



## How the War between Russia and Ukraine Caused a Multi-Cycle in the Polish Housing Market

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***Abstract:** We examine the effects of the war between Russia and Ukraine on the housing market in the six largest cities in Poland and explain how these effects emerged. Since Poland's transition to a market economy and its accession to the EU, Poland has experienced normal cycles in house prices, i.e. relatively long periods of increases in house prices followed by similarly long periods of decreases in house prices. However, the combination of the COVID-19 pandemic and the war between Russia and Ukraine created a situation that can be described as a multi-cycle. The pandemic initially halted nearly all transactions on the market, but after a few quarters of fiscal and monetary intervention aimed at saving the economy we observed a housing boom. Just a few quarters later, the Russian aggression in Ukraine caused significant inflation, which required a sharp increase in interest rates, and once again demand slowed down. This was followed just a few quarters later by a resurgence in house purchases in order to escape inflation, with many people using cash for these purchases. This situation has shaken the housing market, while the war has also generated a demographic shock. Construction and transportation workers began returning to Ukraine to help in its reconstruction, while women with children came to Poland from Ukraine seeking safety and creating a demand for rental housing.*

**Keywords:** housing market; covid pandemic; Russian-Ukrainian war; AD-AS model.



## Introduction

The years 2020-2023 have been a unique experience for the Polish economy and residential real estate sector. Two strong phenomena – the COVID-19 pandemic and Russia's war in Ukraine – have superimposed themselves on the usual housing cycle that began in 2013, causing supply and demand shocks that have rapidly altered it. This unique situation can be described as a multi-cycle. The shock to the economy induced by COVID-19 in 2020 was mitigated by a drop in interest rates to unprecedented levels and by significant fiscal interventions to support business and employment levels. Fiscal aid was provided to all businesses, irrespective of their need, and could be spent on anything. This led to a sharp increase in demand for housing, causing house prices to rise between Q3 2020 and Q2 2021. As a result, inflation also started to rise because of a surge in demand for all goods, coupled with insufficient production caused by various supply chain issues.

The inflation rate was further accelerated by Russia's war in Ukraine, which began in February 2022. The Narodowy Bank Polski, Poland's central bank, responded by increasing interest rates from 0.5% in April 2020 to 6.75% in September 2022, a level not seen since 2002. This combined with stricter requirements on borrowers resulted in a 50% decrease in new lending. Banks were also hesitant to lend owing to previous legal issues with borrowers who had foreign currency mortgages. As a consequence, sales of apartments constructed by developers declined by approximately 50% in the autumn of 2022.

On the supply side, there was a sharp increase in costs, both of land and energy, which strongly increased construction costs (sectoral inflation). Demand fell sharply and a slumpflation situation developed on this market. Developers were left with a large portfolio of apartments under construction.

The war caused a significant migration flow of Ukrainian people to and from Poland. Many women came to Poland with their children to escape the war, resulting in a need to find appropriate accommodation. This led to a sharp increase in rental rates. The war also forced many owners of small businesses to flee to Ukraine, creating a demand for larger apartments or detached houses in which they would be able to run their business in Poland. At the same time, many Ukrainian men who had been living in Poland returned to their country to help rebuild it or to fight in the war and, as a consequence, construction firms in Poland faced a shortage of skilled workers. This situation was further compounded by the disruption of the flow of construction materials from Ukraine and Russia, leading to increased prices and longer delivery times as new markets had to be sourced.

Because of the war we have observed an increase in house prices and inflation, including sectoral inflation in the housing market. However, when interest rates were raised, demand dropped, leading to stagnation in the construction sector and the market for selling apartments.

Buying a house became unaffordable for many people, leading them to choose the rental sector instead. This has caused an increase in demand for rental housing, resulting in higher rental prices. Interestingly, due to rising interest rates, the cost of renting a flat was lower than the cost of paying back the mortgage that would be needed to buy the same flat. This has had a negative effect on private investors, who financed properties bought for the rental market with a mortgage, as they are now facing financial losses. Despite these risks, there is still a demand



for rental housing from people who have sufficient cash resources and motivation to invest in the rental housing market. According to the National Bank of Poland, cash-financed investments were the main driving force behind the housing market during these turbulent times, although at lower levels than in recent years.

At the same time, developers have skilfully managed the construction and sale of apartments. Thanks to their highly concentrated construction capacity, developers are able to differentiate prices and adjust the current market supply to maintain fairly stable house prices (see Łaszek et al., 2016). As a result, house prices are insensitive to drops in demand and follow construction costs plus a fixed developer margin. This price stickiness leads to significant changes in the inventory of the housing market and construction in progress, which further buffer changes in demand, allowing margins and rates of return to be maintained. However, such a strategy causes very large fluctuations in sales and construction in progress, which negatively affects construction companies.

We aim to provide a detailed explanation for the emergence of these multi-cycles in the housing market. Housing cycles are a common occurrence in the real estate market, caused by inflexible supply and rapid changes in demand, and these cycles vary greatly, both nationally and internationally, because of their diverse origins. However, it is possible to formulate the hypothesis that most of them are the result of financial cycles, specifically interest rate cycles, which are heavily influenced by the monetary and fiscal policies of modern states. The problem is that the housing sector tends to react more strongly to macroeconomic policy than other sectors of the economy do, which can lead also to boom-bust cycles and real estate crises. As a result, the ECB and the ESRB emphasise the importance of monitoring this sector on both a national and an international level.

In order to demonstrate the occurrence of multiple cycles in the last twelve quarters, we utilised three analytical tools. First, we used classic indicator analysis, after which we extracted the cyclical component of the selected variables and then applied the aggregate demand–aggregate supply (AD–AS) model. These tools enable us to quantify the impact of Russia’s war in Ukraine, and our results should prove useful for policymakers seeking a solution to this complex situation. This article is partially based on a recent analysis by Łaszek and Olszewski (2023), which outlines the application of the AD–AS model to the housing market. Additionally, we draw on Łaszek et al. (2016), who discuss the monopolistic competition among housing developers.

