



Why Has the COVID-19 Pandemic Had a Limited Impact on the Primary Housing Market in Poland?¹

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Abstract: *In this paper we present the first insights into the as yet unexamined impact of the COVID-19 pandemic on the primary housing market in Poland, with a focus on Warsaw, which is the largest real estate market in the country. We explain the structural features that allowed the market to return to pre-shock levels after the pandemic shock. After the 2007–2008 global financial crisis the negative consequences lasted for several years. This time a sharp monetary policy and fiscal intervention was carried out. Moreover, the developer sector has expanded its production capacity. We show empirically that through monopolistic competition developers were able to restrict the excessive demand that was observed before the COVID-19 pandemic broke out. Another important structural change was the increase in the demand for housing, mainly for investment purposes, which was financed predominantly with cash and contributed to the growth of the rental market.*

Keywords: housing market; COVID-19; accelerator; structural change.

¹ The paper presents the personal opinions of the authors and does not necessarily reflect the official position of Narodowy Bank Polski or SGH Warsaw School of Economics.

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Introduction

The COVID-19 pandemic that broke out in mid-March 2020 has generated a larger shock to the real economy than the 2007–2009 global financial crisis did. However, the residential real estate market across Europe was not hit that much by the pandemic. In this article we explain this seemingly curious situation on the case of Poland.

The current situation is different in three main aspects. First, the government and the central bank reacted very fast to the pandemic. Interest rates were cut to historically low levels and transfers were made to companies that helped to cushion the negative effect of the pandemic on the real economy (KPMG 2020). Second, the developer housing market is more mature; developers are well-capitalised and experienced. This situation allows them to use monopolistic competition strategies to restrict supply and keep prices high. Equipped with the experience of the 2009 bust in demand, developers were already starting to curb new production in 2018. The pandemic did not hit them when they were at an all-time high but rather at a wisely chosen level of production. Moreover, buyers on the primary market in Poland's largest city finance the purchase of flats with a significant share of equity (see NBP 2020a). Since 2016 private investors have started to purchase housing for rental, which generates an alternative to owner-occupied housing. The evolution of the still small private rental market in the largest cities gives people who want to live there the option to rent instead of buying a flat with a mortgage that needs to be paid back over decades. This process was accelerated by the previous interest rate cuts, which made the deposit and mortgage rates negative in real terms.

Poland has still a significant housing shortage in the largest cities. The average for the 27 EU countries for which data were available in 2018 amounted to 480 apartments per 1000 inhabitants, while this indicator for Poland in 2017 was 376 apartments per 1000 inhabitants. Poland ranks 26th among the 27 selected countries.² Some of the existing housing stock is of poor quality. The continuously rising wages (3.8% y/y in Poland vs 3.1% y/y in the EU),³ low interest (0.1% in Poland vs 0.0% in the Euro Zone), and unemployment rates (3.2% in Poland vs 7.4% EU average)⁴ have allowed people to demand a lot of new housing units. We therefore focus on the primary housing market. The empirical analysis is conducted on the example of Warsaw, which is the most mature market and can be considered an early indicator of the situation in the primary market of other large Polish cities.

We present the comparison of the situation in the housing market during the global financial crisis and during the COVID-19 pandemic in Section 2. The reaction of developers is analysed in Section 3, while we focus on the demand-side reactions, including the purchasing of housing for rental, in Section 4. Section 5 concludes the paper.

² OECD data (2021). Data accessed on 18.03.2021.

³ Average annual wage growth in the period 3q 2018 – 3q 2020 for Poland amounted to 6.1% while for the EU27 it amounted to 3.2%. Eurostat data (2021). Data accessed on 18.03.2021.

⁴ Eurostat data (2021). Data accessed on 18.03.2021.



The housing market situation before the COVID-19 pandemic

Poland started building a market-based housing economy in the 1990s and has so far experienced three housing cycles. The first one started at the end of the 1990s and concerned only Warsaw and was largely of a regulatory and structural nature. Presale contracts first rose from around 6000 in 1999 to 16 500 in 2001 and dropped to only 4500 in 2003 (Łaszek et al. 2018). Developers were over-optimistic and created an over-supply of apartments in relation to demand. The demand dropped due to the regulatory increase of the VAT rate on construction materials and a reduction of tax relief. Many developers went bankrupt, which had a lasting negative effect on the supply side. Interestingly, prices were quite stable.

It is important to point out that the second cycle was at the national level and coincided with the global cycle in the housing market. It had its causes in Poland's accession to the European Union and the globalisation of the capital market. It was a credit-led boom, which entailed a very sharp increase in prices. The structural shortage of housing, combined with optimism, the fall in inflation, and, above all, access to international capital markets, resulted in a rapid increase in housing demand, which was largely financed with foreign currency-denominated⁵ mortgages. A consequence of the short-term rigid supply was a rapid increase in apartment prices (see Figure 1 and 2), which in the largest cities came close to a price bubble. Further price increases were stopped by the GFC, which materialised in Poland in 2009. The temporal stop of capital inflow led to a slump in demand in the residential market, a fall in prices, and sectoral problems that lasted until 2012. From a high in 2007 to a low in 2012, prices dropped by 20% in nominal terms. The relatively small size of the banking sector and mortgage debt, simple and transparent market structures, and the moderate scale of tensions in the real estate sector, compared to other countries, resulted in only a mild economic slowdown and did not lead to a crisis. The economic policy response was limited to restrictions related to foreign currency-denominated loans and housing subsidies for newly constructed flats and detached houses.

