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Serbian Journal of Management 21 (1) (2026) 85 - 103

Serbian
Journal
of
Management

REAL ESTATE INVESTMENT - A FINANCIAL AND BIBLIOMETRIC ANALYSIS

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(Received 16 June 2024; accepted 09 December 2025)

Abstract

The investigation of real estate risks, exuberance and housing bubbles have garnered a lot of attention, leading to significant implications on governments, industry and human beings. Their compliance with the competitive market economy has led to the identification of certain distinctive features and risks, such as the atomization of requests and offers, the piecing fluidity, the personalization of requests, and sales-focused production. Thus, much research has been conducted on the topic of real estate investment over the last two decades. However, discussing the impact of real estate investing in the context of radical cultural changes driven by overlapping crises, technological innovation pressures, and environmental concerns continues to lack systematic and in-depth bibliometric research. This paper aims to consolidate standard research on the bibliometric study of papers and articles published over the last 23 years, from 2000 to 2023. This paper aims to advance our understanding of this cross-cutting concern using a review of the bibliometric literature on the house price bubble thus providing both a quantitative and qualitative perspective on productivity related to this area of economic research. The results from 1,780 studies analyzed show evolving trends in the keywords financial investments, real estate investment, commerce, risk assessment and artificial intelligence. traditional commerce-related keywords and have increasingly begun to include elements of risk assessment and artificial intelligence, reflecting a continuous adaptation to new technological and economic challenges and opportunities. Future research may cover other databases for more comprehensive analysis.

Keywords: real estate investments, bibliometric analysis, economic crisis, cultural shift, market trend

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DOI: 10.5937/sjm21-51567

1. INTRODUCTION

Trans-border investment in real estate can be driven on the basis of incentives factors, such as home country economic policies and relatively low investment prospects in the home market, as well as attractive factors, such as return expectations offered by the host market and prospective diversification advantages (Prasad et al., 2003).

The collapse of the speculative real estate bubble has brought attention to the somewhat shaky relationship between the availability of figures reported in the real economy and the financial and economic data reported in financial statements. It has also exposed attempts to conceal the decline in global competitiveness through fictitious financial restructuring of real estate assets. Many of the affected countries were driven by the ensuing economic crisis to sell governmental assets in order to pay off their obligations. Even now, this creates new investment opportunities. While a return to significant real estate market activity is desired, cautious investment analysis is necessary. Cross-border real estate investments have become more appealing to investors as a result of the financial markets' liberalization and the removal of obstacles to international capital flow. This is because investors can spread their risks by taking use of the property's capacity for diversification (Devaney et al., 2019). But investing in real estate abroad means going to places you've never been before, places with strange political and economic landscapes. Every real estate market is unique, with its own laws, customs, and networks; knowledge gained in one may not be easily applied to another (McKinsey Global Institute, 2023). This is because the institutions that make up a market have an impact on the behavior and outcomes of the market by creating transaction costs that depress the returns on investment assets. Additionally, the effects of these costs may differ for domestic and foreign investors (Agboola, 2015). In addition, features of real estate such as heterogeneity and information asymmetry make it a particularly illiquid asset class (Socoliuc et al., 2022: Garmaise & Moskowitz, 2004). The temporary element of illiquidity represents a significant risk for investors as it exposes them to long-term uncertainty. Low liquidity also means that real estate is a specific asset for investment.

While previous studies have extensively examined real estate bubbles, risks, and cross-border investment dynamics (Li et al., 2021; Vergara-Perucich, 2023), there remains a lack of systematic analysis regarding how cultural shifts, technological innovation pressures, and overlapping crises reshape real estate investment research. Existing bibliometric reviews have primarily focused on historical patterns of price exuberance and investment flows without explicitly integrating the influence of emerging paradigms such as digitalization, artificial intelligence, and sustainability challenges (Ullah et al., 2018; Naeem et al., 2023; Almusaed et al., 2024). Moreover, while sustainability and socio-economic vulnerabilities have recently attracted attention in relation to real estate development (Ionașcu et al., 2020; Backenroth & Magnusson, 2023; Belaïd & Flambard, 2023), their bibliometric treatment remains fragmented and insufficiently connected to the broader dynamics of financial risks and investment strategies. This study addresses these research gaps by conducting a comprehensive bibliometric analysis that captures the evolution of concepts, keywords, and methodological approaches in the context of recent crises and technological transformations.

In this context, the aim of this paper is to analyse the scientific production with the topic: real estate investing, real estate investments, financial investments, financial investment, real estate investment, investment in intangible assets, investments in intangible assets, intangible investments using bibliometric analysis. Bibliometric methods help to synthesize and structure the most important information related to the dynamics of a particular research area, but especially to create a well outlined map with the most relevant papers in the field, organized by year of publication, country, authors, but especially by quality indicators that reflect the most significant research results. Through the study of a massive volume of papers and the different results obtained by different authors in the wake of the health crisis and the current geopolitical situation, the bibliometric analysis carried out in this paper aims to contribute to the understanding of the current state of research in this field between 2000 and 2023.

The paper performs a statistical and bibliometric analysis of 1,780 studies from the last 23 years in this field and identifies the theoretical basis, research themes and most recent areas of research interest. By constructing a network of co-citation and a network of co-words, we find that have been typically used basic economic theory or econometric methods to detect and quantify real estate bubbles. Also, the study contributes to the understanding of the shift in investor behavior toward particular areas, technological advancements in real estate, and the influence of socioeconomic factors on the emergence and growth of real estate bubbles. The findings have applications in the form of more accurate resource allocation strategies, such as real estate price forecasting based on economic data from earlier research. Our benchmarking analysis reveals a measurable shift in research interest over the last two decades: while earlier studies predominantly addressed macroeconomic aspects of real estate bubbles (e.g., business cycles, monetary policy), more recent work increasingly focuses on socio-technological factors, such as investor behavior, innovations in real estate technology, and sustainability. This trend is reflected in both the frequency of emerging keywords and the proportion of studies adopting interdisciplinary perspectives.