Throughout our analysis, we want to emphasise that owner-occupied housing is the dominant form of tenure in Poland (Rubaszek and Czerniak 2017). This has had a significant impact on purchase decisions. Generally, housing is considered both a durable consumer good and an investment good (see Henderson and Ioannides 1983). Therefore, purchase decisions are influenced not only by the current financial situation, but also by the expectations of potential buyers regarding future house prices. This in turn can lead to irrational behaviour among house buyers (Mayer and Sinai 2009; Madsen 2012; Brzezicka, Wiśniewski and Figurska 2018). In our opinion, there are two very important behavioural biases at play. The first is herd behaviour (Hott 2012), where people tend to follow the market. The second is the fact that, unlike with pure consumer goods, people are willing to buy housing when its price is rising. This can be explained by the investment function that housing offers (Brzezicka, Wiśniewski and Figurska 2018).



## The housing sector in Poland – key facts

We will begin our analysis by providing a comprehensive overview of the Polish real estate market, highlighting key facts and using simple indicators to make them easily understandable. The financial sector that serves the financing of real estate in Poland is relatively small, simple, and transparent (banks grant mortgage loans at variable interest rates based on deposits held), and banks have adopted a conservative lending policy (low LTV, LTI, DTI, and DSTI<sup>1</sup>).

The property market in Poland is primarily driven by owner-occupied apartments (OOH) for both personal use and investment purposes. Apartments for personal use are typically bought using a mortgage loan with a significant equity share. However, approximately 30% of the demand for apartments comes from individuals purchasing them as investments, with a lower share of the loan. After the boom years of 2006 and 2007, apartment prices tended to increase slowly, both in nominal and real terms. The only period of strong nominal growth was observed between 2020 and 2022, but owing to high inflation real prices have dropped since the end of 2021 (see Figure 1).

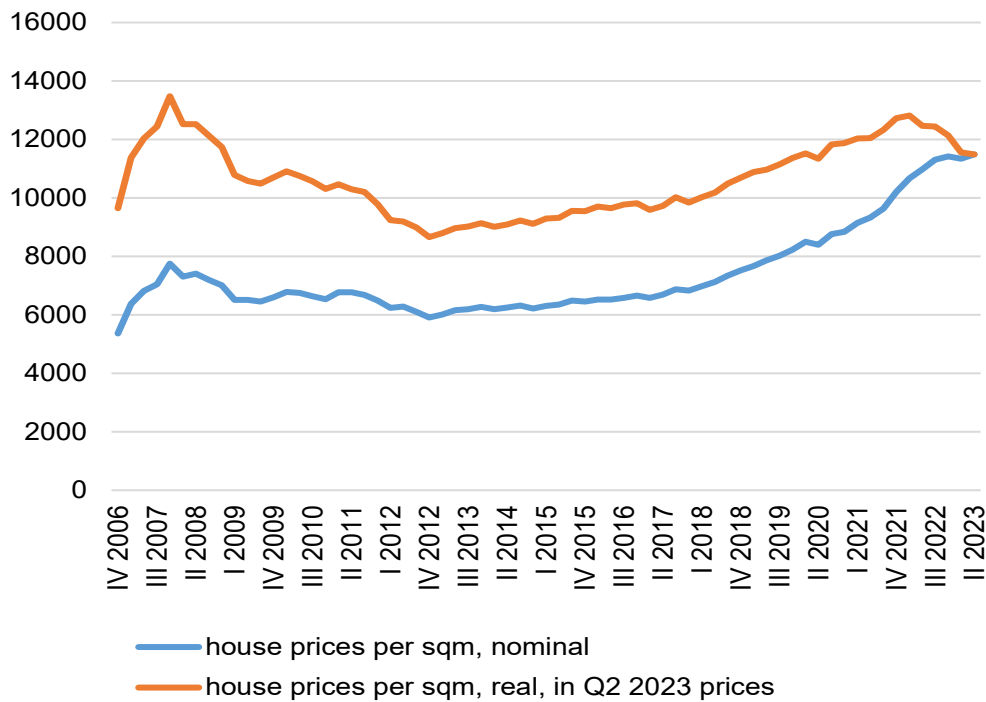
The demand for personal housing in Poland is financed by credit and is strongly dependent on interest rates, income, and housing prices. These factors ultimately determine the availability of mortgages and the size of the housing units that can be purchased (Figure 2). Additionally, the difference between the monthly cost of purchasing a home with credit and the cost of renting an apartment also plays a significant role in consumer demand for apartments. This relationship has favoured home ownership during periods of stability (2013–2021) and renting during periods of inflation and high interest rates (2021–2023) (see Figure 3). Furthermore, there is a strong correlation between cash purchases (including the down-payment for a loan) and the volume of developer apartments sold (see Figure 4).

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<sup>1</sup> These abbreviations stand for the following indicators: loan to value, loan to income, debt to income, and debt service to income.

