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Information on home prices and the situation in the housing and commercial real estate market in Poland in 2022 Q4

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The analysis of the situation in the real estate market in Poland in 2022 Q4¹ leads to the following remarks:

- Following a significant demand correction, the housing market has stabilised and a search for a new equilibrium point has begun. A total of approx. 35 thousand dwellings were sold in the respective markets in 2022, i.e. approx. 34 thousand less than in 2021 (i.e. -49% y/y). The number of housing construction contracts sold in the largest primary markets, following a significant decline in housing demand in 2022 Q3, increased slightly and amounted to approx. 8.5 thousand² (see Table 1), but was more than a half lower than a year ago.

Table 1 Number of contracts for the construction of dwellings put on the market, sold and offered for sale in Poland's 6 largest housing markets (quarterly data)

	Introduction	Sold	On offer
2020 Q1	13,001	18,883	44,254
2020 Q2	10,547	6,866	48,914
2020 Q3	12,953	13,313	49,289
2020 Q4	12,122	13,963	48,028
2021 Q1	13,851	19,482	42,129
2021 Q2	15,803	19,491	37,844
2021 Q3	13,770	14,994	36,624
2021 Q4	14,685	15,036	37,361
2022 Q1	13,498	10,410	40,457
2022 Q2	21,446	9,458	52,955
2022 Q3	7,290	6,598	51,396
2022 Q4	6,782	8,493	48,592

Source: JLL

- In the last quarter of 2022, a record high number of dwellings were completed in Poland, i.e. 71.6 thousand (an increase of approx. 24.3% q/q and approx. 1.4% y/y), as a result of developers' activity in previous years. The number of 60.5 thousand dwellings for which building permits were issued was lower than that recorded in previous quarters (by approx. 8.4% q/q and approx. 29.4% y/y). The construction of 35.5 thousand dwellings was started, i.e. approx. 21.1% less q/q and 41.8% y/y. Home construction costs, such as costs of material, labour, lease of equipment, grew at a slower pace, which was related to the lower volume of construction and assembly output. A decreased interest in purchase of construction sites and a reduction in their prices were also observed.

¹ The analysis carried out in this issue of the *Information* is based on data available as at the end of 2022 Q4. Data collected in the NBP database during the listings include offers valid as at 1 December 2022 and transactions concluded in the period from 1 September to 31 November 2022. Due to delays in availability of certain data, some charts include information until 2022 Q3 inclusive. The data series with average prices per square metre of housing, commercial rents and transaction prices per square metre of retail space reflect the pool of data available at the cut-off-date. Historic data are subject to revision. In the housing price survey (BaRN database) concerning 2022 Q4, approx. 118.7 thousand records were collected, of which approx. 20.1% concerned transactions and 79.9% concerned offers. Altogether, approx. 4.9 million records have been collected in the BaRN database, of which 25.1% concern transactions and 74.9% concern offers.

² Based on NBP and JLL.

- The fourth quarter of 2022 saw a slight increase in nominal average transaction prices of a square metre of housing in Warsaw and in the ten cities, while they decreased in the six cities. The y/y growth of these prices continued, although at a lower rate (see Table 2). Nominal transaction prices (PMT) went up y/y, especially in Gdynia, Kraków Poznań and in ten cities which, to a certain extent, stemmed from a change in the structure of dwellings sold (a higher proportion of transactions in better locations rather than on the outskirts) rather than from price adjustments by developers. A slower growth of real transaction prices was recorded, with its highest level in Gdańsk, both in relation to the CPI and to the wage growth. The secondary market saw similar trends. Nominal transaction prices in the secondary market increased slightly in Warsaw, Gdańsk and in ten cities. Demand grew for older dwellings, in better locations though smaller. Declines in real prices were observed, particularly significant in Warsaw. Hedonic index-adjusted prices# remained at a similar level in all groups of cities (see Figure 10), which means that similar dwellings were sold at a price comparable to the previous quarter.

Table 2 Transaction price growth of a square metre of housing in the analysed cities in 2022 Q4

	Nominal price growth q/q		Nominal price growth y/y		Real price growth vs. CPI */ q/q		Real price growth vs. CPI */ y/y	
	PMT	SMT	PMT	SMT	PMT	SMT	PMT	SMT
Gdańsk	-7.7%	0.9%	-2.3%	12.2%	-10.9%	-2.6%	-16.7%	-4.4%
Gdynia	13.9%	-4.0%	23.6%	8.7%	-10.0%	-7.3%	5.4%	-7.4%
Kraków	-3.6%	0.1%	20.0%	10.5%	-2.6%	-11.9%	-1.2%	-14.1%
Łódź	0.5%	-7.3%	8.5%	3.7%	-3.0%	-10.5%	-3.5%	-11.6%
Poznań	-0.2%	-5.2%	13.6%	3.3%	-3.7%	-8.5%	-3.2%	-11.9%
Wrocław	-0.6%	-0.6%	10.0%	13.0%	-4.1%	-4.1%	-6.3%	-3.7%
Warszawa	0.8%	1.1%	10.4%	1.6%	-2.7%	-2.4%	-5.9%	-13.4%
6 cities	-1.0%	-2.1%	10.3%	8.5%	-3.0%	-7.2%	-5.4%	-8.6%
10 cities	0.4%	0.7%	13.5%	10.5%	-2.8%	-3.0%	-2.9%	-5.3%

Note to Table 1: the growth rates resulting from the average transaction price are underestimated due to the limited number of transactions available in the RCiWN register of real property prices (a smaller number of more expensive dwellings). Revisions will be made in the following quarters, as required data become available. */ The growth in real prices relative to the CPI is calculated as a growth in the weighted average transaction price in real terms per square metre of housing in the PM and SM. Prices for 2006 Q3 were adopted as fixed prices (see Figures 7 and 8).

- The average transaction rental rates per 1 sq. m of housing (excluding service charges and utility fees) increased in quarter-on-quarter terms in Warsaw as well as in the 6 and 10 cities (see Figure 14 and 15). The number of dwellings offered for rent has been steadily decreasing since 2021 H2. Investors continued to seek safe investment in real estate, while attractive rates of return were a secondary consideration. Investment funds, including foreign funds have shown increased interest in the purchase of rental dwellings in recent years³. Investor activity in the PRS sector, as illustrated by the commitment of approx. EUR 0.5 billion⁴ to acquisitions of residential buildings in 2022, was slightly lower than in 2021. So far, the domestic Housing for Rent Fund (managed by the Polish Development Fund), which owns more than 2 thousand dwellings, has played a major role in this market⁵.

³ The most active group of investors comprises specialised German and Scandinavian funds, private equity funds from the USA and the United Kingdom and other investment institutions from the Central and Eastern Europe region.

⁴ Based on Colliers_Report Market insights Annual 2023 EN.

⁵ Based on information available at: <https://pfr.pl/inwestycje-na-rynku-nieruchomosci.html?fundusze=fsmnw>

- **The increase in the level of rent rates in long-term rental (on average in the 7 big cities) resulted in a slightly higher level of the rental profitability indicator for dwellings bought for cash⁶** (see: Table 15). Home purchase (disregarding the transaction costs) was still competitive given the prevailing deposit interest rates. The profitability of an investment in a dwelling to rent compared with the yields on 10-year Treasury bonds is negative due to growing interest rates on Treasury securities.
- **The estimated residential mortgage loan affordability index in the 7 big cities** (based on the average wages in the enterprise sector) **remained at the level of the preceding quarter** as a result of a similar growth in the prices of dwellings and wages (see: Figure 16). The estimated maximum affordable residential mortgage loan⁷ remained unchanged in q/q terms, as did the estimated affordability of loan-financed housing⁸. A similar growth in interest rates and income contributed to the lack of change in the two affordability indicators.
- **Quarterly sales of housing construction contracts in the six largest primary markets in Poland⁹** (see: Figure 57) were about 29% higher than in the previous quarter and amounted to **approx. 8.5 thousand dwellings** at the end of December 2022. Home sales in 2022 were weaker than the results recorded in 2015-2021. A total of approx. 35 thousand housing construction contracts were sold in the largest markets in 2022, i.e. approx. 34 thousand less (- 49% y/y). At the same time, **approx. 6.8 thousand home construction contracts were put on sale¹⁰** in the last quarter of the year, i.e. approx. 7% less q/q. In 2022, approx. 49 thousand contracts for housing construction were put on sale in the largest markets, i.e. approx. 9 thousand less (- 16% y/y). **The supply of offer of construction home contracts in the 7 biggest markets increased by approx. 2.8 thousand dwellings compared with the previous quarter, to approx. 48.6 thousand at the end of the period.** The number of contracts for the so-called “turnkey” dwellings offered for sale increased on the previous quarter to about 5.4 thousand.
- **The time to sell a home construction contract in the primary market in the 6 biggest markets, calculated on the basis of sales figures in the previous quarter increased to 5.6 quarters from 4.9 quarters in 2022 Q3** (see Figure 64).
- **In 2022 Q4, the value of new residential mortgage loans disbursed in Poland was significantly lower than in the same period of 2021.** The value of new agreements for PLN-denominated residential mortgage

⁶ For more information on the rental market, see chapter “Analysis of profitability of investment in housing in selected cities in Poland in 2022 Q4”.

⁷ The maximum value of residential loan available in a particular market is a measure expressed in PLN thousand, taking into account bank’s lending requirements and loan parameters (i.e. interest rate, amortisation period of 25 years, minimum wage understood as the minimum income after the repayment of loan instalments). The estimate does not take into consideration changes in banks’ lending policies, including the lending criteria and the terms and criteria of the loan.

⁸ Affordability of loan-financed housing – a measure specifying how many square metres of housing may be purchased with a residential mortgage loan obtained with the average monthly wage in the enterprise sector in a particular market (Statistics Poland), in view of a given bank’s lending requirements and loan parameters (interest rate, amortisation period, minimum subsistence level understood as the minimum income after payment of loan instalments) at an average transaction price of housing (40% in the PM and 60% in the SM) in a particular market (BaRN). The pace of changes of the index and differences between particular markets provide important information.

⁹ Based on the JLL data.

¹⁰ The majority of investment projects appeared on offer in late June 2022 so that the sale could be closed according to the rules effective until July 1st, 2022, i.e. without the developer having to satisfy the conditions of the amended Developer Act requiring developers, among other things, to pay contributions to the Developer Guarantee Fund.

loans granted to households^{11, 12} (excluding renegotiated agreements) according to NBP data¹³, amounted to PLN 6.3 bn in 2022 Q4, i.e. it was by approx. PLN 2.9 bn (-31%) lower than in the previous quarter and by approx. PLN 16.8 bn (-72%) lower than in 2021 Q4. Demand for bank loans decreased again, both as a result of rising interest rates and as a consequence of a change in the banks' rules for calculating creditworthiness (adding 5 b.p. to the current interest rate, as recommended by the Polish Financial Supervision Authority). In 2022, the value of residential mortgage loans amounted to approx. PLN 48.7 billion, i.e. it was by PLN 37.6 bn lower than in 2021 (a 43.6% y/y decrease compared to a 49% increase in 2021).

- **The estimated return on equity (ROE)¹⁴ on development projects for housing developers approximated 21%, i.e. it increased slightly compared to the previous quarter**, though it was still relatively high. The level of ROE was influenced by an increase in transaction prices offsetting the growth in costs incurred by home producers. According to Coface report¹⁵, the estimated number of bankruptcies in the construction sector increased to 280 in 2022 from 205 in 2021, while the number of bankruptcies in the real estate services business remained at a level of 68 (see: Figure 36). However, the authors of the report point out that given the numerous legislative changes since 2020, the bankruptcies in the construction sector are hard to quantify. At the same time, the stock exchange indices of construction and development companies slightly increased in 2022 (see: Figure 36).

¹¹ According to data provided by BIK, in 2022 Q4, banks and credit unions granted about 19.6 thousand residential mortgage loans to retail customers, amounting to approx. PLN 6.4 bn (in 2021 Q4, 68.2 thousand loans, PLN 23.3 bn, respectively). The negative y/y sales growth rates of residential mortgage loans reported in 2022 Q4 were recorded in all the loan amount brackets. In 2022, approximately 133.6 thousand (a y/y decrease of approx. 48.5%) residential mortgage loans were taken out, totalling PLN 45.5 bn (approx. 46.6% down y/y).

¹² According to the AMRON data, 18.9 thousand new residential mortgage loans were granted in 2022 Q4 (compared to 21.2 thousand in the previous quarter and 63.9 thousand in 2021 Q4) whereas the value of the new residential mortgage loans reached PLN 6.2 bn (compared to PLN 7.0 bn in the previous quarter and 22.5 bn in 2021 Q4). In 2022, 126.3 thousand loans with the value of approx. PLN 43.6 bn were granted (compared to 256.5 thousand and PLN 85.8 bn in 2021). In 2022, the most frequently granted loans were those within the PLN 200-300 thousand range (about 25%, as in the previous year), a slight increase was seen in the share of loans within the PLN 100-200 thousand range and PLN 500 thousand-1 million range, while the share of loans in the other amount brackets slightly decreased. In total new loans, the percentage of loans with the LtV up to 30%, 30-50% and 50-80% increased, reaching 16%, 11.6% and 52.9% respectively, while it decreased to 19.6% for loans with LtV above 80%. Compared to 2021, there was a slight increase in the number of residential mortgage loans with a maturity of up to 15 years (7%) and 15-25 years (27.7%), whereas the share of loans maturing in 25-35 years (64.5%) and more than 35 years (0.8%) decreased. At the end of 2022, the number of outstanding loan agreements (during repayment) amounted to approx. 2.37 million (2.55 million in 2021) and their value at the end of the period reached PLN 496 bn (PLN 511.3 bn in 2021).

