting criterion for the construction of the network map. This criterion was met by only 62 countries out of the 173 ones that had publications on financial security in the Scopus database.

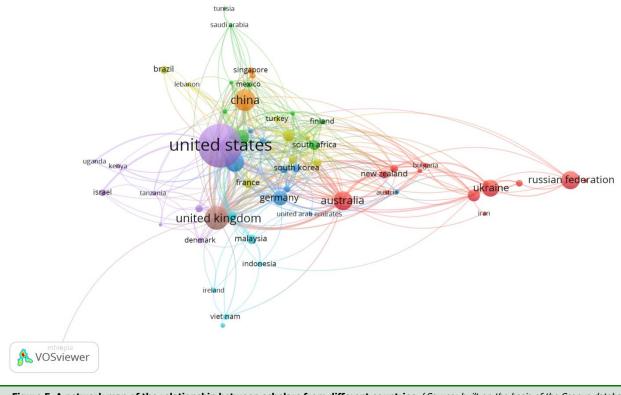
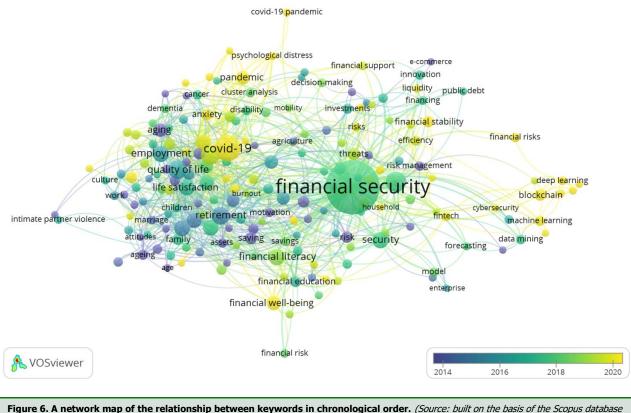


Figure 5. A network map of the relationship between scholars from different countries. (Source: built on the basis of the Scopus database using VOSviewer software)

As we can see, scholars from the USA have the highest publication activity, having published 214 publications in coauthorship with authors from 46 countries. The United States has the highest number of joint publications with researchers from the United Kingdom, namely 21 publications. The second most active country in terms of publication activity is the United Kingdom, with 154 publications co-authored with authors from 43 countries. Germany has 79 co-authored publications with authors from 28 countries, Australia has 78 co-authored publications with authors from 31 countries, and China has 54 co-authored publications with authors from 19 countries. The scholars from Ukraine have 23 publications in coauthorship with authors from 10 countries, including Poland, the Czech Republic, Bulgaria, the russian federation, Germany, and others.

The most common language in which publications are available in Scopus is English (2,392 publications or 95.1%). The obtained ranking of countries by the number of publications on "financial security", as well as a significant number of publications in russian (35 publications) and Ukrainian (33 publications), testifies the relevance of this topic in the russian Federation and Ukraine.

Based on the Scopus database and the VOSviewer software, a network map was built to visualize the chronological dimension of keywords that were found in publications on financial security (Figure 6). The network map shows the network connections between keywords and categorizes them using a timeline. Depending on the publication period, the keywords have a different colour, from dark blue to yellow (the average value for the cluster). This makes it possible to study the trends in the publication activity of scholars in a certain period.



e 6. A network map of the relationship between keywords in chronological order. (Source: built on the basis of the Scopus data using VOSviewer software)

The results of bibliometric analysis according to the chronological dimension show that the intensive development of scientific research on financial security took place in 2014-2020. In the initial stages, the research was based on the study of the socio-economic dimension of financial security, in particular, features of financial risk management, the impact of financial security on the psychological state and family security. In recent years (yellow keywords), studies that are primarily related to the research of financial and information technologies, as well as the analysis of the impact of the COVID-19 pandemic on maintaining financial security, financial stability and financial well-being of citizens, have gained popularity.

DISCUSSION

This work is devoted to the identification of trends and key areas of financial security research. To achieve the set goal, the authors applied methods of bibliometric analysis of scientific publications, which are indexed in the Scopus scientometric database. The English term "financial security" was chosen for the search, because most publications in Scopus are indexed in English. If there are publications in other languages (our research revealed 39 publications in russian, 33 publications in Ukrainian, 21 publications in German, 17 publications in French, 15 publications in Chinese, 12 publications

in Portuguese, and 39 publications in other languages), a title, abstract, and keywords in the English language are mandatory elements of the publication. Thus, when searching for English concepts in the Scopus database, all available publications will be covered. As a result, the trends in the publication of articles devoted to financial security were revealed; the sectoral structure of publications was determined, and the most cited publications and authors with the highest publication activity on the subject under study were identified.