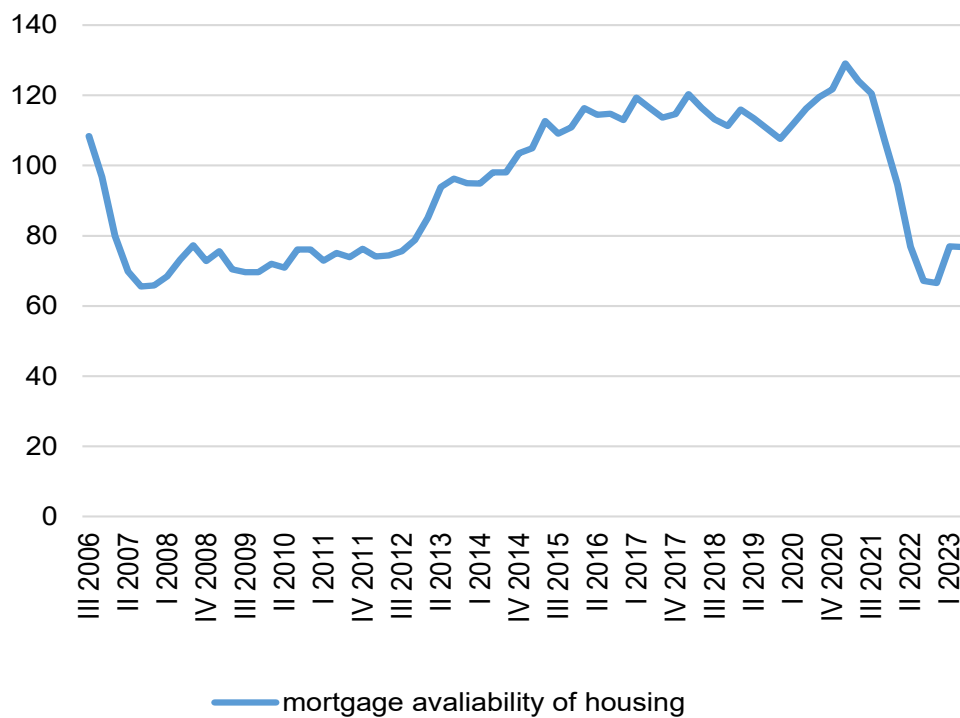


**Figure 1: Nominal and real house prices on the primary market in the six largest cities**



Source: NBP (2023a) and Statistics Poland (2023).

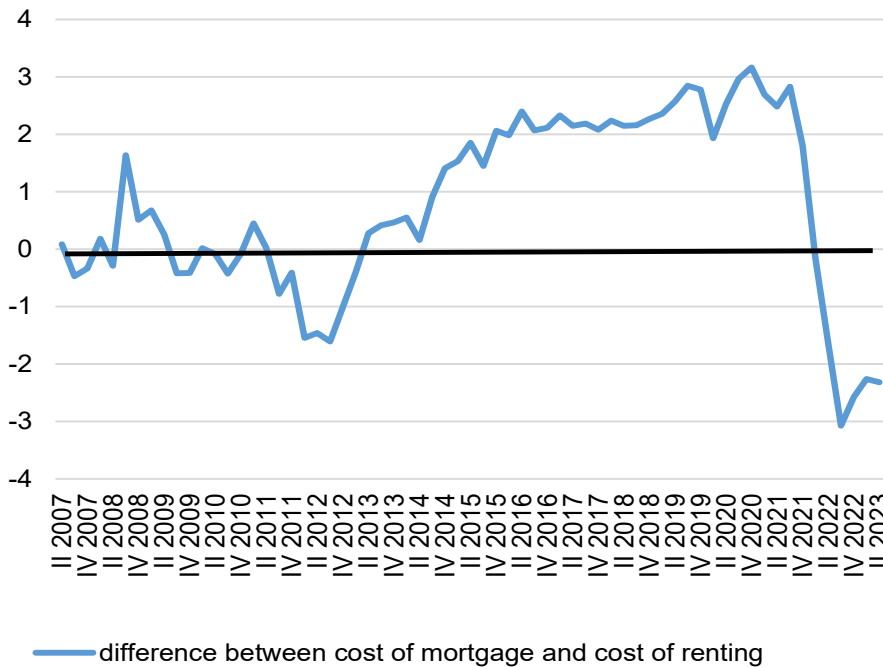
**Figure 2: Mortgage availability for housing based on size in sq. m.**



Source: NBP (2023b: 14).

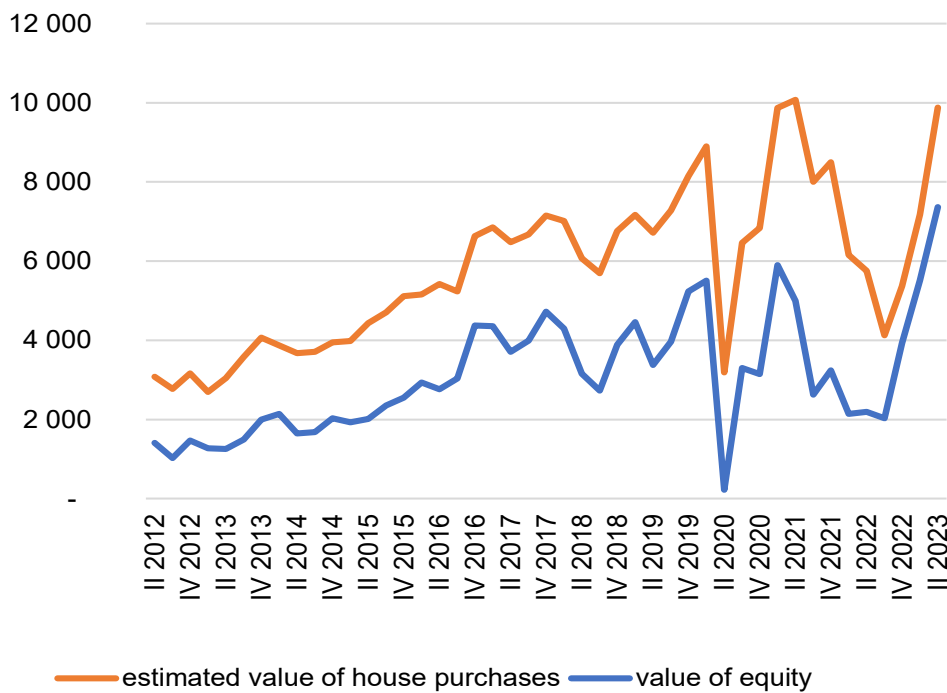


**Figure 3: The difference between the cost of a mortgage and the cost of renting a flat in the six largest cities in Poland, difference in percentage points**



Source: NBP (2023b: 15).