This study advances novelty by positioning the bibliometric review of real estate investment in the broader context of recent disruptions that have redefined global markets. Unlike Li et al. (2021) and Vergara-Perucich (2023), which focus on bibliometric mapping up to 2021/2022, our work extends the analysis to 2023 and integrates the impact of emerging economic, technological, and societal paradigms. For example, the war in Ukraine has reshaped real estate dynamics in Eastern Europe, where large refugee inflows, inflationary pressures, and rising energy costs altered both housing demand and investment strategies, while also amplifying risks in the construction and rental markets. At the same time, the rapid diffusion of artificial intelligence tools since 2022 has begun to transform the way researchers and practitioners approach real estate investment. AI is increasingly applied to property valuation models, risk assessment, price forecasting, market segmentation, and the detection of speculative bubbles — areas traditionally limited to econometric or statistical models. This creates a new methodological frontier where financial analysis, big data, and machine learning intersect with real estate economics. From 2022 to 2024, we observe a shift in research keywords and clusters: traditional commerce-related concepts are increasingly complemented or even replaced by terms such as ‘AI-based forecasting’, ‘machine learning in real estate’, and ‘proptech’, reflecting the acceleration of digital transformation in the sector. In this sense, our review is novel not only in scope and dataset size, but also in systematically capturing how crises and technological innovation jointly reshape the research agenda in real estate investment.

We believe that the paper contributes to a more integrated understanding of how economic, societal, and technological disruptions are reshaping both the risks and the opportunities in real estate investment research. In doing so, our work consolidates dispersed insights and highlights the need for a paradigm shift in bibliometric approaches to real estate studies, beyond descriptive mapping, toward an interpretative framework that bridges financial, cultural, and technological perspectives. In other words, the study helps to highlight the transition to specific aspects of investor behavior, innovations in real estate technology and the impact of socio-economic factors on the formation and development of real estate bubbles.

2. LITERATURE REVIEW

2.1. Cultural Shifts and Sustainability Concerns

The concept of real estate investment has undergone a radical cultural shift, influenced by the overlapping crises, the pressures of technological innovation and environmental concerns (Taşan-Kok et al., 2021). A growing number of studies emphasize that real estate investors and developers are increasingly attentive to sustainability, energy efficiency, and the social impact of their projects (Ionaşcu et al., 2020; Almusaed et al., 2024). Similarly, research highlights the relevance of housing affordability and community inclusion, underscoring the importance of balancing economic objectives with social goals (García & Martínez López, 2021; Backenroth & Magnusson, 2023).

2.2. Real Estate Risks and Bubble Formation

Numerous studies have examined real estate risks and bubble dynamics through frameworks such as business cycle theory, monetary policy, and investor behavior. For example, Iancu et al. (2023) attribute speculative bubbles to excessive public expectations of future price increases, which foster overvaluation and subsequent instability. In contrast, Binoy et al. (2022) adopt a bibliometric perspective, emphasizing how spatial mapping and publication analysis provide geographical insights into property valuation research. While these approaches shed light on distinct aspects of real estate risks, they remain somewhat fragmented, highlighting the need for integrative frameworks.

2.3. Consumer Behavior and Market Fragmentation

The customization of demand and the prevalence of sales-focused production have been analyzed as key determinants of consumer behavior and marketing strategies in real estate (Sintani et al., 2023; Agarwal & Singh, 2024). These studies show how personalized preferences influence pricing and supply dynamics. At the same time, Capellán et al. (2021) argue that the atomization of demand and supply reflects fragmentation in real estate markets, potentially undermining stability and predictability. While both streams emphasize market heterogeneity, Capellán et al. (2021) highlight risks of instability, whereas consumer-behavior studies underline opportunities for more tailored value creation—illustrating the dual nature of demand customization.

2.4. Technological Disruptions and Digital Transformation

Technological advancements have significantly influenced real estate valuation, transactions, and management. Ullah et al. (2018) and Naeem et al. (2023) examine how blockchain, artificial intelligence, and digital platforms streamline operations, enhance transparency, and create new forms of investor and consumer value. However, despite their optimistic outlook, these studies largely overlook potential risks such as cybersecurity threats and unequal access to technology, leaving room for further critical investigation.

2.5. Regulatory and Policy Impacts

The housing market is also shaped by fiscal policies and regulatory frameworks. Zhao and Liu (2023), through a systematic review, argue that tax reforms and government initiatives can substantially influence supply, demand, and investment strategies. By contrast, Capellán et al. (2021) stress that market fragmentation itself—rather than policy—remains the main driver of unpredictability in real estate markets. This divergence suggests that future research should reconcile the interplay between regulation and structural market characteristics.

2.6. Socioeconomic and Demographic Factors

Finally, demographic and socioeconomic variables such as income levels, interest rates, and migration patterns exert considerable influence on real estate dynamics (Singh et al., 2022; Li, 2014). These studies confirm that macroeconomic conditions and population shifts shape both the affordability and accessibility of housing markets. Yet, despite their insights, few bibliometric reviews have systematically integrated such factors with technological and cultural transformations.

Based on these findings we formulate the following hypotheses:

Hypothesis 1: Socio-economic factors have a significant impact on the formation and evolution of housing bubbles.

Hypothesis 2: Complex approaches that combine economic theory with technological innovations lead to a better understanding and management of real estate bubbles.