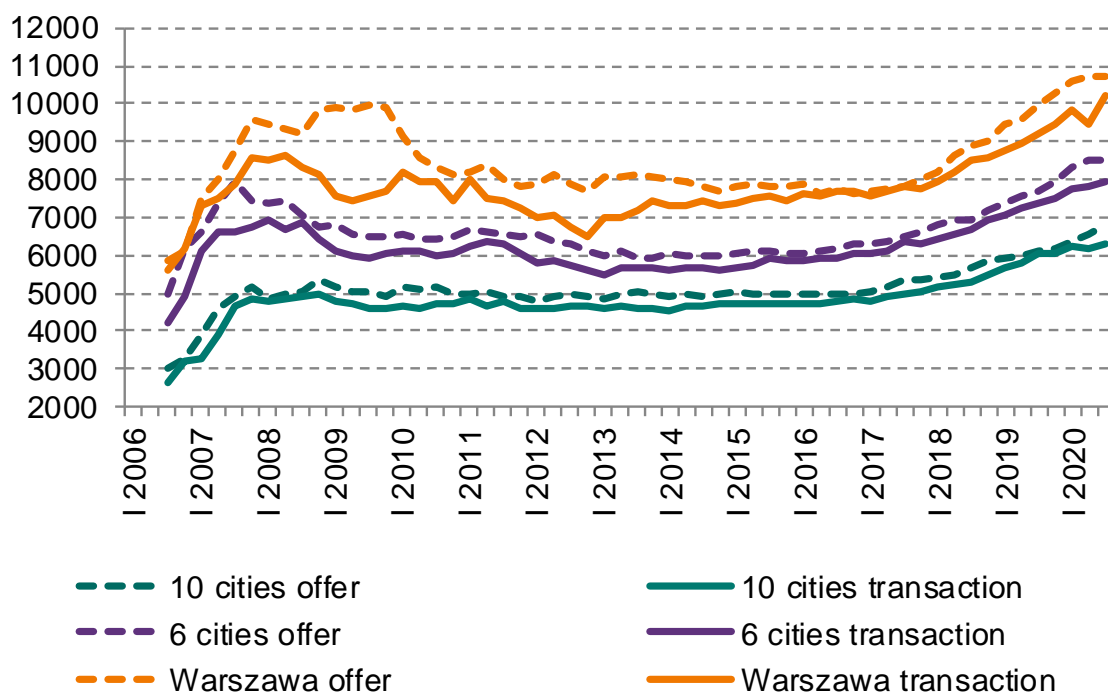
The current cycle started in 2012 and was driven by favorable economic developments. In 2016, the very strict and, for landlords, unfavourable tenant protection law was liberalised and more people started to invest in rental housing. At the same time, a series of interest rate cuts was initiated to stimulate the economy (see Figure 7). There was also fiscal stimulation and the economy was boosted by significant infrastructural projects that were mainly financed with EU funds. Along with an improvement in the economic situation, a drop in unemployment and an increase in income resulted in a gradual increase in credit demand. This produced growing house prices, and growing rental rates. As a result of these favorable conditions the private rental market started to evolve. The share of buy-to-let housing purchases in the total housing demand in the late 2010s is estimated at about 30% (NBP 2020b). The demand for new housing increased, but developers also observed growing construction costs⁶ and started to curb their production in 2018 (see the trend line in Figure 2). This way, developers were able to increase prices to cover the rising construction costs and maintain a stable ROE. We show the main facts on the case of the housing market in Warsaw (Figure 3 shows longer annual data, Figure 4 the recent quarters).

⁵ A detailed discussion about the positive and negative sides of FX mortgages and a comparison of the financial well-being of people who took a mortgage in local currency versus those who took it in foreign currency in Poland can be found in Łaszek et al. (2016a).

⁶ The growth of construction costs was driven by the construction boom not just in the housing sector but also in the commercial property sector and in the area of civil engineering, the latter financed with significant EU funds.

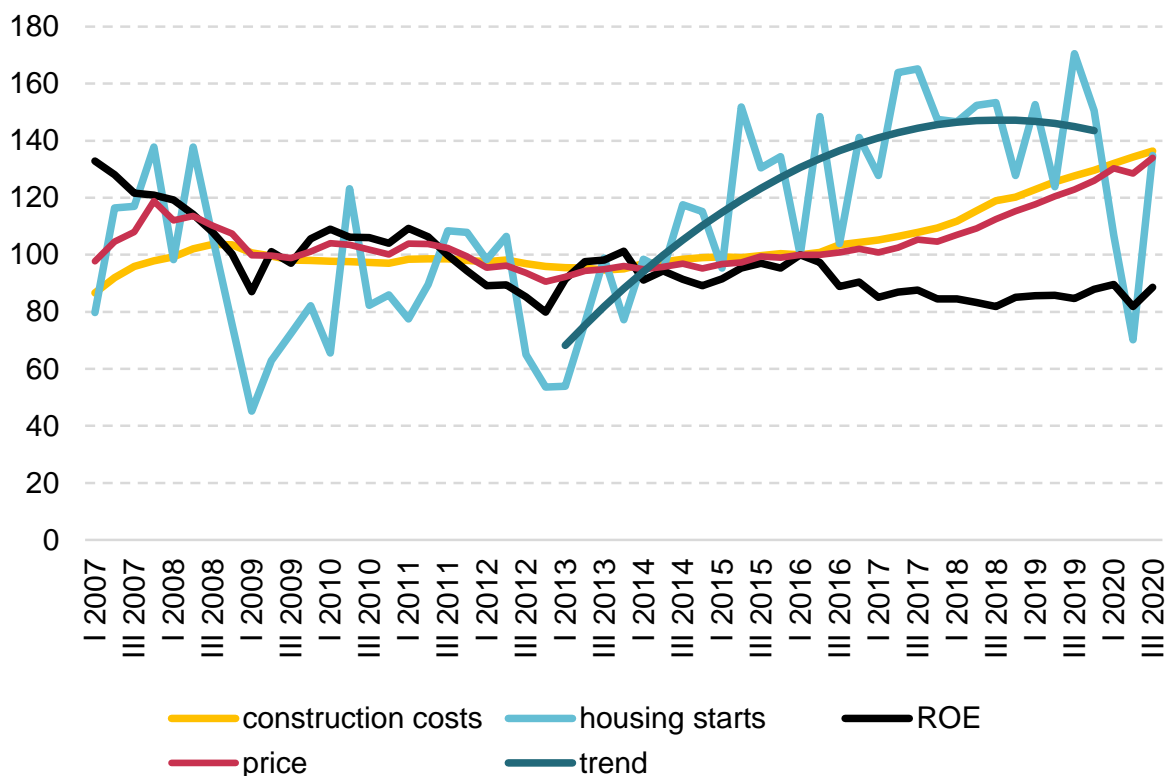


Figure 1: Average offer and transaction prices (PLN / sq m) of newly constructed flats



Source: NBP.

