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Research paper

Business cycle in residential construction in Poland 2007–2022

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Abstract: This article explores the dynamic interplay between the business cycle and the housing market in Poland from 2007 to 2022. It examines the complex relationship between economic cycles and the residential property sector, focusing on the impact of government intervention and market fluctuations. The research shows that the housing market is highly sensitive to external factors. It highlights the central role of the National Bank of Poland (NBP) in shaping the housing market through changes in interest rates and credit availability. The COVID-19 pandemic temporarily disrupted developer activity and housing demand, highlighting the vulnerability of the market to unexpected shocks. In addition to observations, this study calls for a critical analysis of housing policies, identifying potential shortcomings and offering recommendations for improvement. It underlines that economic crises are an inherent part of housing market cycles, promoting market cleansing and healthy competition. Finally, this research emphasises that the housing market is intertwined with broader economic trends. It highlights the need for central banks to strike a balance between managing inflation and supporting economic growth. This study contributes to a deeper understanding of the relationship between the housing market and the business cycle, providing valuable insights for policymaking and investment decisions.

Keywords: boom, business cycle, housing, housing market

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1. Introduction

This study examines the complex dynamics of business cycles and their profound impact on the investment-construction processes, particularly in the context of the housing market in Poland between 2007 and 2022. The analysis presented here not only explores the various facets of business cycles, but also sheds light on their implications for the housing construction industry and, by extension, the economy as a whole.

First of all, an important critical stylised fact that underpins this research is the observed time lag of the construction cycle in relation to the broader economic cycle. According to sources such as BC Analytics [1] and IBISWorld [2], the construction sector typically lags the broader economy by one to two years. This lag has significant implications for the planning and management of construction investment. For example, the trough in the construction market typically occurs approximately two years after the broader economic downturn, making it imperative for stakeholders to have an accurate understanding of this temporal discrepancy. The primary hypothesis/research problem tested in this study revolves around the relationship between economic cycles, construction activity and the housing market in Poland. To address this hypothesis, the study employs a comprehensive methodology that analyses historical data, government policies and various economic factors that have influenced this complex interplay over the years.

The findings of this study provide invaluable insights into the management of investment-construction processes and can help academics, construction professionals and policy makers to improve their planning and decision-making. In the following sections, the study examines the specific phases of the business cycle, their impact on the housing market and the resulting implications for the residential construction industry in Poland. It also explores the shifts in demand, price trends and the behaviour of the various players over the 2007–2022 timeframe, highlighting the nuanced interactions that define this multifaceted relationship. Finally, the study concludes with an overarching perspective on the key takeaways and implications, providing a comprehensive understanding of the role of the business cycle in shaping the housing market and construction industry in Poland over the 2007–2022 period.

2. Theoretical and empirical background

2.1. Business cycles

In the long term, the production of goods and services by the economy, measured for example by the level of gross domestic product (GDP) achieved, is steadily increasing. However, when analysing shorter periods, periodic declines in completed production and services can be observed. Statistical data show that these phenomena occasionally recur. Observations point to the existence of the business cycle phenomenon, while attempts to explain its causes have led to the development of several business cycle theories. Fig. 1 and 2 provide the most illustrative picture of the business cycle.

The graph above shows the course of the business cycle in the 20th century up to the 1970s and 1980s. The peaks and troughs of the business cycle, or the lengths of its various phases, are clearly visible on the graph. It is an illustrative chart that fully explains the course of the

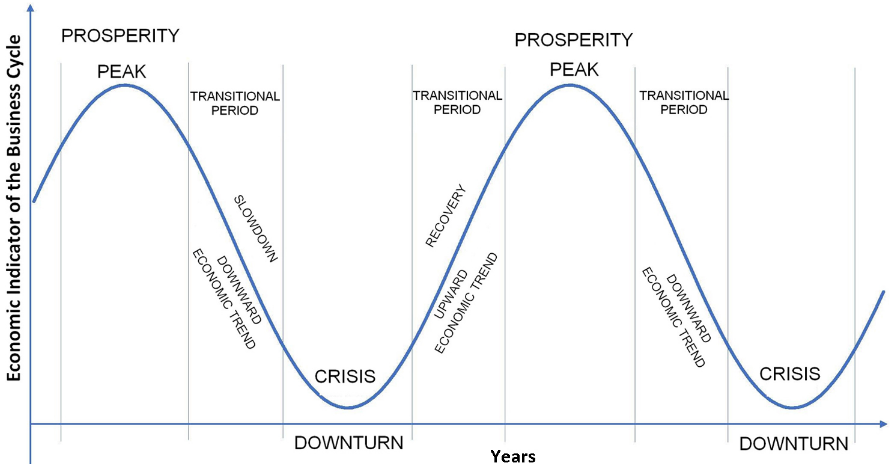

Fig. 1. Typical sinusoidal business cycle, Source: own elaboration

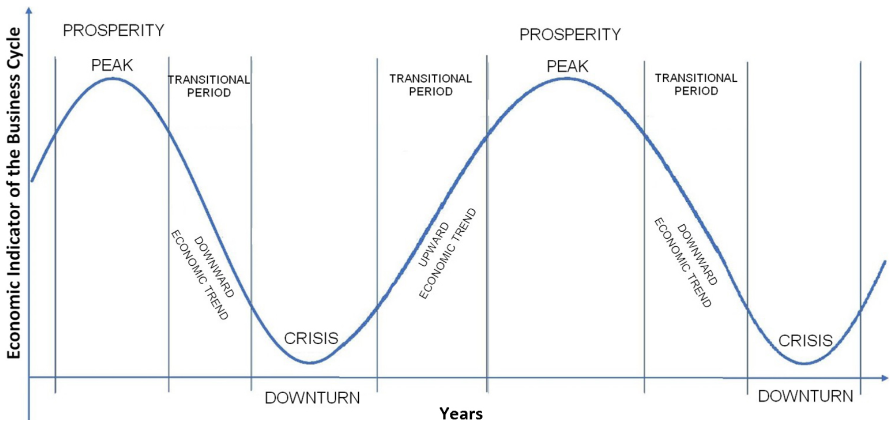

Fig. 2. Sinusoidal business cycle with extended business cycle period, source: own elaboration

business cycle. However, it does not reflect the real business cycle. This is because in the real cycle the phases do not last the same length of time. Moreover, a business cycle superimposed on an upward trend reflects the fact that the next business cycle peak is at a higher level than the previous one. Of course, this has to take place over a sufficiently long period of time. As Mankiw and Tylor [3] note, in the UK between 1920 and 1924, the value of GDP fell by 9% in 18 months, only to return to its initial level after 27 months and then rise by 4% in the following 12 months. By contrast, in the early 1990s, UK GDP fell by only 3%, but the recovery took 32 months and ended with GDP 8% above its pre-crisis level. The current course of the business cycle, as a result of the actions of many governments and numerous international and national institutions such as the European Bank, the World Bank, the EU central banks, etc., has shown a tendency to lengthen the business cycle and shorten the downturn. There is a tendency for the boom period to lengthen and the downturn period to shorten, as shown in Fig. 2.