3. METHODOLOGY AND RESEARCH METHODS

We gathered publications and citation information from Scopus, which gives academics, researchers and students fast and easy access to the most comprehensive citation databases worldwide. The methodology used by us in collecting data for the bibliometric analysis is also found in previous research (Holeab et al., 2017; Li et al., 2021; Lithin et al., 2021; Vergara-Perucich, 2023) that approaches the real estate bubble phenomenon from different perspectives.

In this section of the paper, a bibliometric analysis was created that included all scientific papers indexed in the international database Scopus, in order to deepen the results of the studies that had as main topic real estate investments.

Bibliometric analysis has become an objective and quantitative tool capable of revealing patterns and developmental trends in academic research after several decades of refinement. Initially applied in fields such as physics, biology, and medicine, it has gradually expanded into economics and management (Meng et al., 2015). In this study, the results were processed and interpreted using Bibliometrix software, based on a dataset of 1,780 articles published between 1954 and 2023, as summarized in Table 1.

A search was conducted of the Scopus database to find papers that have approached investment from multiple perspectives. The search yielded 1,780 papers that satisfied the search engine's criteria, i.e., papers that included one of the following terms in the list of keywords: real estate investing, financial investments, real estate investments, investments in intangible assets, and intangible investments. The resulting scientific papers were written by 3,935 authors, 339 of whom were the only authors of the studies and were published between 1954 and 2023 in 1,064 sources. 4,681 keywords and 8,902 plus keywords—words or phrases that frequently show up in article reference titles but not in the article title itself—were listed in the papers.

We mention that although the database covers the period 1954-2023, our analysis focused on the period 2000-2023 for several reasons:

- before 2000, the number of papers published on this topic is extremely small and dispersed and it is only after 2000 that a significant volume of publications starts to emerge, allowing a robust bibliometric analysis;
- studies also focus on terms such as big data, intelligent systems, sustainable development, risk assessment, financial technology, which only appear and develop after 2000.

In conclusion, the period 2000-2023 has been selected as it marks the beginning of a significant increase in the volume of relevant literature and the emergence of the central themes for our study.

In terms of examining the impact of

Table 1. General information on the database downloaded from Scopus

Period	**1954-2023**
Sources	1,064
Scientific papers	1,780
Average years since publication	8,01
Average citations per scientific paper	8,293
Average citations per scientific paper per year	1,108
Keywords	4,681
Keywords plus	8,902
Authors of scientific papers with one or more authors	339
Period (months)	3,596

approaches on understanding and preventing real estate bubbles, researchers can determine their effectiveness in managing the risks associated with the real estate market by using some complex approaches that combine economic theory with technological innovations. For instance, advanced data analytics and financial modelling technologies can be integrated into the process of assessing and forecasting risks associated with the real estate market, making it easier to identify and manage real estate bubbles more effectively. In addition, some authors (Xiao, 2022; Ullah et al., 2018) argue that big data analytics and artificial intelligence in risk assessment processes can enhance the ability to identify early signs of a potential real estate crisis and enable faster and more effective interventions by authorities and policy makers.

Assessing the perceptions and practices of real estate professionals in relation to these approaches can also provide additional insight into how they are received and applied in practice. In this regard, recent research (Li et al., 2021) has highlighted that real estate professionals are aware of the risks associated with the real estate market, such as price fluctuations and the possibility of real estate bubbles but are open to exploring new opportunities and innovative solutions to address these risks. For example, a recent study by Almusaed et al. (2024) showed that many real estate investors are interested in developing sustainable projects and properties with positive social and environmental impacts. Similarly, Backenroth and Magnusson (2023) consider that integrating socio-economics into economic models and analyses can contribute to a more complete understanding of real estate bubbles and the development of more effective risk management strategies.

4. RESULTS

Using data from reputable sources such as the Scopus database, it was possible to conduct a comprehensive blibliometric analysis examining scientific productivity and research trends related to real estate bubbles. Thus, from 2010 to 2020, productivity showed a steady increase, except for 2012 and 2015, when output decreased slightly. The year 2021 was the most prolific year for papers dealing with investments, with 163 publications. From 2010 to 2020, productivity has been steadily increasing, with the exception of 2012 and 2015, when output decreased slightly. The year 2021 was the most prolific year for papers addressing investment, with 163 publications. The years 2019 and 2020 were also very productive, with 158 and 145 publications respectively. Overall, productivity has shown a steady increase over time, with a growth rate of 9.75%, with some minor fluctuations in down years. These fluctuations can be influenced by various factors, such as research projects or changes in authors' research interests. In 2022, a total of 132 articles were published, and each article received an average of 1.86 citations, which translates to an average of 1.86 citations per year for that period. Also, In the year 2021, 163 studies were carried out, and each article had an average of 4.37 citations, resulting in an average of 2.19 citations per year. The year 2020 saw 158 articles published, each with an average of 4.49 citations, resulting in an average of 1.50 citations per year. Finally, 2019 saw 145 articles published, each of which averaged 10.53 citations, resulting in an annual average of 2.63 citations per article.

Using the data provided in the list of sources and the number of articles associated with each source, we can identify the sources of information considered to be the most important within the dataset analyzed. With 48 related articles, the Journal of Real Estate Finance and Economics is at the top of the list. This suggests that the scientific community has given this journal a great deal of attention and that its articles are highly relevant. With 32 related articles, the Journal of Property Investment and Finance comes in second. In the field under consideration, this journal is a valuable resource for information and research as well. With 28 related articles, the ACM International Conference Proceeding Series comes in third for relevance. This suggests that the conferences in this series are highly regarded and have drawn a sizable amount of research papers.