**Figure 4: Equity in house purchases and volume of purchases on the primary market in the six largest cities, in billions of PLN**



Source: NBP (2023b: 18 and previous issues).



## Analysis of housing market cycles

Real housing prices in Poland increased during the 2013-2023 cycle because of inflationary pressures and shortages of housing and production factors, particularly construction land in major cities. This is a common trend during construction booms. Based on past experience and forecasts, it is expected that the housing cycle will gradually come to an end without significant tensions. However, the COVID-19 pandemic in 2019 had a significant impact on the demand for housing and overall economic demand in Poland. This was largely due to the high level of uncertainty and the lockdown measures, which resulted in the closure of offices, banks, and development offices. These conditions made it difficult to conduct transactions. Despite this, the economic losses and decline in income were not as significant on a macroeconomic scale and this is because the COVID-19 shock was countered with a very strong monetary and fiscal response, including rate cuts and subsidies for housing loans. As a result, the delayed demand and additional stimuli led to a strong rebound in demand, especially for credit in 2021. This, in turn, caused an acceleration in housing and general inflation.

In 2022, another shock occurred: the Russian invasion of Ukraine caused shocks on both the demand and supply sides. On the supply side, the shock was triggered by a surge in general and sectoral supply inflation, resulting in a sharp increase in prices for energy and construction materials. On the demand side, the most significant factors contributing to the shock were the decrease in demand for credit, particularly in consumer demand, due to rising interest rates (in response to inflation) and stricter credit requirements (resulting in a greater emphasis on income buffers and pressure on banks to offer fixed-rate loans). Consequently, new demand decreased, while individuals who had already taken out a mortgage were protected by the introduction of a mortgage payment holiday. However, this assistance was applied to all individual borrowers without considering their individual circumstances, meaning that there was no assessment of whether these households genuinely needed this support. Furthermore, this came at the expense of the banks that granted these mortgages.

A shocking threefold increase in mortgage interest rates (from 2-3% to 9%), increased regulatory requirements for mortgage borrowers, and rising house prices (as a result of increasing production costs) led to a collapse in credit demand and housing demand. The resulting sharp decline in apartment sales led to slumpflation in the housing market. This situation continued throughout 2022 and the beginning of 2023. Developers with extensive construction in progress began to reduce the number of new construction permits and new construction starts in order to maintain their margins and a relatively high (approximately 20%) rate of return on equity.

At the same time, high inflation and negative interest rates on deposits fuelled investment demand, as housing was perceived as a low-yield but safe investment that protected the investment value. The demand for rental housing also increased in response to large waves of migration from Ukraine and Belarus. The second important factor contributing to the increase in rental demand was the lower cost of renting an apartment compared to the cost of loan repayment for owner-occupied apartments, particularly after the increase in interest rates. This led to a shift in demand, with investment demand partially replacing consumer demand.

In the second half of 2022, the Polish Financial Supervision Authority relaxed its supervisory requirements for mortgage lending criteria. Additionally, the government announced a plan to

