A SCIENTOMETRIC VIEW AT REAL ESTATE ISSUES IN RISK MANAGEMENT: MANAGEMENT RESEARCH VERSUS FINANCE RESEARCH

Iwona Gorzeń-Mitka[1]

[1] Czestochowa University of Technology, Faculty of Management, Poland,
    i.gorzen-mitka@pcz.pl, ORCID: 0000-0002-2844-0054

ABSTRACT

PURPOSE: The aim of the paper is to map the thematic landscape of real estate research in the context of risk management and to contribute to the identification and exploration of relationships between specific constructs in the management versus finance research.

DESIGN/METHOD: This article applies some scientometric techniques. A combination of topic mapping has been used, as well as the author's and journal co-citation analyses, and overlay visualisation of main and new topics in these fields. For the purposes of bibliometric analysis, the following tools and techniques have been used: trend analysis of the number of publications, citation analysis, the word co-occurrence method, and clustering (cluster analysis). The VOSviewer software and the data analysis tools available in the SCOPUS database were used for the analysis.

RESULTS/FINDINGS: The main findings of this study are: the study of real estate issues in the context of risk management is a relatively new trend in academic research, which has been intensified over the past 10 years; the problems are studied mainly from the point of view of management research, financial research and engineering research; most of the leading researchers in this field combine aspects of management with aspects of finance in their studies; a relatively new trend in the study of the real estate issues in the context of risk management is the research on the use of artificial intelligence and the analysis of the impact of climate change on these processes.

ORIGINALITY/VALUE: This article makes the important contribution to real estate research in the context of risk management in management research and finance research. The analyses revealed some patterns of convergence and divergence and the diversity of topics, specialisation, and interdisciplinary engagement in the context of real estate issues in the context of risk management in management and finance research, thus offering the latest insights into the state-of-the-art of the fields.

KEYWORDS: real estate, risk management, scientometric analysis.

JEL: G32, R39.

1. INTRODUCTION

Real estate is an important component of the economic system at different levels, from corporate ownership to the real estate market. It has been generally agreed that risk management in real estate is done in the same way as in other businesses, starting with setting the context for how risks are to be acted upon, assessed and dealt with. However, because of the specific nature of a real estate asset, the risks associated with it can arise from a number of factors (the type of property, how it is managed, as well as the specifics of the management of a company's approach to interpreting and prioritising those risks, etc.) (Fabozzi, Stanescu, & Tunaru, 2013). A real estate management company may have different types and degrees of risk compared to individual investors.

According to the point of view for example of Bergmann, Kamarás, Gleißner, and Guenther (2020), Goorah (2007) and many other researchers, the integration of real estate and risk management processes is considered essential to achieve effective real estate risk management practices and resilience to risk events. However, in most studies, real estate and risk management issues tend to be disconnected disciplines (focusing primarily on investment risk). Risk assessment is critical in the process of developing strategies in real estate management (Gleibner & Wiegelmann, 2012).

Unquestionably, real estate management is a multifaceted, dynamic and risky activity (especially if it involves development projects or investment issues). Real estate management is characterised by a complex, elaborate combination of technical, regulatory, and governmental considerations (Goorah, 2007). Property managers often have to solve complex decision-making problems (Sipa, 2019). Usually, they must be resolved while operating with the expectations of various stakeholders in mind. In complex situations, decision--making processes are characterised by a multi-layered level of risks. Therefore, effective and efficient risk management is an essential element in real estate management. However, these issues are still often studied separately by researchers (Battisti, Shams, Sakka, & Miglietta, 2020; Schroeder, 2013).

Most often, the real estate issues are considered in the context of risk management for the analysis of problems of investment nature (development projects, financial investments, investment financing, etc.). Therefore, the analysis focuses on the financial dimension of risk and to a lesser extent on the managerial dimension (Fisher, 2005). At the same time, it should be noted that risk management is a highly dynamic and fast-growing academic issue of management research (Gorzeń-Mitka, 2020; Hopkin, 2010; Pagach & Wieczorek-Kosmala, 2020). Small and medium-sized enterprises have a special place in the study of the risk management issues. The specificity of SMEs and limited resources lead them to adopt different tools and organisational solutions compared to large companies. This specificity also seems to apply to their approach to risk management. As Crovini, Ossola and Britzelmaier (2021) pointed out in 2021, risk management in small and medium-sized enterprises is a "spot" issue. Small and medium-sized enterprises make little effort to identify, assess, and monitor risks. The lack of procedures and strategies stems from the lack of awareness and knowledge of risks, and it is related to the risk attitude of managers and owners. Understanding why risk procedures are not being implemented and finding the ways of raising awareness of the potential benefits of risk and control measures are fundamental. The fact that the holistic approach is still neither diffused nor sufficiently developed in SMEs is confirmed by Ferreira de Araújo Lima, Crema and Verbano (2020). The authors point out, however, that the most pronounced interest of this group of actors can be found in certain types of risk, such as project risk management, strategic risk management, and supply chain risk management.