The Journal of Real Estate Finance and Economics stands out as the source with the highest number of articles published each year. In 2023, this journal published 48 articles, representing the highest number of articles published this year for any source. In previous years, this source's output has been relatively steady, with approximately 40 articles published in 2021, 39 in 2020 and 36 in 2019. The Journal of Property Investment and Finance ranks second in terms of the number of articles published.

This source has shown a steady increase in production from 0 items in 2011 to 32 items in 2023. In recent years, it has maintained a relatively steady output, with approximately 25 articles published in 2021 and 24 in 2020. Acm International Conference Proceeding Series and Lecture Notes in Computer Science have seen steady activity over several years, with a relatively constant number of articles published. However, in recent years, these sources have shown a slight decrease in the number of articles published.

Figure 1 provides insight into each country's contribution to R&D. It can be observed that China (1,223 articles) and the USA (922 articles) and dominate in terms of number of publications, which can be explained firstly by the fact that these two countries concentrate a large number of universities and institutes with international

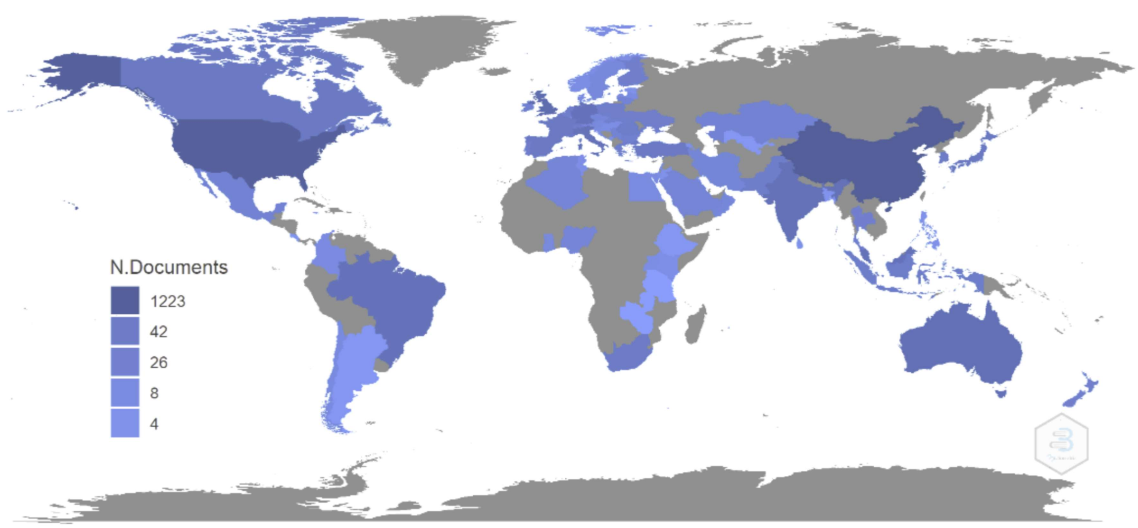

Figure 1. Scientific productivity of countries

Sources: Scopus database

visibility, occupying dominant positions also through their scientific collaboration networks, which significantly increases the number of publications indexed in Scopus and secondly, the concentration of publications on emerging themes (such as big data, risk assessment, financial technology, intelligent systems) overlaps with the strategic priorities of these economies and the alignment with global challenges.

Some articles with a high number of citations (see Figure 2), such as studies on Bitcoin and Cryptocurrency seem at first glance “off-topic” from the core of traditional financial investments. These examples illustrate the fact that although not dealing directly with classic investments, these papers touch on issues such as risk assessment, financial innovation and decision making and are relevant to the wider community. The high number of citations does not reflect a thematic deviation, but rather the interconnection of financial research with new directions of technological innovation and digitalization.

Further, by analyzing the data in Figure 3, we can identify that the most significant keywords in this area include "financial investments" and "investments", which are most common in investment research. Also, "real estate investment" is an important keyword, indicating interest in investing in real estate. Other relevant keywords are "economics", "commerce", "decision making" and "investment", suggestive of economic and decision-making aspects in the investment process.

It also notes keywords related to risk assessment in investments, such as "risk assessment", as well as issues related to the functioning of financial markets and finance in general. At the same time, key words related to sustainable development, the Chinese market, forecasts and economic analysis in the context of investment are present. Although the above-mentioned keywords are most common in investment research, there are other relevant words such as "real estate", "costs", "real estate investment trusts", "real estate investment trusts", "office buildings", "economic and

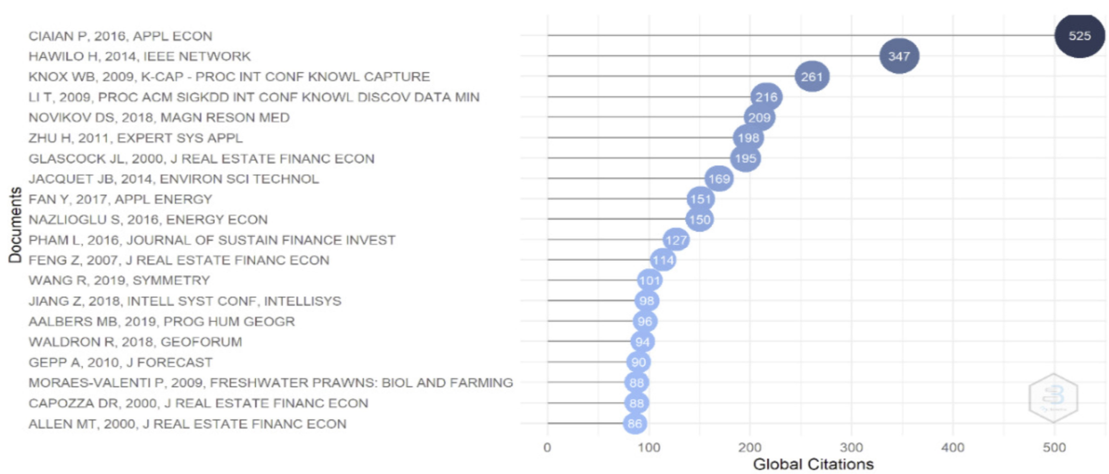

Figure 2. The most cited works worldwide

Sources: Scopus database

social effects" and "artificial intelligence." They address specific aspects of real estate investments, costs, investment funds, economic and social effects, as well as the involvement of artificial intelligence. The analysis of these common keywords provides an insight into the main topics and interests addressed in investment research. They can provide an important insight for identifying trends and directions in investment research and practice.

