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RESILIENCE OF HOUSEHOLDS ON THE HOUSING REAL ESTATE MARKET TO ECONOMIC SHOCKS IN THE 2019-2022

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Purpose: Since 2019, we have been observing economic shock events in Poland - the COVID-19 pandemic and its effects, the outbreak of the war in Ukraine and ongoing inflation. In the face of these unexpected events, the real estate market has undergone many changes with negative consequences for households. A research gap was found in terms of the resilience of households in the market in question. The aim of the article is to examine whether households have demonstrated financial resilience to the above-mentioned events.

Methodology: First, a critical analysis of the literature on the subject was carried out, thanks to which two dominant definitions of the concept of household resilience in the housing real estate market were identified. Then, based on previously conducted research, monthly repayment of loan instalments was simulated to determine whether households showed resistance to economic shocks.

Findings: As a result of the research, it was found that households were not resistant to economic shocks, including the effects of the pandemic, the outbreak of the war in Ukraine and rising inflation. Moreover, it was shown that, assuming average earnings in the economy, average households do not have the ability to repay increasing loan instalments in accordance with the proposed indicator below 15% of the monthly salary. The amount of the loan instalment throughout the simulation period significantly exceeds this value. Therefore, taking into account the presented definitions of immunity, its absence was found in both cases.

Research implications: The study's results provide a valuable source of information about resilience of households in real estate market and partially fills the research gap in this area. Also indicates further possible research directions.

Originality: The considerations presented show households on the real estate market from a new perspective - in terms of their resistance to unexpected events. The article is addressed primarily to people interested in researching the real estate market, as well as to households struggling with problems related to financing their housing needs.

Keywords: financial resilience, real estate market, households, COVID-19, inflation.

Category of the paper: research paper, viewpoint**.**

1. Introduction

Economic changes which are occurring so quickly under the influence of unexpected events with negative consequences, called shocks and upheavals in the literature, have not been observed for a long time. The end of 2019 brought the so-called black swan (Antipova, 2020; Goodell, 2020; Mazzoleni et al., 2020). The outbreak of the COVID-19 pandemic and its effects significantly changed the operation of many economic sectors not only in Poland but also around the world and had a significant impact on households. On the one hand, the coronavirus has accelerated the development of many enterprises, e.g. the e-commerce industry and all transport and postal services, but on the other hand, the deepening lockdown, the need to switch to remote work and personal tragedies in households have forced many economic changes. Both positive and negative.

From the point of view of the Polish economy, and especially the real estate market, two more important events have been observed since then - the outbreak of the war in Ukraine in February 2022 and rising inflation. When the war in Ukraine began, a huge wave of refugees arrived in Poland, which slightly destabilized the market in several aspects. Soon, there was a shortage of apartments for rent on the market, and rental prices began to increase significantly. In addition, rising inflation and constantly rising interest rates have meant that housing, which has long been considered a luxury good in Poland, has now become even less affordable for the average Pole (Lubasiński, Kukołowicz, 2022). On the one hand, the availability of apartments for rent has decreased significantly and prices have increased, on the other hand, purchasing an apartment to own has also been made more difficult by rising loan prices and rising space prices. The situation was unfavourable also for developers. They initially refrained from making new investments in order to observe the direction in which the Covid situation would develop (Martyniak, 2021a), and then, in relation to the prevailing market conditions - i.e. the outbreak of the war in Ukraine and inflation in Poland, they increased the offer prices of apartments, which affected on the ability of households to meet their housing needs.

Shocks or upheavals in the economy are characterized by the fact that they cannot be predicted and must be reacted to. Due to the fact that the above-mentioned events occurred in a relatively short period of time (end of 2019 to 2022), the concept of resilience of market entities to this type of situations seems to be crucial. The real estate market is characterized by certain individualities, including: it is a market that requires a large financial contribution and has a specific subject of trade - real estate permanently attached to land (Kucharska-Stasiak, 2016). This means that it is not a product that is easy to sell or can be transferred to another market. Basically, the most important role in this market is played by households and enterprises renting space for business activities (on the demand side) and developers and real estate agents (on the supply side) (Martyniak, 2017). This article focuses on the resilience of households to the shocks and upheavals observed in recent years.