This comprehensive scientific study was based on the works by authors [90] who used bibliometric analysis in the field of finance to identify clusters of keywords, which confirmed the appropriateness of the resulting grouping. This method was applied to assess the state of research and development trends in the field of various types of security, namely, food security [16; 35], energy security [24; 36], ecological security [20], information security in business [21] etc. Among the studies that are related to the research of publication activity in the field of financial security, the publications by Indian scholars Goyal, K., & Kumar, S. [10] and Ingale, K. K., & Paluri, R. A. [13] should be mentioned, as they conducted a systematic review and bibliometric analysis in order to present quantitative and qualitative knowledge on the topic of financial literacy; scholars from Bahrain Syed, A. M., & Bawazir, H. S. [25] and scholars from Colombia Cardona Valencia, D., Becerra Arevalo, J., & Rodríguez, D. [1] analyzed the publications and presented a complete contextual picture of financial risk research; and Taiwanese researchers Hsu, C.-L., & Chiang, C.-H. [12] analyzed the relationship between financial crises and the results of financial crisis research using bibliometrics.

Many scholars have conducted numerous exploratory, conceptual, and empirical studies on financial security. However, no attempt has yet been made to present a comprehensive scientific map of publication activity. Thus, in the article, the authors used bibliometric analysis to identify the main clusters of thematic areas of publications devoted to the study of financial security and presented conclusions about the trends in the subject matter under study. This study provides important information about areas that require further research.

Bibliometric analysis of the publication activity of scholars on the topic of financial security was chosen because it allows one to analyze previous research, identify key trends in the researched topic, and identify unsolved problems faced by business entities in the field of financial security. Further research is necessary to expand theoretical knowledge, identify new concepts and ideas that are the basis for the development of theoretical and practical knowledge of financial security, and outline promising areas of research, which can become the basis for the further development of the field under study.

The limitations of this study include the following:

- the search and analysis of publication activity were carried out only on the basis of data from the Scopus database.
 This did not include publications from other databases, such as Web of Science, Google Scholar, etc;
- the search for scientific publications was carried out using the key term "financial security". At the same time, synonyms or other concepts that also describe financial security were not taken into account. The fact that some scholars consider financial security as part of the study of economic security without mentioning the concept under study in the title of a publication, abstract or keywords were not taken into account. The introduction of additional keywords related to financial security would allow for clearer results.

CONCLUSIONS

The results of this work allowed us to identify the trends and key areas of financial security research by conducting a bibliometric analysis of scientific publications that are indexed in the Scopus scientometric database.

Based on the results of the research, the following conclusions can be drawn:

1. The number of publications indexed in Scopus, whose titles, abstracts and keywords contain the term "financial security", is growing at a high rate every year. The study of financial security has been gaining more and more popularity starting from the beginning of the 90s of the 20th century. The main reasons for the growing popularity of scientific research on financial security are as follows: the development of new financial instruments and technologies; the complexity of functioning of the world economy; the need of governments and businesses to ensure financial stability and others. Three stages of scientific interest in the study of financial security were identified: the first stage (the 70s – early 90s of the 20th century) was the stage of the emergence of theoretical and practical interest in the scientific study of financial security; the second stage (early 90s – 2003) was a stage of moderate growth; the third stage (since 2004) is a stage of active development of scientific research.

2. The term "financial security" is used in the research of various fields of science, namely it is found in publications on social sciences, medicine, economics, econometrics and finance, business, management and accounting, as well as non-

financial sciences, such as computer science, engineering, psychology, etc. This confirms the multidisciplinary nature of the term "financial security".

3. Visualization of the network map of common words based on bibliographic data allowed us to single out 11 clusters that characterize the key areas of research on financial security. In particular, to characterize conventional areas of scientific research, the following keywords were identified in each cluster: employment security, financial efficiency and stability, life safety, financial risks, social security, financial technologies, psychological state, economic security, family and personal security, financial literacy, and the covid-19 pandemic.

4. The leaders in terms of the number of publications indexed in Scopus, which contain the term "financial security", include the USA, United Kingdom, China, Australia, Canada, the russian federation, Ukraine and India.