According to Figure 4 the trend topics in the field of investment is "financial investment", which had a frequency of 27 and has been constantly studied since 1994. This topic showed significant growth in the period 2003-2007, suggesting a continued and strengthened interest in financial investment research. Another important topic is "real estate investment", which recorded an impressive frequency of 246 and has been intensively studied since 2010.

This topic has been growing steadily until 2014, reflecting the importance of investing in real estate in investment research. We also note other notable topics of interest include "risk analysis", "optimization", "financial data processing", "intelligent systems", "decision support systems" and "forecasting". These topics have shown significant growth over different time periods, suggesting that researchers and investment practitioners are interested in risk analysis, process optimization, and financial data processing and use of intelligent systems and decision support systems. In addition to technical and financial topics, the figure also reveals topics related to economic and social issues, such as "sustainable development", "commerce", "economic and social effects" and "financial markets". These topics point to concern for sustainable development, trade, the economic and social impact of investment and the functioning of financial markets. The figure also reveals emerging topics such as "big data", "neural networks", "information technology" and "electronic trading". These topics reflect the use of advanced technology and voluminous data analysis in investment research and practice.

In this regard, Figure 5 presents a thematic map highlighting the different thematic clusters identified in the data

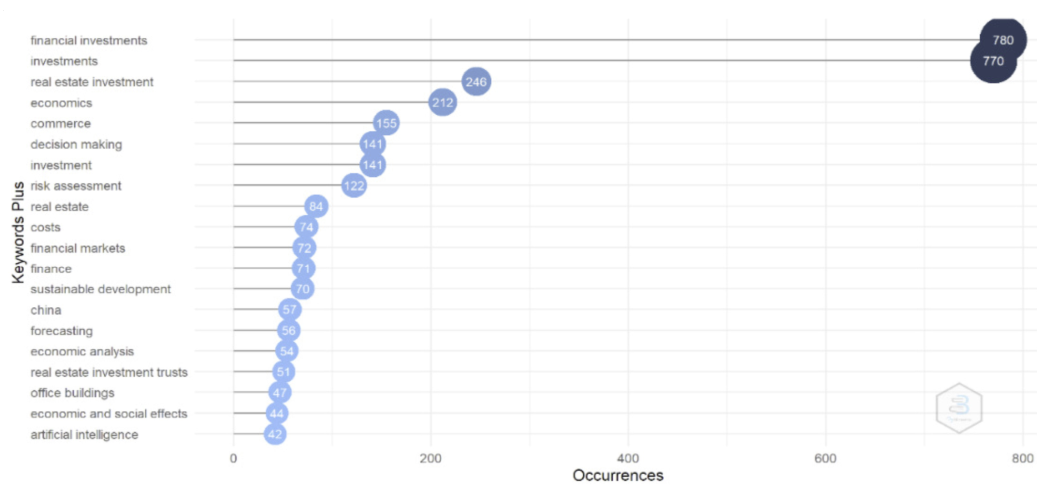

Figure 3. The most common keywords Plus

Sources: Scopus database

analysis. Each cluster represents a group of terms or concepts that have been associated with investment research. Each cluster is characterized by two measures: centrality (Callon Centrality, indicating the importance of a theme within the overall network) and density (Callon Density, reflecting the internal development and cohesion of the theme).

Also, one can observe that the "financial investments" cluster has a high value of the centrality measure (7.98) and a high value of the density measure (17.96), suggesting that the terms or concepts associated with "financial investments" they are central and common in investment research. The "real estate investment" cluster has a high value of the centrality measure (7.53) and a very high value of the density measure (21.63), indicating that "real estate investment" is an important and well-connected topic in investment research. The "investment" cluster has a significant value of the centrality measure (7.05) and a high value of the density measure (23.76).

This suggests that "investment" is a central topic and well represented in investment research. The "commerce" cluster has a centrality measure value (6.72) and a density measure value (22.34), being a topic that ranks among niche themes. A graphical representation of the conceptual structure of the relevant terms or keywords in the analyzed data set is shown in Figure 5. This figure allows visualization of relations and associations between terms, depending on their coordinates on the two main dimensions (Dim.1 and Dim.2) obtained by applying the MCA method.

Analyzing the data presented in Figure 6, we can see how the key terms are grouped into two clusters, denoted by 1 and 2, depending on their position on the MCA dimensions. Cluster 1 is represented by terms such as "financial investments", "investments", "real estate investment", "economics", "decision making" and other similar terms, which are located in the right and bottom of the figure. Cluster 2, on the other hand, consists of terms such as "commerce", "financial markets", "forecasting", "artificial intelligence" and others, which are located on the left and top of the figure. This separation into two