¹³ The data concerning the interest rates and the value of new residential mortgage loans based on the NBP data available in the "4 OPN2PLN" tab, on the NBP site: https://www.nbp.pl/home.aspx?f=/statystyka/pieniezna_i_bankowa/oprocentowanie.html. According to NBP data, at the end of December 2022 the value of residential mortgage loans granted by the banks to households stood at PLN 496.6 bn, i.e. the amount was by PLN 14.4 bn lower than in the previous quarter and by approx. PLN 15.2 bn lower than in December 2021 (a 3.0% y/y decrease, compared to 7.4% in 2021 Q4). In 2022 Q4, the volume of outstanding residential mortgage loans decreased both for PLN denominated loans (-PLN 6.1bn compared to 2021 Q4), and for FX loans (respectively, -PLN 9.1bn).

¹⁴ Gross margin is not equivalent to development profit and, depending on the organisation of the developer/development holding, may include different cost elements.

¹⁵ According to Coface experts (Coface Report entitled *Insolvencies of Polish Companies in 2022*), the macroeconomic environment, both in Poland and abroad, is becoming more and more challenging to companies and it will contribute to a growing number of insolvency cases. The growing number of insolvencies in the construction industry faces high prices of materials, fuel, energy, wage costs and debt and lease servicing and, at the same time, falling demand for services. The infrastructure construction segment has secured indexation between contractors and the General Directorate for National Roads and Motorways (GDDKiA) but faces uncertainty over the disbursement of funds from the National Recovery Plan and the Cohesion Fund. In December 2022, railway industry negotiations concerning the adoption of the new National Rail Programme continued.

- **In 2022 Q4, over 71.6 thousand dwellings were completed in Poland¹⁶, i.e. 1.0% more than in 2021 Q4** (see Figure 52). The dwellings completed were primarily intended for sale or rental (approx. 62%) as well as for owner occupancy (36%). In the total number of dwellings completed, the share of dwellings completed in the so-called other Poland increased from approx. 65.6% in 2021 Q4 to approx. 69.1% in 2022 Q4, especially in the vicinity of big cities. This is due to the high demand in these centres and the depletion of well-located construction sites in the cities themselves. **The number of approx. 35.5 thousand dwellings whose construction commenced¹⁷ was 41.8% lower than in 2021 Q4** (see: Figure 53). It should be added that the number of home construction starts decreased both in the biggest cities and in other Poland. Predominant here were also dwellings for sale or rental (approx. 57.6%) and for owner occupancy (41%).
- **Despite the continuing subdued demand for housing, the fact that estimated rates of return on housing projects were still relatively high compared to other sectors encouraged investors to apply for more permits for the construction of dwellings¹⁸.** In the first half of 2022, developers started many construction projects (170.8 thousand dwellings) in order to be ahead of the changes related to the amendment of the Developer Act. The number of building permits in the second half of 2022 (126.6 thousand dwellings) decreased significantly. Permits were granted mainly for the construction of dwellings for sale and rental (about 68.3% of all the building permits) and private construction for owner occupancy (approx. 30.1% of all permits). In the period discussed, the share of building permits granted for construction of cooperative homes and housing for rental was insignificant.
- **In 2022 Q4, the vacancy rates in the major office real estate markets did not change significantly.** However, the supply of space under construction fell by 36% compared to the last quarter of 2021. According to the data released by consulting companies, at the end of 2022 Q4, the supply of office space in the 9 biggest office markets¹⁹ amounted to approx. 12.7 million sq.m, with approx. 771,500 sq.m in the pipeline. The vacancy rate in these markets fell slightly from 13.6% in Q3 to 13.5% in Q4 whereas in Warsaw alone it amounted to 11.6%²⁰. The vacancy rate of office space depends on the age²¹ and mainly on the location of the office building²². The construction of additional space does not mean an automatic increase in the vacancy rates, though it will generate significant competition for tenants, especially as regards older (more energy-intensive) buildings or those at poorer locations.

¹⁶ According to the data published by Statistics Poland, the construction of over 71.6 thousand dwellings commenced in 2022 Q4 in Poland, i.e. approx. 1.0 thousand more than in 2021 Q4 and approx. 14.0 thousand more than in the previous quarter. Altogether, the last 4 quarters saw the completion of a record number of over 238.6 thousand dwellings, i.e. approx. 3.9 thousand more than in the corresponding period of 2021 (a rise of 1.4% y/y).

¹⁷ According to the data published by Statistics Poland, in 2022 Q4 the construction of approx. 35.5 thousand dwellings commenced, i.e. approx. 25.6 thousand less than in 2021 Q4 and approx. 9.5 thousand less than in the previous quarter. Altogether, in the past four quarters, the construction of a total of approx. 200.3 thousand dwellings was commenced, i.e. approx. 77.1 thousand less than in the same period of 2021 (a 27.8% drop y/y).

¹⁸ According to the data published by Statistics Poland, in 2022 Q4, approx. 60.5 thousand home building permits were issued in Poland, i.e. approx. 25.3 thousand less than in 2021 Q4 and approx. 5.5 thousand less than in the previous quarter. In the past four quarters, a total of approx. 297.4 thousand permits were issued, i.e. 43.6 thousand less than in the corresponding period of 2021 (a 12.8% y/y decline).

¹⁹ The ten office space markets include: Warsaw, Kraków, Wrocław, Tri City, Katowice, Łódź, Poznań, Szczecin, Lublin.

²⁰ See: Colliers International: Market Insights, 2023 Annual Report, Poland.

²¹ Cushman & Wakefield, Marketing as one of the key factors supporting the modernisation process of older office buildings, 2018.

²² See: Knight Frank, Report: Poland, Commercial Market, 1st half of 2018.

- **In 2022 Q4, the retail sector 2022 operated as usual, however, e-commerce continues to develop and will compete with the standard trade.** The stock of modern retail space at the end of 2022 exceeded 12.7 million sq.m., meaning a saturation of 327 sq.m./1,000 inhabitants.²³ At the end of 2022, approx. 280 thousand sq. m²⁴ of modern retail space was still under construction. It can be concluded that investors consider the classic retail market in the largest cities to be saturated while investment projects are usually carried out in smaller cities. In 2022, a trend of investment by shops and commercial outlets in energy-efficient lighting and reducing energy consumption was visible. Moreover, further development of shopping centres in a multi-functional direction is observed.
- **The market for modern warehouse space in Poland remained in the expansion phase while the supply of new space has started to slow down.** The market segment of warehouses located in urban areas continues to develop. Developers invest in photovoltaics in order to reduce energy costs. At the end of 2022, the total stock of the warehouse space market increased to 28 million sq. m²⁵, with over 3.4 million sq. m of modern warehouse space under construction. The vacancy rate across the country declined slightly to the level of 4.0% compared to 4.1% in 2022 Q3. It is expected that some companies located in the areas affected by hostilities may wish to relocate to safe countries, which is likely to boost demand for industrial and logistics facilities.
- **In 2022, the estimated value of transactions over commercial real estate purchased as an investment²⁶, i.e. for rental, amounted to approx. EUR 5.3bn.** Approximately 35.6% of the transaction value concerned warehouse space, 34.9% office space and only 22.7% retail space.
- **The exposure of the financial sector to commercial real estate (loans to housing developers, loans for office, retail, warehouse real estate and other loans) comes in two main forms. The first one is related to loan financing of a particular property.** Usually, in such a case, the loan is secured on the financed property, but alternative forms of security are also possible. At the end of 2022, the value of such loans granted by the banks in Poland ²⁷amounted to PLN 62 bn²⁸, and 59% of the loans were denominated in EUR. The total value of loans granted to enterprises consisted of the following categories. The value of corporate debt resulting from the financing of residential real estate (developer housing, cooperative dwellings for renovation, etc.) remained unchanged and stood at PLN 4.5 bn at the end of 2022 Q4. The value of loans granted for office real estate remained at a level of the previous quarter and amounted to PLN 15.5 bn. The balance of loans granted for retail real estate stood at PLN 16.3 bn whereas the financing for warehouse and industrial property slightly decreased to PLN 10.6 bn compared to PLN 11 billion in

²³ It is estimated that this value is 15% lower than the average for the entire European Union.

²⁴ See: Colliers International: Market Insights, Annual Report 2023, Poland.

²⁵ See: Colliers International: Market Insights, 2023 Annual Report, Poland.

²⁶ Based on data published by Comparables.pl. The above investments concern the sale of the entire operating company which rents the building and derives income from it. Such transactions take place between: 1/ the real estate developer who has commercialised a property and sells it to an investor, or 2 / two investors.

²⁷ According to our expert estimate, loans intended for the construction of commercial real estate (office, retail, warehouse and other) extended by foreign banks amounted to PLN 87bn as at the end of 2021. The estimate has been arrived at as follows: In line with the international experience, it can be assumed that the LTV ratio in the total stock is 50%. However, 2021 saw a decline in the amount of loans for commercial real estate extended by the Polish banks while the stock continued to grow, so the ratio should be pared down to 40%. It may be inferred based on the estimated value of the stock of office, retail and warehouse real estate, which at the end of 2021 amounted to PLN 355bn, that the total amount of the loans financing such real estate was about PLN 142bn at the end of 2021. By deducting the loans granted by banks operating in Poland to finance such real estate (PLN 55bn, excluding loans to developers) one arrives at an estimate of loans granted directly and indirectly by banks operating abroad, i.e. PLN 87bn.

²⁸ FINREP data.

2022 Q3. On the other hand, the value of loans granted for other real estate fell to PLN 15.3 bn compared to PLN 15.9 bn in 2022 Q3. **The other form of exposure of the banks are loans taken out by companies for various purposes, but secured on real estate.** The value of corporate loans secured with mortgages on commercial real property at the end of 2022 Q4 amounted to PLN 139 bn²⁹. Of these loans, 43% were denominated in EUR. It can be estimated that companies have taken out about PLN 77 billion of loans secured with mortgages for other non-security purposes, including working capital loans and investment purposes.

- **The quality of loans granted to enterprises to finance real estate has not changed significantly in relation to the previous quarter.** The non-performing loan ratio among loans financing office real estate decreased to 6.3% from 7.1% in 2022 Q3, for loans financing commercial real estate, it increased slightly to 14.5% compared to 14.4% in 2022 Q3. For warehouse and industrial space, this ratio fell to 3.7% compared to 4.5% in 2022 Q3, while in the case of other real estate it stood at 10.0%. The non-performing loan ratio for loans financing developer housing projects decreased somewhat to 11.1% compared to the level of 12.3% in 2022 Q3. The relatively high value of the ratio was mainly due to the fact that the banks were holding non-performing loans from the previous years in their portfolios³⁰.
- **In the markets for small office real estate, the median of offer prices in most big cities saw a slight increase.** Only Łódź and Katowice recorded minor decreases. Similarly, the median of offer prices for small commercial real estate decreased slightly for Warsaw and Wrocław, showing a slight increase for other big cities compared to 2022 Q3.

²⁹ The fall in debt by PLN 4.6 billion in comparison with Q2 was mainly due to the repayment of loans denominated in PLN.

³⁰ See: Financial Stability Report, NBP, December 2018.

The following charts illustrate the key developments in the housing market in Poland's major cities in 2022 Q4. They show:

- 1) home prices (Figures 1–15),
- 2) affordability of loan-financed housing, loan availability, profitability of housing investment (Figures 16–25),
- 3) mortgage loan disbursements and interest rates (Figures 26–35),
- 4) operating profitability of housing and real estate development projects, costs of construction and assembly output and economic situation of real estate developers in Poland (Figures 36–51),
- 5) housing construction and the residential market in selected cities in Poland (Figures 52– 63),
- 6) offer prices of commercial real estate and estimated rate of return (Figures 64–74),
- 7) analysis of profitability of investment in housing for rent in selected cities in Poland in 2022 Q4 (Figures 75–88),
- 8) results of the questionnaire survey of supply with elements of demand in the primary market and the survey of the economic position and production capacity of construction companies providing housing construction services, including the analysis of the standing of the following companies: developers (Figures 89-99), building industry (Figures 100-109).

The analysis of housing prices per sq.m (offer, transaction and hedonic) in the primary and secondary markets as well as housing rents relies on the data acquired from the housing market survey of the Real Estate Market Database (BaRN). On the other hand, as part of the survey of the commercial real estate market, the Commercial Real Estate Market Database (BaNK) data on rent, offer prices and transaction prices of commercial real estate are collected and analysed.

In addition, the analyses relied on the data from PONT Info Nieruchomości, AMRON and SARFIN Polish Banks' Association and Comparables.pl. The analyses and reports of JLL, the Polish Financial Supervision Authority and the aggregate credit data from the Credit Information Bureau were also used. For the structural market analysis, data published by Statistics Poland and many studies containing industry data were used³¹.

³¹ The authors used data and studies by Sekocenbud, Spectis, PAB, OLX Group.