5. The results of bibliometric analysis according to the chronological dimension showed that the intensive development of scientific research on financial security took place in 2014-2020. In the initial stages, the research was based on the study of the socio-economic dimension of financial security, in particular, the features of financial risk management, the impact of financial security on the psychological state and family security. In recent years, studies that are primarily related to the research of financial and information technologies, as well as the analysis of the impact of the COVID-19 pandemic on maintaining financial security, financial stability and financial well-being of citizens, have gained popularity.

The practical value of this study lies in the fact that the results will help both future researchers and governments as well as financial companies, investors, citizens and other interested parties:

- to get acquainted with the state and trends of publication activity in the field of financial security;
- to identify the areas that require further research in the scientific field;
- to increase the level of financial literacy in order to prevent the onset of financial risks, increase the level of financial stability of a company or develop an effective plan for managing the family finances.

REFERENCES

- Cardona, V. D., Becerra, A. J., & Rodríguez, D. (2017). Análisis bibliométrico sobre direccionamiento de los estudios en Riesgos Financieros. *Espacios, 38*(59). https://www.revistaespacios.com/a17v38n59 /a17v38n59p02.pdf
- Carter, M. H. (1951). Ways of including education for family financial security. *NASSP Bulletin*, *35*(178), 78-83. https://doi.org/10.1177/019263655103517816
- Chen, H., De, P., Hu, Y., & Hwang, B.-H. (2014). Wisdom of crowds: The value of stock opinions transmitted through social media. *Review of Financial Studies, 27*(5), 1367-1403. https://doi.org/10.1093/rfs/hhu001
- Dankiewicz, R., Balawejder, B., Chudy-Laskowska, K., & Britchenko, I. (2022). Impact factors and structural analysis of the state's financial security. *Journal of International Studies, 15*(4), 80-92. https://doi.org/10.14254/2071-8330.2022/15-4/5
- 5. Dunstall, L. W. (1954). Financial security for nurses. *The Canadian Nurse, 50*(3), 177-180.
- Figueredo, A. J., Vásquez, G., Brumbach, B. H., & Schneider, S. M. (2004). The heritability of life history strategy: The K-factor, covitality, and personality. *Social Biology*, *51*(3-4), 121-143. https://doi.org/10.1080/19485565.2004.9989090

 Galphin, G. C. (1951). Ways of including education for family financial security. *NASSP Bulletin, 35*(178), 83-86. https://doi.org/10.1177/019263655103517817

 Gaugler, J., James, B., Johnson, T., Scholz, K., Weuve, J., & Alzheimer's Association. (2016). 2016 Alzheimer's disease facts and figures. *Alzheimer's and Dementia*, *12*(4), 459-509. https://doi.org/10.1016/j.jalz.2016.03.001

- Gilbert, D., Balestrini, P., & Littleboy, D. (2004). Barriers and benefits in the adoption of egovernment. *International Journal of Public Sector Management*, 17(4), 286-301. https://doi.org/10.1108/09513550410539794
- Goyal, K., & Kumar, S. (2021). Financial literacy: A systematic review and bibliometric analysis. *International Journal of Consumer Studies, 45*(1), 80-105. <u>https://doi.org/10.1111/ijcs.12605</u>
- Hernández-González, V., Sans-Rosell, N., Jové-Deltell, M.C., & Reverter-Masia, J. (2016). Comparison between Web of Science and Scopus. *Bibliometric Study of Anatomy and Morphology Journals, International Journal of Morphology, 34*(4), 1369-1378.