It appears that identifying the critical success factors for establishing robust and effective risk management in small and medium-sized enterprises (SMEs) is one of the leading challenges today. This is highlighted by Heinze and Henschel (2021) study, which shows that personal propensity and sophistication of financial planning have a significant impact on the quality of risk management.

Especially, enterprise risk management (ERM) is an important business trend (increasingly including the real estate industry) that aims to ensure the organised and disciplined approach of an organisation to the evaluation and management of risks it encounters (Hopkin, 2010; Hoyt & Liebenberg, 2011; Pagach & Wieczorek-Kosmala, 2020). In recent years, we can observe very intensive development of this area. Some research shows that risk management, especially in the context of ERM, is the key factor in creating competitive advantages. This has been demonstrated by the research, among others, of Yang, Ishtiaq and Anwar (2018). Their research findings indicate that enterprise risk management practices significantly influence the competitive advantage and SME performance. In addition, this relationship is significantly strengthened when SMEs managers are knowledgeable about financial issues. The risk management literature is now relatively large, but organisations still have difficulties understanding and minimising the use of the available risk management tools (Gorzeń-Mitka, 2020; Pagach & Wieczorek-Kosmala, 2020).

The adoption of ERM undoubtedly marks a radical shift from the traditional risk management methods to collective risk management. The effectiveness of ERM has been proven in many studies. For example, Eckles, Hoyt and Miller (2014) highlight that practicing enterprise risk management reduces firms' cost of reducing risk. Companies adopting ERM have seen a reduction in stock return volatility and a rise in operating profits per unit of risk (ROA/return volatility). This has also been confirmed by the study conducted among Italian listed companies (Florio & Leoni, 2017), where this issue was analysed, among others, in the context of the level of maturity of the process. The results of this study indicate that companies with an advanced level of ERM implementation perform better, both in terms of financial performance and market evaluation. Furthermore, the authors demonstrate that effective ERM systems lead to higher performance by reducing risk exposure.

There is no doubt that the approach to the real estate or risk issues from a finance research perspective is often different from the approach to these issues from a management research perspective. Although both fields mutually benefit from each other's research output.

Therefore, it was considered interesting to investigate what similarities and differences exist in academic research on the real estate issues in the context of risk management from the perspective of these areas (the finance research versus management research).

The purpose of this research is to reconsider the role of risk management in the real estate issue by identifying the leading trends from the perspective of management research and financial research. Although many researchers have undertaken knowledge mapping studies in this area, there is a lack of research identifying similarities and differences in the context of the indicated areas. The aim of the paper is to map the thematic landscape of real estate research in the context of risk management and to contribute to the identification and exploration of relationships between specific constructs in the management versus finance research. This study focuses primarily on identifying the research threads undertaken in the context of real estate issues and risk management over the past few years. The aim research questions are as follows:

RQ1: How did the perspective of academic research in those areas change (How did it evolve?)?

RQ2: What are the leading patterns of convergence and divergence in those areas in management research and finance research?

2. RESEARCH DESIGN AND METHODS

The structure of knowledge and the development of research of the real estate issue in the risk management context were assessed using the bibliometric analysis.

Data collection took place in November 2021 and therefore the database included data up to the end of 2020. Before the actual data collection on Scopus, preliminary observations of the database have been conducted. It has been found that few articles (indexed in the scientific bibliometric databases) were published before 2000 in the field of real estate in the context of risk management. Between 1977 (the first article meeting the accepted search criteria in the Scopus database) and 2000, only 36 articles were published. Considering that topic of the mapping analysis, one of the key analytical techniques used in this study, gives better results with larger bibliometric collections, the analysis was not limited to the specifically selected period (all the publications meeting the accepted search criterion were included). The Web of Science and Scopus databases were searched using the keywords "risk" AND "management" AND "real estate" and "risk management" AND "real estate". The search was not limited to a document type, although the largest group is the journal articles (see Table 1). The search was also not limited to the subject categories. Productivity by a subject category has been shown in Table 4. The search criteria adopted in this way yielded 907 publications for the analysis.

To perform the scientometric analysis, the data from one of the leading widely recognised databases containing information about scientific articles have been used and their citation rates in many scientific fields: the Web of Science (WoS) Core Collection by the Clarivate Analytics and Scopus. These databases are commonly used in scientometrics to study the progress and evaluation of various scientific fields.

3. RESULTS AND DISCUSSION

In a first step, the scientific productivity of real estate research in the context of risk management measured by the number of publications was assessed. This allowed to select a database for the more detailed research. The selection of the database was made by comparing their productivity, which has been presented in Table 1.

Table 1. Scientific productivity of real estate research in the context of risk management measured by the number of publications

| Scientific database	Search category	Number of documents in category*
Web of Science (WoS) Core Collection	"risk management" AND "real estate"	302
	"risk" AND "management" AND "real estate"	684
Scopus	"risk management" AND "real estate"	352
	"risk" AND "management" AND "real estate"	907

Notes: * The number of articles in the category were searched for in the subject: title, abstract, keywords.

