World of Real Estate Journal
SWIAT NIERUCHOMOSCI

The phenomenon of an overreaction on the housing market

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ABSTRACT

Purpose - The aim of the research is to verify the thesis on the occurrence of the phenomenon of over-reaction on the real estate market of investment premises and the accompanying correction of asset prices, as well as to calculate the rate of return using a contrarian investment strategy.

Design/methodology/approach - The study considered transaction prices and the number of transactions obtained by the National Bank of Poland and reported in the Real Estate Market Analysis and Monitoring System (AMRON).

Findings - The number of transactions involving investment premises for residential purposes changed little in the period under review. This was due to the low supply and maintenance of real estate as stable security for capital and quick access to invested funds due to the high liquidity of these premises.

Research limitations - A limitation of the study was the need to use two different databases, which although they should be compatible revealed methodological differences.

Research implications - The research conducted implies the need for broader research on the impact of location on the real estate market in Poland in particular investment areas.

Keywords:	property market; over-reaction phenomenon; residential property
JEL codes:	R31, R33
Article type:	research article
DOI:	10.14659/WOREJ.2021.115.03

INTRODUCTION

It is cognitively interesting to determine the impact of external events on the real estate market and their perception. Whether macro and microeconomic phenomena influence decisions shaping the real estate market is examined relating to the financial market.

It should be assumed that in a situation where the real estate market is somewhat alternative to the securities market, similar phenomena should occur there. One of the most important phenomena is an overreaction, which can be traced in the long term in the stock market. Researching this phenomenon on the real estate market is difficult due to the specificity of real estate (each real estate is different), the diversity of local markets in a given country, province, and large or small urban centres. The view on the course of business cycles adopted in the literature does not work for every market. It is especially true of markets with a shortage of premises. The Polish market is such a market where prices are continually rising. It has been confirmed by the research presented in the presented study.

LITERATURE REVIEW

The real estate market is country-specific. The real estate market is subject to constant changes implied by the business cycle phases, the state of the national and international economy, the wealth of citizens, and financial capital availability. The real estate market depends on the demand for real estate depending on the situation on capital relations and real estate supply, depending on the construction markets' situation (Hopfer & Cellmer, 1997).

The real estate market perceived as a process makes it possible to study its development's pace and direction depending on the factors determining this development (Powichrowska & Prokopiuk, 2019). The real estate market as a system leads to searching for the strength of connections between the system's components (Foryś, 2011). Poland is a country with a massive shortage of housing. In 2019, 207,479 flats were commissioned (in 1980 - 217 thousand, 2015 - 148 thousand). However, these are mostly small apartments, which results from the structure of earnings, availability of mortgage loans, and demographic factors. The analysis of demographic, social, and economic factors allows noticing and defining possible directions of changes in the market of small residential premises. Forecasting the future of the residential housing market is a challenging task. It is influenced by the complexity of the phenomenon (among others, dependence on financial markets, the country's political situation, the level of buyers' income,

demographic changes, availability of mortgage loans). Therefore, it is essential to carefully observe emerging trends to predict them and react to them partially.

The subject of the research presented below is the housing market, the so-called investment projects, i.e., those built or bought for sale or rent.

The investment housing market is similar to the financial markets in terms of investment strategy. A behavioural trend is noticeable in it, which can be reduced to an investing strategy in line with the trend, known as the momentum strategy (Czapiewski, 2018; Gluzicka, 2016) or conducting transactions at market turning points, known as contrarian investing (Żelazowska, 2017). The momentum effect results from investors' excessive reaction to the market's information (Dębniewska & Wojtowicz, 2018). The momentum investment strategy assumes taking long positions in instruments rising so far, and short positions in those fallen (Zielonka 2003). Thus, it adopts the assumption that the current trend in shaping the market rate will be continued (Zaleśkiewicz, 2003). For the effectiveness of such a strategy, the assumption about the random price formation of instruments on the market is undermined (Brandtner, Kürsten & Rischau, 2018; Sekuła, 2016; Świder, 2018). Contrarian investing is an investment method that dictates to do the opposite of most investors, i.e., sell when everyone is buying and buy when everyone is selling (Rahnamay Roodposhti, Nekomaram, & Saeedi, 2016). David Dreman argues for contrarian investing, who proves that it is the contrarian approach that can be the Holy Grail of the stock exchange and one of the few proven methods for successful long-term investments (Dreman, 2012).

There is a large body of literature on the research of these strategies on stock exchanges. There is no literature or research relating to these strategies for the housing market.

The specificity of the real estate market, manifested in the low efficiency of this market and low liquidity of investments, makes the decision-making process of market participants complicated, threatened by the influence of heuristics and the occurrence of cognitive errors, and the effects of decisions are difficult to predict (Czechowska, 2014).

Undoubtedly, it is not easy to apply them to the housing market of premises that meet family needs because behavioural elements may occur, among others, when choosing the location, location of the apartment, its surroundings, and individually perceived family needs. The family housing market may be determined by the family's income, family size and age, and financing sources (credit, family support, social programs, and state aid). However, investment strategies cannot be considered relating to these flats

(apart from the possibility of selling at a reasonable price after a change of family status or a place of work in another city, reported in the research).

Hence, the subject of the analysis of the phenomenon of overreaction in the real estate market is residential premises, the so-called investment projects, intended primarily for rent. The presented analysis purposes do not cover premises intended for short-term rental due to its separateness and variability (characteristic mainly for this specific form of economic activity).

Many years of research were possible on the financial market, especially relating to stocks listed on stock exchanges, allowing for the identification of upward and downward trends in individual companies' prices. These include studies suggesting unjustified upward and downward trends on the New York Stock Exchange (NYSE) in 1926-1982 (Shearer, Chant, & Bond, 1995).

Similar studies confirming the occurrence of the momentum effect on the Warsaw Stock Exchange were conducted by Szyszka and Wojtowicz (Szyszka, 2006; 2007, 2009).

The occurrence of the overreaction phenomenon on the Warsaw Stock Exchange in 1992-2014 was analyzed and confirmed by Lewandowski and Borowski (Lewandowicz, & Borowski, 2015), and Borowski also studied selected effects of the seasonality of rates of return on the copper market from January 1, 1999, to December 31, 2013 (Borowski, 2007).