Therefore, the question arises whether households are resilient to unexpected events - economic shocks and upheavals? If so, what makes them resistant? How can this phenomenon be measured? Research questions formulated in this way will help achieve the assumed research goal, i.e. demonstrating whether households are resistant to the occurrence of unexpected events with a negative impact on the economy, as well as analysing and assessing the situation of these market participants in relation to the definitions of the concept of resilience adopted in subsequent chapters. A research hypothesis was also formulated: households on the real estate market are characterized by low resilience to economic shocks due to the excessive capital intensity of real estate.

2. Concept of resilience in relation to households in the housing market

The latest literature on the subject shows a wave of discussions and observations on post-pandemic changes in the real estate market. This research can be divided into several areas, e.g. in terms of market and prices - transactional (Bełej, 2021; Martyniak, 2021b; Palicki, Kostov, 2022) rental prices of residential real estate (Gajowniczek, 2021; Tomal, Marona, 2021), in terms of sectors - housing market, commercial market (Pindral, 2022). There are also studies on the impact of the pandemic on real estate market entities, but they are mainly aimed at the supply side of the market, i.e. developers and real estate agents (Hyży, 2023; Martyniak, 2021c; Najbar, 2021; Tomal, Marona, 2023; Zaniewska, Kobylińska, 2023).

Numerous studies of the real estate market in recent years have focused primarily on the impact of the pandemic on transaction prices and the behaviour of its participants, ignoring the context of their resistance to shocks and economic upheavals. Therefore, there is a research gap in this area and it seems important from the point of view of science to fill it. Moreover, households are a key participant in the real estate market and it is worth analysing their behaviour. Considerations on the discussed topic should begin with a discussion of the concept of immunity developed over the years by subsequent scientists.

The critical analysis of the literature on the subject shows that there is no single coherent concept of the category of "resilience", and the concept itself is highly interdisciplinary. Resilience in the literal sense can be understood as resistance, flexibility, endurance, and the ability to regenerate (Majchrzak, 2020). The multitude of definitions created, on the one hand, allows the author to adapt them more appropriately to the research being conducted, but on the other hand, it causes information chaos. Due to the above, for the needs of further research, it was decided to adopt two dominant ways of defining this concept in the literature:

- Resilience as the ability to cope with occurring disorders without loss of functionality, in other words the ability to withstand market or environmental shocks without losing the ability to function effectively (Perrings, 2006), and in relation to households, resilience as the ability to minimize life losses in the event of extraordinary events. threats (Hallegatte, 2014).
- Resilience as the ability of a company or an individual to return to the state before the shock occurred (Majchrzak, 2020).

The last definition is particularly applicable to enterprises. For example, from the point of view of financial results, it seems reasonable that a resilient enterprise will return to the original minimum or achieve even better financial results, while a non-resistant enterprise will achieve worse results. However, to the same extent it can also be applied to households, making appropriate assumptions.

O'Neil (2011) indicates that resilience can be considered at the level of economic and financial analysis both in relation to enterprises and households. This confirms that the concept of resilience can be transferred to real estate market participants struggling with unexpected economic shocks, such as the pandemic, the war in Ukraine and rising inflation and, consequently, an increase in interest rates in recent years. In terms of households, he recommended the use of simple techniques to increase financial resilience, including: maintaining the income debt ratio at a safe level (max. 15%), monthly repayments of consumer debt should be 15% or less of the monthly salary, households should maintain a "fund "emergency fund" as funds to cover at least three months' expenses or the purchase of life insurance, protecting against the risk of loss of income by the "breadwinner" of the household. In turn, in relation to enterprises, resilience can be identified with managing an enterprise in crisis, i.e. the ability to get out of the crisis with as little losses as possible, and even use it as a development opportunity (Romanowska, 2012).

Solarz (2016) presents an interesting perspective on the financial resilience of households. It is divided into the ability to survive sudden financial shocks, e.g. accidents, theft (financial resilience of households) and medium- or long-term resilience, e.g. as a result of job loss or disability (resilience as financial security). In the second case, the resilience of this entity is identified with the financial independence of households. In relation to the real estate market, we should therefore consider the resilience of households as their ability to secure their housing needs as a result of sudden economic shocks and upheavals and to respond to current negative financial changes.

The literature on the subject also indicates that, in addition to resilience, scientists also include two other, similar concepts in their research, i.e. vulnerability and sustainable development (Masik, 2022). Both have similar assumptions regarding the concept of resilience, however, a critical analysis of the literature on the subject did not bring the desired results. Also in this respect, households on the housing market were not included in the research. The topic of vulnerability refers more to social categories (Adger, 2006), while sustainability is more about the supply side rather than the demand side of the market. Moreover, the category of vulnerability refers more to expected changes and is most often studied in the context of political economy (Eakin, Luers, 2006). In turn, the concept of sustainable development in the housing market refers mainly to the development of cities and housing construction technologies, not to households (Bartkowiak et al., 2023).