http://www.intjmorphol.com/abstract/?art_id=3836

- 12. Hsu, C.-L., & Chiang, C.-H. (2020). Bibliometric analysis of financial crisis research. *Singapore Economic Review*, https://doi.org/10.1142/S0217590820500678
- Ingale, K. K., & Paluri, R. A. (2022). Financial literacy and financial behaviour: A bibliometric analysis. *Review of Behavioral Finance, 14*(1), 130-154. https://doi.org/10.1108/RBF-06-2020-0141
- Jarrow, R. A., & Turnbull, S. M. (1995). Pricing derivatives on financial securities subject to credit risk. *The Journal of Finance*, *50*(1), 53-85. https://doi.org/10.1111/j.1540-6261.1995.tb05167.x
- Kalyayev, A., Kozłowski, R., Woźniak-Krakowian, A., Podolchak, N., & Dziurakh, Y. (2019). Collective Identity and Multiculturalism in Modern Society and Governance: European Context. In: *Proceedings of the 34th International Business Information Management Association (IBIMA)*, pp. 9762-9771. https://ibima.org/accepted-paper/collective-identityand-multiculturalism-in-modern-society-andgovernance-european-context/
- Lagodiienko, V., Franchuk, V., Dziurakh, Y. M., Melnik, S., Shuprudko, N., & Hobela, V. (2022). Food security of Ukraine: estimation of factors' impact, postwar trends and ways to supply. *Financial and Credit Activity: Problems of Theory and Practice, 5*(46), 427-437. https://doi.org/10.55643/fcaptp.5.46.2022.3891
- Lee, M.-C. (2009). Factors influencing the adoption of internet banking: An integration of TAM and TPB with perceived risk and perceived benefit. *Electronic Commerce Research and Applications, 8*(3), 130-141. https://doi.org/10.1016/j.elerap.2008.11.006
- Martyniuk, V., Dluhopolskyi, O., Kniaz, S., Podolchak, N., Muravska, Y., & Martyniuk, B. (2020). The Fiscal Policy Impact on Indicators of the State's Economic Growth. In: *Proceedings of the 10th International Conference on Advanced Computer Information Technologies (ACIT)*, pp. 695-698. https://doi.org/10.1109/ACIT49673.2020.9208903
- Netemeyer, R. G., Warmath, D., Fernandes, D., & Lynch, J. G. (2018). How am I doing? Perceived financial well-being, its potential antecedents, and its relation to overall well-being. *Journal of Consumer Research, 45*(1), 68-89. https://doi.org/10.1093/jcr/ucx109
- Qin, X. N., Lu, X. L., & Wu, C. Y. (2014). The knowledge mapping of domestic ecological security research: Bibliometric analysis based on citespace. *Shengtai Xuebao / Acta Ecologica Sinica, 34*(13), 3693-3703. https://doi.org/10.5846/stxb201211081566

 Rehman, S. U., Mahmud, M., Atta-Ur-Rahman, Haq, I. U., & Safdar, M. (2021). Information security in business: A bibliometric analysis of the 100 top cited articles. *Library Philosophy and Practice (e-journal)*, 5354.

https://digitalcommons.unl.edu/libphilprac/5354/

- Singh-Manoux, A., Adler, N. E., & Marmot, M. G. (2003). Subjective social status: Its determinants and its association with measures of ill-health in the whitehall II study. *Social Science and Medicine*, *56*(6), 1321-1333. <u>https://doi.org/10.1016/S0277-9536(02)00131-4</u>
- Slawotsky, J. (2021). The fusion of ideology, technology and economic power: Implications of the emerging new United States national security conceptualization. *Chinese Journal of International Law, 20*(1), 3-62. https://doi.org/10.1093/chinesejil/jmab007
- Sotnyk, I., Kurbatova, T., Kubatko, O., Prokopenko, O., Prause, G., Kovalenko, Y., Trypolska, G., & Pysmenna, U. (2021). Energy Security Assessment of Emerging Economies under Global and *Local Challenges. Energies, 14*(18), 5860. https://doi.org/10.3390/en14185860
- Syed, A. M., & Bawazir, H. S. (2021). Recent trends in business financial risk – A bibliometric analysis. *Cogent Economics and Finance, 9*(1). https://doi.org/10.1080/23322039.2021.1913877
- Szymanski, D. M., & Hise, R. T. (2000). Esatisfaction: An initial examination. *Journal of Retailing, 76*(3), 309-322. https://doi.org/10.1016/S0022-4359(00)00035-X
- Torres-Salinas, D., & Jiménez-Contreras, E. (2010). Introduction and comparative study of the new scientific journal's citation indicators in Journal Citation Reports and Scopus. *El Profesional de la Información, 19*(2), 201-207. https://doi.org/10.3145/epi.2010.mar.12
- Van Gelderen, M., Brand, M., Van Praag, M., Bodewes, W., Poutsma, E., & Van, G. A. (2008). Explaining entrepreneurial intentions by means of the theory of planned behaviour. *Career Development International*, *13*(6), 538-559. https://doi.org/10.1108/13620430810901688
- Vasylieva, T. A., Us, Ya. O., Liulov, O. V., & Pimonenko, T. V. (2020). Reinzhynirynh biznesprotsesiv pidpryiemstv: vid tradytsiinoho do tsyfrovoho marketynhu. *Bulletin of Sumy State University. Series: Economy, 3*, 309-318. https://doi.org/10.21272/1817-9215.2020.3-35