Investment premises covered by the research are not separated in the statistics, and often their nature and purpose of purchase are not disclosed by the investor. There is no attempt to define these premises in the literature, and there is no legal (in legal acts) definition of such premises. On the other hand, it is common in real estate practice to include such a category of residential premises. They are also known as "apartments for rent" and are recommended by developers and real estate agents. The research conducted by the author in 128 real estate offices and 64 development companies established the essential criteria for practitioners.

The distinction between flat and investment premises may also result from tax circumstances. An investment property is purchased with 23% VAT and the possibility of its deduction (as a business premise purchased by an entrepreneur, actually being a dwelling). In comparison, a dwelling is purchased with 8% VAT. This circumstance may also result from the local spatial development plan (e.g., in Świnoujście, in the coastal zone, the plan does not provide housing development, and many are built as commercial premises).

Real estate agents also pointed out that investment premises are not intended for permanent residence, which, according to them, is indicated by the property status and age of the buyers.

Besides the investment premises, according to sellers, the vast majority of transactions were performed without a bank loan in the last period (after 2016).

There were also two categories of investment premises, small with an area of up to 35 square meters, most often in attractive towns or academic centres, and entire, large premises in large urban centres (but not only).

The listed criteria given by practitioners are not strict. They are not mutually exclusive and cannot identify a set that could be subject to scientific analysis.

For the presented research, it was assumed that an investment premise is a residential or commercial premise intended for tenants, with an area of up to 35 square meters, purchased by the investor to obtain income in the form of rent while calculating the interest on the invested capital (purchase price of the premises) in the amount exceeding the standard interest rate of bank deposits.

The research aims to verify the thesis about overreaction in the real estate market of investment premises and the accompanying asset price correction and calculate the rate of return using the contrarian investment strategy.

The occurrence of the momentum effect, overreaction, and correction of over-reaction can be explained by analyzing the impact of an inappropriate (too strong or too weak, possibly delayed) reaction on the information appearing on the real estate market in the price formation process. The assumption of real estate market efficiency and investors' rational behaviour, information from the real estate market should be appropriately included in the price, regardless of the initial reaction of investors to it.

While these are obvious assumptions when examining financial markets, it is incredibly demanding on the real estate market, especially on the Polish market, due to the reasons mentioned in the introduction (shortage of housing), which results in a constant increase in real estate prices. Therefore, a too strong reaction (overreaction) is not corrected by increasing or decreasing investment premises' price.

This correction may be noticeable in the increased or decreased demand for investment premises in this state of affairs. Suppose it is possible to obtain rent in an amount higher than the interest rate on bank deposits. In that case, the demand for "rented" premises increases. If the rents fall or there is a lack of tenants, the demand for these premises decreases.

The determinants influencing investors' behaviour leading to the phenomenon of over-reaction indicated by the increase in demand are the anchoring effect, impulsiveness and related intuitive behaviour, and overconfidence.

The overreaction hypothesis, verified in the study, was formulated as follows: after long-term stable periods of demand for investment premises and an increase in their prices proportionally the overall increase in prices on the real estate market in the period under study, prices increased significantly, which must be associated with:

— lowering interest rates on bank deposits and withdrawing cash from bank accounts and
— the expected decline in economic growth, e.g., caused by a pandemic.

There is an increase in investment in the real estate market, even though the profitability of investments (income from rents) decreases. An impulse for the increased demand for investment properties may be the mere expectation of price increases in the event of a later sale, as well as capital protection.

The study verified the hypotheses about the overreaction of investment property prices in the time horizons of 2016-2017 and 2018-2019.

RESEARCH METHODOLOGY

Transaction prices and the number of transactions involving housing properties were obtained from the Real Estate Market Analysis and Monitoring System (AMRON) and registers of real estate prices and values kept by individual poviats. They made it possible to show changes in the number and structure of transactions in the country and individual voivodeships. The study's time scope covers 2016-2019, while the preceding period was used for the comparative analyses.

RESULTS & DISCUSSION

The research considered transaction prices and the number of transactions obtained by the National Bank of Poland and reported in the Real Estate Market Analysis and Monitoring System (AMRON). Two two-year periods were adopted in the conducted research, i.e., 2016-2017 and 2018-2019, to obtain the most up-to-date results. The investment horizons of individual periods overlapped to some extent; however, this fact does not affect the research results, as the research assumptions assume the possibility of

making investments at any time. The acceptance of the investment portfolio at the end of each year is dictated by the data obtained for the research.

The verification of the hypothesis of the over-reaction on the real estate market was made assuming that the negative and positive information about the price movement on the real estate market occurring in the public space has two kinds of effects - an increase in the number of concluded transactions and an increase in real estate prices per 1 m^2 of premises. When assuming a behavioural approach, it should be assumed that the market's overreaction to negative information is more substantial. It may concern the global economy, e.g., the global banking crash, information on a national scale, e.g., inflation or an increase in the prices of building materials, and finally, the local economy, e.g., the reduction of building permits issued in a given region. This information may not be objective but based on emotions or observations of other market participants' behaviour. Interestingly, the more robust price overreaction phenomenon appears to negative information, while much smaller or even doubtful about its significance occurs for positive information from the market.

The overreaction phenomenon examined in two two-year investment horizons was confirmed in terms of increased prices in premises up to 35 m^2 of space. Still, this phenomenon was not noticed in demand for these premises. It may be due to a smaller supply, but also (which may be a reason for a reduced supply), leaving such premises by the owners as a kind of investment, securing capital with rising prices of premises.

It has been illustrated in the tables below, showing the increase in prices in all voivodeships (except the Świętokrzyskie voivodeship). In the long term, the research requires their deepening and, perhaps, differentiation into attractive tourist areas and large (academic) cities. The prices of investment premises are subject to more pronounced reactions to the real estate market's information.