3. Research methodology

In order to answer the research question and verify the hypothesis, first of all, a critical analysis of the literature on the subject of research on real estate market entities and resilience was performed. The concept of resilience was defined and households in the housing market were selected as the research object. They constitute the largest group that is the first and most affected by the negative effects of unexpected shocks and economic upheavals. To verify the hypothesis, the two most dominant definitions of resilience in the literature on the subject were adopted, on the basis of which the actual study was then carried out. In short, the financial resilience of households in the housing market is considered as:

- ability to survive a crisis without major difficulties,
- as skills to return to the state before its occurrence.

The starting point of the analysis was the end of 2019 due to the first reports of the COVID-19 pandemic until the end of 2022. During this period, three events occurred that had a significantly negative impact on the Polish economy in general - i.e. the pandemic, the war in Ukraine and ongoing inflation. Some of the data obtained for analysis refer to the year 2022 due to the fact that newer statistics have not been published yet. Then, changes in WIBOR 3M and interest rates were presented, which have a direct impact on the amount of loan instalments - both for households wanting to enter the real estate market and for those currently repaying loans. At this point, the analysis has been extended to April 2023 to include the latest data and reflect the most up-to-date market situation. Then, based on previous own research (Martyniak, 2021b), a simulation of the monthly loan repayment instalments was carried out and the recommendations proposed by O'Neil (2011) for increasing the financial resilience of households were assessed.

4. Research results

From the point of view of households, their resistance to shocks should be considered in two categories: households entering the market, i.e. seeking to purchase or rent a property, and households having their own apartment (in particular those repaying a mortgage loan).

Entering the real estate market is mainly associated with a financial barrier. In recent years, prices on the real estate market have been increasing at a surprising pace, both on the primary, secondary and rental markets. Initially, the pandemic caused a standstill on the real estate market - uncertainty about its course and concerns about one's health postponed many housing decisions. This situation would probably last longer if it were not for the influx of refugees from Ukraine massively seeking refuge in Poland from February 2022. The rental market revived and prices started to rise. An additional difficulty for households, apart from rising transaction and rental prices, was inflation and high interest rate increases (see Figure 1). For households entering the real estate market, this meant more expensive loans or even a complete barrier to meeting their housing needs due to lack of creditworthiness, while for people already owning apartments, especially those with loans - a high increase in the repayment of monthly loan instalments.

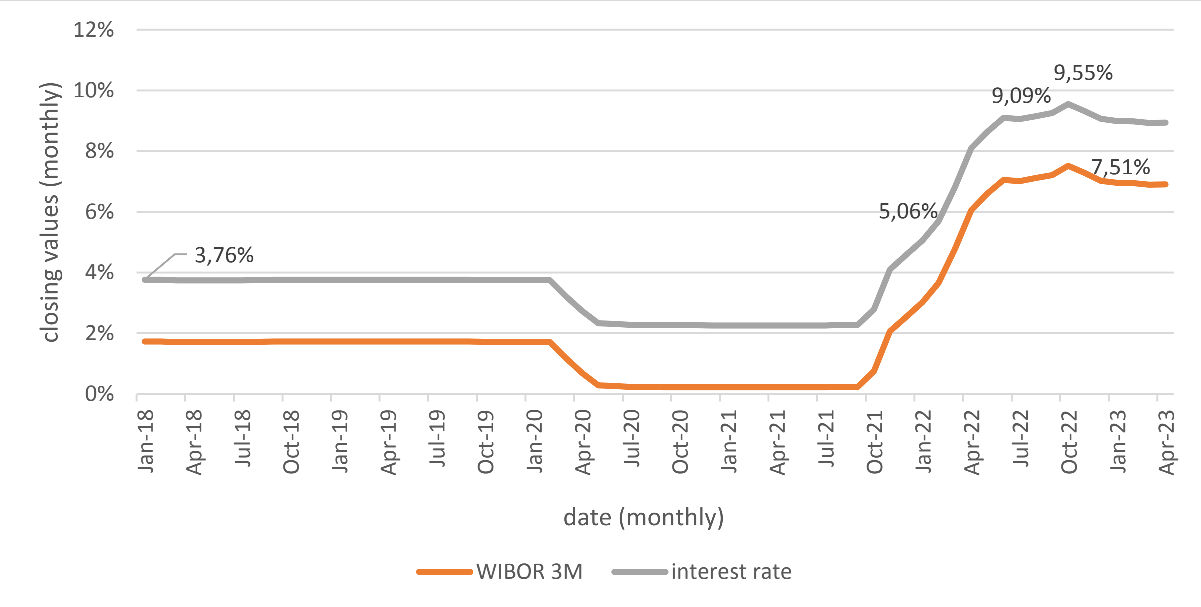

Figure 1. Changes in WIBOR 3M and interest rate.