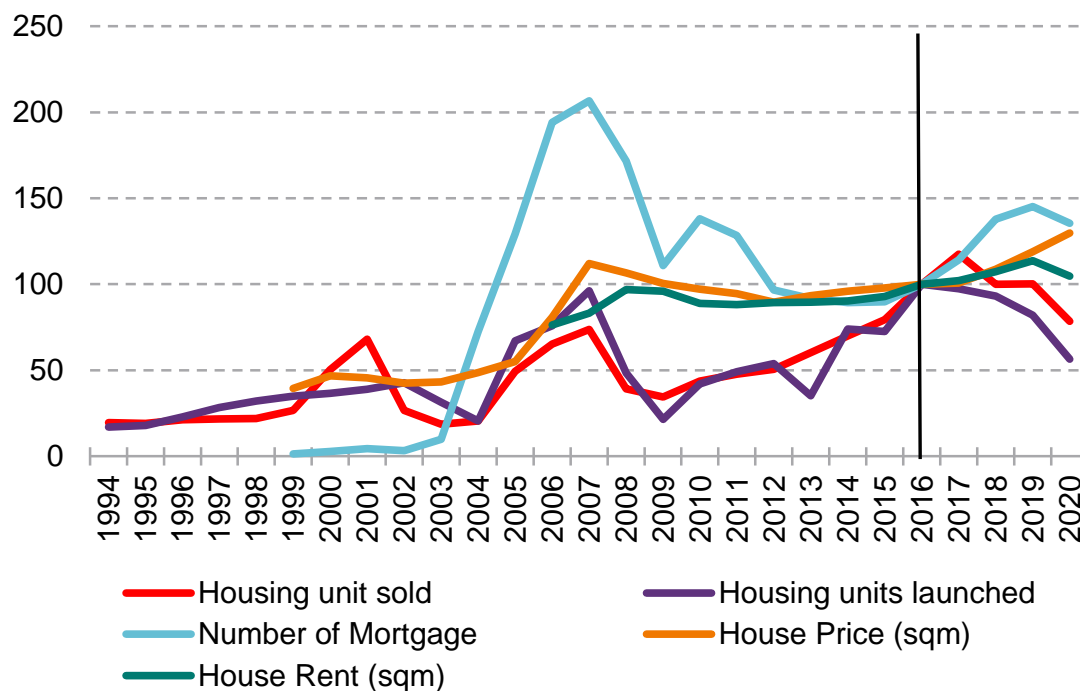
Figure 2: Housing starts in the 7 largest cities and the trend for 2013–2019, I 2016 = 100



Source: NBP, CSO, Sekocenbud.

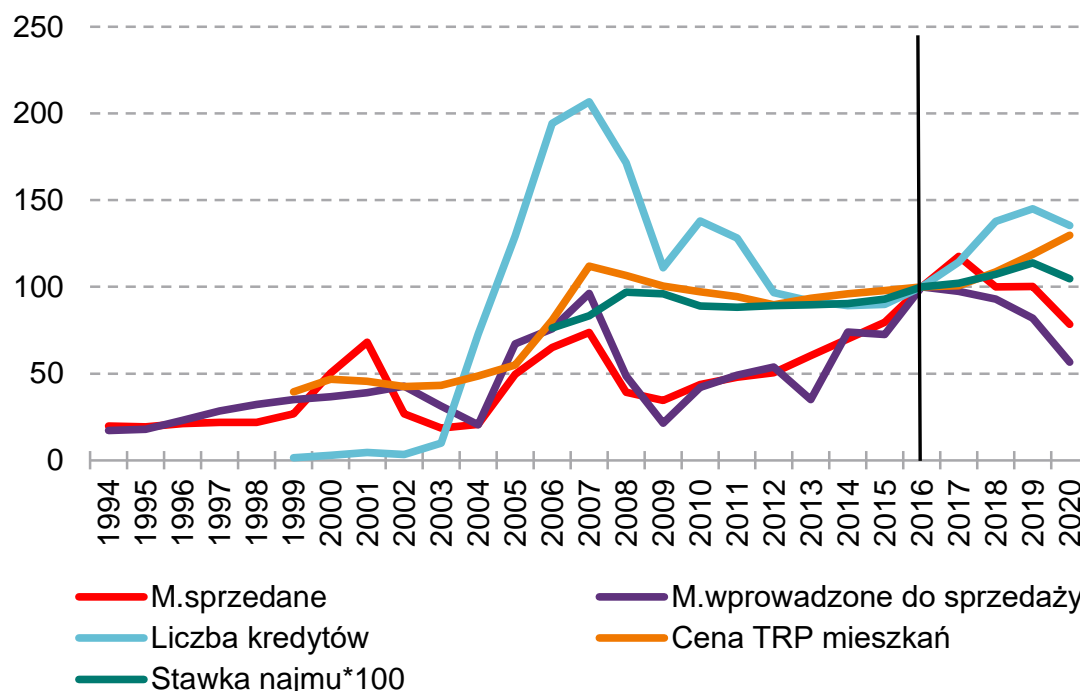


Figure 3: Cycles on the residential real estate market in Warsaw, annual data, 2016 = 100



Source: NBP, CSO, BIK.

Figure 4: Cycles on the residential real estate market in Warsaw, the most recent quarters, I 2016 = 100

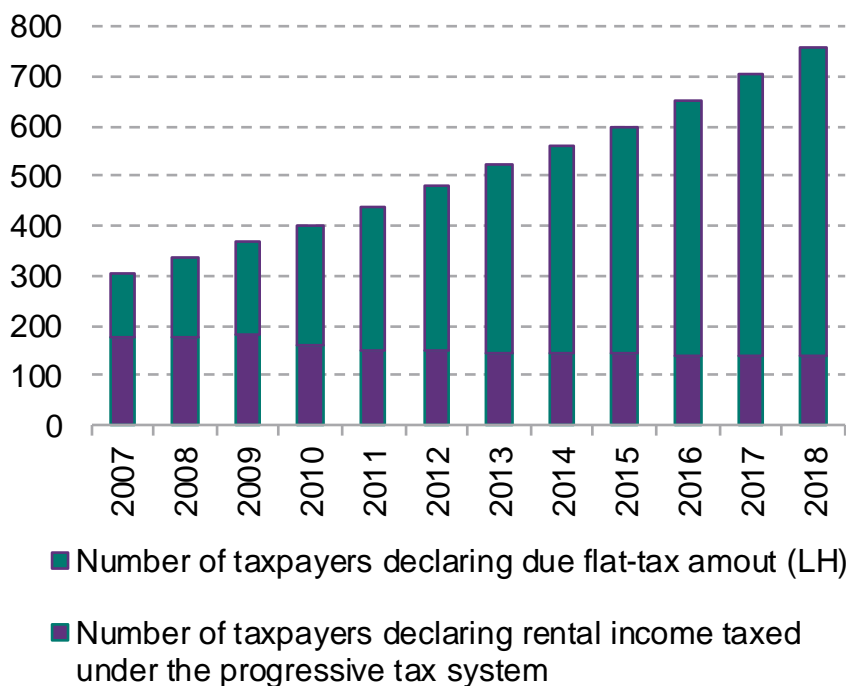


Source: NBP, CSO, BIK.