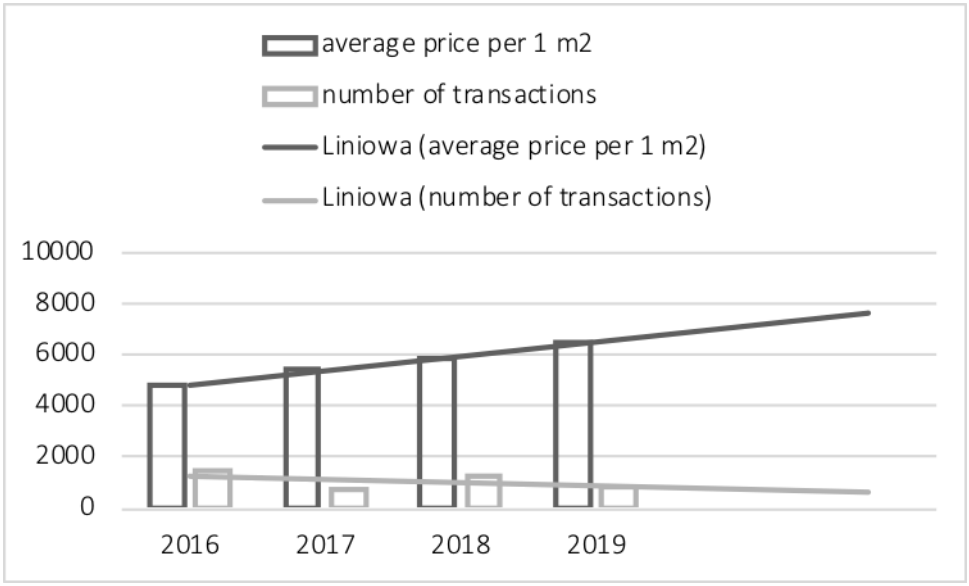

Figure 1. The average price of investment premises (PLN/m^2) and the number of transactions (pcs) in the Dolnośląskie voivodeship in 2016-2019
Source: own study.

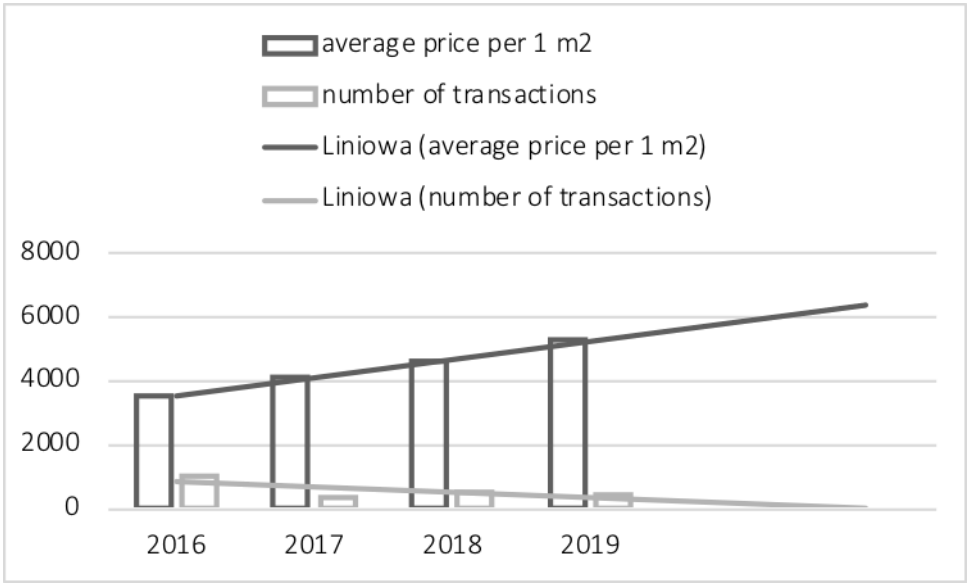

Figure 2. The average price of investment premises (PLN/m^2) and the number of transactions (pcs) in the Kujawsko-Pomorskie voivodeship in 2016-2019
Source: own study.

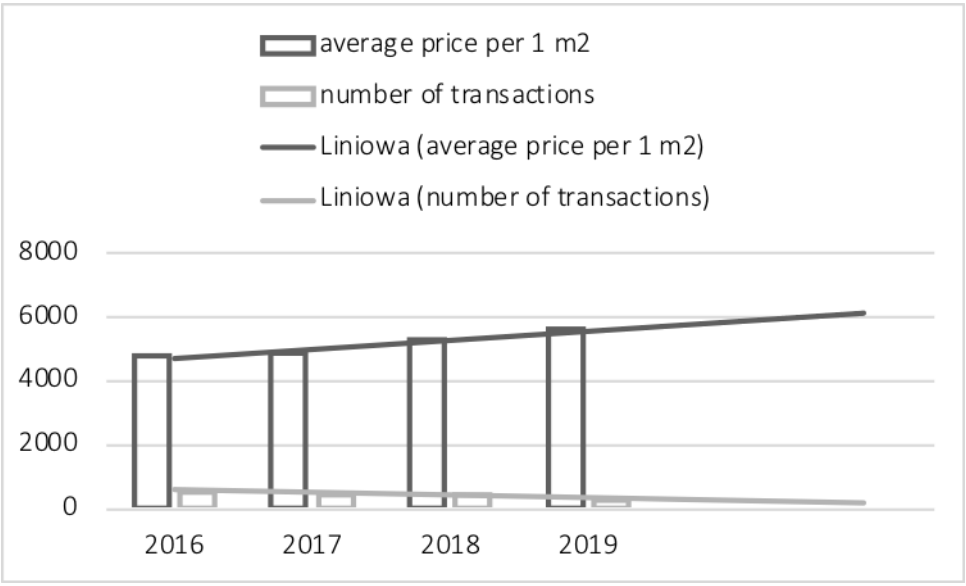

Figure 3. The average price of investment premises (PLN/m^2) and the number of transactions (pcs) in the Lubelskie voivodeship in 2016-2019

Source: own study.