The concerted action of governments, banks and international free trade associations such as the European Union (and EFTA), NAFTA (Canada, US, Mexico), Asian unions (ASEAN, AFTA and RCEP), BRICS (China, Russia, Brazil, India, South Africa) has led to a lengthening of the business cycle while limiting the timing and impact of downturns (there are no longer deep crises such as those in the US in the 1930s or in the UK in the 1920s and 1940s). A study by Crowley and Hallett [4] suggests that the "Great Moderation" may have been caused by a shift in cyclical volatility away from shorter cycles of economic growth due to structural changes in the economy. The National Bureau of Economic Research [5] also confirms that the duration of business cycles has become longer, in line with the fact that expansions have become longer and contractions shorter. When analysing the course of the business cycle in Fig. 2, it can be seen that the ups and downs do not form a perfect sinusoidal wave, but in lines close to it. For this reason, a better representation of the business cycle is presented by Begg Fischer and Dornbusch [6] in Fig. 3, which shows the formation of the cycle against the calculated trend of economic growth.

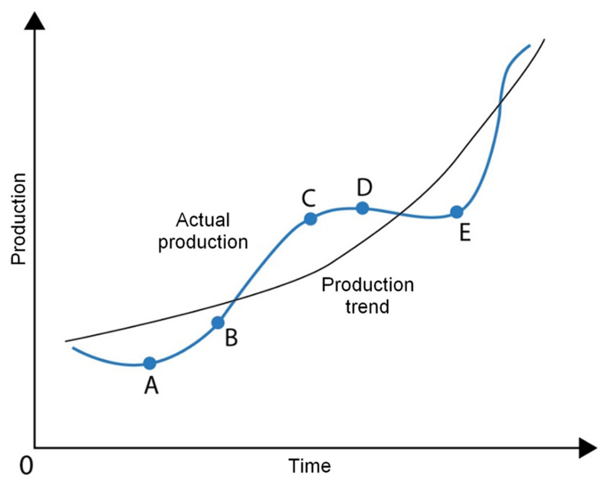

Fig. 3. Business cycle according to Fischer, Begg, and Dornbusch [6]

On the contrary, the UK actual GDP growth and the resulting growth trend are shown in Fig. 4. It clearly shows periods of economic downturn, although the graph does not have perfect lines, as shown in Fig. 1.

Economic theory, and in particular the part of it that deals with business cycles, is unable to explain clearly the causes of the crises that occur. Economists often ignore explanations of a political nature, such as a deliberate government policy aimed at suppressing production (and the economy) just after an election and then reviving it before the next election [6]. Political reasons may also include a desire to increase budget revenues. Economics, on the other hand, tends to ignore politics and focuses on the causes that trigger the crisis and the models that explain the business cycle, which are presented later in this article.

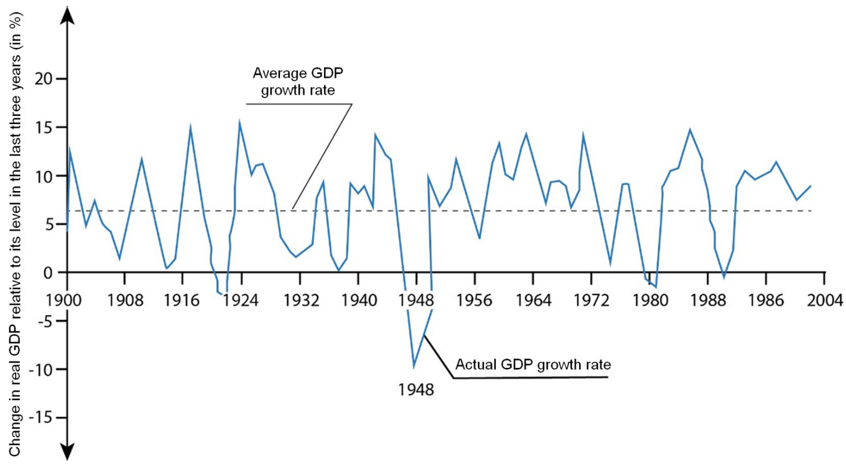

Fig. 4. Change in real GDP of the United Kingdom in the years 1900-2004 [3]

2.2. Business cycle models and their relevance to housing market dynamics

The changing economic situation has led economists not only to identify the causes of this state of affairs, but also to search for a model that would explain the changes and make it possible to assess the current state of the economy and, moreover, to anticipate future changes. Unfortunately, it has not been possible to achieve this in an unambiguous way that would combine all the variables exhaustively in a single model. It is therefore possible to identify different approaches to the problem under study.

The first approach is analysed from a demand-side perspective. The neoclassical model and the Keynesian model are considered here [7]. The former assumes that an increase in aggregate demand (i.e. consumer spending, investment spending, public spending and net exports) leads, all else equal, to an increase in prices and hence to a reduction in the real purchasing power of wages (inflation) [8]. This, in turn, leads to a fall in demand, which in turn leads to a period of recession during which output and prices fall in the short term. Keynes also introduced the concept of price and wage stickiness to deal with this problem [8]. A change in aggregate demand will trigger a response, but not an immediate one. The end result in these models is the same, but the functioning of the economy, i.e. the business cycle, is slightly different [9]. In the supply-side approach, labour and anticipated and unanticipated price changes play a central role in the neoclassical model. As Mankiw and Taylor note, “if workers correctly anticipate price changes, they can change their behaviour so that real wages and the quantity of labour supplied reach a level that brings the market into equilibrium. For example, if prices rise, real wages will fall, so firms will be interested in increasing employment. If workers anticipate this change, they will know that real wages will fall, so they will reduce the amount of work they offer. The demand for labour will be greater than the supply of labour, so nominal wages will rise. In the new equilibrium, however, real wages will remain at their current level” [3].