List of abbreviations:

5M	5 biggest cities: Gdańsk, Kraków, Łódź, Poznań, Wrocław
6M	6 biggest cities: Gdańsk, Gdynia, Kraków, Łódź, Poznań, Wrocław
7M	7 biggest cities: Gdańsk, Gdynia, Kraków, Łódź, Poznań, Warszawa, Wrocław
10M	10 biggest cities: Białystok, Bydgoszcz, Katowice, Kielce, Lublin, Olsztyn, Opole, Rzeszów, Szczecin, Zielona Góra
BaNK	Commercial Real Estate Market Database
BaRN	Real Estate Market Database
BIK	Biuro Informacji Kredytowej [Credit Information Bureau]
CPI	Consumer Price Index
DFD	Large real estate development company
GD	Households
Statistics Poland	Central Statistical Office
EURIBOR	Euro Interbank Offer Rate
KNF	Polish Financial Supervision Authority
LIBOR	London Interbank Offered Rate
LTV	The relation of loan value to home value, i.e. Loan-to-Value
MDM	Housing scheme "Mieszkanie dla Młodych" (Housing for the Young)
MnS	Housing scheme "Mieszkanie na start" (Housing for the start)
NBP	Narodowy Bank Polski
PONT	PONT Info Nieruchomości
PRS	Private Rental Sector; housing rental sector
RCiWN	Register of Property Prices and Values
RNS	Housing scheme "Rodzina na Swoim" (Family on their Own)
PM	Primary housing market
SM	Secondary housing market
ROE	Return on Equity
WIBOR	Warsaw Interbank Offered Rate
WIG20	Index including top 20 companies listed on the Warsaw Stock Exchange with the highest value of publicly traded shares
ZBP	Polish Bank Association
ZKPK	Accumulated index of changes in banks' credit policy criteria

1. Transaction, hedonic and offer prices of housing in the primary market (PM) and in the secondary market (SM)

Figure 1 Transaction prices per square metre of housing in Warsaw and in 6M- PM, in PLN

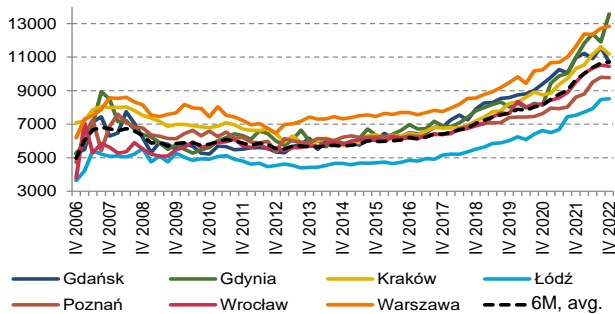
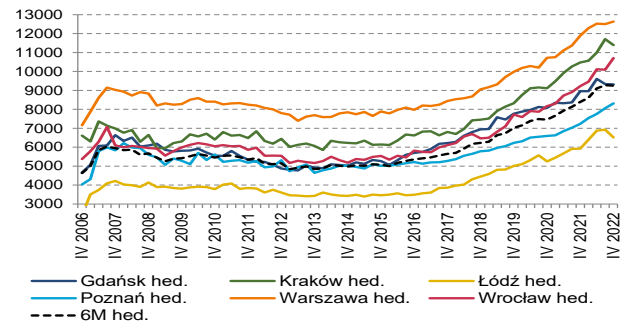


Figure 2 Transaction prices per square metre of housing adjusted by the hedonic index (hed.)* in Warsaw and in 6M - SM, in PLN



Note: the home price database of NBP (BaRN) has existed since 2006 Q3; a description of the database is available on the bank's website https://www.nbp.pl/home.aspx?f=/publikacje/rynek_nieruchomosci/ankieta.html. *The price adjusted by the hedonic index is the average price of the base period multiplied by the hedonic index (reflects pure price change, ignores differences in housing quality).

Source: NBP

Source: NBP

Figure 3 Weighted average price per square metre of housing, offers (O) and transactions (T) - PM

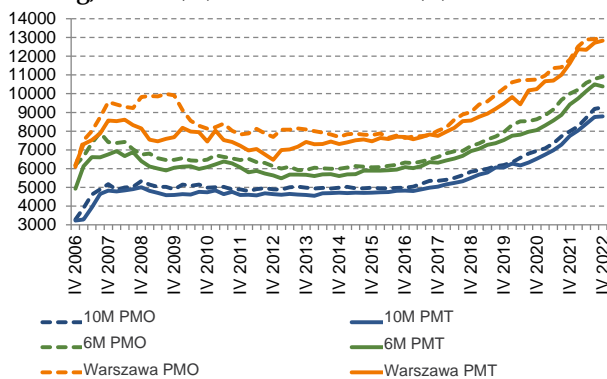
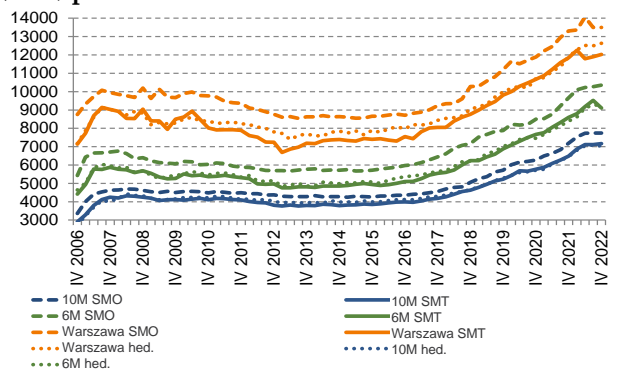


Figure 4 Weighted average price per square metre of housing, offers (O) and transactions (T) and hedonic (hed.) prices - SM



Note to Figures 3-10 and 14-15: prices and rents weighted in 6M and 10M with the share of housing stock, the average price for Warsaw.
Source: NBP

Source: NBP

Figure 5 Ratio of the average weighted transaction price per square meter of housing – PM to SM

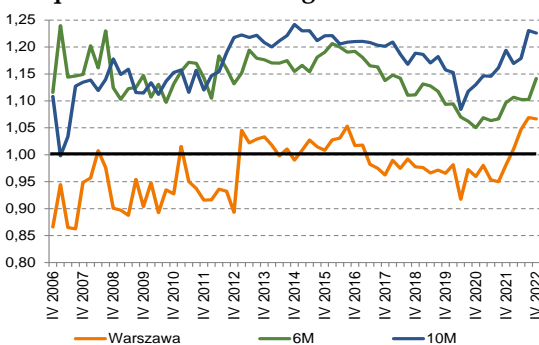
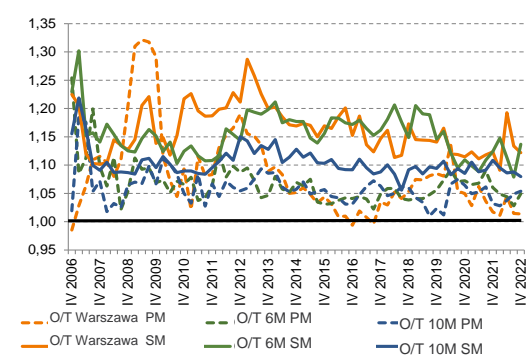


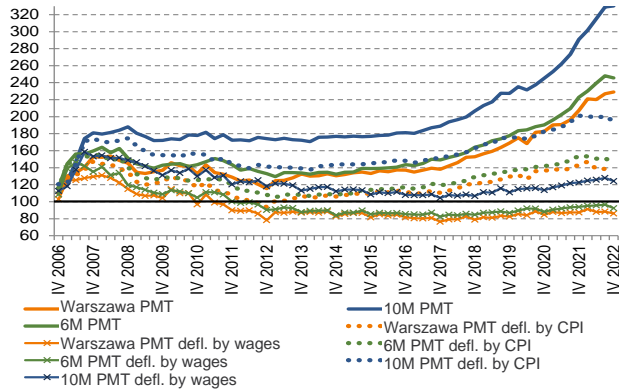
Figure 6 Ratio of the average weighted offer price (O) to transaction price (T) per square meter of housing – PM and SM



Source: NBP

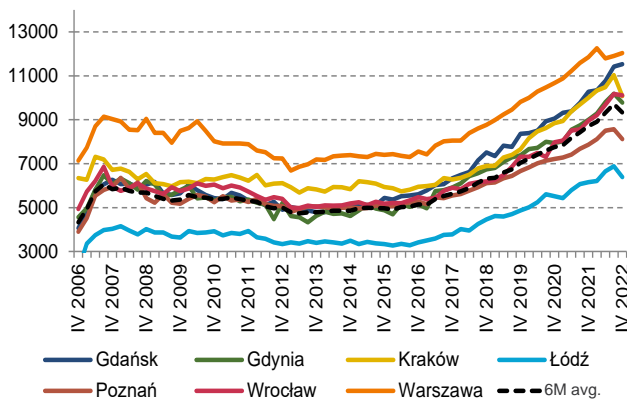
Source: NBP

Figure 7 Index of the average weighted transaction price per square metre of housing in PM, real to CPI deflated price and real to average wage in the enterprise sector (2006 Q3 2006 = 100)



Source: NBP, ZBP (AMRON), Statistics Poland

Figure 9 Transaction price per square metre of housing in SM in Warsaw and in 6M



Source: NBP

Figure 11 Average offer prices per square metre of housing in PM, selected markets

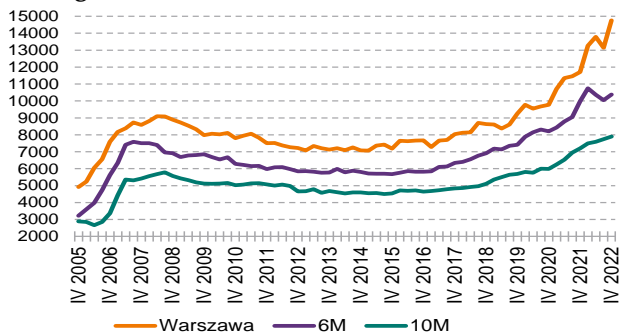
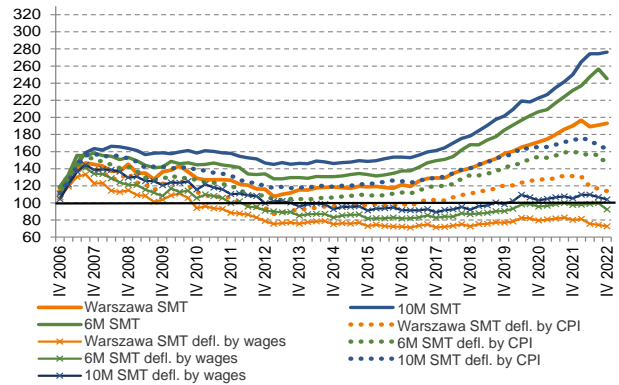
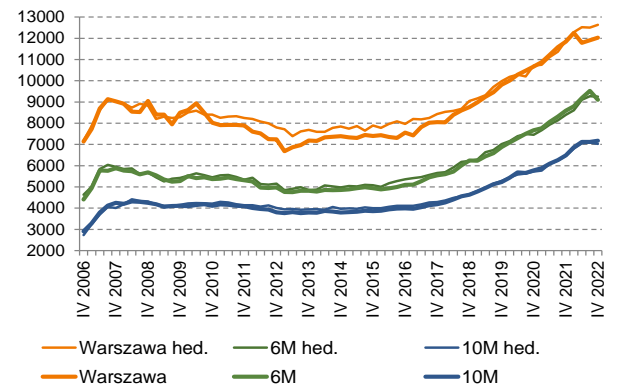


Figure 8 Index of the average weighted transaction price per square metre of housing in SM, real to CPI deflated price and real to average wage in the enterprise sector (2006 Q3 2006 = 100)



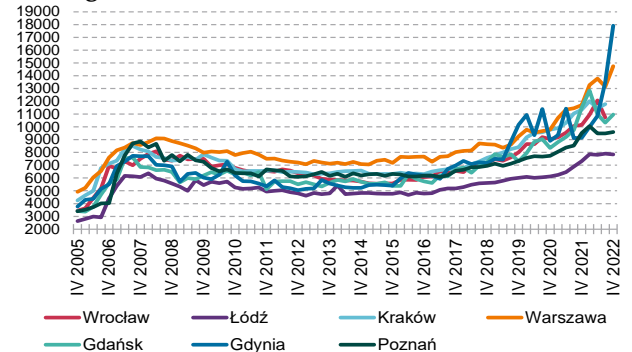
Source: NBP, ZBP (AMRON), Statistics Poland

Figure 10 Weighted average transaction price per square metre of housing in SM and average price adjusted by the hedonic price index



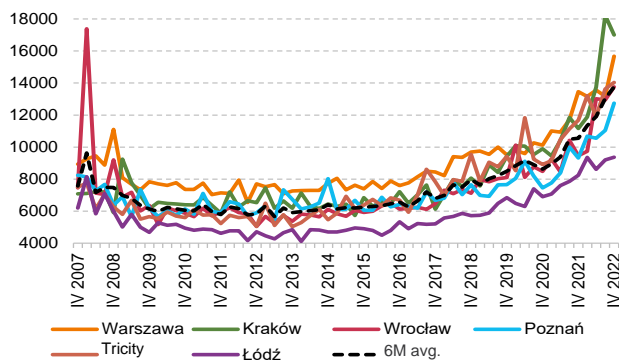
Source: NBP

Figure 12 Average offer prices per square metre of housing in PM (Warsaw and 6M)



Note to Figures 11-12: prices are collected from all available sources.