Source: Own study based on the data retrieved November 2, 2021 from the Web of Science and Scopus databases.

As shown in Table 1, both categories "risk management" AND "real estate" and "risk" AND "management" AND "real estate" have higher productivity in the Scopus database. Scopus was used as a bibliographic data source to select the research sample.

Next, the changes in the number of publications over time were evaluated. As indicated by Zou, Yue and Vu (2018), the quantity variations of academic papers on a subject is a vital indicator of the development trend in that research area and a reflection of the change in the extent of the subject knowledge. By plotting the quantity of literature over the time and conducting multivariate statistical analysis, one can understand the research level and future development trend in a certain field. This has been shown in Figure 1.

Figure 1. Quantitative distribution of published articles on real estate issues in a risk management context
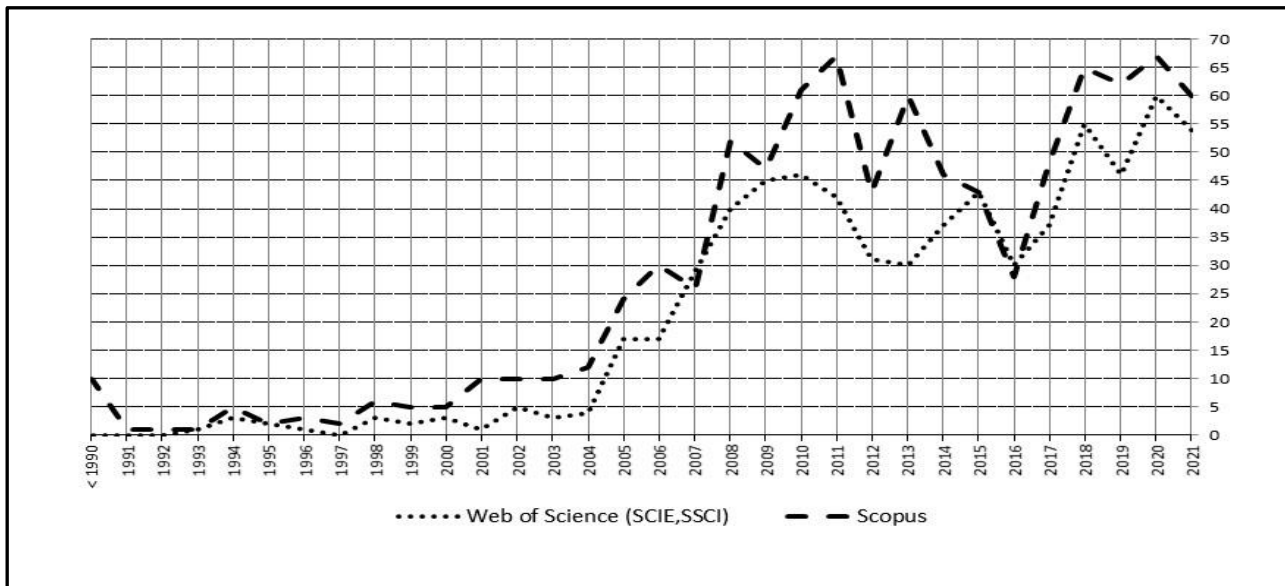
Source: Own processing, data extracted from the Scopus and Web of Science databases.

This has been followed by a more detailed analysis of the indications in the Scopus database. Due to the productivity of the selected category (less than 1000 documents), no restrictions were placed on a document type. This has been shown in Table 2. Journal articles, that are considered as so-called "proven knowledge" (validated reliability of research by scientific experts through a peer-review process), was the leading document type.

Table 2. Scientific productivity of real estate research in the context of risk management
measured by the number of publications according to the Scopus database

Document type	Number of documents*	Percentage of confirmed database	Number of documents**	Percentage of confirmed database
Article	222	63	542	60
Conference Paper	76	22	216	25
Review	23	7	46	5
Book Chapter	10	2	37	4
Conference Review	8	2	38	4
Retracted	5	1	6	1
Book	4	1	12	1
Editorial	2	1	3	0
Short Survey	2	1	3	0
Note	-	-	3	0
Total	352	100	907	100

Notes: * The number of articles in the category "risk management" AND "real estate"; ** The number of articles in the category "risk" AND "management" AND "real estate".

Source: Own study based on the data retrieved November 2, 2021 from the Scopus databases.

It also identifies leading journals that address the real estate issues in the context of risk management. The results have been presented in Table 3.