Source: own study based on data from the www.stooq.pl portal.

After the initial period of the pandemic and reductions in WIBOR 3M and the interest rate, there was an higher increase in both indicators up to the maximum levels of 9.55% and 7.51%, which is more than twice their value from the beginning of the period under review. Assuming that the household took out a mortgage loan for a medium-sized apartment in 2018, given the economic conditions prevailing at that time, a simulation of the repayment of monthly loan instalments was created (see table 1).

Table 1.
Simulation of repayment of monthly loan instalments

date	WIBOR 3M	interest rate	instalment primary market	instalment secondary market
Jan 18 - Mar 20	1.71%	3.75%	1,807.91 PLN	1,667.77 PLN
Apr 20 - Jun 20	0.68%	2.72%	1,616.77 PLN	1,491.37 PLN
Jul 20 - Sep 20	0.23%	2.27%	1,537.11 PLN	1,417.89 PLN
Oct 20 - Dec 20	0.22%	2.26%	1,535.36 PLN	1,416.28 PLN
Jan 21 - Mar 21	0.21%	2.25%	1,533.63 PLN	1,414.67 PLN
Apr 21 - Jun 21	0.21%	2.25%	1,533.63 PLN	1,414.67 PLN
Jul 21 - Sep 21	0.21%	2.25%	1,533.63 PLN	1,414.67 PLN
Oct 21 - Dec 21	0.74%	2.78%	1,627.57 PLN	1,501.34 PLN
Jan 22 - Mar 22	3.02%	5.06%	2,067.98 PLN	1,907.58 PLN
Apr 22 - Jun 22	6.05%	8.05%	2,735.03 PLN	2,522.90 PLN
Jul 22 - Sep 22	7.01%	9.05%	2,963.02 PLN	2,733.21 PLN
Oct 22 - Dec 22	7.51%	9.55%	3,084.52 PLN	2,845.28 PLN
Jan 23 - Mar 23	6.95%	8.99%	2,948.57 PLN	2,719.87 PLN
Apr 23	6.90%	8.94%	2,936.54 PLN	2,708.78 PLN
difference (max - min)			1,550.89 PLN	1,430.61 PLN
difference (max - beginning)			1,276.61 PLN	1,177.51 PLN

Source: own study.

The base year is marked in grey, the lowest value of the loan instalment in the examined period is marked in orange, and the highest value is marked in green. Taking into account the previously adopted definitions of resilience, it can be noted that the monthly loan repayment amount did not return to the value from before the base year - i.e. the end of 2019 - by the end of the analysed period. Therefore, the resilience of households to economic shocks has not been confirmed.

However, when considering the second definition of resilience, namely the ability of households to minimize life losses, it is much more difficult to draw clear conclusions in the event of extraordinary threats. This ability is a highly individual matter for each household and depends, among others, on: on the state of one's assets, psychological aspects (e.g. tendency to risk and gambling), or random events (e.g. loss of job, winning a significant sum of money) (OECD, 2023). However, referring to the recommendations proposed by O'Neil (2021) to increase the financial resilience of households, it is possible to verify the effectiveness of the preventive actions he proposes (see chapter 2).

The average salary in the enterprise sector in April 2023 was PLN 7,430.65 gross (GUS, 2023). Assuming, for example, that the monthly debt repayment amount should be less than 15% of the monthly salary, this means that the loan instalment should be less than PLN 1,114.60. According to the simulation, at the end of the analysed period, the loan instalment is more than twice this value. Moreover, it also exceeds the repayment value of the monthly loan instalment in the base year and over the entire loan repayment period. It is also worth emphasizing that the April remuneration, which is the basis for calculations, is much higher than at the time of concluding the simulated loan agreement. In turn, purchasing insurance is an additional cost for households, which is also not a good solution. Therefore, also in this case, the author tends to negatively assess the resilience of households to economic shocks and upheavals.