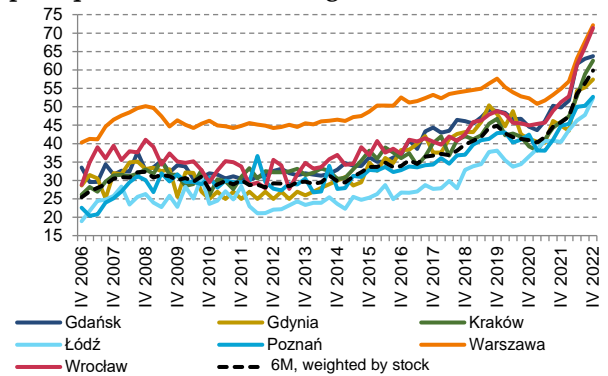
Figure 13 Average offer prices per square metre of housing, new home construction contracts – PM, selected markets



Note: prices refer only to new contracts put on the market for the first time.

Source: JLL

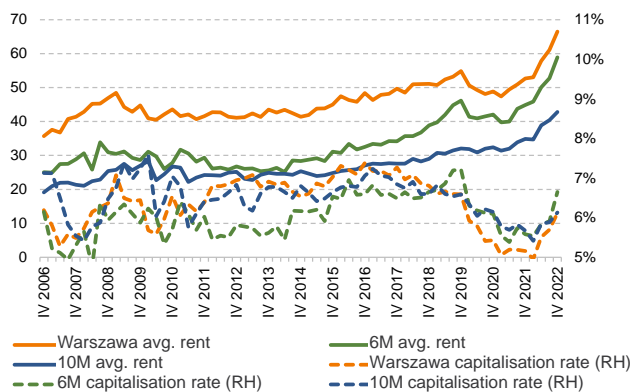
Figure 14 Average rent rates (offers and transactions) per square metre of housing - SM, selected markets



Note: in 2020 the change of sample was observed.

Source: NBP

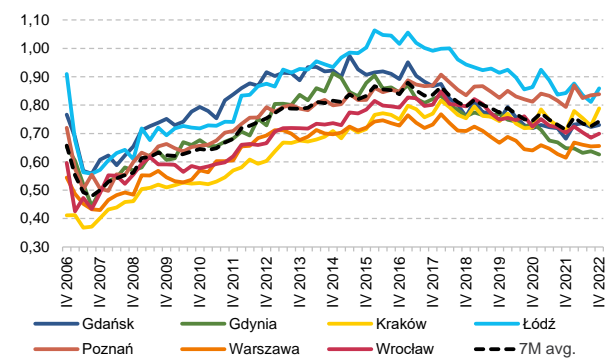
Figure 15 Average rent rates (transactions) in PLN per sq.m of housing in SM (LHS) and the estimated capitalisation rate of an investment in rental housing (RHS) in selected groups of cities



Note to Figure 15: the average transaction price per 1 sq.m of housing calculated as 50% of PM price and 50% of SM price; the price per square metre of housing in the PM was increased to include the average costs of home finishing; the analysis does not take into account the high transaction costs in the housing market and the potentially long period of divestment.

Source: NBP

Figure 16 Estimated affordability of housing in 7M based on average wage in the enterprise sector (sq. m)

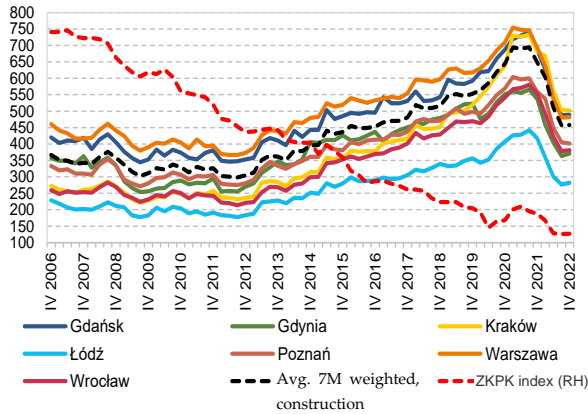


Housing affordability – a measure of potential affordability to purchase housing at the transaction price for an average wage in the enterprise sector in a particular city. It expresses the number of square meters of housing that can be purchased for an average wage in the enterprise sector in a particular city (Statistics Poland) and at an average transaction price in a particular market (40% in the PM and 60% in the SM according to the NBP database).

Source: NBP, Statistics Poland

2. Affordability of loan-financed housing, loan availability, profitability of investment in housing

Figure 17 Estimated affordability of loan-financed housing and Accumulated Lending Policy Index of banks concerning housing (ZKPK; RHS)



Source: NBP, Statistics Poland

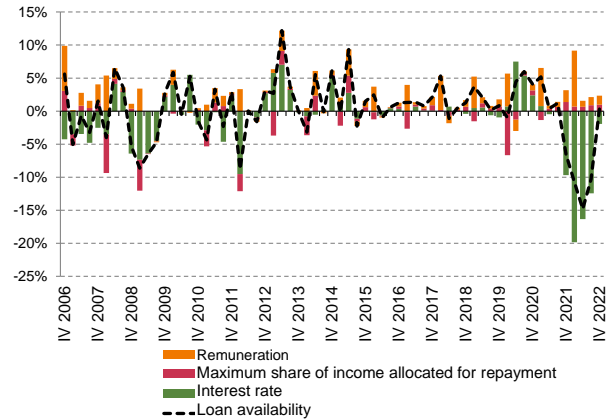
Affordable residential mortgage loan – a measure specifying the potential maximum residential mortgage loan expressed in PLN thousand in a given market, taking into account banks’ lending requirements and loan parameters (interest rate, amortisation period, minimum subsistence wage as the minimum income after payment of loan instalments).

Affordability of loan-financed housing – a measure specifying how many square meters of housing may be purchased with a mortgage loan obtained basing on the average monthly wage in the enterprises sector in a particular market (Statistics Poland), in view of bank’s lending requirements and loan parameters (interest rate, depreciation period, social minimum wage understood as the minimum income after payment of loan instalments) at an average transaction price of housing (40% in the PM and 60% in the SM) in a particular market (BaRN). The pace of changes of the index and differences between particular markets provide important information.

ZKPK Index – accumulated index of changes in banks’ lending policy criteria; positive values mean easing, and negative values tightening of lending policy as compared to the initial period i.e. 2003 Q4. positive values of ZKPK mean easing and negative values - tightening of the banks’ lending policy in relation to the initial period, i.e. 2003 Q4. ZKPK data have been updated. Description of the index calculation method in “The situation in the credit market - results of senior loan officers survey”, October 2012, NBP.

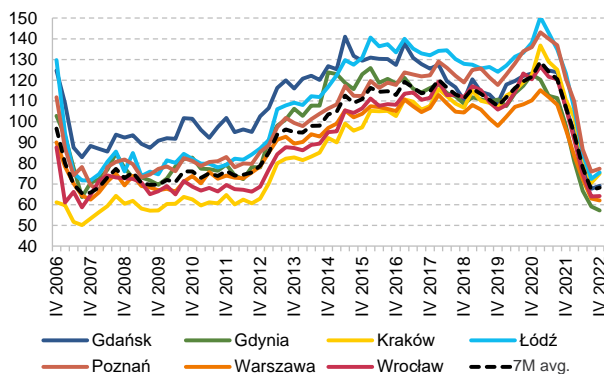
The interest on the residential mortgage loan weighted by the proportions of PLN- and foreign-currency denominated loans.

Figure 18 Quarterly changes in the estimated affordability of loan-financed housing in 7M and the force and directions of the impact of particular components



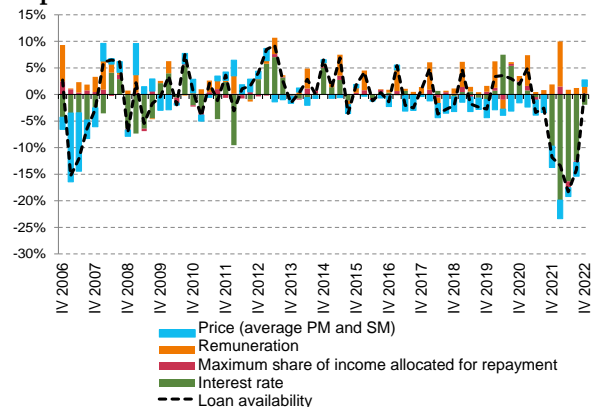
Source: NBP, Statistics Poland

Figure 19 Estimated affordability of loan-financed housing in 7M



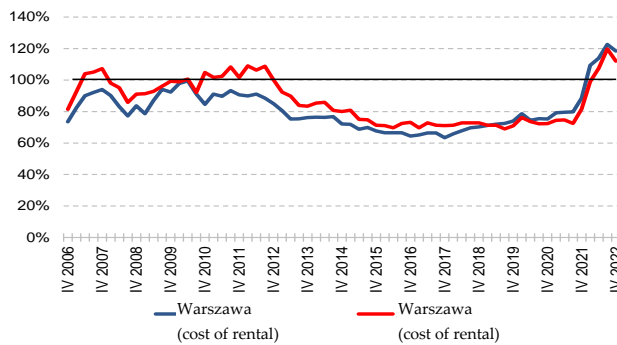
Source: NBP, Statistics Poland

Figure 20 Quarterly changes in the estimated affordability of loan-financed housing in 7M and the force and directions of the impact of individual components



Source: NBP, Statistics Poland

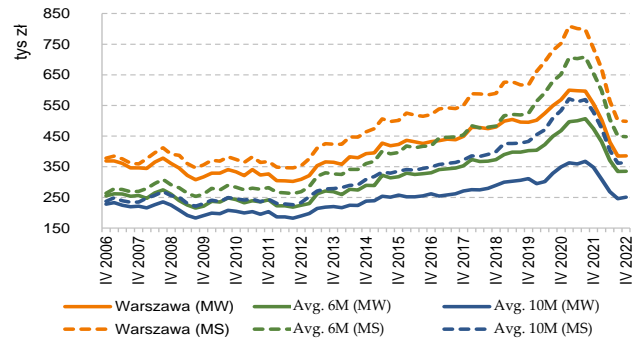
Figure 21 Estimated cost of servicing a residential mortgage loan in relation to the cost of renting a dwelling



Note: the estimate concerns an average 50 sq.m flat; transaction price per 1 sq.m of a flat in PM and SM; residential mortgage loan with a floating interest rate, LTV=80%; rent being the average of offer and transaction prices.

Source: NBP, Statistics Poland

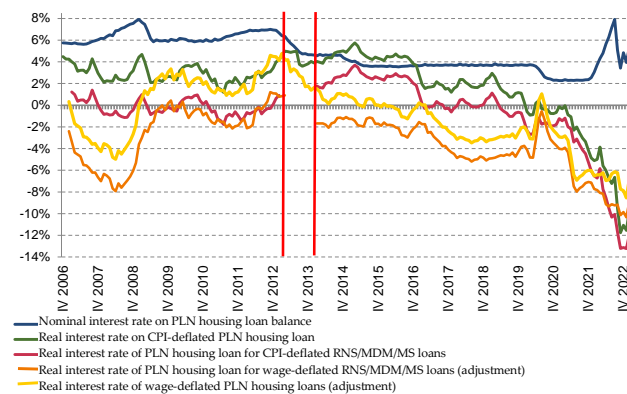
Figure 22 Estimated affordable residential mortgage loan for an average gross wage in the enterprise sector in selected cities



Note: values estimated with the criterion of minimum subsistence wage left (MS) or average monthly wage in the enterprise sector (MW)

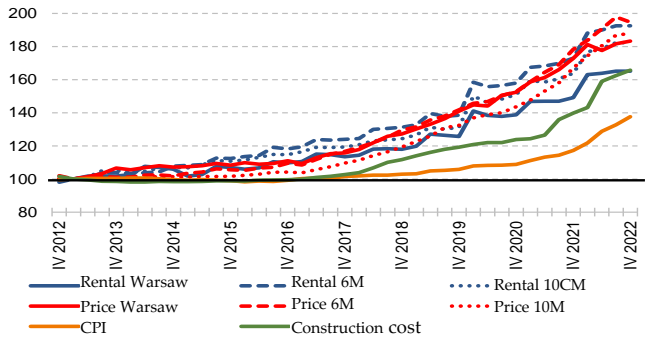
Source: Source: NBP, Statistics Poland, BGK.

Figure 23 Residential mortgage loan burden for consumer deflated with CPI or wage growth in the enterprise sector



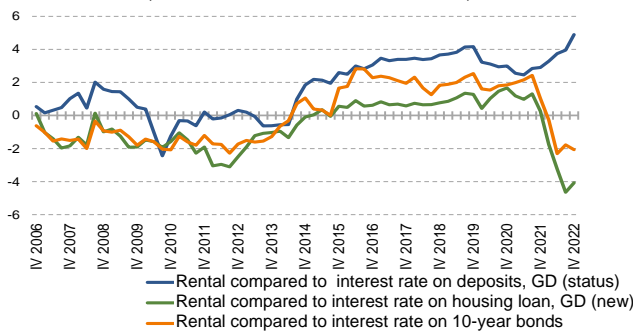
Note: values below 0 denote negative real interest rate for the borrower; red lines separate the period of the absence of the government-subsidised housing scheme, i.e. the RNS scheme (2007-2012), the MDM scheme (2014-2018) and the Housing for the Start (MS) operating since 2019. Source: NBP, Statistics Poland, BGK

Figure 24 Growth rate of changes in the level of transaction prices (Price) and household income (Rental), home construction costs and CPI, average in Warsaw, 6M and 10M (2013 Q1=100)



Note: Transaction price of 1 sq. m. of dwelling 50% SM and 50%PM (including costs of finishing). The primary market price was increased to include the cost of finishing (in 2021 Q4: +1050 PLN/sq.m. in Warsaw, +950 in 6 cities and + 850 in 7 other cities). Cost of construction of half of 1121-302 building (see footnote 32 for details). Source: NBP, Statistics Poland

Figure 25 Profitability of home rental (average in Warsaw and 6M) compared to alternative household investments (differences in interest rates)

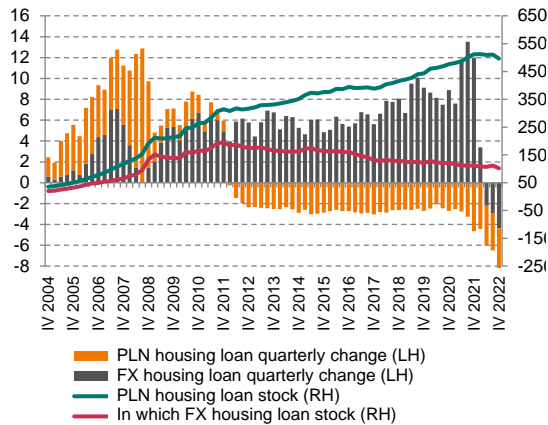


Note to Figure 25: values exceeding 0 denote higher profitability of purchasing property for rental to third parties than other household investment. This analysis does not take into account high transaction costs in the residential market and the potentially long time of divestment.