Fast-growing economies, which largely rely on services that are generated in the largest cities, require a significant amount of affordable housing, with a focus on rental housing. However, Poland has a very high share of owner-occupied housing (84.2% in 2019).⁷ After the transition from socialist times to a market economy, flats owned by the state and state companies were sold at reduced rates to their tenants as a social shock absorber.⁸ The share of people living in rental housing was above 4% in 2019, while it was about 21.1% in the UE27.⁹ The private rental market in Poland is still in its infancy. The number of private individuals who are officially landlords and pay taxes increased substantially since 2010 and in 2018 exceeded 600 000 (see Figure 6).

Figure 5: Number of people (in thousands) that pay taxes on rental income



Source: Ministry of Finance.

Since around 2015 investing in rental housing has provided a higher rate of return than government bonds or interest rates on deposits, and a similar one to that achieved by investing in commercial property, and the investor can easily pay back a mortgage (see Figure 8). Given that tenant protections were softened in 2016, the profitability should motivate private investors to buy flats for rental purposes.

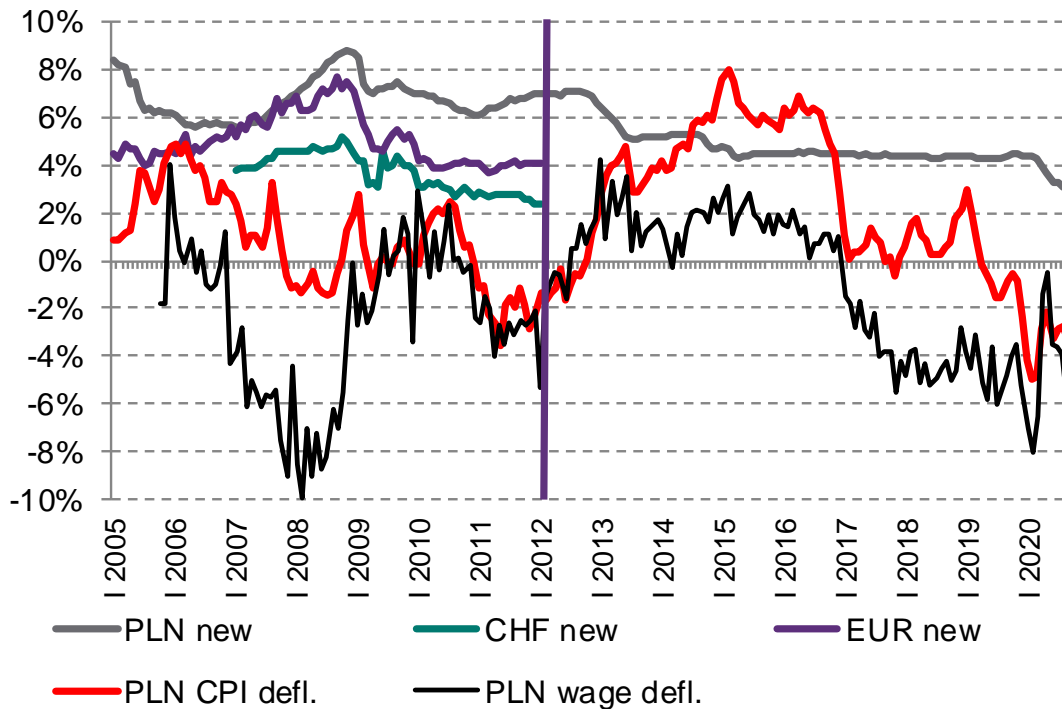
⁷ Eurostat data (2021). Data accessed on 18.03.2021.

⁸ For historical reasons, where a house was the only good that it was difficult for the state to confiscate, and because of periods of high inflation that made financial savings useless, most people wanted to own their own house.

⁹ Eurostat data (2021). Data accessed on 18.03.2021.

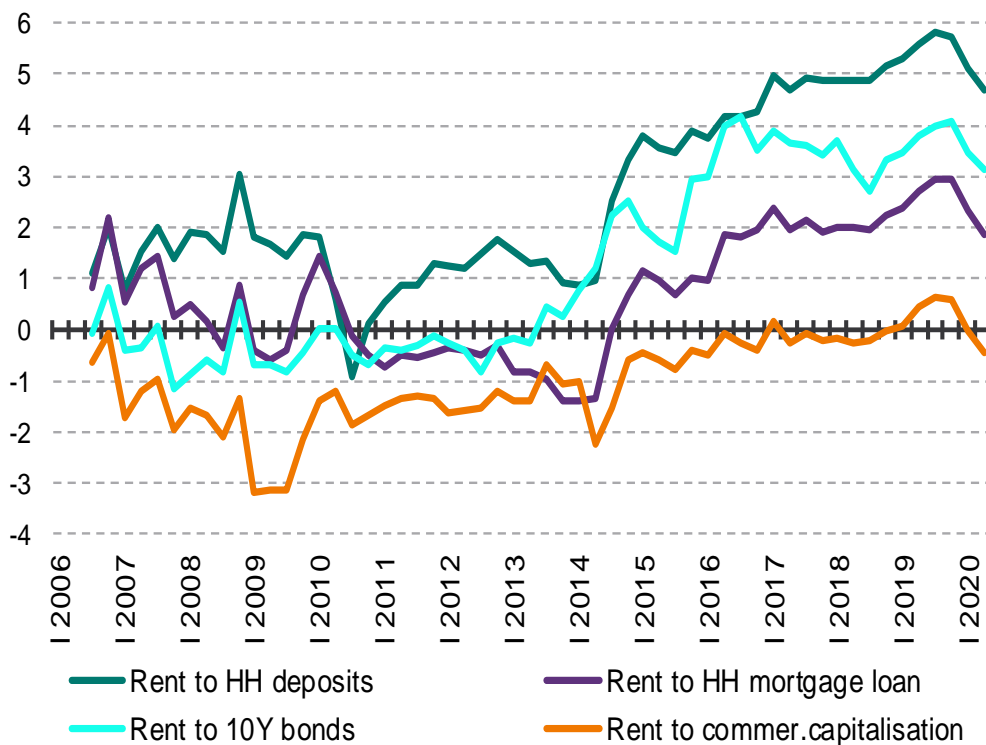


Figure 7: Interest rates on new housing loans, nominal and deflated by wages and CPI



Source: NBP.