5. Conclusion

The negative phenomena affecting the economy observed since 2019 affect all real estate market entities, especially households. The effects of the pandemic, the outbreak of the war in Ukraine and rising inflation also affected the residential real estate market through a significant increase in transaction prices. The previously difficult barrier to entering the real estate market for the purpose of purchasing a flat has become even more impossible for average households to overcome.

Based on the two adopted definitions of resilience, i.e. understood as the ability to survive a crisis without losing functionality and the ability to return to the state before its occurrence, it was shown that households are not immune to economic shocks and upheavals. The credit simulation showed that inflation and rising interest rates further deepen the lack of financial resilience of households to economic shocks. The proposals for increasing immunity proposed in the literature on the subject were not applicable in this case. The only way for a household to become resistant to unexpected negative events seems to be financial independence identified with high earnings and a high level of savings.

Both households and the real estate market itself are the subject of numerous studies and scientific studies, but so far the financial resilience of households to economic shocks has not been examined. This publication does not exhaust the topic, but is only an introduction to the development of research in this direction. It would also be worth extending this research and examining other real estate market entities, including: representatives of the supply side - developers or real estate agents.

References

1. Adger, W.N. (2006). Vulnerability. *Global environmental change, 16(3),* pp. 268-281.
2. Antipova, T. (2020). Coronavirus Pandemic as Black Swan Event. *International Conference on Integrated Science Springer*, pp. 356-366.
3. Bartkowiak, P., Górska, A., Koszel, M., Mazurczak, A., Strączkowski, Ł., Kinelski, G. (2023). *Nowe technologie na rynku nieruchomości-w poszukiwaniu zrównoważonego rozwoju*. Poznań: Wydawnictwo Uniwersytetu Ekonomicznego w Poznaniu, pp. 13-27.
4. Bełej, M. (2021). Housing Price Forecasting in Selected Polish Cities During the COVID-19 Pandemic. *Geomatics and Environmental Engineering, 15(4),* pp. 59-80.
5. Eakin H., Luers A.L. (2006). Assessing the vulnerability of social-environmental systems, *Annual Review of Environment and Resources, 31,* pp. 365-94.

6. Gajowniczek, K. (2021). Rynek nieruchomości w kontekście pandemii COVID-19. *Przedsiębiorczość i Zarządzanie, 22(1),* pp. 33-58.
7. Goodell, J.W. (2020). COVID-19 and finance: Agendas for future research. *Finance Research Letters, 35,* 101512.
8. GUS (2023). Retrieved from: https://stat.gov.pl/obszary-tematyczne/rynek-pracy/pracujacy-zatrudnieni-wynagrodzenia-koszty-pracy/przecietne-zatrudnienie-i-wynagrodzenie-w-sektorze-przedsiebiorstw-w-kwietniu-2023-roku,3,137.html, 12.08.2023.
9. Hallegatte, S. (2004). Economic Resilience. Definition and Measurement. *World Bank Policy Research Working Paper, No. 6852.* The World Bank.
10. Hyży, M. (2023). Wpływ pandemii COVID-19 na wyniki finansowe wybranych przedsiębiorstw branży deweloperskiej i motoryzacyjnej. *Zeszyty Teoretyczne Rachunkowości, 47(1),* pp. 39-54.
11. Kucharska-Stasiak, E. (2016). *Ekonomiczny wymiar nieruchomości*. Warszawa: PWN, pp. 47-69.
12. Lubasiński, J., Kukołowicz, P. (2022). Rynek nieruchomości w Polsce w okresie pandemii i wojny. *Working Paper, no. 5.* Warszawa: Polski Instytut Ekonomiczny. Retrieved from: https://pie.net.pl/wp-content/uploads/2023/04/Working-Paper_Rynek-nieruchomosci.pdf, 7.06.2023.
13. Majchrzak, M. (2020). Odporność przedsiębiorstwa w czasach nadzwyczajnych zagrożeń. Adaptacja koncepcji resilience. *Kwartalnik Nauk o Przedsiębiorstwie, 54(1),* pp. 32-44.
14. Marona, B., Tomal, M. (2023). The impact of the Covid-19 pandemic on the operations of real estate agencies and the attitudes of their clients in Poland. *International Entrepreneurship Review, 9(1),* pp. 7-16.
15. Martyniak, M. (2017). Ryzyko gospodarstw domowych finansujących zakup nieruchomości mieszkaniowych kredytem hipotecznym. In: I. Foryś, J. Kazak (Ed.), *Wybrane problemy rynku nieruchomości i gospodarowania przestrzenią* (pp. 17-30). Olsztyn: Towarzystwo Naukowe Nieruchomości.
16. Martyniak, M. (2021a). The Impact of the Covid-19 Pandemic on the Primary Real Estate Market in Poland in 2019-2021 - Analysis of the Current Situation. In: K.S. Soliman (Ed.), *Innovation Management and Sustainable Economic Development in the Era of Global Pandemic* (pp. 5417-5425). Proceedings of the 38th International Business Information Management Association Conference (IBIMA), 23-24 November 2021. Spain: International Business Information Management Association (IBIMA).
17. Martyniak, M. (2021b). The role of the bank in meeting the housing needs of an average household - evaluation of the situation in 2018. *Studia Humana, Vol. 10, Iss. 3, No. 1*, pp. 61-69, doi: 10.2478/sh-2021-0019.
18. Martyniak, M. (2021c). Zarządzanie potrzebami biurowo-magazynowymi przedsiębiorstw w zamieniającym się otoczeniu. In: L. Knop, S. Olko (Ed.), *Wyzwania zarządzania*