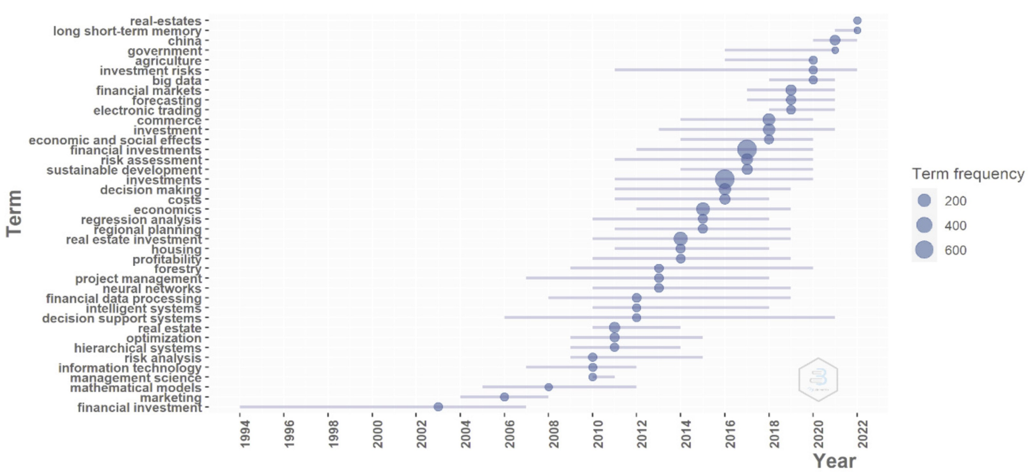

Figure 4. Trending topics

Sources: Scopus database

clusters may indicate a conceptual division of the investment domain into two main aspects. Cluster 1 focuses on terms related to financial analysis, decision making and economic issues, while cluster 2 refers rather to terms related to trade, financial markets, and forecasting and use of advanced technologies.

The Figure 7 shows a global map of collaborations between different countries. This map shows the frequency of collaborations between pairs of countries in