Figure 8: The difference in the yield of investment in rental housing in comparison to other investment forms



Source: NBP.



It is worth mentioning that the COVID-19 pandemic hit the heated residential market in the second quarter of 2020. Initially, there were fears that it could lead to a prolonged slump. Fortunately, it only resulted in a short-lived decrease in the number of transactions and new loans. By the third quarter of 2020 the situation already seemed to be reverting gradually to pre-pandemic levels. This seemingly curious situation results from the fact that housing developers in Poland sell pre-sale contracts and can operate under monopolistic competition. Moreover, the partial lockdown of the economy in the second and third quarter of 2020 led to a drop in demand for rental housing in the largest cities, and its profitability decreased.

The price-setting decisions of developers amid the COVID-19 pandemic

Developers use monopolistic price-setting policies to maximise their profits. Łaszek et al. (2016b) found that developers can sell relatively similar flats at various prices to different clients, but this opportunity depends on the phase of the housing cycle. During a boom they can discriminate prices much better, while during a downturn they sell at similar prices in order to sell all the units in an investment project. Moreover, irrespective of price-setting strategies, developers also use simple monopolistic competition (Łaszek et al. 2016b). They restrict the supply of new housing when construction costs increase and they transfer the higher costs through higher transaction prices to the clients. In consequence, developers maintain a stable return on equity.

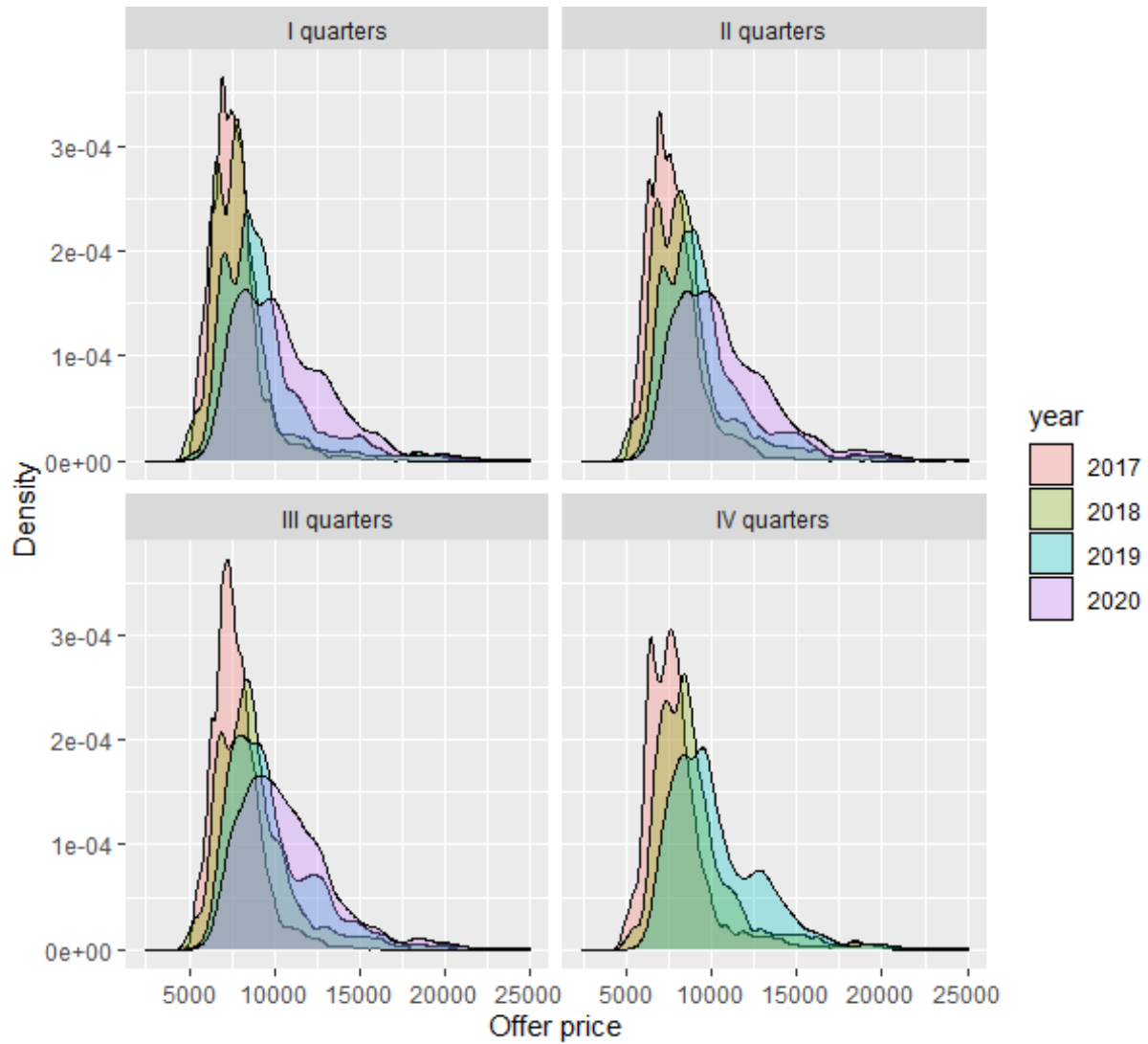
We analysed the behaviour of developers on the case of Warsaw, which is the most mature market in Poland and can be considered an early indicator of the situation in the primary market of other Polish large cities. From 2018 on, the primary residential real estate market in Warsaw was in a phase of increased activity – prices were rising and the high demand and supply resulted in a higher number of transactions. But because construction costs (labour, material, and land) started to increase significantly, developers curbed their production to maintain a stable ROE (see Figure 2). Monopolistic price setting allowed the developers to pass these cost increases through the higher transaction prices to the buyers of apartments. The density charts are increasingly flat in the following quarters, which results from the greater price differentiation in the primary market. The variance of transaction and offer prices increases every quarter, even though the underlying sample of flats is similar. We interpret this phenomenon as an indicator that developers sell quite similar apartments at the same time at different prices. Moreover, the increasing price spread shows how flexible developers are when it comes to increasing home prices and how inflexible when it comes to lowering them (see Figures 9 and 10) (NBP 2020a).