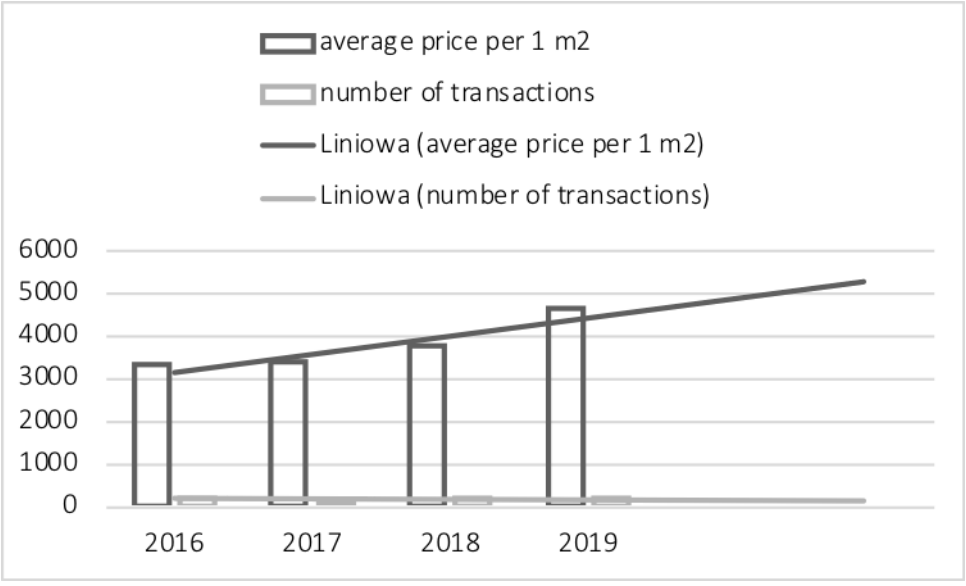

Figure 4. The average price of investment premises (PLN/m^2) and the number of transactions (pcs) in the Lubuskie voivodeship in 2016-2019

Source: own study.

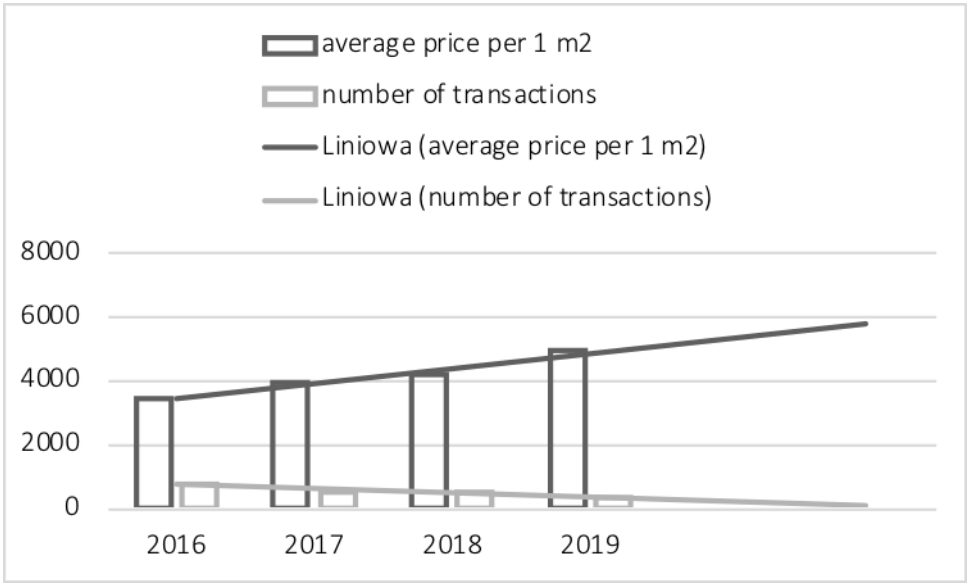

Figure 5. The average price of investment premises (PLN/m^2) and the number of transactions (pcs) in the Łódzkie voivodeship in 2016-2019

Source: own study.

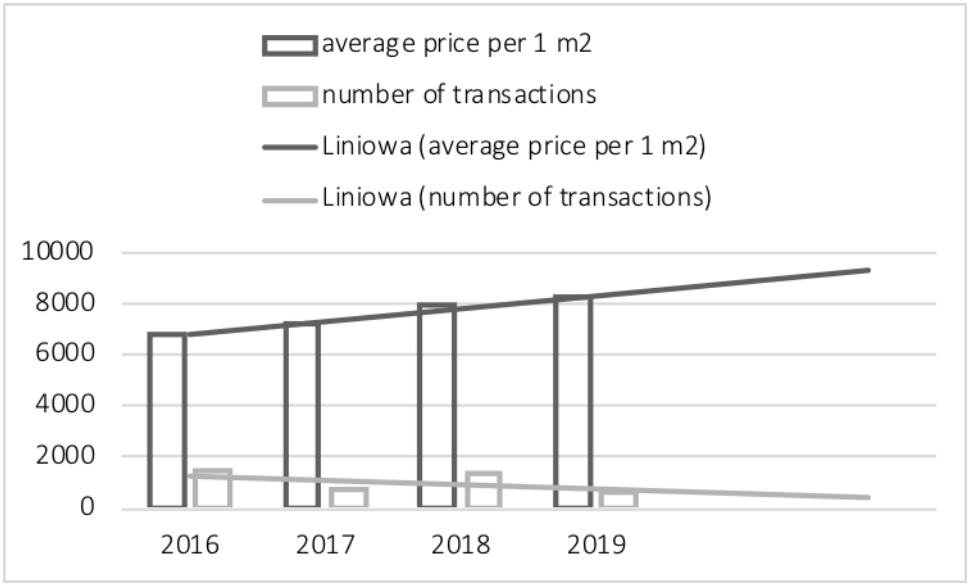

Figure 6. The average price of investment premises (PLN/m^2) and the number of transactions (pcs) in the Małopolskie voivodeship in 2016-2019

Source: own study.