Table 3. Scientific productivity of real estate research in the context of risk management measured by the number of publications by the top 10 source titles according to the Scopus database

Source title	Journal rank in a leading category*	Leading category	Number of articles**	Percentage of confirmed database
Journal of Property Investment And Finance	#66/243	Economics, Econometrics and Finance	48	8,9
Journal of Corporate Real Estate	#72/218	Business, Management and Accounting	21	3,9
Journal of Property Research	#65/215	Social Sciences	21	3,9
Journal of Real Estate Finance And Economics	#68/215	Social Sciences	21	3,9
Journal of European Real Estate Research	#119/288	Economics, Econometrics and Finance	17	3,1
Journal of Portfolio Management	#153/288	Economics, Econometrics and Finance	13	2,4
Journal of Real Estate Portfolio Management	#82/159	Economics, Econometrics and Finance	13	2,4
Sustainability	#110/704	Social Sciences	12	2,2
Property Management	#165/288	Economics, Econometrics and Finance	11	2,0
Real Estate Economics	#68/288	Economics, Econometrics and Finance	9	1,7
Other			356	65,7
Total			542	100,0

Notes: * Journals have been classified in several categories; the table gives information on the leading category (i.e., in which the journal is most highly classified) ** The number of journal articles in the category "risk" AND "management" AND "real estate".

Source: Own study based on the data retrieved November 2, 2021 from the Scopus databases.

The data in Table 3 indicate that research on the risk management issues in the real estate context is quite scattered. Only less than 35% of the articles have been published in 10 leading journals. The leader in terms of the number of interesting publications (almost 10% of articles of the confirmed database) is the Journal of Property Investment and Finance, (its impact indicators are as follows: CiteScore (2020) : 1.8 SJR (2020) : 0.37 SNIP (2020) : 1.01). This journal is ranked 66th out of 243 in Scopus subject area "Economics, Econometrics and Finance".

Then the results obtained were evaluated from the point of view of the subject area. The results have been presented in Table 4.

Table 4. Scientific productivity of real estate research in the context of risk management measured by the number of publications by the top 5 subject areas according to the Scopus database

Subject area	Number of documents*	Percentage of confirmed database**
Business, Management and Accounting	374	22,8
Economics, Econometrics and Finance	323	19,7
Engineering	234	14,3
Social Sciences	184	11,2
Environmental Science	115	7,0
Total	907***	100,0

Notes: * The number of articles in the category "risk" AND "management" AND "real estate". ** The number of articles and percentages are given after the analysis performed in the Scopus analyse search results panel. *** The total number of documents does not add up – some articles are counted in more than one field.

Source: Own study based on the data retrieved November 2, 2021 from the Scopus databases.

The leading research areas for the real estate issues in the context of risk management are (considering the Scopus categories) "Business, Management and Accounting" and "Economics, Econometrics and Finance". Together, they account for more than 40% of all thematically identified publications. The paper further attempts to identify patterns of convergence and divergence and diversity of topics by analysing the co-occurrence of keywords.

The next step identifies the leading authors who address the highlighted topics in their research. The results have been presented in Table 5.

Table 5. List of the top ten authors with the most publications on real estate in the context of risk management

Author	Management Research*			Author	Finance Research**		
	Number of publications	H-index	Number of citations		Number of publications	H-index	Number of citations
K.H. Liow	6	19	1139	K.H. Liow	9	19	1139
S. Bienert	5	8	269	S. Bienert	5	8	269
T.O. Ayodele	4	4	32	C.O. Amédée-Manesme	4	4	40
B. Manganelli	4	15	585	F. Barthélémy	4	7	125
G. Morri	4	6	128	G. Morri	4	6	128
G. Newell	4	24	2248	G. Newell	4	24	2248
A. Adair	3	18	1275	A. Abdul-Rahman	3	8	204
C.O. Amédée-Manesme	3	4	40	A. Adair	3	18	1275
F. Barthélémy	3	7	125	M. Baroni	3	6	64
R. Buttimer	3	9	285	R. Buttimer	3	9	285

Notes: * Scopus subject area "Business, Management and Accounting" . ** Scopus subject area "Economics, Econometrics and Finance".

Source: Own study based on the data retrieved November 2, 2021 from the Scopus databases.

Some of the most productive authors whose studies are part of both management and finance research include: K.H. Liow and S. Bienart (Table 5). Research by 8 of the 10 leading authors has been carried out in both subjects.

The number of publications of a given author in the database does not always translate into the number of citations that indicate the scale of impact of a given scientific paper. The most frequently cited publication in the Scopus database on real estate in the context of risk management in management research is the article by Zavadskas, Turskis and Tamošaitiene (*Risk assessment of construction projects* published in the "Journal of Civil Engineering and Management" – Vol. 16(1), pp. 33-46 – in 2010). The article has received a total of 311 citations.

In financial studies, the most cited publication is the article by Kole, Koedijk and Verbeek (*Selecting copulas for risk management* published in the "Journal of Banking and Finance" – Vol. 31(8), pp. 2405-2423 – in 2007). The article has received a total of 171 citations.

The last and at the same time the most important element of the scientometric view of real estate research in the context of risk management was the analysis of co-occurrence of keywords, which served the grouping reflecting the research on the sub-areas in both fields. The VOSviewer software was used for this purpose (van Eck & Waltman, 2021; VOS 2021).