Keynes, while looking at the business cycle from the supply side, emphasises that changes in the market do not occur as quickly as the neoclassical model would suggest. The stickiness of wages and prices, the former being subject to a variety of regulations, prevents them from adjusting quickly, especially downwards. Similarly, a change in prices may entail additional costs to which firms are reluctant to respond, or do so only with a delay. This stickiness makes it difficult for the market to recover in the short term.

The lack of a clear explanation of the business cycle issue, despite the recognition of the causes of this phenomenon, has also led to other attempts to define a business cycle model. The best known is the real business cycle model (RBC), which assumes that changes in technology and the so-called technological shocks they cause affect productivity regardless of the level of real wages. The market, free of imperfections, recovers quickly, maximising utility for consumers and profit for entrepreneurs. This implies that the basic models explaining the business cycle phenomenon are based on an analysis of changes in aggregate demand or changes in the supply of factors of production, mainly labour. However, the analyses presented do not take into account one of the causes of the crisis mentioned above, i.e. government intervention.

Understanding the complex relationship between business cycles and the housing market requires a nuanced examination of different economic models. In addition to neoclassical, Keynesian and RBC models, it is worth mentioning some other approaches that help to understand the interplay between business cycles and residential construction markets. One prominent model that significantly enriches our understanding of housing market dynamics in the context of the business cycle is the multi-sector growth model. Developed by Davis and Heathcote [10], this model integrates construction, manufacturing and services to analyse the housing market cycle and its intrinsic link to the broader business cycle. This holistic perspective helps to unravel the complex interactions that underlie fluctuations in construction and housing markets. Structural vector autoregressions (SVARs) are another valuable model in this area. By allowing the housing market to respond to monetary policy shocks and various economic factors, SVARs shed light on the intricate relationship between housing and the business cycle. In particular, Huang et al. [11] have used this model to unravel the dynamics between housing and the business cycle across OECD countries, providing empirical insights in this area. Financial cycle analysis adds another dimension to this discourse. As emphasised by economists such as Leamer [12, 13], the financial cycle is closely intertwined with the housing cycle. These models seek to identify cycles in idiosyncratic house price risk and to explore the financial factors that influence housing market dynamics. In addition, modern economic analysis, as exemplified by Foldvary [14], highlights the substantial role of real estate in business cycles, contributing to a more holistic understanding of the position of the housing market within the broader economic context. Moreover, the dynamic stochastic general equilibrium (DSGE) model, as applied by Sobieraj and Metelski [15], proves indispensable in modelling the stickiness of wages and prices that significantly affects the construction sector, a feature alluded to in the earlier lines of the study. The DSGE equilibrium model provides a robust framework for understanding the nuanced dynamics between housing, construction and business cycles, thus enriching the analytical toolkit. In addition, computable general equilibrium (CGE) models are valuable for assessing the impact of different policies on the construction and housing sectors. These models, such as those elucidated by Burfisher [16] and Anantsuksomsri and Tontisirin [17], provide a structured approach for evaluating policy interventions and their impact on housing markets. Although they do not directly address the relationship between construction and business cycles, they illustrate the applicability of CGE models in evaluating policies affecting these sectors.

In summary, the field of business cycle modelling is large and diverse, with a variety of models contributing to our understanding of the complex relationship between business cycles and the housing market. The neoclassical, Keynesian and RBC models represent only a fraction of the approaches available, and their selection does not imply their superiority. Knowledge in this area is extensive and the applicability of different models depends on the specific research question and context. The subsequent sections examine the dynamics of the housing market in Poland over the period 2007–2022 in more detail, providing a holistic perspective on the subject.

2.3. The intersection of housing markets and the business cycle

This section examines the dynamics of housing markets, highlighting the impact of immobility and the production cycle on investment decisions. It also explores the relationship between business cycles and housing market phases, pointing to the sensitivity of the construction sector to economic fluctuations and the importance of exit strategies.

It is important to note that the functioning of the property market system depends on a network of interdependent external factors, referred to as subsystems, including property transfer, investment, management and financing. Fig. 5 illustrates the real estate market system.

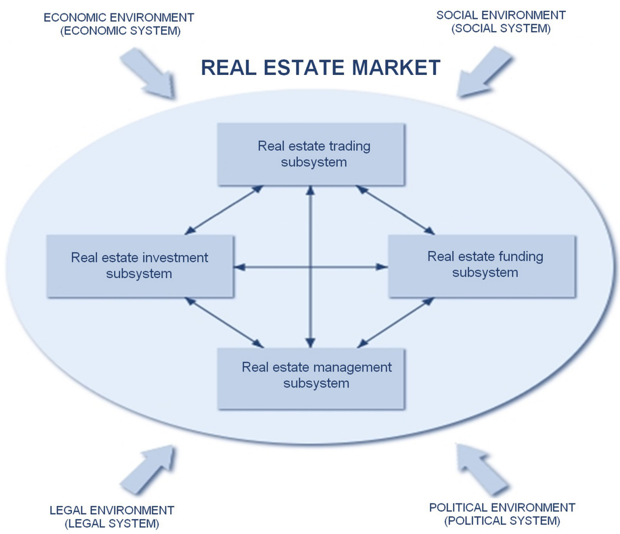

Fig. 5. Real estate market system [18]

These interdependencies are influenced by economic, political and legal factors. The property market is characterised by two key features: immobility and a production cycle. Immobility means that the location of property is fixed, making local market conditions crucial.

More fundamentally, investment decisions are influenced by factors such as economic and political stability and expected changes. Investors assess these subjective variables, often with the help of expert opinions. The production cycle has four phases: preliminary assessment, preparation, construction and management (use) of the finished facility [19]. Phase one involves market assessment, with flexibility to change investment decisions. Phase two, the preparation phase, involves obtaining permits and is the most challenging, lasting from several months to years. Changes in the local market environment during this phase can have a significant impact on the investment. The third phase, construction, is well planned, on time and subject to contractual penalties. Post-construction, the facility management phase, aims to recoup the investment. However, market conditions may differ from initial expectations and losses may occur. The exit strategy will vary depending on the type of investment, timing and circumstances. The ideal time to exit is after the completion of a particular phase of the investment cycle, thereby reducing the associated risks [20].

Residential developers, who can pre-sell their housing units, typically have a different strategy. It is important to note, that regulations protect buyers and increase the costs and responsibilities of developers. Developers often reassess their investment decisions before entering the costly construction phase. The developer's exit strategy is market-driven and depends on the nature and progress of the investment. The best time is considered to be the completion of a specific phase of the investment cycle, i.e. the possession of a building permit, the completion of the construction (execution) phase or the acquisition of tenants for an office building or shopping centre. The completed phase of the cycle generates a certain added value as the buyer avoids the risks of this phase. The exit strategy of a residential developer, who can already market and pre-sell the housing units under construction, is somewhat different. Since 2011, the so-called Real Estate Development Act has protected home buyers from being exploited by an incompetent or dishonest developer. However, it increases the developer's operating costs, his responsibility for the progress of the investment and forces him to reassess the investment decision he has made. In fact, his activity, which is subject to additional legal regulation, has become more public than that of a developer building a commercial building.