przedsiębiorstwami w regionie przemysłowym (pp. 215-234). Toruń: Towarzystwo Naukowe Organizacji i Kierownictwa - Stowarzyszenie Wyższej Użyteczności "Dom Organizatora".

19. Masik, G. (2022). Koncepcja odporności systemów społeczno-ekologicznych wobec innych aktualnych koncepcji rozwoju oraz uwagi krytyczne. *Prace i Studia Geograficzne, 67(2),* pp. 7-9.
20. Mazzoleni, S., Turchetti, G., Ambrosino, N. (2020). The COVID-19 outbreak: from "black swan" to global challenges and opportunities. *Pulmonology*, *26(3),* pp. 117.
21. Najbar, K. (2021). Świadczenie usług zarządzania nieruchomościami w dobie pandemii COVID-19. *Horyzonty Polityki, 12(40),* pp. 157-177.
22. O'Neil, B. (2023). *Steps Toward Financial Resilience*. Retrieved from: https://njaes.rutgers.edu/sshw/message/message.php?p=Finance&m=194, 7.06.2023.
23. OECD (2023). *Krajowa Strategia Edukacji Finansowej dla Polski*. Retrieved from: https://www.oecd.org/daf/fin/financial-education/financial-literacy-poland.htm, 7.06.2023.
24. Palicki, S., Kostov, I. (2022). *Rynek mieszkaniowy w erze pandemii COVID-19. Studium porównawcze Poznania i Warny*.
25. Perrings, Ch. (2006). Resilience and sustainable development. *Environment and Development Economics, No. 11*. Cambridge University Press.
26. Pindral, A. (2022). *Istota zarządzania nieruchomościami komercyjnymi w czasie pandemii COVID-19*.
27. *Przeciętne zatrudnienie i wynagrodzenie w sektorze przedsiębiorstw w kwietniu 2023 roku*. Retrieved from: https://stat.gov.pl/obszary-tematyczne/rynek-pracy/pracujacy-zatrudnieni-wynagrodzenia-koszty-pracy/przecietne-zatrudnienie-i-wynagrodzenie-w-sektorze-przedsiebiorstw-w-kwietniu-2023-roku,3,137.html, 10.08.2023.
28. Romanowska, M. (2012). Odporność przedsiębiorstwa na kryzys. *Studia i Prace Kolegium Zarządzania i Finansów SGH*, *z. 118,* pp. 7-15.
29. Rynio, D. (2021). Rynek pierwotny nieruchomości mieszkaniowych i domów w sześciu największych miastach w Polsce w dobie pandemii COVID-19. *Biblioteka Regionalisty, 21,* pp. 160-169.
30. Solarz, M. (2016). Altruizm a odporność finansowa gospodarstw domowych. *Prace Naukowe Uniwersytetu Ekonomicznego we Wrocławiu*, *437*, pp. 402-410.
31. *Stooq.pl*. Retrieved from: https://stooq.pl/q/?s=plopln3m, 10.05.2023.
32. Tomal, M., Marona, B. (2021). The impact of the covid-19 pandemic on the private rental housing market in Poland: What do experts say and what do actual data show? *Critical Housing Analysis*, *8(1)*, p. 24.
33. Zaniewska, M., Kobylińska, U. (2023). Wybrane zachowania konsumentów na rynku nieruchomości w okresie pandemii COVID-19. *Akademia Zarządzania*, *7(1).*