When the outbreak of the covid-19 pandemic in the second quarter of 2020 decreased the activity of buyers, the developers were in a favourable position. Because they did not allow the market to overheat, we did not observe a sharp drop in transaction volumes and prices, but rather a small correction. The quarterly increase in offer prices was lower than in the previous quarters, in the case of transaction prices a short-lived drop was observed. Already in the third quarter of 2020, despite the fact that demand had not recovered, prices had started to increase slowly. The analysis of prices and the sales process on the primary market shows that, so far, no signs of the materialisation of risks on the side of developers have been observed. It seems



that the developers' pricing policy will only change in the event of a large disproportion between demand and supply, which, however, is currently not observed.

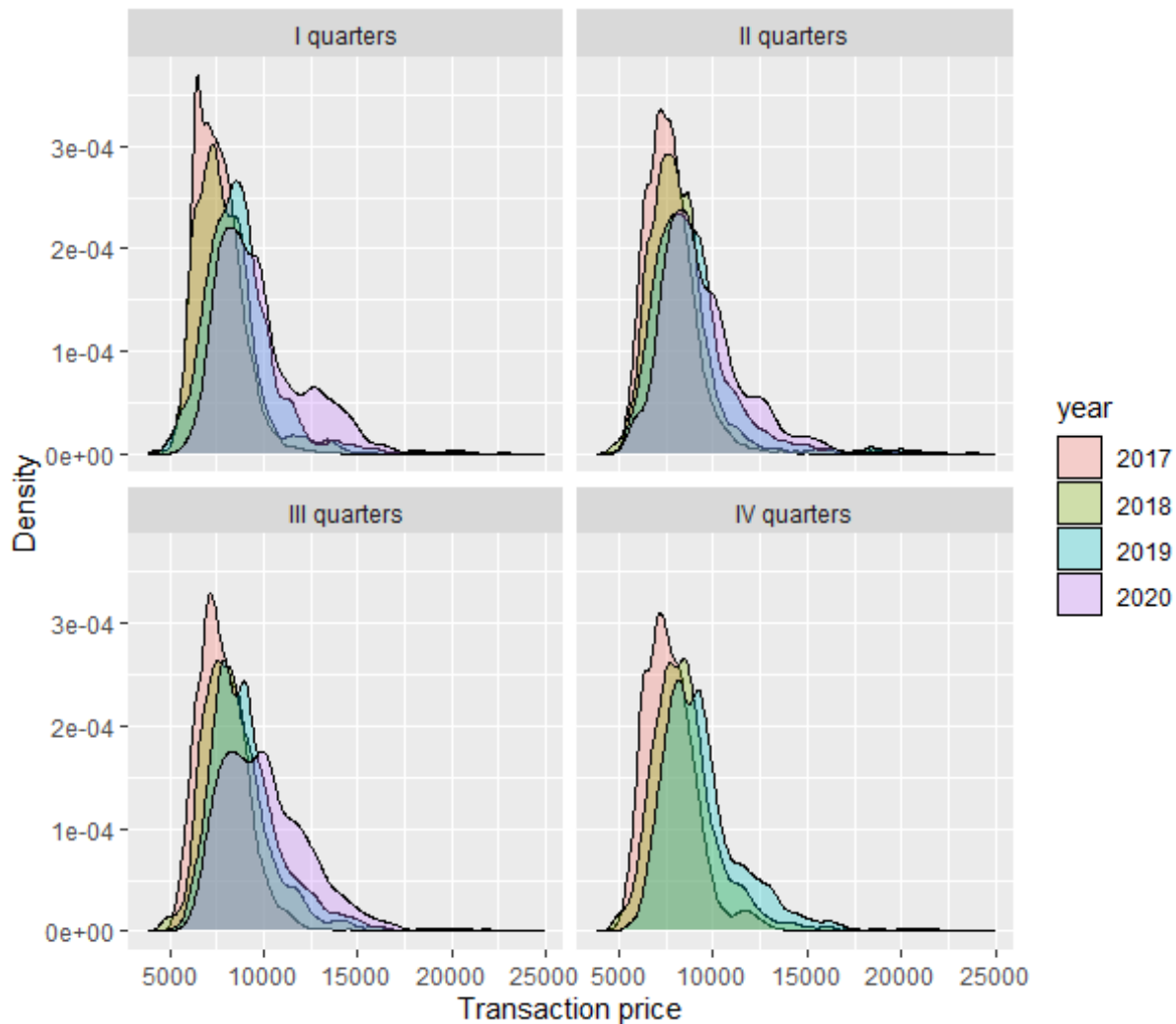
Figure 9: Distributions of average housing offer prices in the primary market (PLN / sq m)



Source: NBP.



Figure 10. Distributions of average housing transaction prices in the primary market (PLN / sq m)



Source: NBP.

What happened on the demand side?

Buying a flat is a consumer and investment decision and the purpose of the flat can change over time. To understand the behaviour of house buyers, we use a simple demand and supply model. We assume that the fundamental demand is generated by people who want to live in their flat, we treat the demand that exceeds the fundamental demand as demand generated by private investors who want to rent the flats.

For this task we applied a 3 equation econometric model that explains housing demand, housing supply and transaction price in the primary market in Warsaw. It is a modified version of the model that we presented in Augustyniak et al. (2018). We estimated this model on data from 2010 to 2020, in order to obtain the determinants of fundamental housing demand. This approach was applied to determine the fundamental demand for housing in Switzerland by Steiner (2010) and in Germany by Kajuth et al. (2013).



In our model, housing supply HS_t reacts with a lag of four quarters to changes in prices $D(P_{t-4})$, construction costs $D(CC_{t-4})$, and interest rates $Intrate_{t-4}$. According to Dieci and Westerhoff (2016) and earlier papers quoted therein, developers make decisions based on past information, and the construction process takes time, so that even the number of pre-sale contracts put on the market will usually lag behind demand. Developers observe changes in economic factors and adjust to them as well as they can, but because there is a considerable amount of time between the start of a new housing investment project and when it is ready to go on the market], around four quarters are needed. We added an autoregressive term, that is the housing supply lagged by two quarters $D(HS_{t-2})$, to capture the inertia in the construction process, which is observable in the data. The housing supply is expressed by the following equation:

$$\log HS_t = \beta_1 + \beta_2 * D(\log P_{t-4}) + \beta_3 * D(\log CC_{t-4}) + \beta_4 * Intrate_{t-4} + \beta_5 * D(\log HS_{t-2}) + \epsilon_t \quad (1)$$