Normally, any developer (and not only those who build housing), before committing funds to the construction cycle, reviews the investment decision taken in the past. This is because this phase is the most expensive phase of the investment cycle, but it also ensures a significant profit, several times higher than that which can be achieved by withdrawing the investment after phase II. This reassessment of the effectiveness of the investment project is all the more justified the longer the preparatory and preliminary phases prior to obtaining the building permit have lasted. This is very important because at this point in the investment cycle the developer can still change his decision. Although this will be more costly than at an earlier stage in the cycle, it will still be much more beneficial than continuing with the wrong decision.

It is important to emphasise that the housing market, in the context of the wider economy, moves through a number of stages, each with its own characteristics. In particular, the construction process involves different stages, from land acquisition and development to the final sale of properties. These stages can themselves be affected by fluctuations within the economic cycle. Understanding these dynamics requires a good understanding of the relationship between economic cycles and housing market phases, particularly as they unfold over time. A key link in this context is the time lag between the broader economy and the construction sector. As noted in research by Vasilopoulos and Tayler [21] and Davis and Heathcote [10], there is a notable lag of around 1–2 years between changes in the broader economic conditions and corresponding changes in the construction sector. This critical point highlights the sensitivity of the construction market to economic shocks and its distinctive dynamics relative to the wider economy.

2.4. Residential construction and housing policy in the real estate market

In the context of the business cycle in residential construction in Poland, housing policy plays a crucial role in shaping the demand, supply and fiscal dynamics within the sector, thereby influencing its response to economic fluctuations. Understanding this interplay is essential for informed decision-making and strategic planning by stakeholders and policy makers. Housing policy is implemented by the state or local authorities, with the state playing the primary role in legislative changes. Municipalities enact housing programmes within the limits of local government law to support housing policy objectives, targeting citizens who meet established criteria. Housing policy instruments aimed at increasing the quantity of housing during the transition period, such as tax relief, housing for young people (MdM) and the Family on its own Schemes, were targeted at individuals with the ambition and income to own their own home. Municipalities focus on providing social and municipal housing for low-income residents.

The high proportion of owner-occupied dwellings in Poland is the result of a housing policy that encourages home ownership, with limited incentives for rental housing. Housing policy uses instruments such as financial support to increase demand, and initiatives such as social housing corporations and facilitations in construction law to increase housing supply.

Housing policy can also influence the durability, quality and energy efficiency of the existing housing stock. One of the basic measures of housing policy is to reduce the negative impact of fiscal policy, both on buyers and producers of housing. It is worth recalling that at the time of the introduction of VAT, the rate on housing sales was zero. This did not change until 2002, when it was raised to 7%. During the negotiations on Poland's accession to the European Union, this rate was maintained during the so-called transition period. The public discussion of this solution itself triggered the so-called small housing crisis, which is now forgotten. Housing prices rose before the final announcement of the government's decision, i.e. in 2001, only to fall slightly at the end of 2002 and in 2003. However, the scale of housing construction was smaller at the time and the problem was not analysed.

2.4.1. Causes and effects of government intervention in 2006 on the business cycle

In 2003–2004, residential construction was balanced. Prices rose in line with GDP growth and rising incomes, and the volume of housing construction increased accordingly. After Poland's accession to the European Union (1 May 2004), the possibility of obtaining housing loans increased, as more and more banks operated in the new EU country and offered attractive loans to the population (whose mortgage debt was very low in comparison with other EU countries and the USA or Canada) [22]. However, according to AMRON data, the housing affordability index started to decline from the third quarter of 2006. A sustained increase above the 2006 level did not occur until 2015 [23]. The discourse on the future of the housing market and the efficiency of investment gained popularity, with most daily newspapers publishing supplements on the subject. These publications promoted homeownership and suggested the possibility of repaying loans through rental income, which gradually increased interest in homeownership and boosted demand and prices until 2006. Towards the end of this period, significant changes took place, especially in Warsaw and other large cities. In 2006, two key developments led to a decisive shift. The first was the government's intention to abolish the tax deduction for housing loans, meaning that borrowers would bear the full cost of the loan from 2007, subject to approval by the Polish Sejm. Although the tax deduction provided limited relief, taxpayers were previously able to deduct an amount depending on the amount of their loan [24].

The second announcement was an even bigger blow to the market. The government decided not to extend the transitional period for the reduced VAT rate on apartments sold by developers, which was originally negotiated at 7% when Poland joined the EU. The announcement by the Minister of Finance that the VAT rate would increase from 7% to 22% had a profound effect on potential buyers of apartments [24]. Not only did they learn that their tax deductions would disappear, but also that their planned purchases would become 15% more expensive, or they would get 15% less space for the same price. Unsurprisingly, such a market environment led to an immediate surge in demand for housing, making it difficult to meet the needs. It is believed that government intervention played a significant role in triggering the housing crisis, which is often overlooked in economic analysis, although it is considered a potential contributor to economic crises and business cycle fluctuations.

As mentioned above, the housing market operates locally and increasing supply requires an extended investment cycle of several months. As a result, the only way to restore the balance between supply and demand was to increase prices, and this is what has happened. In Warsaw, average prices per square metre rose from PLN 4,000 in 2005 to almost PLN 9,000 in 2008, followed by a sharp four-year decline. A brief recovery in 2013 (+6%) was followed by a 5% decline in 2014 [23, 25]. Notably, a steady increase in house prices, especially in Warsaw, began in 2017, in line with the widespread trend of investing in rental properties, which offer higher returns than traditional bank accounts. This phenomenon led to an increase in house prices in Warsaw of more than 25% between 2017 and 2019 (as shown in Fig. 6), signalling a notable upturn in the housing market.