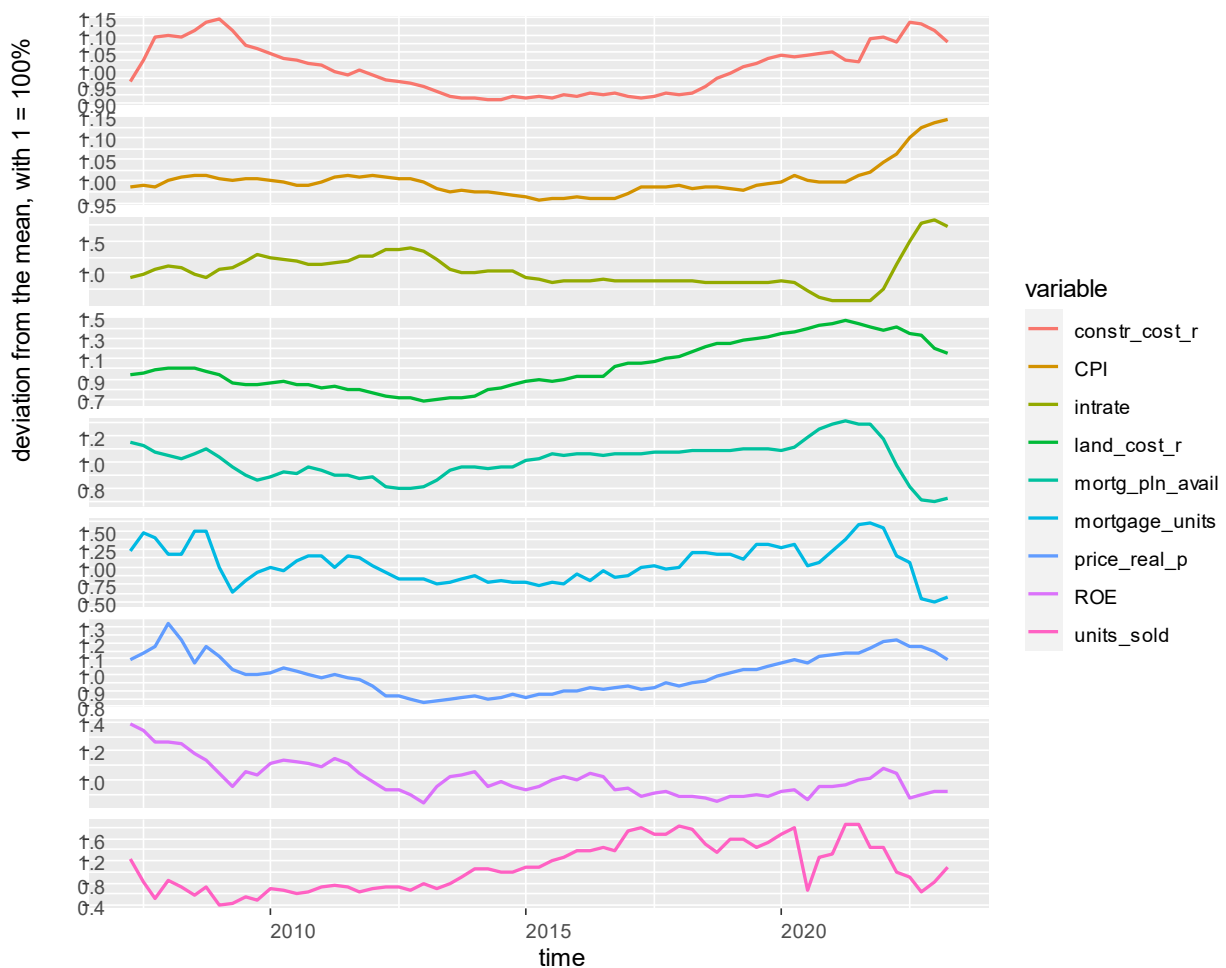




offer subsidised 2% loans for first-time homebuyers. This coincided with a decrease in inflation and a rebound in demand overall. However, concerns arose about potential price increases caused by a decrease in supply from developers.

We start with an initial, visual analysis of the main variables that affect demand and supply (Figure 5). To enable data of different scales to be shown on one chart, we calculated indices for each variable that show the deviation of each observation from its mean. In the analysed period, interest rates (*intrate*) were lowered but needed to be increased, as inflation (*CPI*) started to rise. Real construction costs (*constr\_cost\_r*) and real land costs (*land\_cost\_r*) were rising, though the latter started to decline when demand for land dropped in the most recent quarters. Owing to the initially reduced interest rates, mortgage availability (*mortg\_pln\_avail*) and the number of new mortgages (*mortgage\_units*) increased, but it slowed down when interest rates rose again. Real house prices on the primary market (*price\_real\_p*) were growing, but they have recently started to decline. Housing developers have adjusted the number of units sold (*units\_sold*) to stabilise prices and, in consequence, they may see their return over equity (*ROE*) stabilised.

**Figure 5: Index of the main demand and supply side variables, 1 = mean value**



Source: Authors' own calculations based on NBP, Statistics Poland, JLL data.





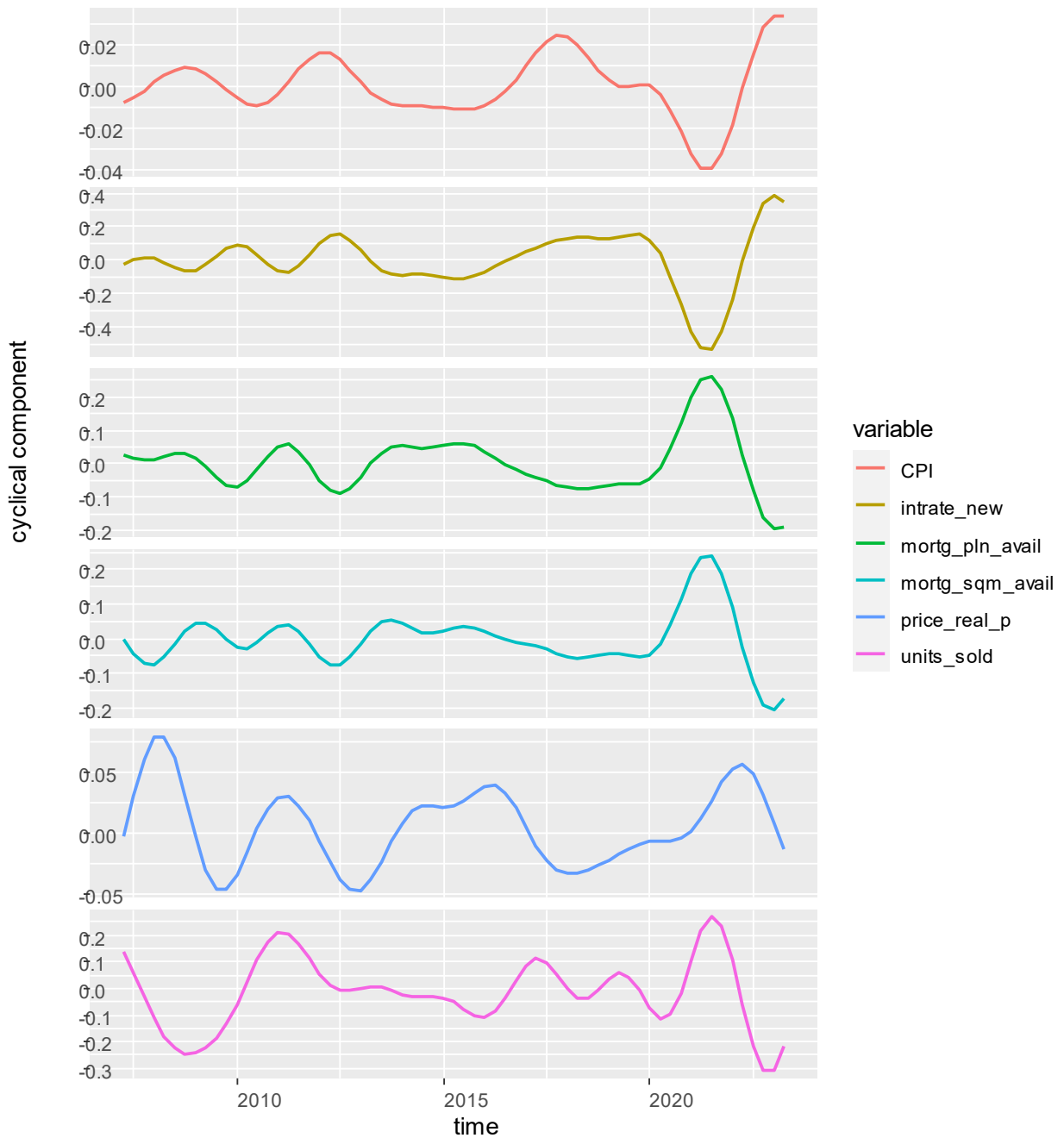
The impact of the factors described above can be clearly observed in the cyclical deviation from the trend of the main variables that determine demand and supply. This cyclical component was filtered out from a logarithmised time series using the Christiano-Fitzgerald filter, as described in detail (along with empirical examples of house price cycles) in Łaszek et al. (2021), who demonstrated that the filter can even be applied to short time series and still produce reasonable results.