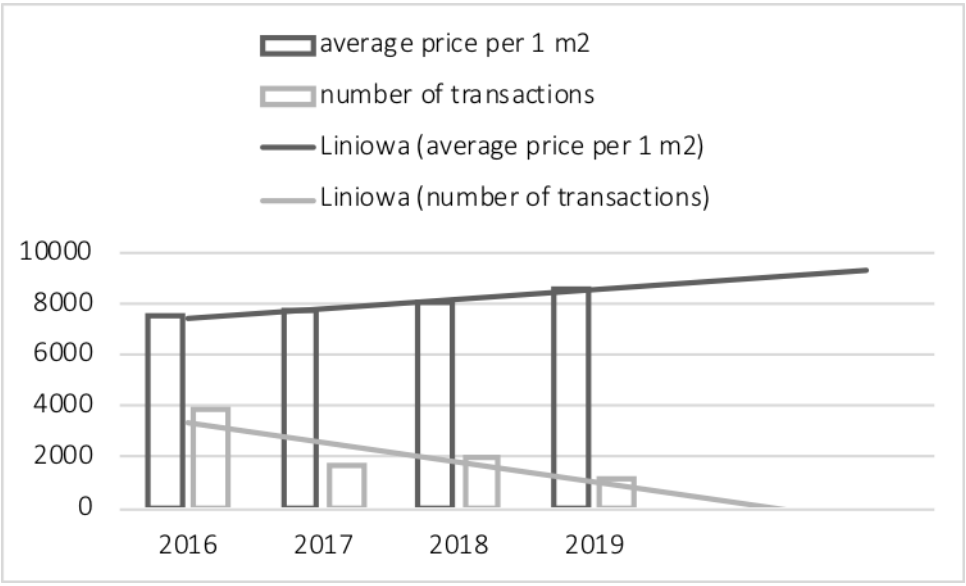

Figure 7. The average price of investment premises (PLN/m^2) and the number of transactions (pcs) in the Mazowieckie voivodeship in 2016-2019

Source: own study.

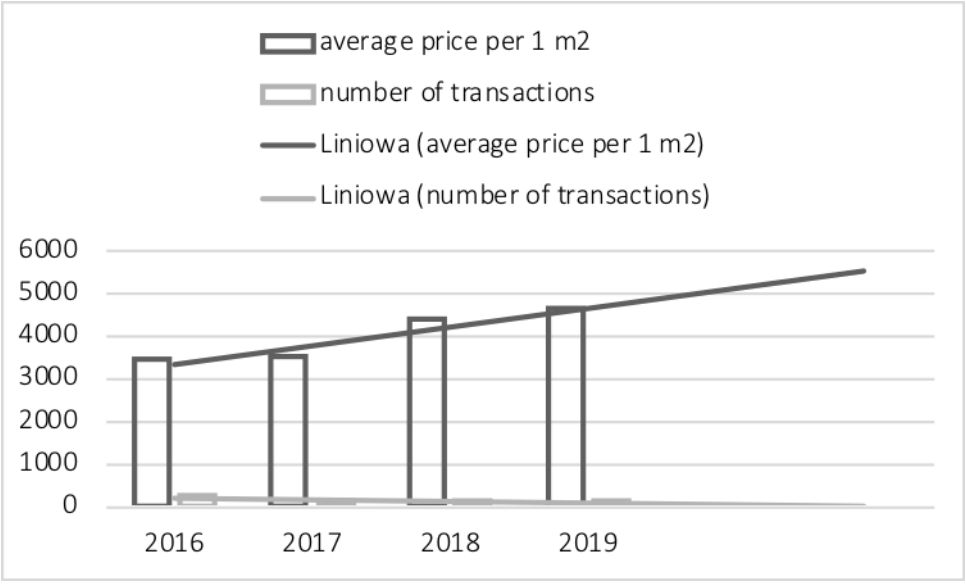

Figure 8. The average price of investment premises (PLN/m^2) and the number of transactions (pcs) in the Opolskie voivodeship in 2016-2019

Source: own study.

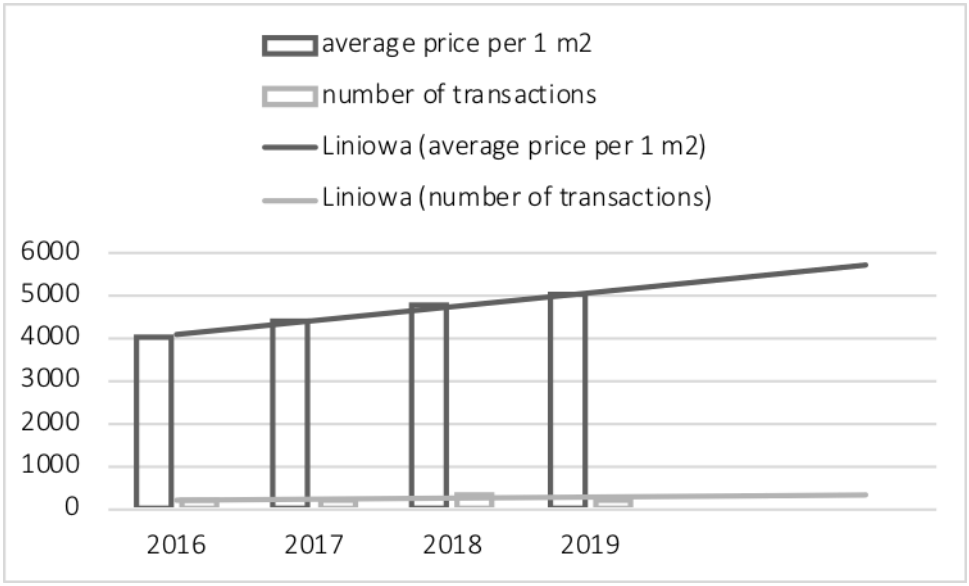

Figure 9. The average price of investment premises (PLN/m^2) and the number of transactions (pcs) in the Podkarpackie voivodeship in 2016-2019

Source: own study.