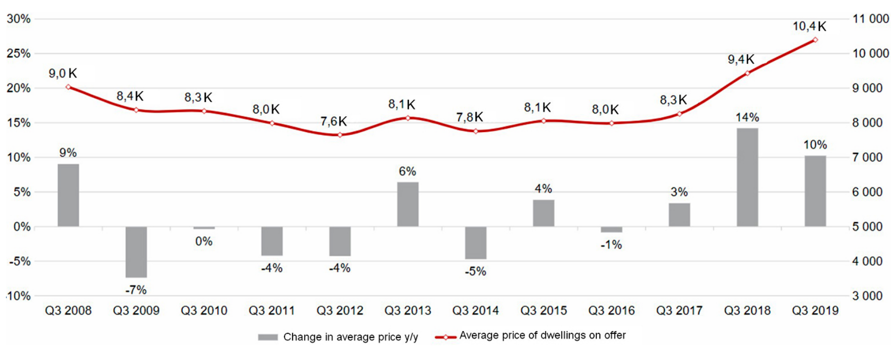

Fig. 6. Average price of dwellings offered on the Warsaw market [25]

The surge in demand for housing in 2006, which continued in 2007, was confirmed by the accelerated growth in the number of loans granted for house purchases. While 162,000 loans were granted in 2004 and 218,000 in 2005, 297,000 were granted in 2006 and 314,000 the following year. These figures have never been exceeded and are still considered record highs. It was the best period to launch this type of investment [26]. The analyses carried out confirm that 2006–2007 proved to be an exceptional period in which unusual circumstances occurred, triggering rapid changes in demand. The behaviour of the market after this period, especially the downturns that occurred, influenced the behaviour of market participants, who took different subjective decisions to stop or complete their investments.

In summary, this section highlights the crucial relationship between housing policy, housing construction and the business cycle. Housing policy in Poland influences housing demand, supply, prices and credit availability, which has a significant impact on the housing market, which in turn affects the wider economy. Recognising the importance of housing policy in the context of the business cycle is essential for a full understanding of economic fluctuations. It is also clear that market expectations and reactions to policy changes can influence shifts in the business cycle. While we have provided a brief overview of these linkages, a comprehensive analysis should explore historical lessons and potential policy improvements to promote economic stability.

3. The influence of the business cycle on the housing market from 2007 to 2022

Firstly, an attempt can be made to view the 2007–2022 economic cycle in a historical perspective, showing the significant actions of institutions and the influence of market phenomena on the successive phases of the economic cycle and, conversely, the economic cycle on the behaviour of the housing market in Poland in the years 2006–2019. In the following, this phenomenon will be presented with regard to the most important domestic market, i.e. Warsaw. Fig. 7 is useful for this purpose.

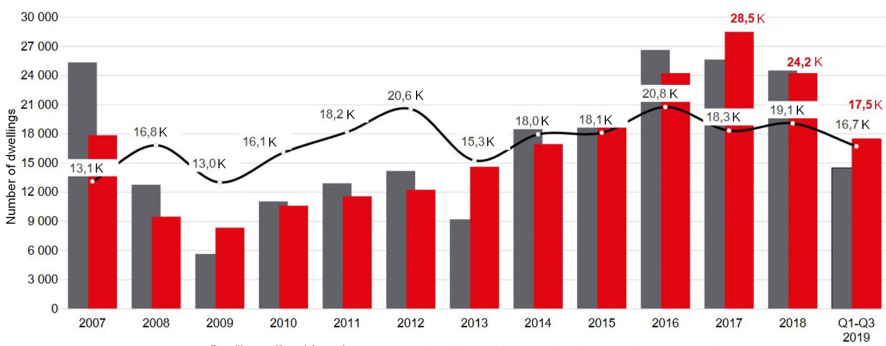

Fig. 7. Warsaw – dwellings put on sale and sold annually against the offer [25]

In addition, we will examine the dynamics of the business cycle and its impact on the housing market in Poland over the period 2007–2022. The historical perspective of the business cycle in residential construction over this period can be better understood when broken down year by year, so for the sake of clarity we present the developments in tabular form (see Table 1).

Table 1. Historical perspective on the business cycle in residential construction over the period 2007–2022

Year	Description	Source	Implications for the Housing Market
2006	Changes in housing financing rules, including higher VAT and the abolition of the tax credit, led to a surge in demand for housing, outstripping available supply and pushing up prices.	[27]	High demand, limited supply and rising prices.
2007	The housing boom continues with robust bank lending and increased developer activity, pushing prices up further.	[27, 28]	Sustained high demand, limited supply and rising prices.
2008	As economic activity peaks, prices stabilise, demand rebalances and banks introduce credit restrictions. Developers flood the market with more units than it can absorb.	[27]	Stabilising demand, increasing supply and potential oversupply.
2009	Housing prices start to fall, fewer units are completed than sold and developers offer incentives to entice buyers.	[29]	A downturn with falling prices, reduced buyer confidence and market stagnation.
2010	A continuation of the housing market downturn with slight price falls. It is important to note that the global financial crisis did not lead to a crisis in the Polish housing market, but only to a gradual decline in house prices.	[30, 31]	Continued market downturn, falling prices and uncertainty.
2011	Prices continue to fall slightly, with output outstripping sales.	[30, 31]	Reduced demand, oversupply and lower prices.
2012	Further slight falls in prices, with increased production outstripping sales.	[32]	Continued oversupply and price cuts.
2013	A slight economic upturn with price rises and the stock sell-off, boosting optimism among developers and banks.	[33]	Renewed optimism, rising prices, and increased market activity.
2014	Excess housing units are put on the market, leading to a 5% price reduction and increased marketing efforts by developers.	[34, 35]	Price cuts, intense competition and marketing efforts.

Continued on next page

Table 1 – *Continued from previous page*

Year	**Description**	**Source**	**Implications for the Housing Market**
2015	Economic improvement and optimism lead to a balance between supply and demand, pushing prices up to 2013 levels. A notable increase in residential property transactions in Poland occurred in 2015: +15% compared to the previous period	[36]	A market recovery with price increases.
2016	A slight recovery with increased sales, but oversupply results in only a slight increase in average prices. The oversupply of high-end condominiums in certain residential areas in Poland also contributed to the situation.	[36–38]	Moderate price increases and high supply.
2017	A clear period of growth with a significant increase in sales. Developers sell off existing stock and prices rise slightly due to oversupply.	[36–40]	A significant increase in demand, higher prices and market stability.
2018	A balanced market with prices up 14%. The number of new units coming onto the market is almost in line with sales, as developers slow down due to rising costs and fears of lower demand.	[28, 39]	Balanced supply and demand, rising prices and caution among developers.
2019	Similar to last year in terms of sales, but with less new production and a 10% increase in prices.	[41]	Steady demand, rising prices, and controlled construction.
2020	COVID 19 pandemic leads to reduced developer activity and lower housing demand.	[42–44]	Reduced market activity and increased uncertainty.
2021	Housing demand driven by rising household incomes, housing shortages and cheap bank credit until Q3 2021.	[45]	Demand influenced by income, housing shortage and affordable credit.
2022	Major interest rate changes by the NBP affect borrowing costs and credit availability.	[43, 46, 47] and also see Fig. 8	Interest rate changes affecting affordability and housing finance.