We begin by examining the demand side, where Figure 6 displays the cyclical components of the most significant variables. It is evident that both inflation (CPI) and interest rates for new mortgages (`intrate_new`) declined following the COVID-19 outbreak. As a result, there was an increase in the availability of mortgages for housing, measured in both monetary value (`mortg_pln_avail`) and square metres of housing that can be purchased with a mortgage (`mortg_sqm_avail`). The number of housing units sold by developers also increased (`units_sold`), but this was accompanied by a rise in real house prices on the primary market (`price_real_p`). However, the outbreak of the war soon caused a strong rise in inflation, leading to corresponding adjustments in interest rates. Consequently, the availability of housing decreased, as did the number of house purchases. Some individuals even resorted to purchasing housing with cash in order to safeguard their money from inflation.

The supply side, specifically housing developers, had to react to the changes in demand. In Figure 7, we analyse the cyclical component of the most significant factors affecting the supply. Owing to increasing real construction costs (`constr_cost_r`), developers have reduced their production in progress. In the medium term, developers adjusted the number of building permits obtained (`housing_permits`) and the start of new construction projects (`housing_starts`), both of which have significantly decreased. As a result, when demand begins to grow in the future, supply will not be able to keep pace. However, the reduction in housing under construction has led to a decline in real land costs (`land_cost_r`). In response, developers have had to decrease their mark up (`mark_up`), resulting in a decrease in their return on equity (ROE). We also find that developers have reduced the number of housing units they put on the market (`units_new`), regardless of the stage of development. Interestingly, the number of housing units sold by developers (or more precisely, pre-sale contracts for those units) initially decreased significantly, but has since started to rebound.



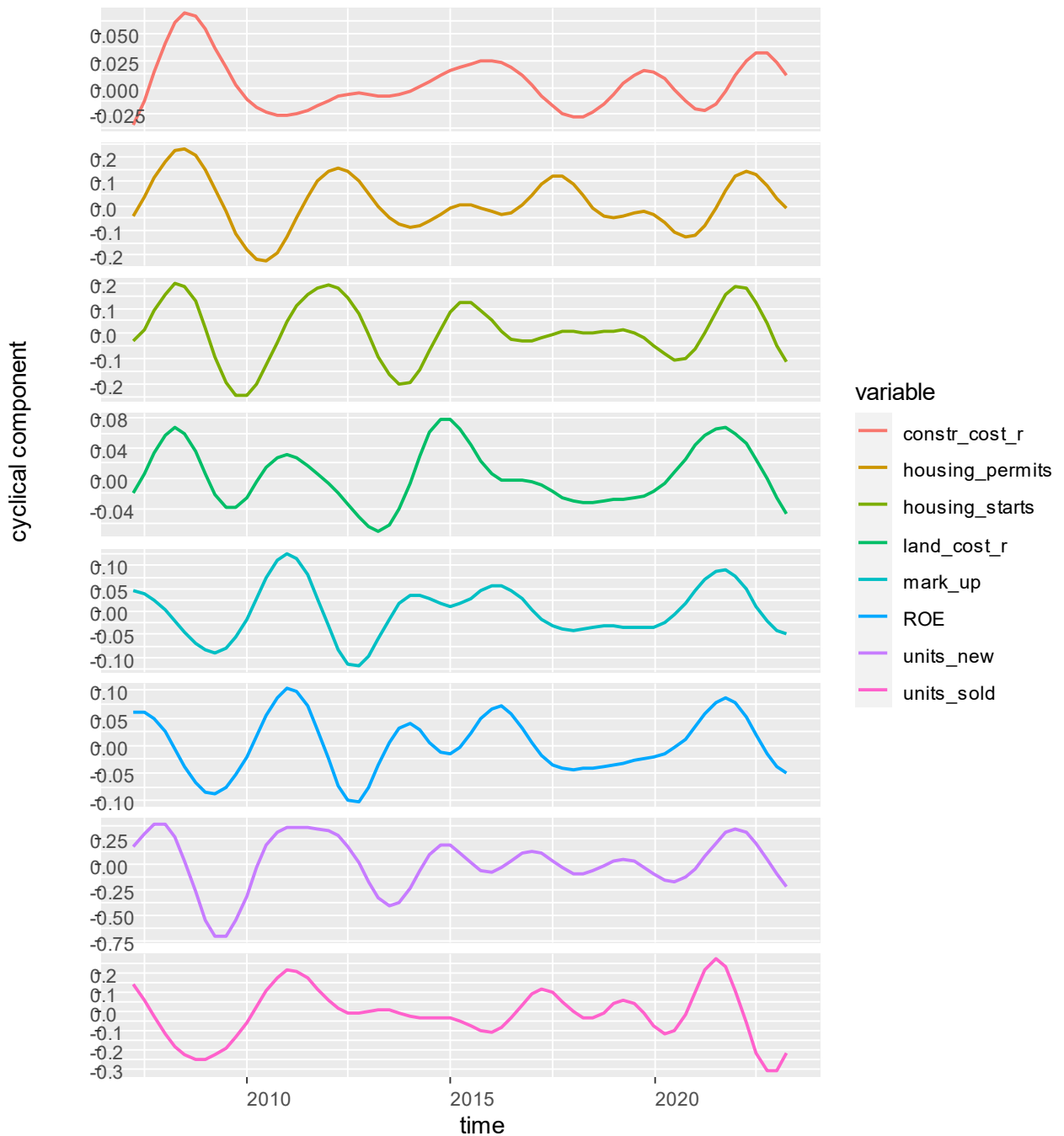
Figure 6: The cyclical component of demand factors



Source: Authors' own calculations based on NBP, Statistics Poland, JLL data.