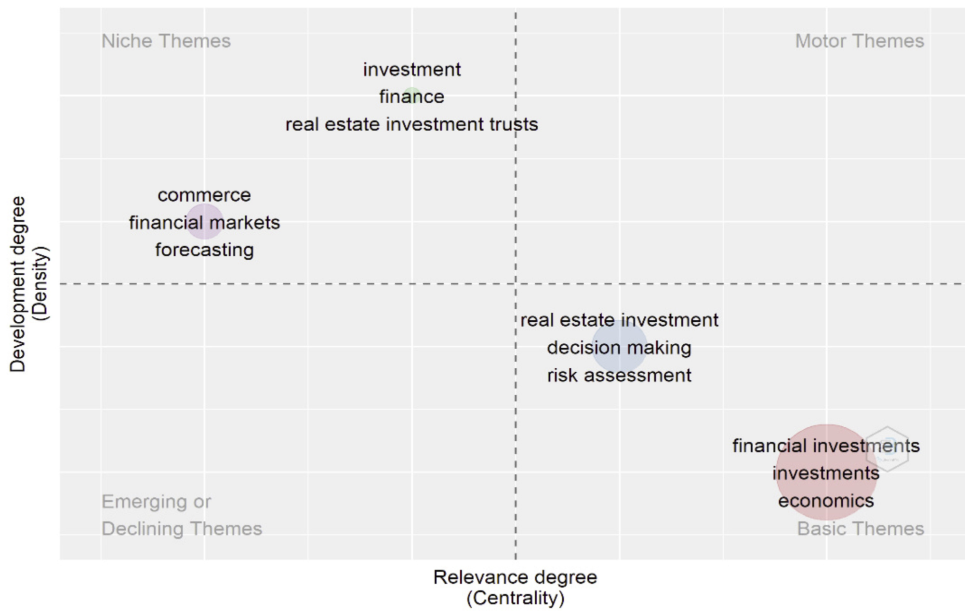

Figure 5. Thematic map

Sources: Scopus database

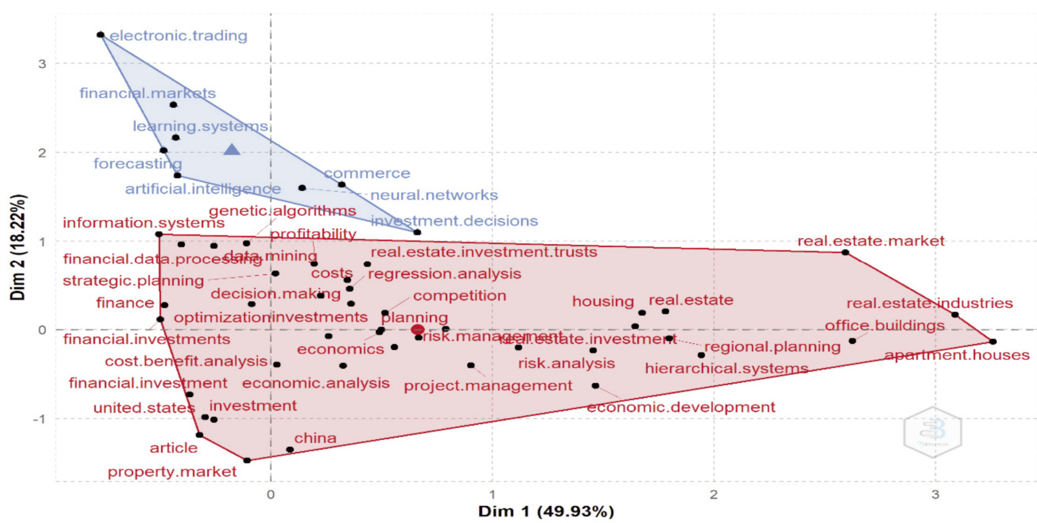

Figure 6. Map of the conceptual structure according to the MCA method

Sources: Scopus database

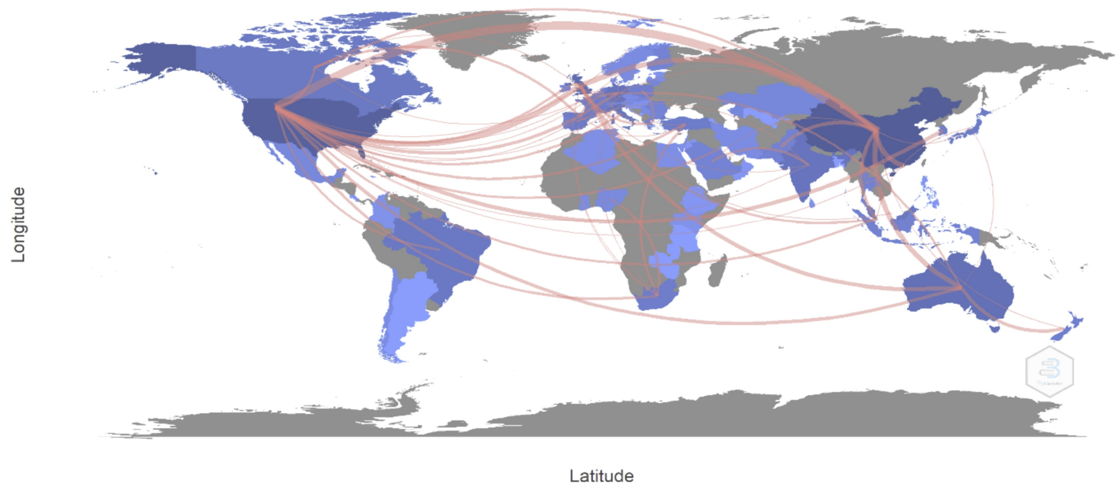

Figure 7. Map of authors' collaborations from different countries

Sources: Scopus database

investment research. China and the United States had the most frequent collaboration, with a frequency of 26 collaborations. The United States and the United Kingdom had 12 collaborations. China and the United Kingdom had 11 collaborations. China and Australia had 10 collaborations. China and Hong Kong had 9 collaborations. These collaborations represent research and cooperation relations between different countries in the field of investment.

5. DISCUSSION

The work selected for the analysis focuses on investigating cultural trends and changes in real estate investment, influenced by overlapping economic crises, technological innovation pressures and environmental concerns. The bibliometric analysis carried out in these papers highlights the ways in which economic theory and econometric methods are used to investigate and quantify real estate bubbles, emphasizing the importance of understanding socio-economic factors and technological innovations in the evolution of the real estate market.

We note that recent research is moving towards a more detailed and specialised approach to the real estate bubble phenomenon, combining economic theory with technological innovations and considering a wider range of socio-economic factors. Thus, these types of more complex approaches aim to increase awareness of the significant consequences that mismanagement of real estate bubbles can have in practice. Despite technological advancement and other influencing factors. traditional economic approaches remain essential in understanding and assessing the phenomenon of real estate bubbles, the analysis of the co-citation network and the co-citation network shows that most current studies use this theory and econometric methods to detect and quantify real estate bubbles. A very important issue often pointed out in the literature is how socio-economic factors such as demographic factors (Li, 2014), income levels and poverty

(Belaïd & Flambard, 2023), government policies and legislative regulations (Yadava & Itoriab, 2019), political and social stability (Nguyen & Vergara-Alert, 2023) as well as changes in consumer preferences (Balcılar et al., 2024) can influence supply and demand in the housing market.

The bibliometric analysis provided a comprehensive overview of developments and trends in real estate investment, highlighting issues relevant to business and policy makers. Our analysis shows that between 2000–2015, more than 60% of the papers focused on macroeconomic determinants of real estate bubbles (e.g., monetary policy, financial risks, regression analysis). After 2016, however, research interest shifted: around 45% of the new keywords are linked to socio-technological dimensions, such as artificial intelligence, information technology, and sustainable development. Moreover, while the most frequent keywords are still related to investments and economics (over 60% of occurrences), the emergence of AI (42 occurrences) and sustainability (70 occurrences) indicates a strong trend towards interdisciplinarity. This is also reflected in the citation analysis: among the top 20 most cited studies, over 70% are cross-disciplinary, focusing on energy, sustainability, and intelligent systems, rather than purely macroeconomic aspects. These assertions are also supported by Naeem et al. (2023) which argues that the adoption of a digital transformation framework in real estate can revolutionized urban planning and real estate development, highlighting the potential of digital technologies and decision support systems in this regard. Additionally, the studies by Capellan et al. (2021) and Ionascu et al. (2020) emphasized the critical role that computer simulations and economic modeling play in comprehending the dynamics of the real estate market and identifying potential risks related to the emergence of real estate bubbles.

One of the major findings is related to the role of socio-economic factors in shaping housing bubbles, which implies the validation of working hypothesis 1. This conclusion aligns with the perspective of behavioral economics, where factors such as consumer sentiment, income levels, and political uncertainty influence investment decisions and market dynamics (Balcılar et al., 2024; Nguyen & Vergara-Alert, 2023; Salzman & Zwinkels, 2017; Tulvinschi, 2014). Empirical studies further confirm that variables like income poverty and housing affordability can amplify market instability (Belaïd & Flambard, 2023), while demographic and macroeconomic shifts are key drivers of housing market fluctuations (Li, 2014). These insights reinforce the idea that bubbles are not merely financial phenomena, but are deeply embedded in socio-economic conditions. From a policy perspective, regulators could mitigate bubble risks through targeted interventions, such as affordability monitoring, stress-testing consumer credit, and enhancing transparency in real estate transactions (García & Martínez López, 2021; Zhao & Liu, 2023).