The evolution of the NBP reference rate over the period 2015–2022 is shown in Fig. 8.

Several trends and conclusions can be drawn from the tabular overview of the market behaviour for each year: 1) The housing market in Poland was strongly influenced by changes in government policy and economic trends; 2) Demand and supply imbalances led to significant price fluctuations, with periods of growth and decline; 3) the COVID-19 pandemic caused a temporary reduction in developer activity and demand; 4) Interest rate changes and the availability of credit played an important role in shaping the housing market; 5) Economic factors, immigration and stable growth had an impact on housing demand; 6) Developers and banks responded to market conditions by adjusting their strategies and lending practices. It is important to recognise that the dynamics of the economic cycle had a significant impact on the

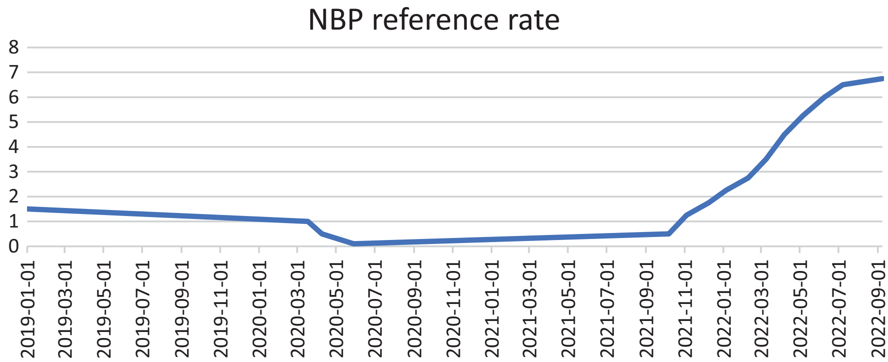

Fig. 8. Development of the NBP reference rate in the period 2015–2022; source: own elaborationbased on NBP data

behaviour of the housing market during this period. In addition, government intervention, in particular through the National Bank of Poland (NBP), had a profound impact on the housing sector. Furthermore, while the study discusses the phenomena observed during this period, it is important to remember that housing market cycles are a natural part of the economy. Crises within these cycles serve to correct imbalances and ensure competition. In order to gain a fuller understanding of the issue, it would be valuable to critically analyse housing policy, identify potential mistakes and make recommendations for future improvements.

It is also important to note that during a market downturn, developers assess the profitability and marketability of their existing and planned projects. This helps them to assess foreseeable development risks within 18 to 24 months from the start of construction or tender of the project. Many projects are suspended or slowed down, and smaller developers sell off their shovel-ready projects and land to avoid bankruptcy and meet their obligations. The residential market is sensitive to economic fluctuations due to its 18–24 month investment cycle, which can extend beyond that. Stopping construction in progress results in financial losses and potential company-wide consequences. Site protection, security, interest on bank loans and unexpected costs of restarting construction are significant fixed costs. A re-evaluation of the investment under new market conditions is necessary, especially when customer contracts with advance payments are involved. In a nutshell, 2007 and the first half of 2008 were favourable periods for developers to start sales, while the second quarter of 2012 was the least favourable, with prices on average 25% lower per square metre than in 2008. Developers would avoid starting sales in 2012 to mitigate risks during a downturn if they hadn't started in 2008.

It can be seen that the upward trend (the so-called boom) occurring in the housing market since 2017 has been triggered by the following factors: 1) Exceptionally low interest rates, resulting in low lending rates; 2) Abundant credit options from numerous banks; 3) Reduced banking barriers for borrowers; 4) Accumulated savings of developers' clients; 5) Influx of Ukrainian migrants seeking better opportunities; 6) Abundant land reserves held by large developers; 7) Improved affordability; 8) Availability of rental apartments; 9) Stable economic growth; 10) Low NBP reference rate; 11) Continued mortgage availability; 12) Favourable customer sentiment regarding economic growth; 13) Affluence driving buyer interest in larger homes.

The rise in inflation and interest rates has had an impact on interest in residential mortgages. Data from the Credit Information Bureau showed a steady demand for credit in 2019, a sharp decline in April and May 2020, and a gradual recovery that peaked in March 2021 (see Fig. 9). From mid-2021 onwards, credit growth declined by 70.6% in volume and 71.3% in value between September 2021 and September 2022.

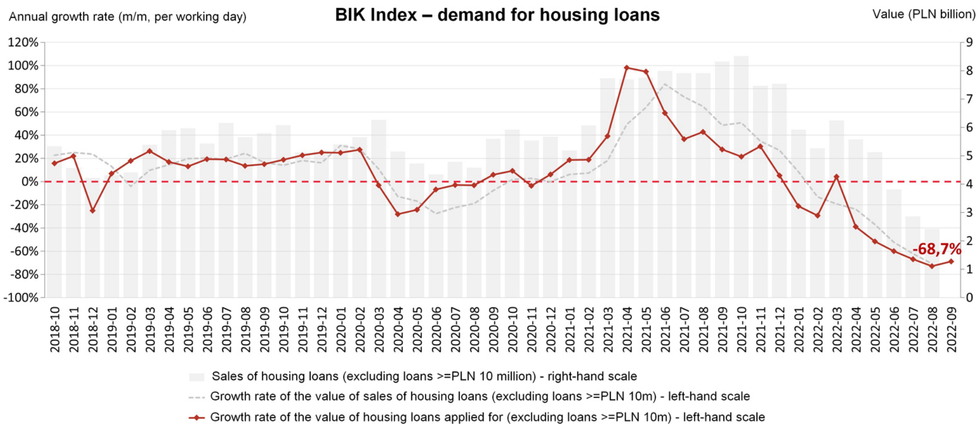

Fig. 9. Demand index for housing loans; source: Credit Information Office (BIK), 2022

This market situation makes developers cautious, evident in Fig. 10 showing a widening gap between building permits and actual construction starts.

As Fig. 10 shows, from 2019 to 2022, the number of building permits issued by developers exceeded the number of housing starts, with exceptions such as March and November 2019 and September 2020. Since May 2021, there has been a widening gap between the number of housing starts and the number of building permits, which is particularly evident this year. These trends support the argument that government intervention, particularly the NBP's influence on interest rates, has shaped the residential construction market more than the pandemic. A money surplus has driven investment in housing.