As indicated by Zou, Yue & Vu (2018, p. 132): "The keywords in academic publications are the natural language words that express the thematic concepts of documents. The keywords condense the academic points of view of the authors, making them an important indicator in bibliometrics. Keywords co-occurrence analysis is based on the statistics of the number of a pair of keywords being cited in the same document, so as to conduct the network analysis and cluster analysis for these words and thus reveal the knowledge structure and research frontier of a certain subject".

The presentation of the results of the keyword co-occurrence analysis follows the procedure presented by Chandra (2018) and Ejdys (2016). The analysis was carried out in the following stages:

Stage 1: Searching for the records in the database based on given criteria

The analysis of co-occurrence of words was performed for the resources of the Scopus database. The criteria for searching records in the database included searching according to the topic (article title, abstract, keywords) of adopted word phrases (phrase 1: "risk management" AND "real estate" and phrase 2: "risk" AND "management" AND "real estate"). The search was not limited by the publication time. Taking into account the above criteria, 352 (phrase 1 search) and 907 (phrase 2 search) publications meeting the adopted criteria were identified (Table 1). The phrase for which the search revealed more publications was selected for analysis.

Step 2: Exporting the bibliographic descriptions

This stage involved exporting the data, including two full bibliometric records, to the files in .txt and .csv formats supported by VOSviewer software (VOSviewer software Visualizing Scientific Landscapes, Version 1.6.17. developed by the Leiden University Centre for Science base and Technology Studies in the Netherlands). In the search group of publications, 374 belonged to the category "Business, Management and Accounting" and 323 to the category "Economics, Econometrics and Finance" (Table 4). In relation to the purpose of this study (to identify the leading patterns of convergence and divergence in management research and finance research), the data was exported by a research area. Management research publications were considered to fall under the "Business, Management and Accounting" category; while finance research publications were considered to fall under the "Economics, Econometrics and Finance" category.

Step 3: Development of the linkage maps and cluster analysis

The maps were developed using VOSviewer software by separately importing an entire text file with the stored records from the Scopus database for each category (van Eck & Waltman, 2010). The process of mapping generation included the following steps:

- extraction of terms, with the identification of terms whose recurrence in bibliographic descriptions is at a minimum level of 5. Minimum cluster size – 5 keywords. VOSviewer software uses the full counting method for this purpose. For the category "management research", 1524 terms were identified, of which as many as 55 terms occurred threshold. For the category "finance research", 1036 terms were identified, of which as many as 29 terms occurred threshold,
- the analysis excluded a set of search terms (risk, management, risk management, real estate) and technical terms, not substantively related to the analysed research area, e.g. country, article, survey,
- development of linkage maps, research area cluster maps, and citation intensity maps of the concepts analysed.

Step 4: Analysis of the results

The results of the analyses carried out have been presented in Figures 2 and 3.

The analysis of co-occurrence of words and an attempt to define clusters allows to find five research clusters referring to the topic of real estate in the risk management context in managerial research and only two in finance research (Figures 2 and 3). This indicates that real estate in the risk management context is much more specialised in the area of finance than in the area of management. The research sub-areas identified in managerial research relate to: (cluster 1) project management in regional planning, (cluster 2) use of artificial intelligence AI, (cluster 3) real estate investment trusts (REITs), (cluster 4) real estate investment problems, and (cluster 5) property management in climate change perspective.