Figure 7: The cyclical component of supply factors



Source: Authors' own calculations based on NBP, Statistics Poland, JLL data.

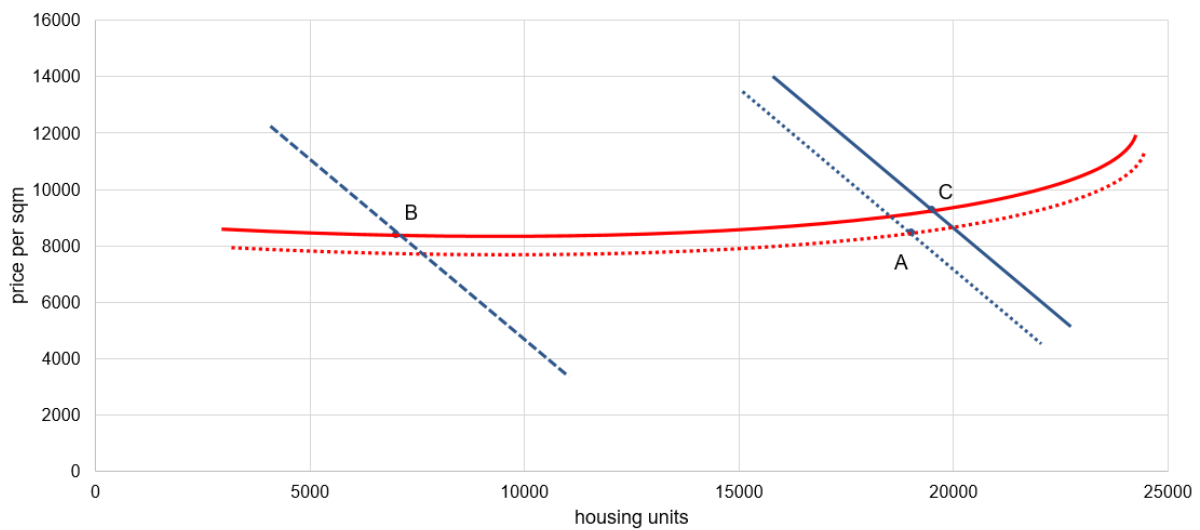
### Analysis through the AD–AS model

We can also analyse the multi-cycle using the classical AD–AS model. This can be done in three steps, which will allow us to cover the most significant changes in the housing market. Figure 8 illustrates the effect of the shock from the COVID-19 pandemic. The market started at point A (Q1 2020), but because of the lockdown demand decreased significantly to reach



point B (Q3 2020). After lockdown measures were relaxed, demand exceeded the initial point, causing developers to shift their supply curve. This resulted in slightly higher transaction numbers at higher prices (point C, Q2 2021). However, as Figure 9 shows, the COVID-19 turbulence caused construction prices to rise significantly. This led to developers shifting their supply curve upwards, while people decreased their demand. As a result, the market moved to point D in Q3 2021. Just as we thought the market had reached a new equilibrium, Russia started its war against Ukraine. Figure 10 shows that the first shock was a sharp decrease in demand due to increased interest rates. In Q3 2022, just two quarters after the war began, demand dropped to a level similar to that observed during the COVID-19 lockdown (point B). Developers responded by slightly increasing prices. Finally, in Q2 2023, a new equilibrium was reached, with slightly larger transactions and significantly higher prices than before the war (point F). All of these considerations were made using nominal prices, but if we look at real prices (as shown in Figure 1) we can see that they actually dropped. This complicated situation highlights the fact that those who could afford housing were able to protect their savings from inflation, but for most people, housing became less affordable. Another negative aspect that we can learn from this is that herd behaviour can have a detrimental effect on the market and the economy. Once again, we see that the housing market in Poland is in need of a proper rental market, which could help cushion some of the inflation-driven housing demand and would decrease the herd behaviour to some extent.

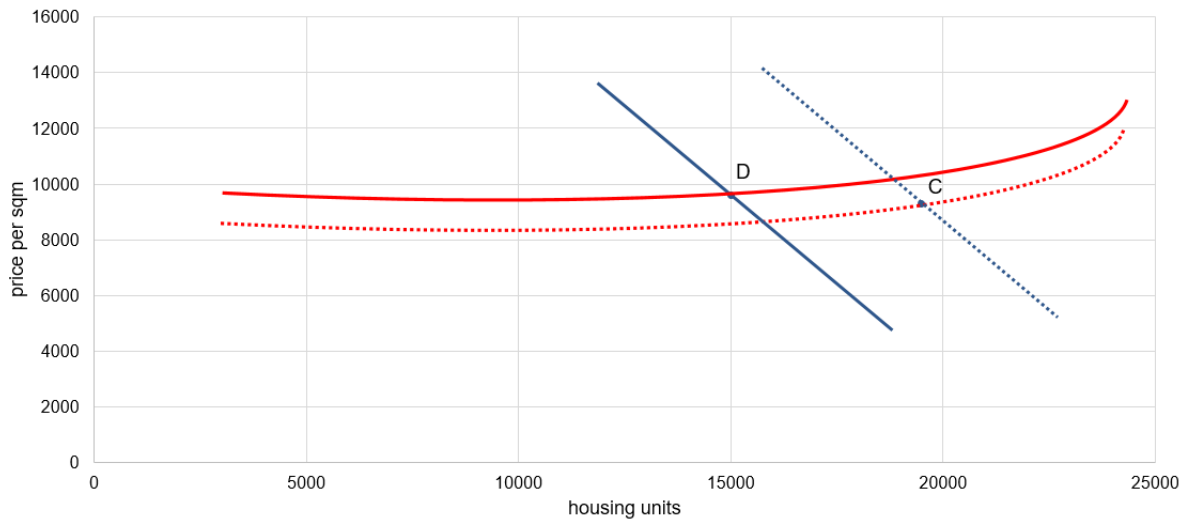
**Figure 8: An AD–AS model of the COVID-19 shock**