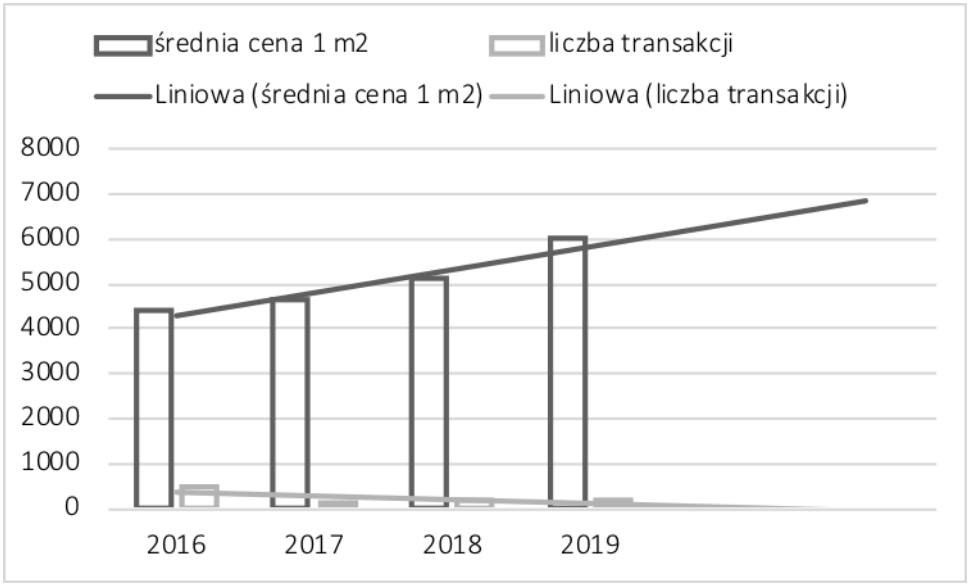

Figure 10. The average price of investment premises (PLN/m^2) and the number of transactions (pcs) in the Podlaskie voivodeship in 2016-2019

Source: own study.

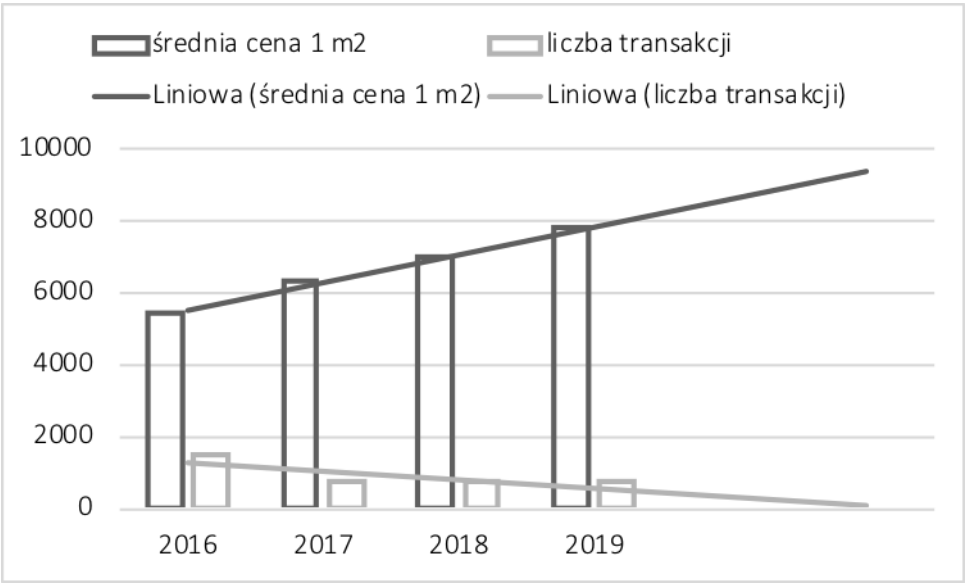

Figure 11. The average price of investment premises (PLN/m^2) and the number of transactions (pcs) in the Pomorskie voivodeship in 2016-2019
Source: own study.

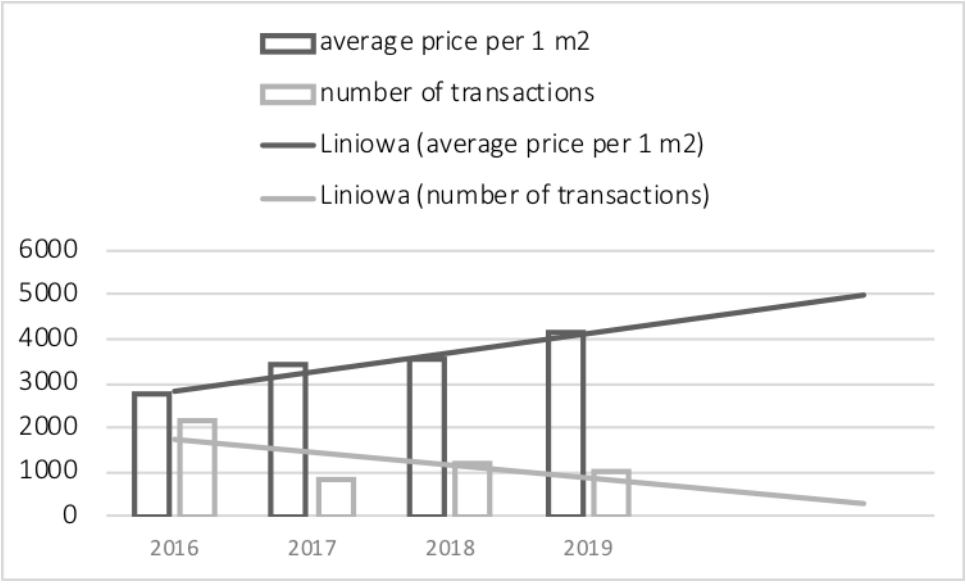

Figure 12. The average price of investment premises (PLN/m^2) and the number of transactions (pcs) in the Śląskie voivodeship in 2016-2019
Source: own study.