Source: NBP, Statistics Poland

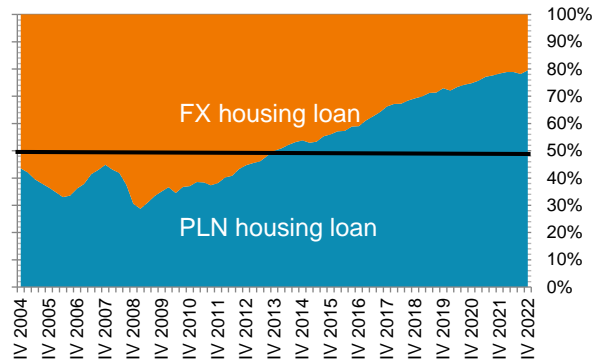
3. Disbursement of residential mortgage loans, interest rates

Figure 26 Balance and quarter-on-quarter changes in housing loan receivables from households after adjustments and the currency structure of quarter-on-quarter changes in residential mortgage loan receivables (PLN billion)



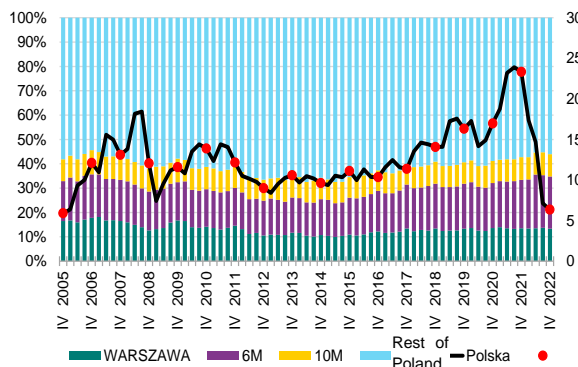
Source: NBP

Figure 27 Currency structure of housing loan receivables from households (%)



Source: NBP

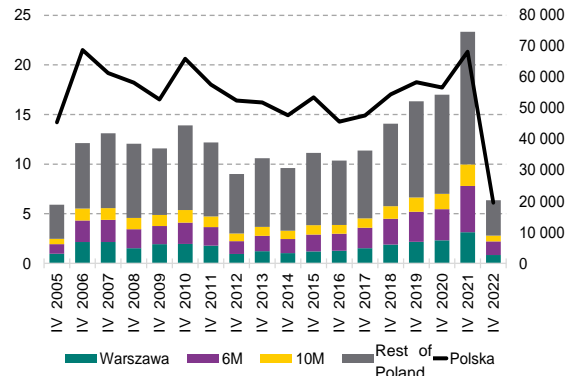
Figure 28 Geographical structure of the value of new PLN-denominated residential mortgage loan contracts in Poland's selected cities (LHS) and the value of contracts in Poland (RHS), quarterly data



Note to Figures 28 and 29: the data signify concluded residential mortgage loan agreements rather than the actual disbursement of loans. Only fourth quarters are marked by red points in Figure 28.

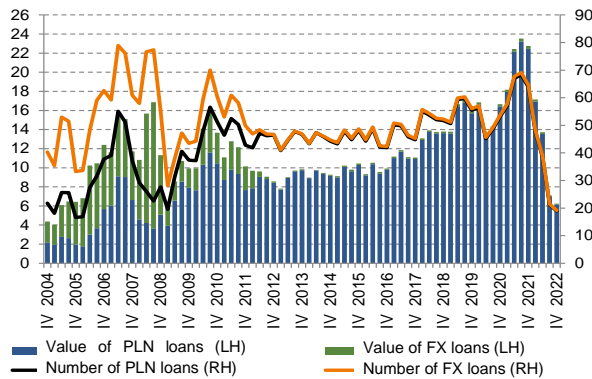
Source: BIK

Figure 29 Value in PLN bn (LHS) and number (RHS) of new PLN-denominated residential mortgage loan contracts in Poland's selected cities in the fourth quarters of 2005-2022



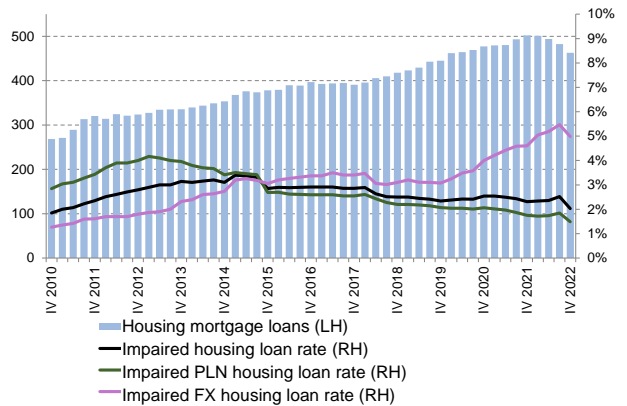
Source: BIK

Figure 30 New residential mortgage loan agreements: value and number, aggregated quarterly data



Source: ZBP (AMRON)

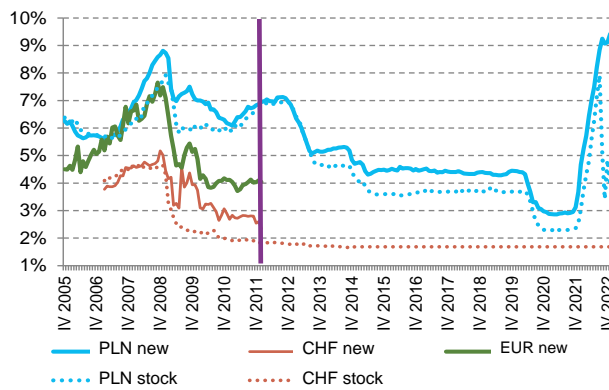
Figure 31 Loans to households for housing real estate and loans recognized as non-performing loans



Note: impaired receivables (loans) – receivables in portfolio B in whose case the objective evidence of impairment and a decrease in the amount of expected future cash flows have been identified (in the banks applying the IFRSs) or which have been recognised as non-performing loan receivables in accordance with the Regulation of the Minister of Finance on establishing provisions against the risk associated with banking activities (in banks applying the PASs).

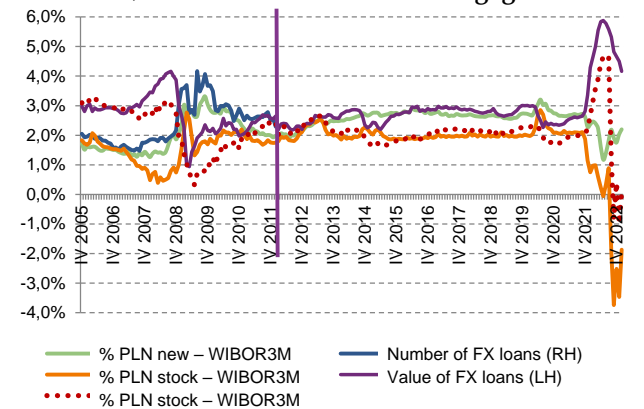
Source: NBP

Figure 32 Interest rates on residential mortgage loans for households in Poland



Source: NBP

Figure 33 Bank margins (3M WIBOR, LIBOR/SARON, EURIBOR) on residential mortgage loans



Source: NBP

Table 3 Estimated gross residential mortgage loan disbursements to households in Poland and the estimated value of cash-financed and loan-financed*/ purchases of developer-built housing in 7 cities (7M; in PLN million)

Date	Disbursement of residential mortgage loans in Poland	Estimated value of housing transactions in the PM in 7M	Loan demand including client's down payment in the PM in 7M	Client's down payment to loans in the PM in 7M	Cash demand for housing (without down payment) in the PM in 7M	Estimated share of cash home purchases in the PM in 7M**/
2012 Q1	5385	3135	1228	307	1907	71%
2012 Q2	7325	3079	1670	418	1409	59%
2012 Q3	7661	2773	1747	437	1026	53%
2012 Q4	7441	3164	1697	424	1467	60%
2018 Q1	11914	7015	2716	679	4299	71%
2018 Q2	12807	6072	2920	730	3152	64%
2018 Q3	13024	5697	2969	742	2727	61%
2018 Q4	12584	6759	2869	717	3890	68%
2019 Q1	11865	7156	2705	676	4450	72%
2019 Q2	14653	6713	3341	835	3372	63%
2019 Q3	14554	7282	3318	830	3964	66%
2019 Q4	12770	8147	2912	728	5235	73%
2020 Q1	14871	9059	3391	848	5669	72%
2020 Q2	13009	3260	2966	742	294	32%***/
2020 Q3	13859	6565	3160	790	3405	64%
2020 Q4	16185	6834	3690	923	3144	60%
2021 Q1	17392	9875	3965	991	5909	70%
2021 Q2	22244	10072	5072	1268	5000	62%
2021 Q3	23607	8009	5382	1346	2626	50%
2021 Q4	23074	8509	5261	1315	3249	54%
2022 Q1	17591	6171	4011	1003	2160	51%
2022 Q2	15601	5611	3557	889	2054	52%
2022 Q3	9196	4165	2097	524	2068	62%
2022 Q4	7352	5274	1676	419	3598	76%

Note to Table 2: the estimates are based on the following assumptions:

The value of loan disbursements is based on the data collected from the banks.

*/ Loan-financed home purchases comprise purchases made with a loan and the minimum share of cash (a down payment of 25% was assumed; in big cities, a down payment of 20% more prudently than the requirement of the amended Recommendation S), whereas home cash purchases make a difference between the value of transactions and credit funds.

In order to calculate the estimated value of PM transactions in 7M (Gdańsk, Gdynia, Kraków, Łódź, Poznań, Warszawa, Wrocław), the average home price 7M (NBP) was multiplied by the average home size in square metres (Statistics Poland data) and the number of housing units sold (based on JLL data). On the basis of ZBP data it was assumed that the value of newly granted loans for the purchase of housing in the primary markets of 7M amounts to approx. 57%. The estimated value of cash transactions was calculated as the difference between transactions in 7C and disbursements of loans requiring buyer's own contribution (down-payment). Data concerning prices for all the periods have been updated.

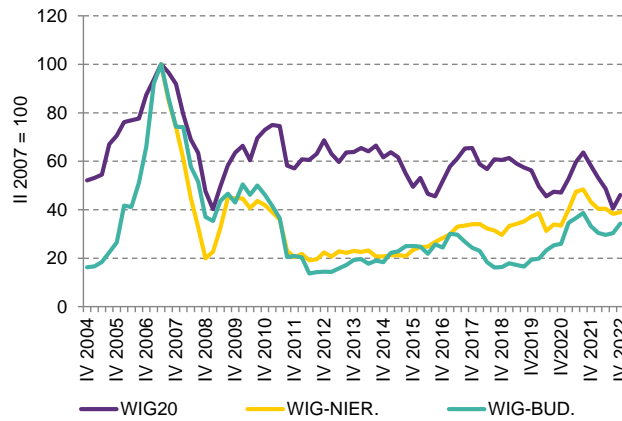
**/ Other real estate sold/exchanged may also be the source of own funds.

***/ The decline in the estimated proportion of home purchases in the PM in 7M involving the buyers' own funds seen in 2020 Q2 was due to very low sales of dwellings in this period, resulting from pandemic restrictions on movement and the disbursements under loan agreements entered into in prior periods.

Source: NBP, JLL, ZBP, Statistics Poland

4. Operating ROE on housing and real estate development projects, costs of construction and assembly output and economic situation of real estate developers in Poland

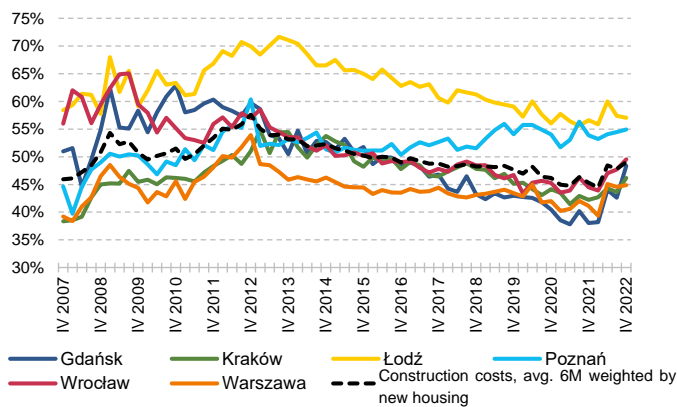
Figure 34 Rescaled exchange indices: WIG20 and for real estate developers (WIG-NIER) and construction companies (WIG-BUD) (2007 Q2=100)



Note: data standardised, 2007 Q2 = 100 (developers' WIG has been listed since 2007 Q2); 2022 Q4, as at 21 February 2023.