Figure 2. Real estate issues in risk management – network visualisation in management research
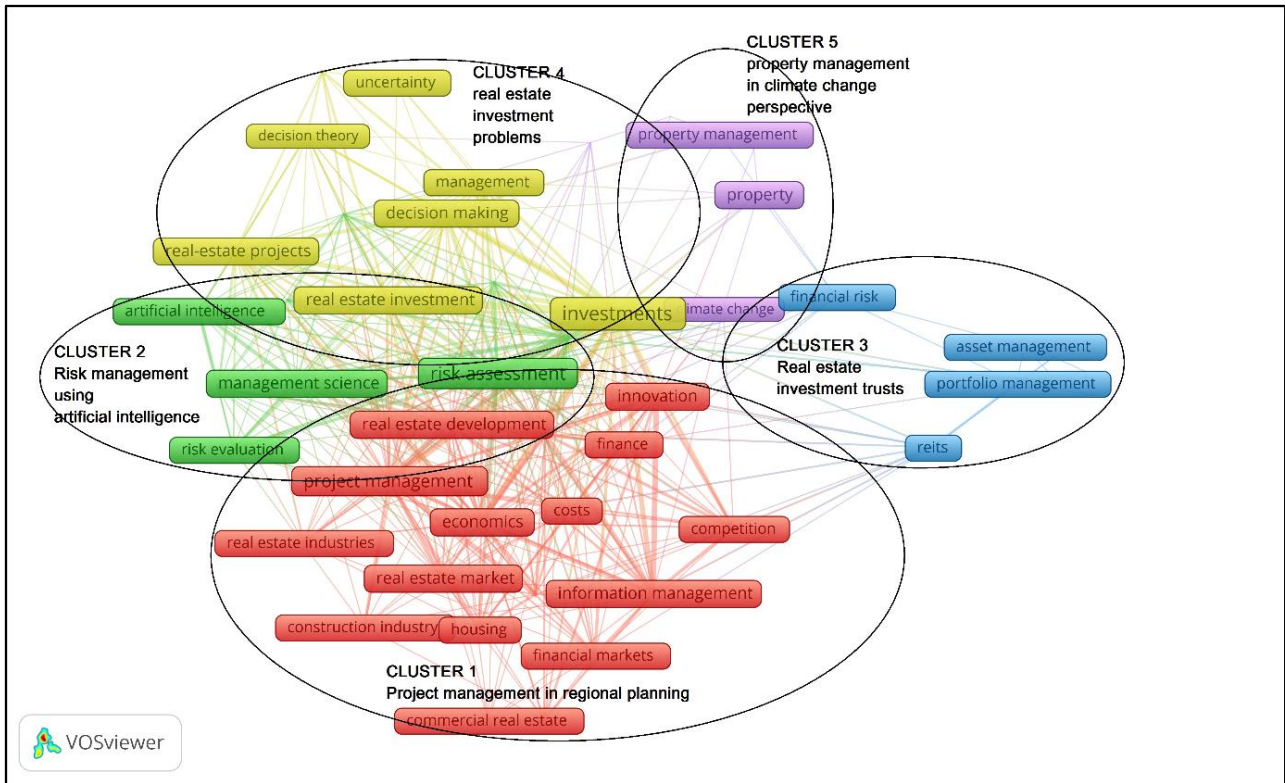
Source: Own elaboration with the use of VOSviewer software.

Figure 3. Real estate issues in risk management – network visualisation in finance research
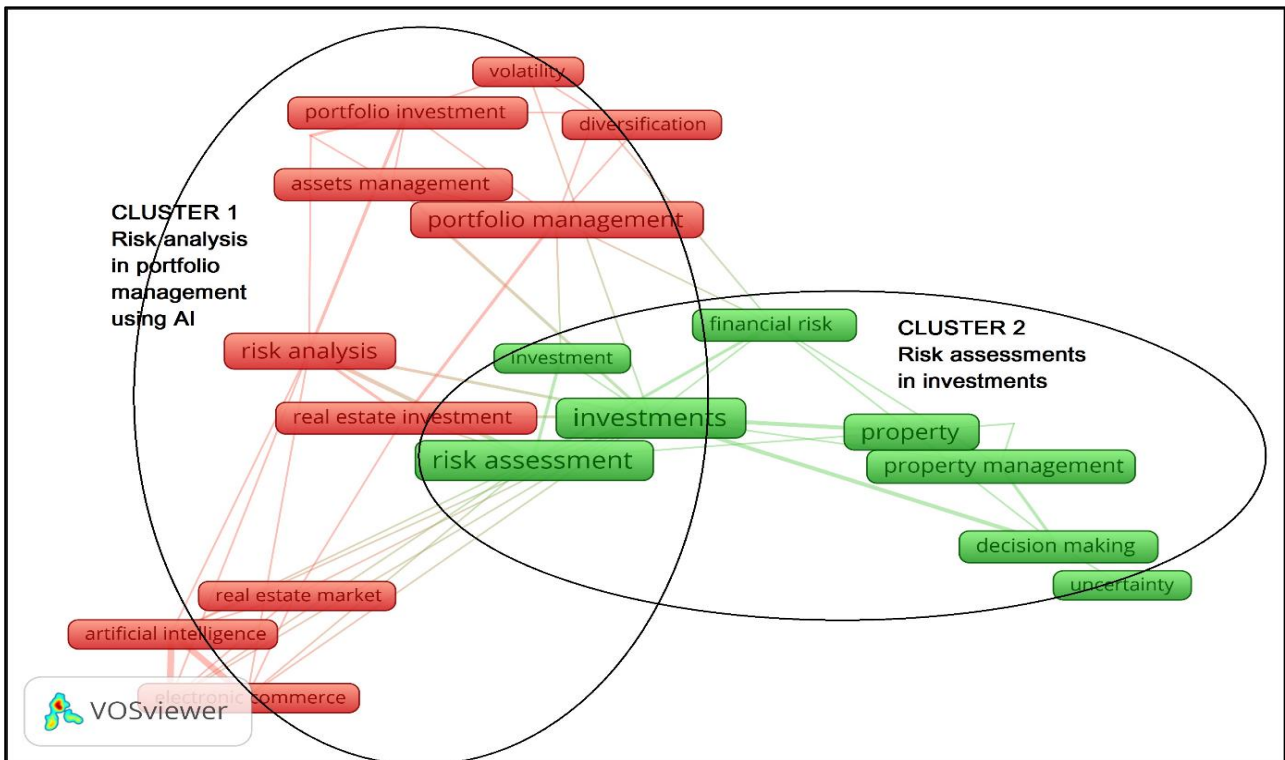
Source: Own elaboration with the use of VOSviewer software.