Regarding hypothesis 2, which holds that complex approaches combining economic theory with technological innovations provide a better understanding and management of real estate bubbles, the results also offer strong support. Literature indicates that the integration of big data analytics, intelligent systems, and digital real estate technologies enhances the capacity to detect early signs of exuberance and systemic risks (Ullah et al., 2018; Xiao, 2022; Naeem et al., 2023). Recent contributions highlight that semantic bibliometrics and advanced modeling (Holeab et al., 2017; Iancu et al., 2023) allow for a more accurate identification of speculative dynamics. These findings imply that regulators and market actors can benefit from technology-driven monitoring tools, such as predictive models of house price volatility or AI-based early-warning systems, to strengthen risk management and prevent systemic crises.

6. CONCLUSIONS

To examine the evolution of real estate investment and its current shift amidst intersecting crises, technological advancements, and environmental concerns, we conducted a comprehensive review encompassing a meta-analysis of various studies. Subsequently, employing bibliometric analysis, we identified research clusters and delineated research directions for the practical application of our findings. This study aims to deepen comprehension of this multifaceted issue by conducting a bibliometric literature review on real estate price bubbles spanning from 2000 to 2023, offering both quantitative and qualitative insights into the productivity within this economic domain. Analyzing 1,780 studies over the past 23 years, we uncovered the foundational theories, prevailing research themes, and emerging areas of interest. Through the construction of co-citation and co-word networks, we observed the prevalent utilization of fundamental economic theories and econometric methods in discerning and measuring real estate bubbles.

The analysis reveals that the focus for real estate investments and related instruments has lagged behind a period of excessive financing of the real estate market. Although this process could have brought benefits, such as overcoming market fragmentation and increasing standardization, similar to securities, it has also led to negative consequences. Funding had a double impact: on the one hand, it reduced investment risk by distributing real estate funds, but on the other hand, securitization led to destabilizing effects. Unregulated public policies and financial initiatives have turned the real estate market into a substructure of the financial market, where real estate assets have been converted into securities. These unscrupulous lending policies have fuelled strong growth in demand for real estate, shifting liquidity to other economic sectors and generating massive speculation and substantial profits for large companies. However, this model has also led to increased systemic risk, as it has relied on over-indebtedness of families and small entrepreneurs, risking financial instability and economic downturns.

There are some limitations to this paper. First, the evolution of publication trends within each research topic could be explored in greater depth. In addition, a more detailed statistical assessment of the research methods employed in the reviewed literature would provide valuable insights and guidance for future empirical investigations.

Although the results of this study are valuable, future research could further explore the impact of recent economic shocks on real estate bubbles. For example, the post-2022 environment - marked by high inflation, rising interest rates, energy insecurity, and geopolitical tensions - has significantly altered real estate market dynamics. There is a need for (1) comparative and longitudinal studies to assess how these macroeconomic disruptions interact with structural changes in housing demand; ((2) further research on real estate risk prevention, particularly from the standpoint of government decision-making and legislation.

This research has implications in multiple areas of interest. Thus, at the level of public policy, it supports the design of early-warning systems and the adoption of macroprudential tools (e.g., loan-to-value or debt-to-income limits) to curb excessive risk-taking. At the regulatory and market level, it highlights the usefulness of big data analytics and AI-based monitoring to increase transparency, detect speculative dynamics, and conduct more effective stress-testing. Finally, one should not neglect the crucial role of international coordination and sustainability-oriented policies, which ensure that housing market interventions remain consistent with global financial stability and long-term urban development goals.

Acknowledgements

This research and publication were carried out within the framework of the project “Links between Theory and Practice in Cross-Border Education in Romania-Ukraine” – LINKSROUACBE, funded by Interreg VI-A NEXT Hungary-Slovakia-Romania-Ukraine 2021-2027, ID HUSKROUA/23/RS/3.1/043. “This material was produced with the financial support of the European Union. Its contents are the sole responsibility of the lead partener and do not necessarily reflect the views of the European Union.”

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ИНВЕСТИРАЊЕ У НЕКРЕТНИНЕ – ФИНАНСИЈСКА И БИБЛИОМЕТРИЈСКА АНАЛИЗА

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Извод

Истраживање ризика на тржишту некретнина, појаве прекомерне експанзије и стварања стамбених балона привукло је значајну пажњу, са далекосежним импликацијама по државне институције, привреду и друштво у целини. Усклађеност ових процеса са принципима конкурентне тржишне економије довела је до идентификације одређених специфичних обележја и ризика, као што су атомизација тражње и понуде, парцијална флуидност тржишних сегмената, персонализација захтева и продукција усмерена ка продаји. Сходно томе, током последње две деценије спроведен је значајан број истраживања у области инвестирања у некретнине. Међутим, разматрање утицаја улагања у некретнине у контексту радикалних културних промена условљених преклапајућим кризама, притисцима технолошких иновација и еколошким изазовима и даље не располаже довољно систематизованим и продубљеним библиометријским анализама. Овај рад има за циљ да консолидује постојећа истраживања кроз библиометријску студију радова и чланака објављених у периоду од 2000. до 2023. године, односно у последње 23 године. Циљ рада је да унапреди разумевање овог интердисциплинарног питања путем прегледа библиометријске литературе која се односи на феномен стамбеног ценовног балона, пружајући како квантитативну тако и квалитативну перспективу продуктивности у оквиру ове области економских истраживања. Резултати анализе 1.780 студија указују на еволутивне трендове у кључним речима као што су финансијске инвестиције, инвестирање у некретнине, трговина, процена ризика и вештачка интелигенција. Традиционалне кључне речи повезане са трговином све више се допуњују елементима процене ризика и вештачке интелигенције, што одражава континуирану адаптацију на нове технолошке и економске изазове и могућности. Будућа истраживања могу обухватити и друге базе података ради свеобухватније анализе.

Кључне речи: инвестирање у некретнине, библиометријска анализа, економска криза, културна трансформација, тржишни тренд

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