Source: Warsaw Stock Exchange

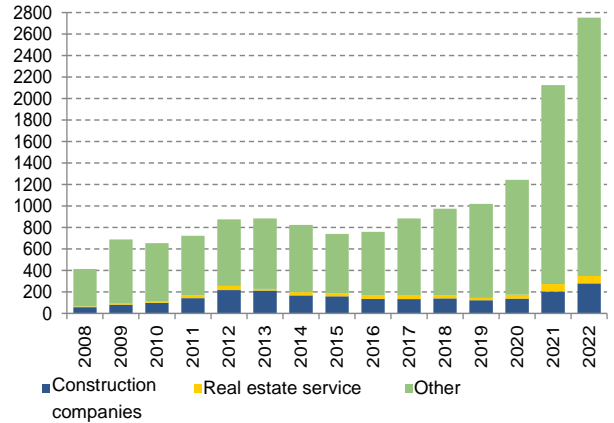
Figure 36 Estimated share of direct construction costs per square metre of the usable floor area of a residential building (type 1122-302³²) in net transaction price in PM 6M



Note to Figures 36 and 37: Since 2014 NBP has used its own appraisal of land for residential multifamily construction.

Source: NBP based on Sekocenbud.

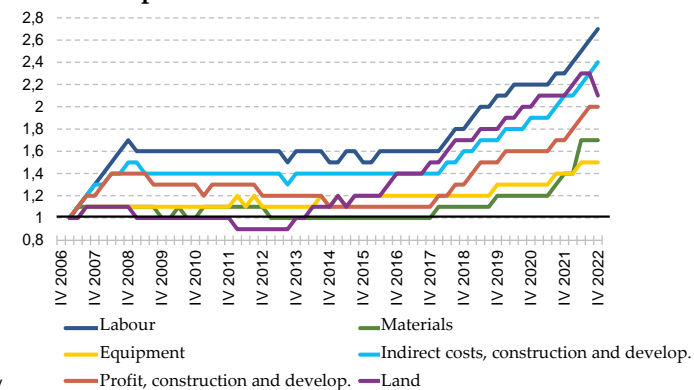
Figure 35 Structure and number of bankruptcies of enterprises, including in the construction industry (end of 2022)



Note: breakdown according to the first entry in the National Court Register.

Source: Coface Poland

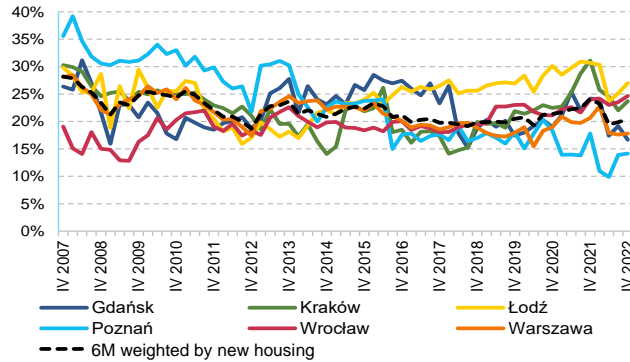
Figure 37 Change in the estimated share of construction costs per square metre of usable floor area of a residential building (type 1122-302³¹) in net transaction price in PM 6M (I 2007=1)



Source: NBP based on Sekocenbud.

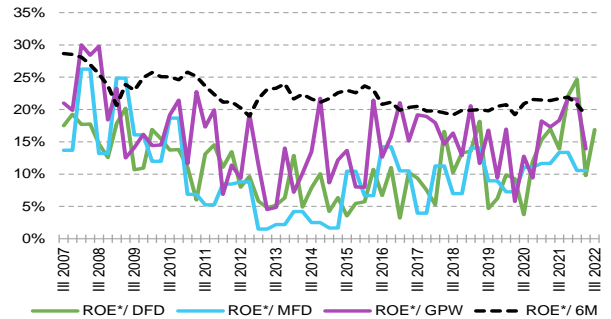
³² Half of the building (type 1122-302) monitored by NBP since 2016 Q2 based on Sekocenbud data.. An average residential multifamily building, with an underground garage, constructed in the technology: foundation footings, construction walls and ceilings - monolithic reinforced concrete, curtain walling - bricked walls of hollow MAX blocks. Change of the type of the analysed building in 2017 is related to closing of the cost estimation of the building 1121. Analytical assumptions related to building 1121 have been maintained.

Figure 38 Estimated ROE on investment projects (type 1122-302³¹) in the largest cities



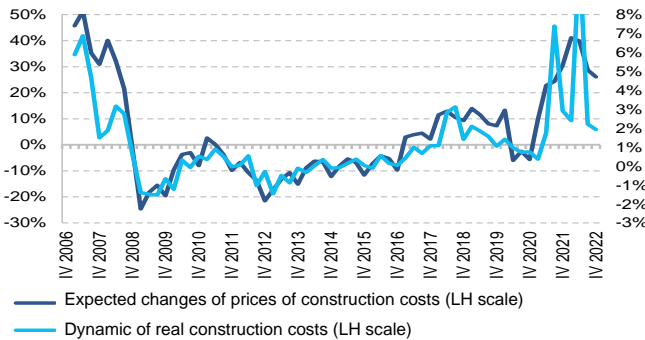
*/modified ROE = net financial result / (sales revenue – net sales revenue); **/ DFD – average Big Developer (with 50 and more staff, according to Statistics Poland), ***/ MFD – average Small Developer (with 9-49 staff),
 Source: NBP based on Sekocenbud, Statistics Poland (F01)

Figure 39 Estimated ROE achieved on development projects by developers listed on the Warsaw Stock Exchange*, big developers (DFD)/ and small developers (MFD)***/ as well as on investment projects in 6M**



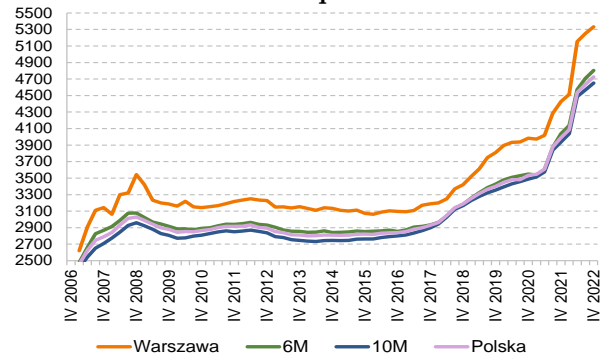
Source: NBP based on Sekocenbud, Financial Statements, Statistics Poland (F01)

Figure 40 Expected changes in prices of construction and assembly works (+3M) and growth in construction costs of usable floor area of a residential building (type 1122-302³¹)



Source: NBP based on data published by Statistics Poland (business conditions survey), Sekocenbud.

Figure 41 Average cost of building 1 sq. m of usable floor area of a residential building (type 1122-302³¹) in selected markets (PLN/sq. m)



Source: NBP based on Sekocenbud.

Figure 42 Warsaw – estimated structure of price per square metre of housing usable floor area in the PM (building type 1122-302³¹) for consumers

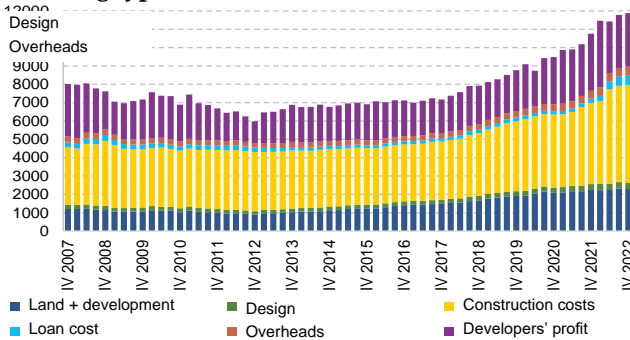
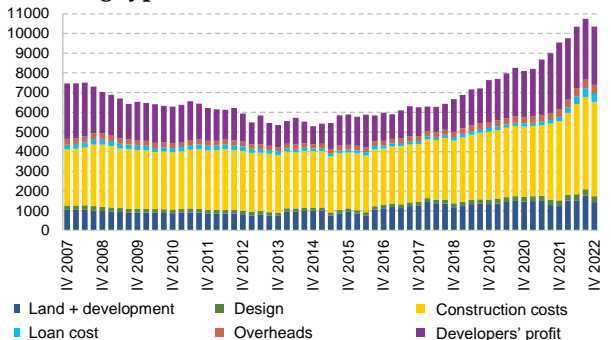
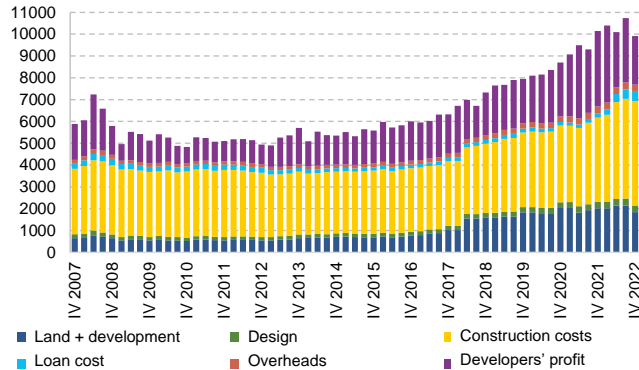


Figure 43 Kraków – estimated structure of price per square metre of housing usable floor area in the PM (building type 1122-302³¹) for consumers



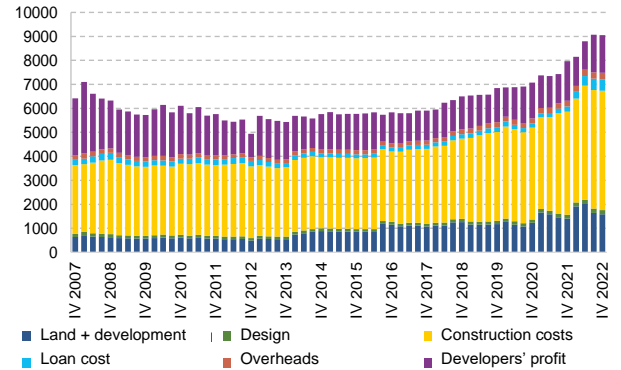
Note to Figures 42-47: The calculation of “Gross profit on sales” does not take into account, among others, the developer’s overheads and general financial costs.
 Source: NBP based on Sekocenbud, JLL

Figure 44 Gdańsk – estimated structure of price per square metre of housing usable floor area in the PM (building type 1122- 302 ³¹) for consumers



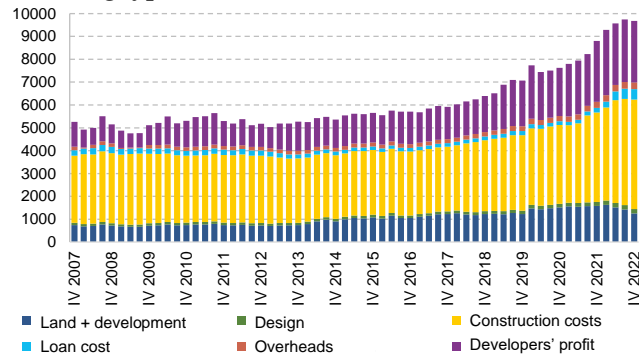
Source: NBP based on Sekocenbud, JLL

Figure 45 Poznań – estimated structure of price per square metre of housing usable floor area in the PM (building type 1122- 302 ³¹) for consumers



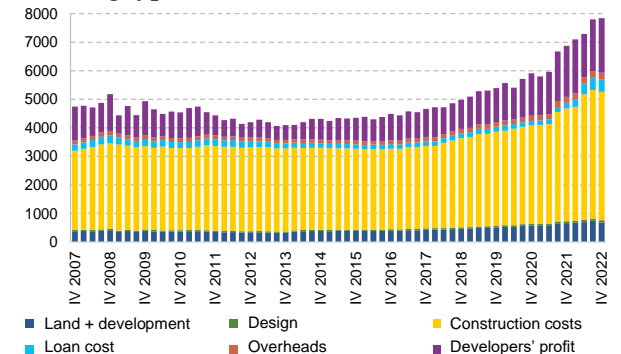
Source: NBP based on Sekocenbud, JLL

Figure 46 Wrocław – estimated structure of price per square metre of housing usable floor area in the PM (building type 1122- 302 ³¹) for consumers



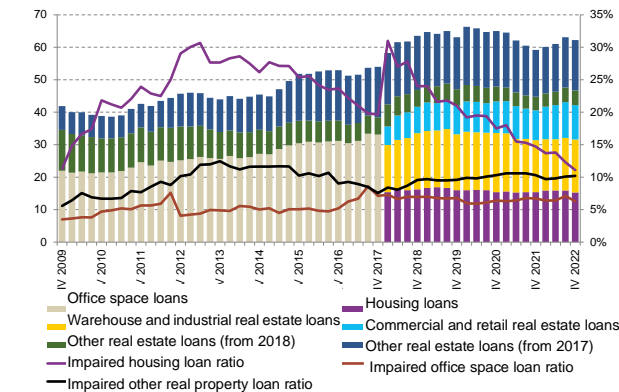
Source: NBP based on Sekocenbud, JLL

Figure 47 Łódź – estimated structure of net price per square metre of housing usable floor area in PM (building type 1122- 302 ³¹) for consumers