On the other hand, the identified research sub-areas in finance research concern: (cluster 1) risk analysis in portfolio management using AI, (cluster 2) risk assessments in investments.

The sub-area of research on project management in regional planning (cluster 1 Figure 2) contains publications relating mainly to the study of risk problems in the field of information management and real estate development, taking into account the issues of innovation and sustainable development. These topics have been considered in relation to the real estate industry in conjunction with the construction industry.

The research sub-area of risk management using AI (cluster 2 Figure 2) focuses on publications in the field of industrial engineering, which present the use of artificial intelligence for risk management at different stages of the process (risk analysis, risk assessment, risk evaluation, risk identification and risk perception). This is a relatively new issue in real estate management research.

Another highlighted sub-area of management research includes publications on real estate investment problems (cluster 3 Figure 2), mainly in the areas of asset management and portfolio management. This is undoubtedly a trend closely related to research in the area of finance (cluster 1 Figure 3).

The fourth sub-area highlighted in management research includes publications on real estate investment trusts (cluster 4 Figure 2). This is also a trend closely aligned with finance research (cluster 2 Figure 3).

A recent trend identified in real estate research in the context of risk management includes publications addressing the climate change issues (cluster 5 Figure 2). Among other things, many researchers emphasise that sustainability criteria and project risk management are insufficiently explored in the real estate development process and thus threaten business survival (Bergmann, Kamarás, Gleißner, & Guenther, 2020).

Although the presented scientometric analysis of the real estate issues in the context of risk management shows many connections between management research and finance research, several areas of difference have been identified. It can be concluded that independent trends in management research are the analysis of the possibility of using artificial intelligence to solve the real estate risk management problems and the analysis of the impact of climate change on these processes.

4. CONCLUSIONS

The scientometric analysis provides an interesting view to understand the evolution and visualisation of academic knowledge. This paper contributes to the existing knowledge on the real estate issues in a risk management context from the perspective of both management research and finance research. It expands the platform for research on this topic by highlighting current differences and similarities in these areas. Based on the insights generated by this study, many findings can be presented:

− the study of real estate issues in the context of risk management is a relatively new trend in academic research, which has been intensified over the past 10 years;
− the problems are studied mainly from the point of view of management research, financial research and engineering research;
− most of the leading researchers in this field combine aspects of management with aspects of finance in their studies;
− research in finance (2 clusters) is more concentrated than research in management (5 clusters), but it is a common area of research;
− a relatively new trend in the study of the real estate issues in the context of risk management is research on the use of artificial intelligence and the analysis of the impact of climate changes on these processes.

However, it should be noted that the bibliometric analysis presented in this article is not without limitations. The limitations of this study are as follows:

− the limitation of the research to the selected bibliographic database SCOPUS; ultimately, for the purposes of the comparative analysis, the resources of the Web of Science or Google Scholar databases should also be analysed, which, especially in relation to the social sciences, is characterised by a significant resource of various types of publications;

− the limitations arising from the assumed visualisation parameters in the VOSviewer program (the assumption of a lower value of the co-occurrence index results in a network of more links; thus, the possibility of revealing hidden clusters).

Future research should detail the present bibliometric analysis, which is mainly quantitative in nature, with research involving qualitative and substantive evaluation of the content of articles, from the point of view of the researcher's interests. Other research methods in further studies of the real estate issues in the context of risk management should be applied. For example, the ARO hybrid method which combines a systematic review of quantitative research, meta-synthesis of qualitative research and the critical interpretative analysis.

REFERENCES

Battisti, E., Shams, S. M. R., Sakka, G., & Miglietta, N. (2020). Big data and risk management in business processes: Implications for corporate real estate. *Business Process Management Journal, 26*(5), 1141-1155. https://doi:10.1108/BPMJ-03-2019-0125

Bergmann, P., Kamarás, E., Gleißner, W., & Guenther, E. (2020). Enhanced cash flow valuation in real estate management by integrating innovative materials and risk assessment. *Sustainability, 12*(6). https://doi:10.3390/su12062201

Chandra, Y. (2018). Mapping the evolution of entrepreneurship as a field of research (1990–2013): A scientometric analysis. *PLoS ONE, 13*(1):e0190228. https://doi.org/10.1371/journal.pone.0190228

Crovini, C., Ossola, G., & Britzelmaier, B. (2021). How to reconsider risk management in SMEs? An advanced, reasoned and organised literature review. *European Management Journal, 39*(1), 118-134. https://doi.org/10.1016/j.emj.2020.11.002

Eckles, D., Hoyt, R., & Miller, S. (2014). Reprint of: The impact of enterprise risk management on the marginal cost of reducing risk: Evidence from the insurance industry. *Journal of Banking and Finance, 43*, 247-261. http://dx.doi.org/10.1016/j.jbankfin.2014.02.007