The aggregated housing demand (HD_t) is determined by the house price P_t , the interest rate $Intrate_t$, and income in $Income_t$, and is expressed by the following equation:

$$\log HD_t = \alpha_1 + \alpha_2 * \log P_t + \alpha_3 * Intrate_t + \alpha_4 * \log Income_t + \epsilon_t \quad (2)$$

Finally, we need to estimate the price adjustment mechanism. For this we draw on the specification of Tse, Ho and Ganesan (1999), according to whom prices react with a one quarter lag to the supply and demand mismatch¹⁰ ($HS_{t-1} - HD_{t-1}$). Moreover, developers who apply monopolistic price-setting strategies can adjust the transaction price to the construction cost changes in the previous quarter, which we capture by the term $D(CC_{t-1})$. Therefore, the equation that describes the price dynamics is:

$$D(\log P_t) = \vartheta_1 + \vartheta_2 * D(\log CC_{t-1}) + \vartheta_3 * (\log HS_{t-1} - \log HD_{t-1}) + \epsilon_t \quad (3)$$

We applied the following data to estimate our model with OLS. House prices (P_t) are drawn from the NBP database BaRN. The number of housing units sold and placed on the market (HD_t , HS_t) comes from REAS | JLL data.¹¹ We calculated the construction costs (CC_t) as the sum of the structural costs from Sekocenbud¹² and our own estimates of development land prices. We used the Central Statistical Office (GUS) to obtain data on income in the private sector ($Income_t$), and the mortgage rate ($Intrate_t$) is calculated on NBP data. Because quarterly data are wiggly, we used data that had been smoothed over the last four quarters. All the variables but the interest rate are in logarithms. The regression results are presented in Table 1, while the factual and fitted values are presented in Figure 11.

¹⁰ Indeed, this is the same as the adjustment of the stock of unsold housing, which evolves as $Stock_t = Stock_{t-1} + HS_t - HD_t$, thus its change $\Delta Stock_t$ equals $HS_t - HD_t$.

¹¹ REAS | JLL is a consulting company that provides services related to the housing market.

¹² Sekocenbud is a source of information concerning structural costs in the building industry.



Table 1: Regression results of the housing demand, housing supply, and transaction price equations

	logHD_t	logHS_t	D(logP_t)
logP _t	-1.452 *** (0.341)		
D(logP _{t-4})		4.660 *** (1.606)	
Intrate _t	-22.514 *** (3.767)		
Intrate _{t-4}		-20.215 *** (2.528)	
logIncome _t	1.818 *** (0.233)		
D(logCC _{t-1})			0.631 *** (0.132)
D(logCC _{t-4})		-8.723 ** (3.418)	
D(logHS _{t-2})		0.464 *** (0.045)	
logHS _{t-1} – logHD _{t-1}			-0.063 *** (0.013)
C	6.956 ** (3.309)	5.613 *** (0.431)	-0.0001 (0.002)
Adj. R ²	0.94	0.93	0.58

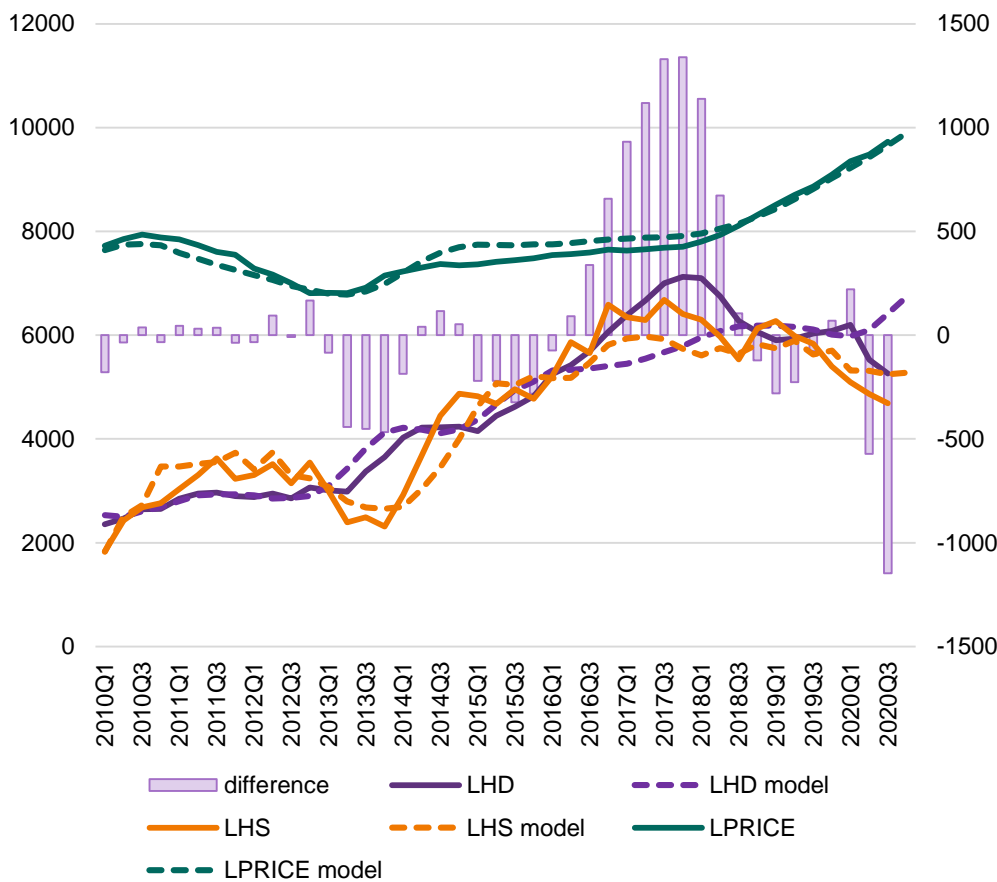
Newey-West standard errors HAC in brackets, ***, **, * significant at: 1%, 5% or 10%.

Symbols: log – logarithms, (t-i) – lagged variables, D – first differences.

Source: authors.



Figure 11: Estimated and factual housing demand, housing supply and transaction prices in Warsaw (L axis) and the difference between factual and estimated demand (R axis)



Source: Authors' calculations.

We used the estimated model to infer the number of housing units that have been purchased for investment purposes since 2016. For the 2010–2015 period, when owner-occupied housing purchases dominated the housing market, our model replicates the factual demand quite well (see Figure 11). We consider this the fundamental demand. The difference between the fundamental demand and the factual demand, observed between 2016 and 2019, can be considered a proxy for investment demand, represented by the purple bars in Figure 11. It seems that the lowered interest rates and eased tenant protection law made it attractive for private investors to become landlords.¹³ This conclusion is reinforced by the change in the profitability of renting flats compared to other investment forms, which is depicted in Figure 8.