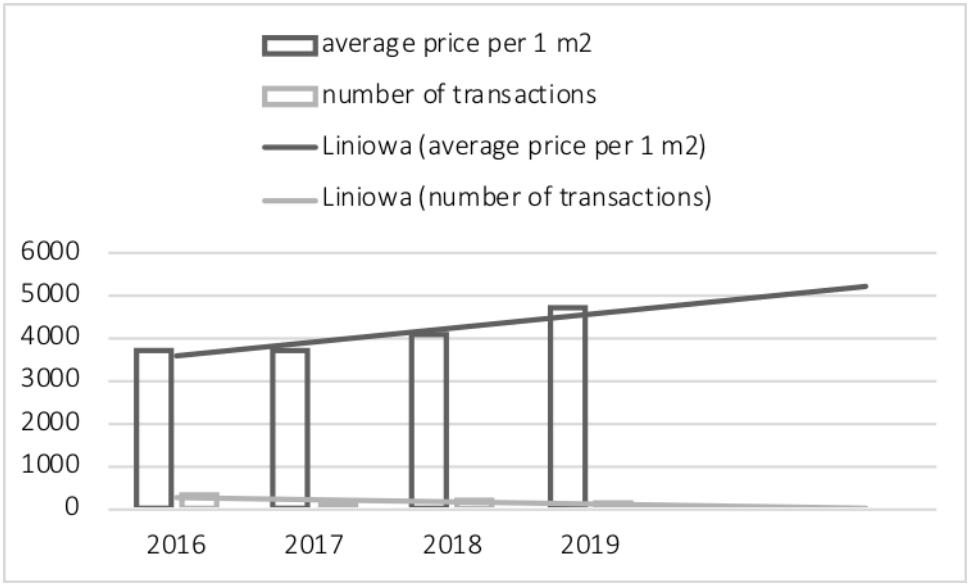

Figure 13. The average price of investment premises (PLN/m^2) and the number of transactions (pcs) in the Świętokrzyskie voivodeship in 2016-2019
Source: own study.

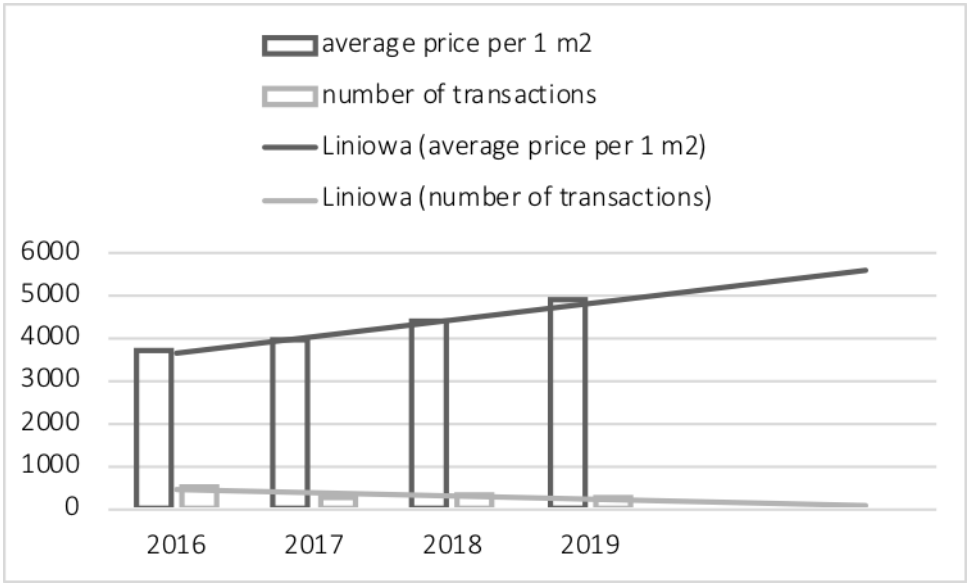

Figure 14. The average price of investment premises (PLN/m^2) and the number of transactions (pcs) in the Warmińsko-Mazurskie voivodeship in 2016-2019
Source: own study.

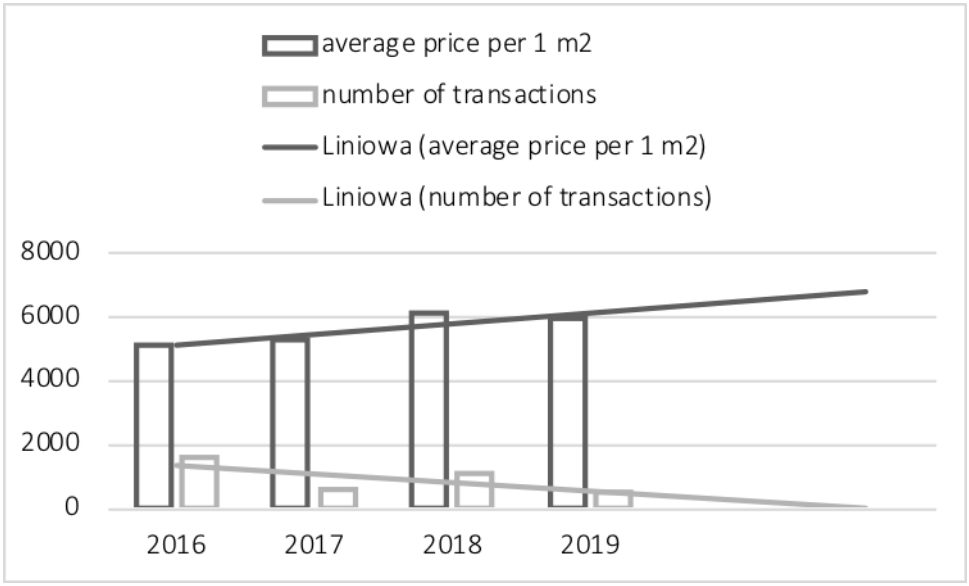

Figure 15. The average price of investment premises (PLN/m^2) and the number of transactions (pcs) in the Wielkopolskie voivodeship in 2016-2019

Source: own study.