*Source: Authors' own calculations based on NBP, Statistics Poland, JLL data.*

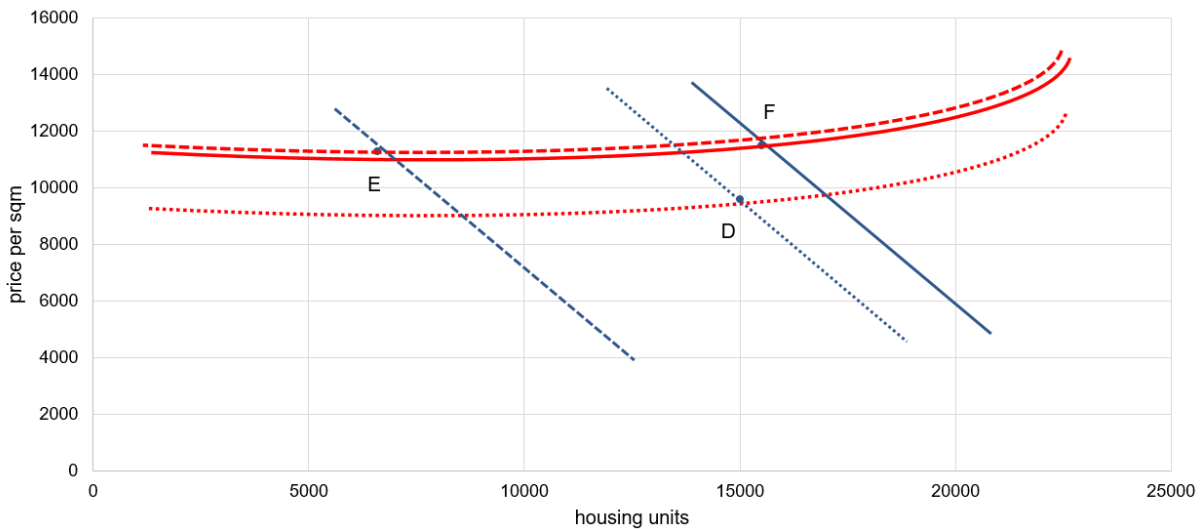


**Figure 9: An AD–AS model of the return to normality after the COVID-19 shock**



Source: Authors’ own calculations based on NBP, Statistics Poland, JLL data.

**Figure 10: An AD–AS model of the impact of the Russian war on Ukraine**



Source: Authors’ own calculations based on NBP, Statistics Poland, JLL data.

**Conclusion: the example of Poland and the lessons learned**

Shock events provide economists with a valuable opportunity to test the accuracy of their analyses, forecasts, and economic policies. In today’s world, the cooperation and coordination of state policies, including fiscal, monetary, and prudential measures, is particularly important. This opportunity is unique because it involves the overlapping of two consecutive external shocks – the demand shock caused by the COVID-19 pandemic in 2019 and the demand and supply shock resulting from the war in 2022. Initially, there was a sharp decline in demand, followed by a sudden rebound due to strong subsidies. However, as inflation rose, interest rates



were raised, leading to another significant drop in sales and a rapid increase in prices, resulting in a decline in production (known as slumpflation).

Before the occurrence of these shocks, economic policy was successful in maintaining a balance between rapid economic and sectoral growth while also mitigating risks. However, the policy response to subsequent shocks was excessive and is described in the literature as a ‘stop and go policy’. There were deficiencies in policy coordination, and the simplest, but also most expensive, crisis management tools were applied. This was due to a poor assessment of the situation and inadequate reactions, which were influenced by an overestimation of the risk of a collapse in demand and an increase in unemployment in the conditions of COVID-19. Later, when inflation started to rise because of the war, interest rates were sharply raised. At the same time, the supervisory policy introduced a 5-percentage-point buffer to be added to the market interest rate when analysing whether someone could afford a mortgage. This reaction was counter-productive, because at that time housing demand had already slumped. Because the criteria for granting mortgages were tightened, new mortgages became nearly unaffordable, and demand dropped even further. Meanwhile, monetary policy remained easy for those who already had a mortgage, as real interest rates were negative. Instead of utilising highly effective and practically cost-free indexation techniques for loan repayments, existing loan portfolios were heavily subsidised by the banks. This allowed mortgage takers to obtain a mortgage holiday, regardless of their income situation. While this action was effective in protecting loan portfolios, it was also very costly, both financially and socially (further subsidies are expected). Additionally, it is inconsistent with many years of successful experience in managing cycles and crises in the housing sector, where individual and banking sector assistance is provided.

The adopted policy, which can be described as a combination of soft monetary policy, expansionary fiscal policy, and delayed and restrictive supervisory policy, ultimately proved to be inconsistent in mitigating the consequences of the shocks. It was also very costly and ineffective for the sector. This was evident in the sudden collapse of housing sales, which led to developers reducing their production. As a result, in the coming period, once the newly stimulated demand meets the limited supply from developers, we can expect further rapid increases in housing prices. While the sector’s problems were initially relatively minor, this was largely due to the high historical capitalisation of the banking sector and development companies. However, it must be acknowledged that this combination of unfavourable events would have been difficult to predict. Nevertheless, the mistakes made should serve as a valuable example for analysing and preparing for future scenarios in similar situations.



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