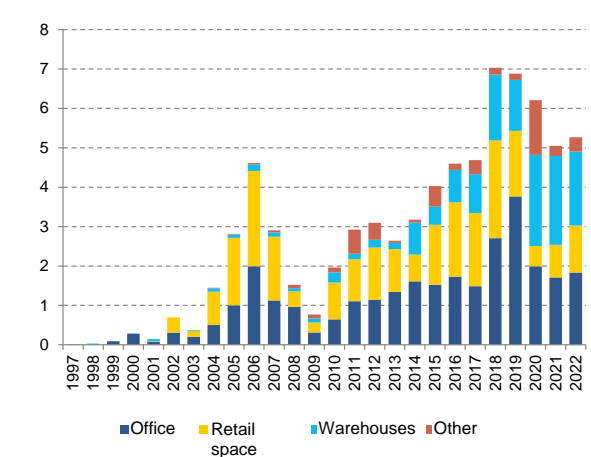
Source: NBP based on Sekocenbud, JLL

Figure 48 Loans to corporations for real estate purchases (in PLN billion, left-hand scale) and the share of loans recognised as non-performing loans (in %, right-hand scale)



Note: data excluding BGK. Since 2018, new accounting standards have been in place. Source: NBP

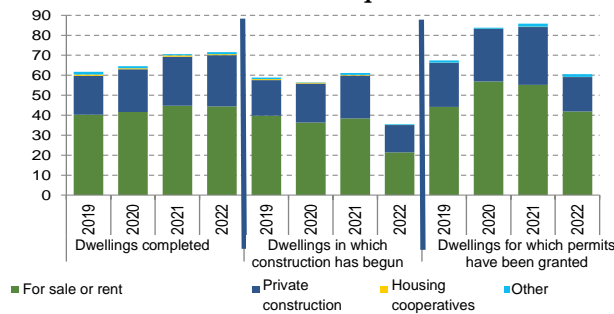
Figure 49 Value of investment transactions in the commercial real estate market (EUR billion)



Source: Comparables.pl

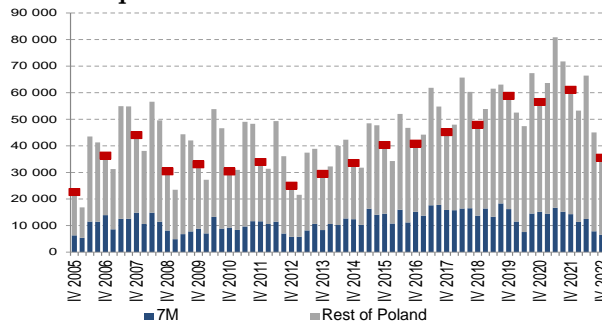
5. Residential construction and the housing market in Poland's selected cities

Figure 50 Structure of residential construction investors in Poland in the fourth quarters in 2019–2022



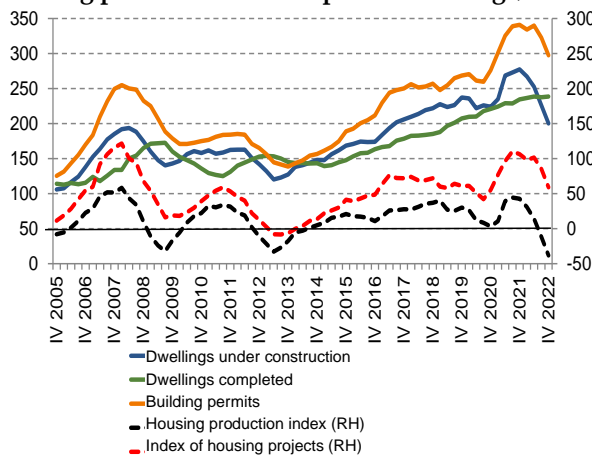
Source: Statistics Poland

Figure 52 Dwellings under construction in Poland, in quarter-on-quarter terms



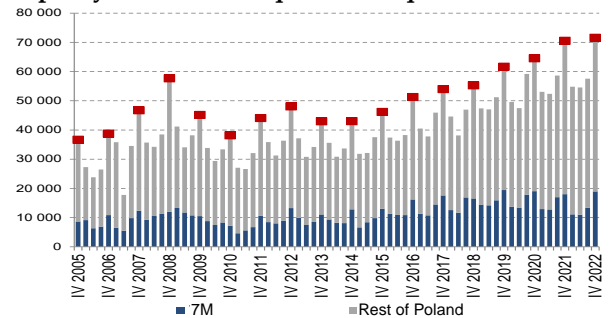
Note: only fourth quarters have been marked in red. Source: Statistics Poland

Figure 54 Housing construction in Poland (in thousands of dwellings), dwellings under construction (dwellings under construction minus completed dwellings) and investment projects in progress (home building permits minus completed dwellings)



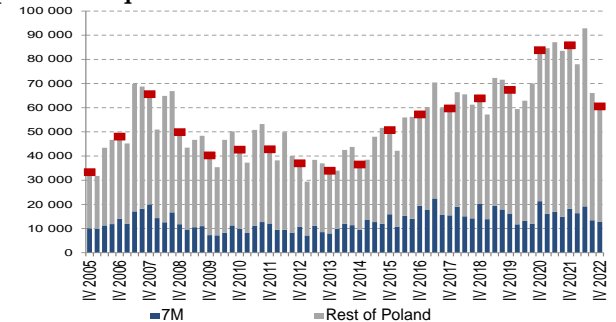
Note: rolling averages for four consecutive quarters. Source: NBP based on PABB and Statistics Poland

Figure 51 Dwellings completed and made ready for occupancy in Poland, in quarter-on-quarter terms



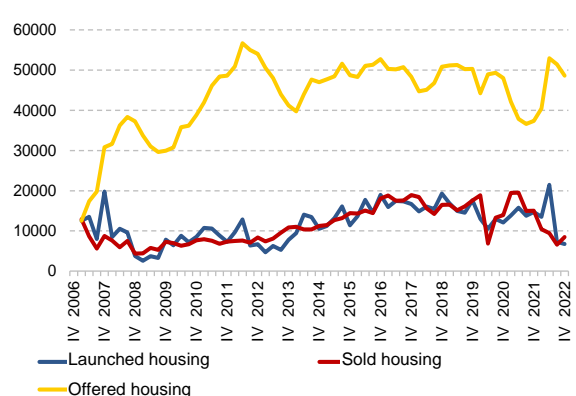
Note: only fourth quarters have been marked in red. Source: Statistics Poland

Figure 53 Home building permits issued in Poland, in quarter-on-quarter terms



Note: only fourth quarters have been marked in red. Source: Statistics Poland

Figure 55 Number of contracts for the construction of dwellings put on the market, both sold and offered for sale in Poland's 6 largest markets.*



Note: an estimate of the number of dwellings put on the market in actual rather than statistical terms; *Warsaw, Kraków, Tricity, Wrocław, Poznań, Łódź. Source: JLL

Figure 56 Housing supply and the estimated rate of return on housing development projects in PM in 7M

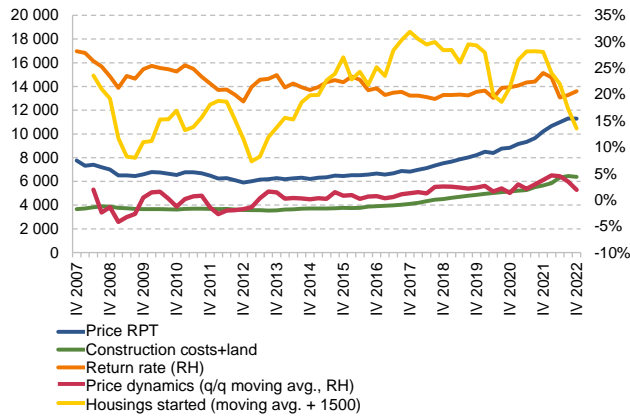
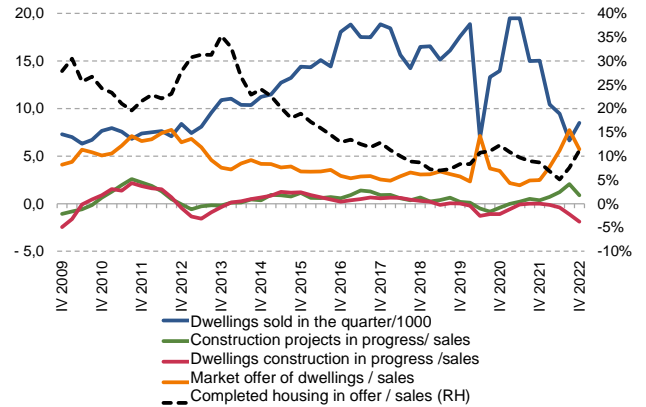


Figure 57 Housing projects, dwellings under construction and finished dwellings offered relative to sales in 7M



Note to Figure 57: Housing projects under construction = building permits for dwellings minus completed dwellings; Dwellings under construction = started dwellings minus completed dwellings. Aggregate values for the last 4 quarters, divided by sales in the given period.

Source: NBP, Statistics Poland, JLL, Sekocenbud.

Source: NBP based on Statistics Poland, JLL.

Figure 58 Measure of the match between dwellings offered vs. demand in terms of floor area ≤ 50 sq. m, PM in selected cities of Poland

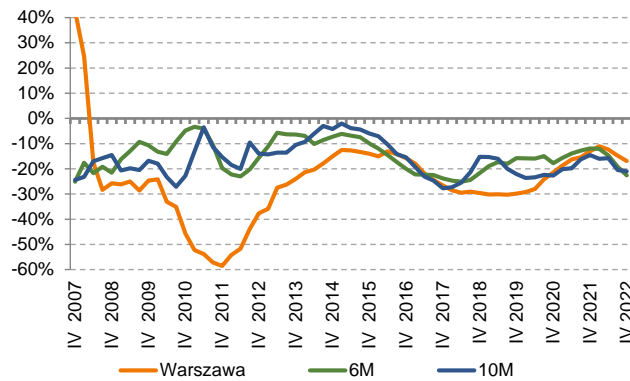
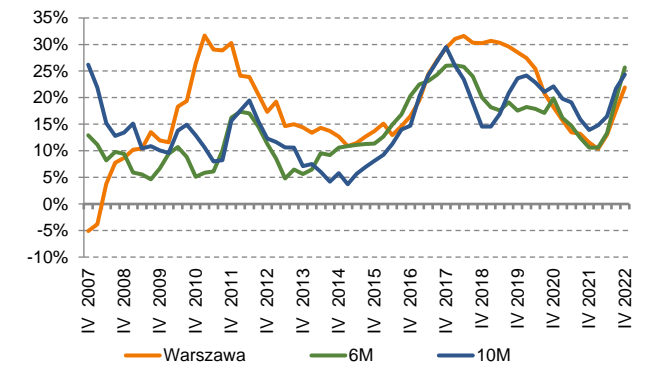


Figure 59 Measure of the match between dwellings offered vs. demand in terms of floor area >50 sq. m, PM in selected cities of Poland

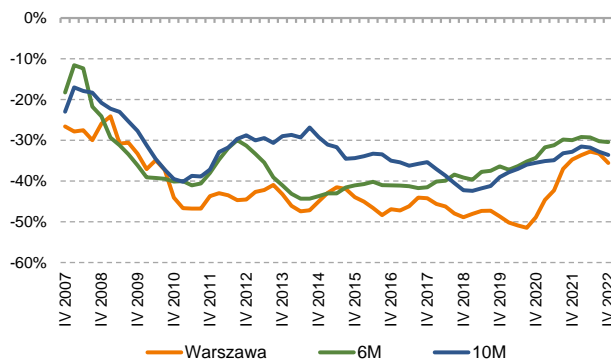


Note: Figure 58 presents, in percentage terms, a short-term mismatch in the primary market between supply (developers' housing offer) and the estimated demand (housing transactions) in terms of the dwelling's size, according to the data from the BaRN database. The mismatch is calculated as the ratio of the share of housing units with usable area of up to 50 square meters offered for sale to the number of transactions involving housing units with a total area of up to 50 square meters (the average figure for the last four quarters). A positive result (above the black line) indicates the surplus of dwellings of a particular size, a negative result – their deficit. Figure 59 is parallel for the space above 50 sq.m. Figures 60-61 are parallel, but they concern the SM only.

Source: NBP

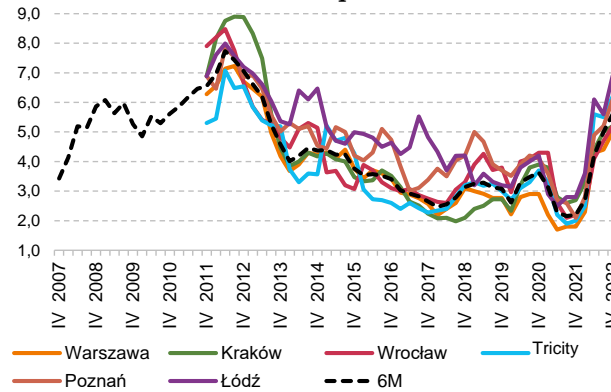
Source: NBP

Figure 60 Measure of adjustment of housing units on offer to demand in terms of area ≤ 50 sq. m, SM in selected cities of Poland



Source: NBP

Figure 62 Timeline for selling dwellings offered in PM in selected cities (number of quarters)

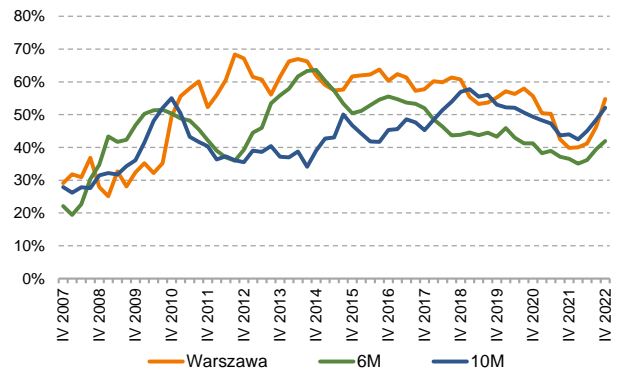


Note: Timeline for selling dwellings in a primary real estate markets is the relation of the number of

dwellings on offer at the end of the current quarter in relation to the sales of contracts in the last quarter.