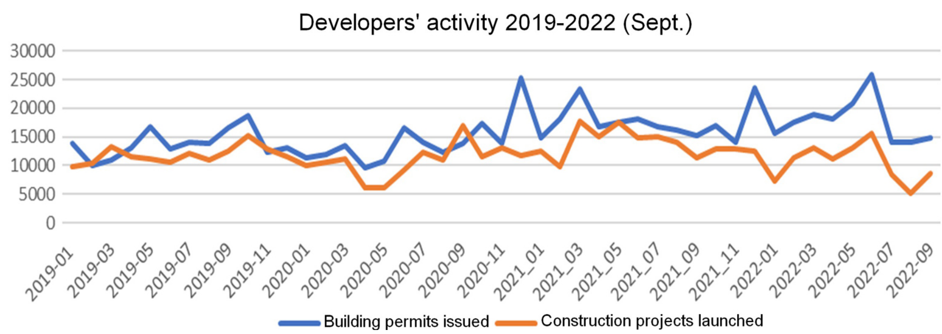

Fig. 10. Number of building permits and number of dwellings whose construction was started by developers in each month of 2019–2022, in thousands; source: own study based on NBP data

Despite a record number of dwellings built in 2021, it appears that the market has entered a downturn. Without government intervention to stimulate housing demand, a crisis is looming due to declining demand and supply. Neither investment housing demand nor housing rental funds (PRS) can stabilize the market. High inflation in late 2021 and 2022, along with low bank deposit rates (approximately 2–7%), prompted capital withdrawal from savings and real estate investment, inflating housing prices. In 2022 Q3 and Q4, the housing market collapsed, with approximately 4,000 units shifted from developers to real estate investment funds. Economic slowdown and an anticipated 2023 recession have led many developers to delay new projects. For example, flat sales in Warsaw dropped 55% YoY in 2022 Q2, and prices fell by 2.5–3.5% in October 2022, as shown in Table 3.

Table 2. Dwellings put up for sale in 2022 Q3 compared to 2022 Q2 and 2021 Q3; source: Rednet Consulting, 2022

Location	2021 Q3	2022 Q3	y/y change	2022 Q2	2022 Q3	q/q change
Warsaw	4215	2627	–37.7%	5144	2627	–48.9%
Kraków	2011	755	–61.5%	1658	755	–53.3%
Wrocław	1054	1177	11.7%	2365	1177	–50.2%
Tri-City	2515	1211	–51.8%	3892	1211	–68.9%
Poznań	1741	654	–62.4%	1220	654	–46.4%
Łódź	1898	299	–84.2%	642	299	–53.4%

Table 3. Offer prices for dwellings in 2022 Q3 compared to 2022 Q2 and to 2021 Q3; source: Rednet Consulting, 2022

Location	2021 Q3	2022 Q3	y/y change	2022 Q2	2022 Q3	q/q change
Warsaw	12325	13618	10.5%	13612	13618	0.0%
Kraków	11267	12111	7.5%	12170	12111	–0.5%
Wrocław	10426	11962	14.7%	11316	11962	5.7%
Tri-City	11387	12477	9.6%	12468	12477	0.1%
Poznań	8641	10527	21.8%	10335	10527	1.9%
Łódź	7854	8915	13.5%	8829	8915	1.0%

A 50% decrease in investment starts will create a supply gap, leading to price surges when the economy recovers in 2–3 years

4. Discussion

The article examines the complex relationship between the business cycle and the housing market in Poland, focusing in particular on the cycle that lasted from 2007 to 2022 and highlighting some key issues that deserve attention. There are certain issues that are crucial to understanding the subject of the study, namely government intervention and market fluctuations [32], the impact of the COVID-19 pandemic [42], lessons for housing policy [32], central bank policy [44], the role of business cycles and the necessity of economic crises [32].

The study highlights the significant impact of government intervention, particularly by the NBP, in influencing the housing market. NBP policies, including interest rate adjustments and credit accessibility, emerged as key drivers of market fluctuations. This phenomenon is consistent with the findings of previous research, where central bank policies have been identified as powerful tools for managing economic conditions [44]. While it is recognised that the primary responsibility of any central bank is to ensure price stability, this research underlines the importance of a balanced policy [44]. The NBP's actions resulted in exceptionally low interest rates, which translated into favourable credit conditions and had a significant impact on the dynamics of the housing market [48]. However, the study suggests that a deeper examination of the balance between price stability and the needs of the housing market is warranted.

It is worth noting the impact of external shocks on the housing market. The impact of the COVID-19 pandemic on the housing market was profound [42–44]. While reduced developer activity and lower housing demand due to the pandemic were widespread, there is evidence that the crisis also stimulated interest in residential property. Sobieraj and Metelski [42] found that interest rate cuts and the availability of fixed-rate mortgages led to significant price increases in 2020 and early 2021.

The presentation of the evolution of the business cycle in the previous sections provides an opportunity to critically assess housing policy. In particular, it highlights that economic crises are an inherent part of market cycles and play a cleansing role in the sector.

The development of the housing market in the years 2007–2022 (shown in Table 1) confirms the sensitivity of the housing market to economic fluctuations. This is in line with general economic theory, which suggests that housing markets are pro-cyclical [21]. The data presented support the notion that during periods of economic prosperity, housing markets experience increased demand and price growth. However, these trends are reversed during economic downturns. While crises can be disruptive, they also play a crucial role in cleansing markets and restoring healthy competition [49]. Economic cycles should be seen as natural phenomena with their own ebb and flow.

It is also worth noting that construction projects go through different phases and stages, and planning the construction processes is crucial to avoid prolongation or failure of individual phases and the whole project [50]. Forecasting business cycles is therefore an important factor to consider when managing construction projects. Business cycles refer to the overall state of the economy as it moves through four stages in a cyclical pattern: expansion, peak, contraction and trough [51]. The alternating phases of the business cycle are expansions and contractions (also known as recessions) [52]. The construction sector tends to lag behind the general business cycle at both the trough and the peak [53]. Here is some scientific evidence that shows the importance of factoring economic cycle forecasting into the management of construction projects: 1) Surviving economic cycles: Businesses and investors need to manage their strategy over business cycles – not so much to control them, but to survive them and perhaps even benefit from them. Managing business cycles can help companies plan strategically to protect themselves from impending downturns and position themselves to take maximum advantage of economic expansions [51]; 2) Avoiding expansion during a recession: If a company follows the rest of the economy, warning signs of an impending recession may suggest that it shouldn't expand. It may be better to build up its cash reserves [51]; 3) Identifying the phases of the business cycle: The duration of business cycles varies, making it difficult to time the phases. However, identifying the phases of the business cycle can help investors position their investments to take advantage of different phases [54]; 4) Analysing construction cycle vs. business cycle: The construction sector tends to lag the general economic cycle, both at the troughs and peaks of the cycle [10, 21]. Therefore, it is essential to take into account the economic cycle forecast when planning construction processes in order to avoid prolongation or failure of individual phases and the whole project [53]. In conclusion, economic forecasting is crucial to the management of construction projects in order to avoid failures in the management of construction project phases. It is essential to take into account the economic cycle forecast when planning construction processes in order to avoid prolongation or failure of individual phases and the whole project.