We sought to infer from the latest data how the COVID-19 pandemic has changed the demand for housing on the primary market. For this purpose, we compared the estimated demand with the factual one. We made a short forecast of the market that covers the fourth quarter of 2020. We used the official projection about the economy that is presented in the Inflation Report

¹³ Before this deregulation landlords faced a significant risk if tenants did not pay their rent. It was difficult to evict such tenants; in the worst case, landlords needed to offer such a tenant an alternative place to live, which could be, for example, social housing. Because of this, people who rented out property preferred to do so unofficially and not to sign rental agreements. This was risky, because they could be caught by the tax authorities and pay a significant fine.



(NBP 2020c) to obtain a forecast of the wage level and interest rate level at the end of 2020. We assumed that wages and interest rates stay at the level noted in the third quarter of 2020. Our model predicts that under such favourable economic conditions, housing demand should increase. However, the factual number of transactions in the third quarter of 2020 declined, which is indicated by the purple bars. This means that people bought less housing than they could afford, and there are several reasons for this. The first is that the developers' sales offices were closed for some time. It seems that in Poland there was a decrease in demand, both for owner occupied and for private investment housing because of the uncertainty about the economy and the future demand for rental housing. We also observe changes on the supply side. According to our model, rising prices and falling interest rates should increase the housing supply. However, developers adjusted to the current situation, and the factual housing supply is lower than the estimated one (as shown also in Section 3).

Discussion of the missing impact of COVID-19 on the housing market

We conclude that the COVID-19 pandemic has had a limited negative impact on the primary housing market and rental market in Warsaw. While the pure investment demand decreased, this was largely offset by the demand for owner-occupied housing. Using a simple demand and supply model of the housing market in Warsaw, we found that the factual demand was lower than the estimated one. The estimated demand increased due to the good economic conditions and historically low interest rates. However, the uncertainty about the future economic situation and potential demand for rental housing has decreased the consumption and investment demand.

The monopolistic competition of developers, which under normal conditions should be criticised, has cushioned the abrupt price drops. We saw only a slight correction in transaction volume and prices on the primary housing market, with two main reasons for this. First and foremost, developers did not allow the market to overheat before the pandemic. After it broke out, they applied monopolistic competition strategies and price differentiation to keep relatively stable prices and return on equity. The analysis of prices and the sales process on the primary market shows that, so far, no signs of the materialisation of risks on the side of developers have been observed.

Summing up, the significant monetary and fiscal interventions helped to mitigate the impact of the pandemic on the real economy. Fiscal interventions for entrepreneurs in Poland included: payment deferrals, rate reductions of taxes, subsidies for employee remuneration, and reduced social contributions, which helped to sustain employment. Such interventions could also be observed in other European countries. In many of them, interest rates were already at a historical low. The fiscal intervention helped to mitigate the economic shock, but the uncertainty remained and the situation is still evolving.



Literature

Augustyniak, H., J. Łaszek, K. Olszewski, J. Waszczuk 2018. 'Empirical Analysis of the Determinants of the Housing Cycle in the Primary Housing Market and Its Forecast.' Pp. 103 – 121 in J. Łaszek, K. Olszewski, R. Sobiecki (eds.) *Recent trends in the real estate market and its analysis*. Warsaw: SGH Publishing House.

Dieci, R., F. Westerhoff 2016. 'Heterogeneous expectations, boom-bust housing cycles, and supply conditions: A nonlinear economic dynamics approach.' *Journal of Economic Dynamics and Control* 71: 21-44. DOI: [10.1016/j.jedc.2016.07.011](https://doi.org/10.1016/j.jedc.2016.07.011).

Kajuth, F., T. Knetsch, N. Pinkwart 2013. *Assessing House Prices in Germany: Evidence from an Estimated Stock-Flow Model Using Regional Data*. Discussion Paper 46/2013. Frankfurt am Main: Deutsche Bundesbank.

KPMG 2020. *Government and Institution Measures in Response to COVID-19*. KPMG Report. Retrieved March 24, 2021, from <https://home.kpmg/xx/en/home/insights/2020/04/poland-government-and-institution-measures-in-response-to-covid.html>.

Łaszek, J., H. Augustyniak, K. Olszewski 2016a. 'FX Mortgages, Housing Boom and Financial Stability – a Case Study for Poland (2005-2015).' Pp. 87-10 in *The Narodowy Bank Polski Workshop: Recent Trends in the Real Estate Market and Its Analysis–2015 Edition*. Warszawa: Narodowy Bank Polski. Retrieved March 24, 2021, from https://www.nbp.pl/publikacje/materialy_i_studia/243_1en.pdf.

Łaszek, J., K. Olszewski, J. Waszczuk 2016b. 'Monopolistic Competition and Price Discrimination as a Development Company Strategy in the Primary Housing Market.' *Critical Housing Analysis* 3(2): 1–12. DOI: [10.13060/23362839.2016.3.2.286](https://doi.org/10.13060/23362839.2016.3.2.286).

Łaszek, J., K. Olszewski, H. Augustyniak 2018. 'A Simple Model of the Housing Market and the Detection of Cycles.' Pp. 87 - 102 in J. Łaszek, K. Olszewski, R. Sobiecki (eds.) *Recent trends in the real estate market and its analysis*. Warsaw: SGH Publishing House.

NBP 2020a. *Information on Home Prices and the Situation in the Housing and Commercial Real Estate Market in Poland in 2020 Q3*. Warsaw: Narodowy Bank Polski.

NBP 2020b. *Report on the Situation in the Polish Residential and Commercial Real Estate Market in 2019*. Warsaw: Narodowy Bank Polski.

NBP 2020c. *Inflation Report November 2020*. Warsaw: Narodowy Bank Polski.

Steiner, E. 2010. 'Estimating a Stock-Flow Model for the Swiss Housing Market.' *Swiss Journal of Economics and Statistics* 146(3): 601–627. DOI: [10.1007/BF03399329](https://doi.org/10.1007/BF03399329).

Tse, R.Y.C., C. W. Ho, S. Ganesan 1999. 'Matching housing supply and demand: an empirical study of Hong Kong's market.' *Construction Management and Economics* 17 (5): 625–633. DOI: [10.1080/014461999371231](https://doi.org/10.1080/014461999371231).