Ejdys, J. (2016). Problematyka społecznej odpowiedzialności biznesu jako obiekt naukowych zainteresowań – wyniki analizy bibliometrycznej. *Przegląd Organizacji, 4*, 36-44. https://doi.org/10.33141/po.2016.04.06

Fabozzi, F. J., Stanescu, S., & Tunaru, R. (2013). Commercial real estate risk management with derivatives. *Journal of Portfolio Management, 39*(5), 111-119. https://doi:10.3905/jpm.2013.39.5.111

Ferreira de Araújo Lima, P., Crema, M., & Verbano, C. (2020). Risk management in SMEs: A systematic review and future directions. *European Management Journal, 38*(1), 78-94. https://doi.org/10.1016/j.emj.2019.06.005

Fisher, J. D. (2005). New strategies for commercial real estate investment and risk management. *Journal of Portfolio Management, 31*(SPEC. ISS.), 154-161+10. https://doi:10.3905/jpm.2005.593898

Florio, C., & Leoni, G. (2017). Enterprise risk management and firm performance: The Italian case. *The British Accounting Review, 49*(1), 56-74. https://doi.org/10.1016/j.bar.2016.08.003

Gleibner, W., & Wiegelmann, T. (2012). Quantitative methods for risk management in the real estate development industry. *Journal of Property Investment & Finance, 30*(6), https://doi.org/10.1108/jpif.2012.11230faa.002

Goorah, A. (2007). Real estate risk management with copulas. *Journal of Property Research*, *24*(4), 289-311. https://doi:10.1080/09599910801916162

Gorzeń-Mitka, I. (2020). The latest streams of research on communication in risk management: A large-scale literature review based on co-occurrence data. *Zeszyty Naukowe. Organizacja i Zarządzanie/Politechnika Śląska, 149*, 219-237. http://dx.doi.org/10.29119/1641-3466.2020.149.20

Heinze, I., & Henschel, T. (2021). Risk(ing) sophistication: Towards a structural equation model for risk management in small and medium-sized enterprises. *International Journal of Entrepreneurship and Small Business*, in press. https://www.inderscience.com/info/ingeneral/forthcoming.php?jcode=ijesb

Hopkin, P. (2010). *Fundamentals of risk management: Understanding, evaluating and implementing effective risk management*. London, England; Philadelphia, Pennsylvania; New Delhi, India: Kogan Page.

Hoyt, R. E., & Liebenberg, A. P. (2011). The value of enterprise risk management. *Journal of Risk and Insurance, 78*(4), 795-822. https://doi:10.1111/j.1539-6975.2011.01413.x

Kole, E., Koedijk, K., & Verbeek, M. (2007). Selecting copulas for risk management. *Journal of Banking and Finance, 31*(8), 2405-2423. https://doi.org/10.1016/j.jbankfin.2006.09.010

Pagach, D., & Wieczorek-Kosmala, M. (2020). The challenges and opportunities for ERM Post-COVID-19: Agendas for future research. *Journal of Risk and Financial Management, 13*(12), 323. https://doi.org/10.3390/jrfm13120323

Schroeder, M. (2013). Environmental insurance: A risk management tool for real estate. *Environmental Claims Journal, 25*(2), 99-110. https://doi:10.1080/10406026.2013.781471

Sipa, M. (2019). The interdisciplinary character of talent management. *Zeszyty Naukowe UPH seria Administracja i Zarządzanie, 48*(121), 31-39. https://doi.org/10.34739/zn.2019.48.03

Van Eck, N. J., & Waltman, L. (2010). Software survey: VOSviewer, a computer program for bibliometric mapping. *Scientometrics, 84*(2), 523-538. https://doi.org/10.1007/s11192-009-0146-3

Van Eck, N. J. & Waltman, L. (2021). *VOSviewer Manual. Manual for VOSviewer version 1.6.17, software documentation*. Retrieved October 25, 2021 from http://www.vosviewer.com/documentation/Manual_VOSviewer_1.6.17.pdf

VOS (2021). *VOSviewer software*. Retrieved October 25, 2021 from http://www.vosviewer.com

Yang, S., Ishtiaq, M., & Anwar, M. (2018). Enterprise risk management practices and firm performance, the mediating role of competitive advantage and the moderating role of financial literacy. *Journal of Risk and Financial Management, 11*(35), 1-17. https://doi:10.3390/jrfm11030035

Zavadskas, E. K., Turskis, Z., & Tamošaitiene, J. (2010). Risk assessment of construction projects. *Journal of Civil Engineering and Management*, *16*(1), 33-46. https://doi:10.3846/jcem.2010.03

Zou, X., Yue, W. L., & Vu, H. L. (2018). Visualization and analysis of mapping knowledge domain of road safety studies. *Accident Analysis and Prevention, 118*, 131-145. https://doi:10.1016/j.aap.2018.06.010