The housing market in Poland has long proved to be an astute barometer of the country's economic health. Different phases of the economic cycle have left their indelible mark on the housing market, with each phase showing different patterns. The economic boom of 2007–2008 was a prime opportunity for developers to launch sales [27, 28]. However, the downturn of 2010–2011 was a stark reminder of the market's vulnerability to economic fluctuations, resulting in falling prices and sluggish output growth [30, 31]. The resilience of the Polish housing market is remarkable. The study shows that market growth in recent years has been driven by factors such as low interest rates, a wide range of credit facilities, reduced banking barriers, inflows of immigrants and developer savings. This comprehensive analysis calls for a deeper understanding of market dynamics, highlighting both positive and negative aspects.

This discussion leads to recommendations for Polish policymakers and housing market stakeholders. The study calls for a comprehensive approach to housing policy, taking into account affordability, sustainability and market dynamics. Striking the right balance between stability and market volatility is a key lesson from this analysis. It also argues for a critical reassessment of the role of the NBP in housing market dynamics.

In conclusion, the study highlights the complex dynamics between the housing sector and the business cycle in Poland from 2007 to 2022. It stresses the importance of recognising housing as a barometer of economic health and the critical role of government intervention. It provides valuable insights that have broad implications for housing policy, market participants and the wider Polish economy. Understanding and harnessing these insights will be critical to navigating the multifaceted relationship between the housing sector and the economic cycle in the coming years.

5. Conclusions

The intricate dance between housing and the economic cycle in Poland from 2007 to 2022 reveals a dynamic interplay of economic forces, government intervention and market resilience. It is important to note that Poland's housing market has mirrored the country's economic health for more than a decade. The cyclical nature of the housing sector, which is closely linked to the economic cycle, has played a key role in shaping the market's performance. The study reveals the complex relationship between the two, setting the stage for a more in-depth analysis. In particular, it highlights the multiple influences that affect the housing market at different stages of the economic cycle. Understanding how and why the market responds to economic fluctuations, government intervention and external shocks is essential. This is approached through a detailed examination of the evolution of the market from 2007 to 2022 (shown in Table 1 in Section 3). The results are mixed and underline the complex interactions that govern the Polish housing sector. The housing market is remarkably sensitive to economic fluctuations, especially during downturns. The downturn of 2010-2011 and the pandemic year of 2020 illustrate the vulnerability of the market to external economic shocks. The study highlights the influential role of the NBP in shaping the housing market. Interest rate policy and credit accessibility, in particular the low interest rates and favourable lending conditions from 2021 onwards, have had a significant impact on the market. The resilience of the housing market, influenced by factors such as low interest rates, credit availability, inward migration and developer savings, has underpinned its recent growth. The study underlines the need to recognise the positive aspects of market dynamics. It is also important to stress that crises within economic cycles play a crucial role in cleansing the housing market and reintroducing healthy competition. This cleansing effect provides opportunities for new entrants.

The implications of the study are profound and multifaceted. Policymakers need to take a comprehensive approach to housing policy, addressing affordability, sustainability and market dynamics. Finding the right balance between stability and flexibility is essential. The study suggests the need for a more nuanced approach to the role of NBP in housing market dynamics, balancing the objectives of price stability and market vitality.

In conclusion, the complex relationship between the business cycle and the housing market in Poland has been carefully examined in this study. By understanding this relationship, policy makers and market participants can work towards a more stable, resilient and accessible housing market. The cyclical nature of economic phenomena must be accepted and housing policy should be adapted to these changing rhythms to ensure a thriving market and economic resilience.

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Cykl koniunkturalny w budownictwie mieszkaniowym w Polsce w latach 2007–2022

Słowa kluczowe: koniunktura, cykl, mieszkania, rynek mieszkaniowy

Streszczenie:

W artykule zbadano dynamiczną interakcję między cyklem koniunkturalnym a rynkiem mieszkaniowym w Polsce w latach 2007–2022. Analiza obejmuje złożony związek między cyklami gospodarczymi a sektorem nieruchomości mieszkaniowych, koncentrując się na wpływie interwencji rządowych i wahań rynkowych. Badanie pokazuje, że rynek mieszkaniowy jest bardzo wrażliwy na czynniki zewnętrzne. Podkreśla centralną rolę Narodowego Banku Polskiego (NBP) w kształtowaniu rynku mieszkaniowego poprzez zmiany stóp procentowych i dostępności kredytów. Pandemia COVID-19 tymczasowo zakłóciła działalność deweloperską i popyt mieszkaniowy, podkreślając wrażliwość rynku na nieoczekiwane wstrząsy. Poza obserwacjami, niniejsze badanie apeluje o krytyczną analizę polityki mieszkaniowej, identyfikując potencjalne niedociągnięcia i oferując zalecenia dotyczące poprawy. Podkreśla, że kryzysy gospodarcze są nieodłączną częścią cykli na rynku mieszkaniowym, promując oczyszczanie rynku i zdrową konkurencję. Wreszcie, w badaniu podkreślono, że rynek mieszkaniowy jest powiązany z szerszymi trendami gospodarczymi. Podkreśla ono potrzebę znalezienia przez banki centralne równowagi pomiędzy zarządzaniem inflacją a wspieraniem wzrostu gospodarczego. Badanie to pomaga lepiej zrozumieć związek między rynkiem mieszkaniowym a cyklem koniunkturalnym, dostarczając cennych informacji na potrzeby kształtowania polityki i podejmowania decyzji inwestycyjnych. Cykl koniunkturalny (koniunktura i dekoniunktura) ma decydujący wpływ na rozwój rynku nieruchomości i ceny zawieranych transakcji pomiędzy deweloperami, a nabywcami mieszkań.

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