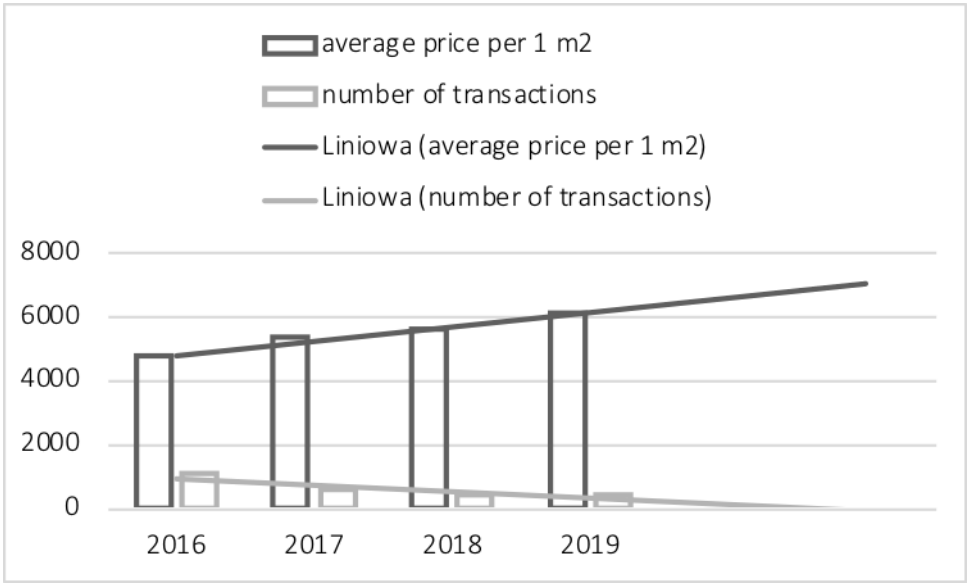

Figure 16. The average price of investment premises (PLN/m^2) and the number of transactions (pcs) in the Zachodniopomorskie voivodeship in 2016-2019

Source: own study.

Research carried out in all provinces showed a constant increase in prices. The uptrend is solid. The demonstrated trend shows the effectiveness of the strategy of investing in small-area investment premises. This trend is irrespective of whether there is a reinvestment of profits and interference in the structure of investment premises.

The tables below show that the first two-year period of 2016/2017 in all voivodeships showed an increase in prices by about 4 to 5% year-on-year. Theoretically, this trend did not change in 2018/2019 (studies were conducted before disclosing the coronavirus COVID-19 pandemic). It follows that the real estate market is not applying a long-term contrarian strategy as there has been no decline in investment property prices.

Table 1. Changes in prices of residential premises up to 35 m^2 in 2016-2017, by voivodeship

Voivodeship	2016	2017	Change 2017/2016
	PLN/m^2		
Lower Silesia	4771.12	5412.71	13.45%
Kujawy-Pomerania	3554.3	4127.54	16.13%
Lubelskie	4765.31	4890.75	2.63%
Lubusz	3330.34	3409.94	2.39%
Łódzkie	3457.36	3922.34	13.45%
Lesser Poland	6844.54	7190.55	5.06%
Masovia	7495.62	7735.68	3.20%
Opole	3465.37	3539.88	2.15%
Podkarpackie	4034.38	4395.03	8.94%
Podlaskie	4425.94	4657.32	5.23%
Pomorskie	5446.66	6361.33	16.79%
Śląskie	2741.95	3408.73	24.32%
Świętokrzyskie	3733.53	3692.4	-1.10%
Warmia-Masuria	3728.43	3924.8	5.27%
Greater Poland	5070.36	5239.58	3.34%
West Pomerania	4758.62	5379.38	13.04%

Source: own study.

The residential real estate market with a residential function up to 35 m^2 in 2017 was characterized by high activity. A lot of interest was noticeable both in the primary market and on the secondary market.

Compared to the previous year, the highest increase in apartment prices was recorded for the Śląskie Voivodeship (increase by 24.32%), and the lowest for the Opolskie voivodeship (increase by 2.15%). In the Świętokrzyskie voivodeship, as the only one, the prices of small residential properties fell by 1.10%.

Table 2. Changes in prices of residential premises up to 35 m^2 in 2018-2019, by voivodeship

Voivodeship	2016	2017	Change 2018/2019
	PLN/m^2		
Lower Silesia	5848.17	6520.68	11.50%
Kujawy-Pomerania	4604	5241.71	13.85%
Lubelskie	5292.05	5579.64	5.43%
Lubusz	3765.26	4642.78	23.31%
Łódzkie	4203.19	4936.12	17.44%
Lesser Poland	7970.53	8220.43	3.14%
Masovia	8102.36	8610.57	6.27%
Opole	4403.39	4617.4	4.86%
Podkarpackie	4757.99	4999.02	5.07%
Podlaskie	5107.12	6017.01	17.82%
Pomorskie	6987.54	7860.31	12.49%
Śląskie	3557.08	4170.59	17.25%
Świętokrzyskie	4067.11	4709.43	15.79%
Warmia-Masuria	4403.56	4877.35	10.76%
Greater Poland	6133.86	5938.87	-3.18%
West Pomerania	5607.4	6149.33	9.66%

Source: own study.

At the turn of 2018/2019, an increase in the prices of residential real estate was still observed. The price increases were lower than in the previous research period. The highest increase was recorded in the Lubuskie voivodeship, 23.31% (in the previous two-year period, 2.39%). The only drop in prices was recorded in the Wielkopolskie voivodeship by 1.10%.

CONCLUSION

The presented research allows for the following conclusions. The number of transactions relating to investment premises intended for residential purposes in the analyzed period changed slightly. It results from the low supply and maintenance of real estate as stable capital security and quick access to the invested funds due to such premises' high liquidity.

There is a continuous increase in the prices of investment premises. In the second research period, as many as nine voivodeships recorded a double-digit increase in prices (from 10% in the Warmińsko-Mazurskie voivodeship to over 23% in the Lubuskie voivodeship). In the first research period, prices increased over a dozen times only in 6 voivodeships.

Overreaction on several local markets, when with the constant increase in prices, the year-on-year increase has sharply increased in Lubuskie voivodeship from 2.39% to 23.31% in the second research period. Similarly, in Podlaskie voivodeship, there was a change in prices in the analyzed periods from 5.23% to 17.82%.

An overreaction can be referred to as only some of the local investment housing markets, e.g. in Lubuskie, Kujawsko-Pomorskie and Łódzkie voivodeships.

Prices stabilized in the following markets: Lubelskie, Małopolskie, and Podkarpackie voivodeships (the phenomenon of overreaction cannot be stated).

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