- Vergun, A. M., & Topenko, Yu. A. (2016). Evolution of views on financial security as a management unit. *Economy: realities of time, 4*(26), 122-134. http://economics.opu.ua/files/archive/2016/n4.htm
- Vovchak, O., Kulyniak, I., Halkiv, L., Pavlyshyn, M., & Horbenko, T. (2021). Development of Crisis Diagnostic at the Enterprise: Financial and Economic Breakdown. *Financial and Credit Activity: Problems of Theory and Practice*, *3*(38), 292-303. https://doi.org/10.18371/fcaptp.v3i38.237459
- Vykliuk, M., Mikhailishin, R., Kundytskyj, O., Senyshyn, O., Prokopenko, N., & Olikhovskyi, V. (2020). Conceptual basis of the state's tax security model. *Management Theory and Studies for Rural Business and Infrastructure Development, 42*(3), 303-315. <u>https://doi.org/10.15544/mts.2020.30</u>
- Wiggins, R. D., Higgs, P. F. D., Hyde, M., & Blane, D. B. (2004). Quality of life in the third age: Key predictors of the CASP-19 measure. *Ageing and Society, 24*(5), 693-708. https://doi.org/10.1017/S0144686X04002284
- Wilhelms, F. T. (1952). Family financial security education. *NASSP Bulletin, 36*(183), 33-42. https://doi.org/10.1177/019263655203618306
- Xie, H., Wen, Y., Choi, Y., & Zhang, X. (2021). Global trends on food security research: A bibliometric analysis. *Land*, *10*(2), 1-21. https://doi.org/10.3390/land10020119
- Zhou, W., Kou, A., Chen, J., & Ding, B. (2018). A retrospective analysis with bibliometric of energy security in 2000-2017. *Energy Reports, 4*, 724-732. https://doi.org/10.1016/j.egyr.2018.10.012

Яремко Г., Волошин М., Білик О., Драпалюк Г., Сай І.

ТЕНДЕНЦІЇ В ДОСЛІДЖЕННІ ФІНАНСОВОЇ БЕЗПЕКИ: БІБЛІОМЕТРИЧНИЙ АНАЛІЗ

Досягнення фінансової безпеки стає одним із головних завдань уряду, менеджменту підприємств, інвесторів та громадян. Однак при цьому саме розуміння сутності такої безпеки є неоднозначним, як і розуміння механізму її досягнення. Метою дослідження є виявлення тенденцій та ключових напрямів вивчення фінансової безпеки шляхом проведення бібліометричного аналізу наукових публікацій, які індексуються наукометричною базою даних Scopus. Усебічний огляд еволюції наукових досліджень фінансової безпеки проведено з 1951 по березень 2023 року. Проаналізовано 2515 публікацій, які проіндексовані в наукометричній базі даних Scopus та містять термін «financial security» в заголовках, анотаціях і ключових словах. Для побудови мережевих карт взаємозв'язку ключових слів, візуалізації взаємозв'язку науковців із різних країн та побудови мережевої карти взаємозв'язку ключових слів за хронологічним виміром використано програмне забезпечення VOSviewer. Результати показали, що, починаючи з початку 90-х років XX ст., кількість публікацій на тему фінансової безпеки щорічно зростає; термін «financial security» застосовують у дослідженні різних галузей наук; більшість публікацій на тему фінансової безпеки з'явилися з 2014 по 2020 рік, причому лідерами з цих досліджень є США, Велика Британія та Китай. Візуалізація мережевої карти спільних слів на основі бібліографічних даних дозволила виокремити 11 кластерів, що характеризують ключові напрями досліджень тему фінансової безпеки. Зокрема, для характеристики умовних напрямів наукових досліджень виокремлено такі ключові слова та поняття в кожному кластері, як безпека зайнятості, фінансова ефективність та стабільність, безпека життєдіяльності, фінансові ризики, соціальна безпека, фінансові технології, психологічний стан людини, економічна безпека, безпека сім'ї та особистості, фінансова грамотність, пандемія covid-19. Одержані результати сприятимуть кращому розумінню дослідниками світових тенденцій та допоможуть майбутнім дослідженням у сфері фінансової безпеки.

Ключові слова: фінансова безпека, база даних Scopus, програмне забезпечення VOSviewer, публікаційна активність, цитування, бібліометрична мережева карта, бібліометричний аналіз

ЈЕL Класифікація: C38, D14, G01, G32, G53