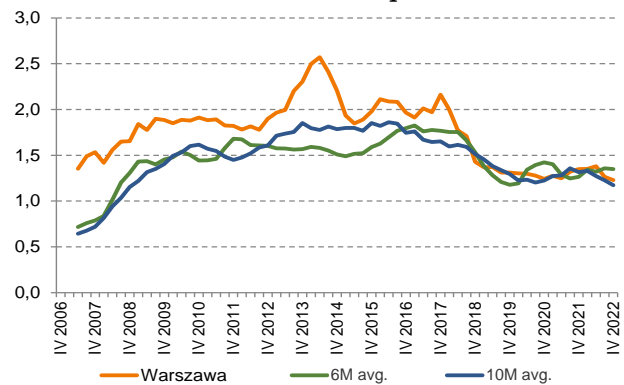
Source: NBP based on JLL.

Figure 61 Measure of adjustment of housing units on offer to demand in terms of area > 50 sq. m, SM in selected cities of Poland



Source: NBP

Figure 63 Timeline for selling dwellings offered in SM in selected cities (number of quarters)

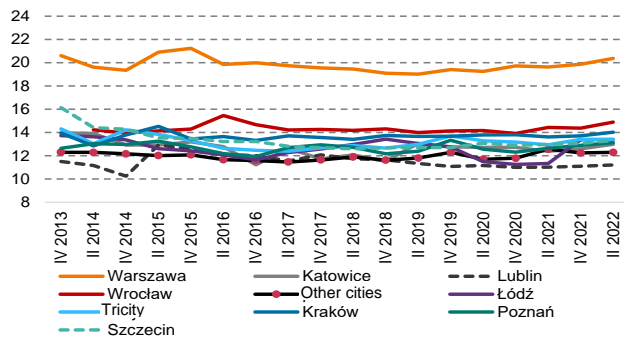


Note: Timeline for selling dwellings, averaged for the past four quarters; the data are not comparable to Figure 62. Only closed sale transactions are included in the time to sell a dwelling in the secondary property markets. The data are understated since they do not contain offers listed but not yet sold.

Source: NBP

6. Offer prices of commercial real estate and the estimated rate of return

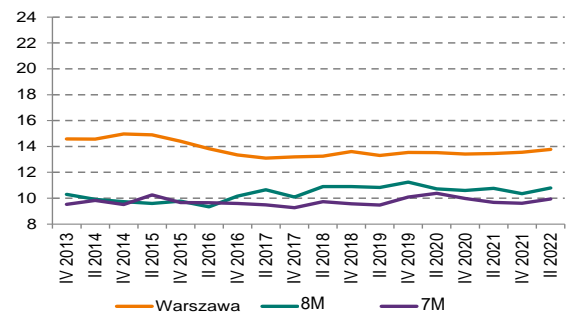
Figure 64 Transaction rents for A class office space (average prices in EUR/sq.m./month)



Note: other cities include: Białystok, Bydgoszcz, Kielce, Olsztyn, Opole, Rzeszów, Zielona Góra.

Source: NBP

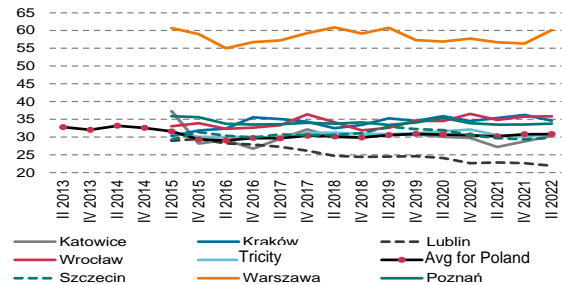
Figure 65 Transaction rents for B class office space (average prices in EUR/sq.m./month)



Note: 8 cities include: Katowice, Kraków, Lublin, Łódź, Poznań, Szczecin, Tricity, Wrocław. 7 cities are: Białystok, Bydgoszcz, Kielce, Olsztyn, Opole, Rzeszów, Zielona Góra.

Source: NBP

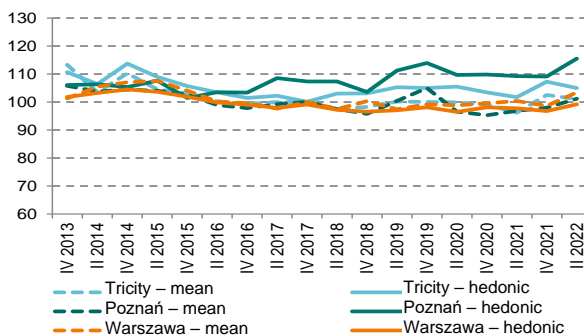
Figure 66 Transaction rents for retail space in shopping centres (shopping malls) with an area of 100-500 sq. m (EUR/sq.m./month)



Note to Figure 66: as of the beginning of 2015 Q4, the number of records in the database, including respondents, has increased significantly, consequently changing the analysed sample.

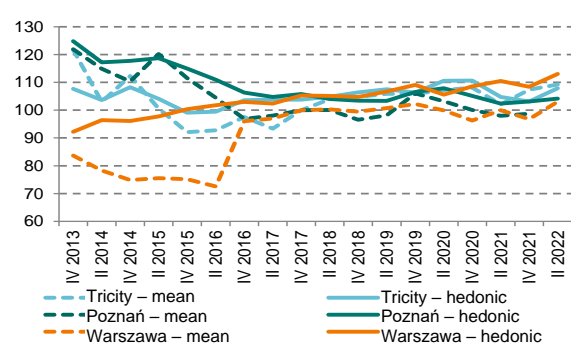
Source: NBP

Figure 67 Index of rents for offices, average and hedonic (2017 Q4 = 100)



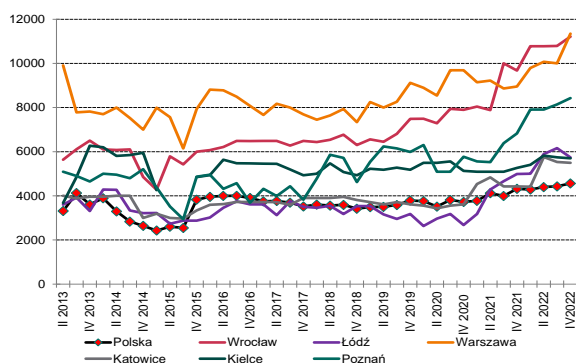
Source: NBP

Figure 68 Index of rents for shopping centres, average and hedonic (2017 Q4 = 100)



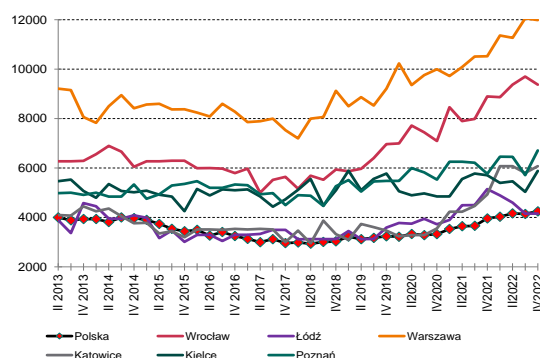
Source: NBP

Figure 69 Median of offer selling price of small office premises in SM (PLN/sq.m.)



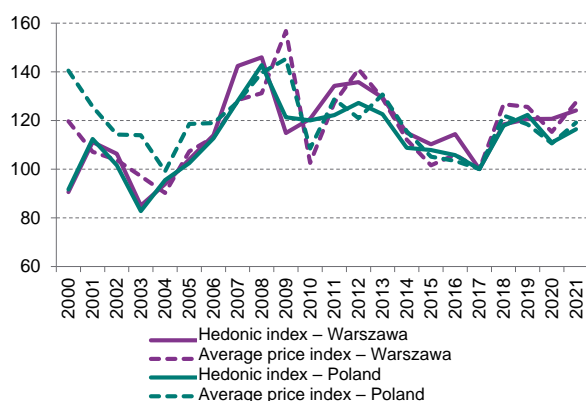
Source: PONT, NBP report.

Figure 70 Median of offer selling price of small retail premises in the SM (PLN/sq.m.)



Source: PONT, NBP report.

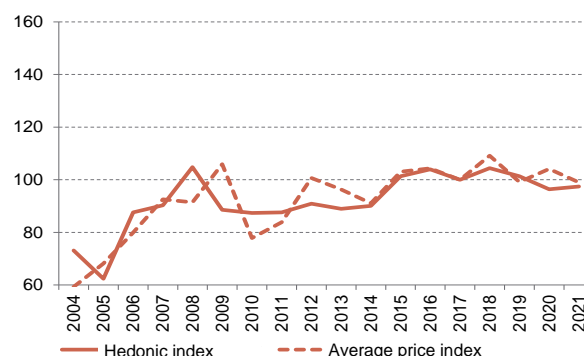
Figure 71 Growth of average and hedonic prices of office real estate in Warsaw and the whole of Poland (2017=100) and the index of implied price for Warsaw



Note: The analysis comprises transaction prices and bank appraisals of commercial properties.

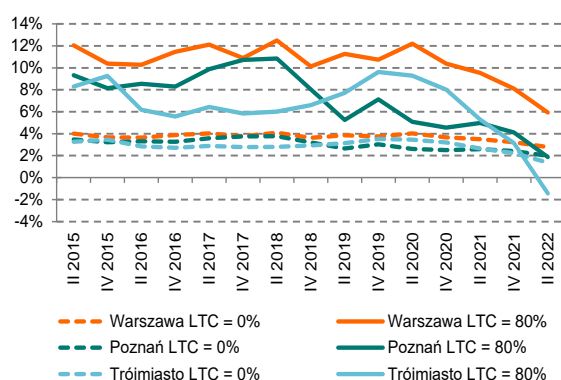
Source: NBP, Comparables.pl, AMRON

Figure 72 Growth of average and hedonic prices of retail real estate in the whole of Poland (2017=100)



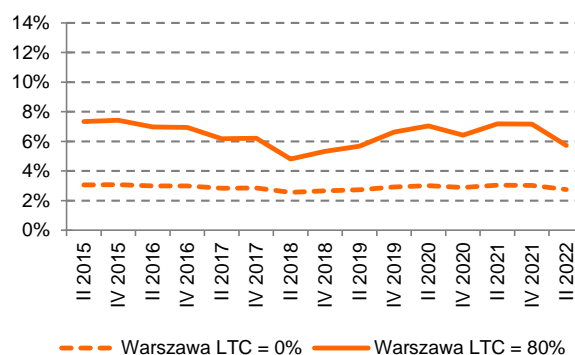
Note: The analysis comprises transaction prices and bank appraisals of commercial properties.

Source: NBP, Comparables.pl, AMRON

Figure 73 Estimated rate of return on equity (ROE) from investment in the building and putting to commercial use of A class office building


Note: A description of the ROE calculation method can be found under Tables 3 to 5. Differences in the ROE ratio between cities result from different levels of construction costs and different levels of effective rents, i.e. rents adjusted for the vacancy rate in a particular market.

Source: NBP, Sockenbud, NBP report.

Figure 74 Estimated rate of return on equity (ROE) from investment in B class office space from the existing stock in Warsaw


Note: A description of the ROE calculation method can be found under Table 6.

Source: NBP, Comparables.pl, AMRON, NBP report

Table 4 Estimated rate of return on equity from investment in the building and putting to commercial use of A class office building in Warsaw

Date	Average rent per sq.m of space in EUR - A class	Cost of constructed usable area of offices including land, per sq.m in EUR	ROE at LTC = 0%	ROE at LTC = 50%	ROE at LTC = 80%	Average market rates of 10-year Treasury bonds
2015 Q4	21.23	2774	3.7%	5.3%	10.4%	2.8%
2016 Q4	19.96	2714	3.9%	5.8%	11.5%	3.3%
2017 Q4	19.53	2846	3.8%	5.5%	10.9%	3.4%
2018 Q4	18.95	2949	3.6%	5.2%	10.1%	3.1%
2019 Q4	19.34	3123	3.7%	5.5%	10.7%	2.0%
2020 Q2	19.15	3028	4.0%	6.1%	12.2%	1.4%
2020 Q4	19.71	3052	3.7%	5.3%	10.4%	1.3%
2021 Q2	19.63	3065	3.5%	5.0%	9.5%	1.5%
2021 Q4	19.86	3252	3.2%	4.4%	8.1%	2.4%
2022 Q2	20.37	3615	2.8%	3.6%	5.9%	5.5%

Assumptions: The costs of construction of the office building (Sekocenbud data) were increased by 15% of the developer's costs related to organisation of the investment and commercialisation of the building, as well as the cost of land estimated by experts (based on public information). Loan in euro for 25 years, equal instalments, payable four times a year. Building depreciation of 2.5%, standard for commercial real estate. On the income side, the effective rent has been taken into account, i.e. the average rent adjusted by the vacancy rate in a given market. The calculated payback from investment includes the depreciation cost of the building. CIT is included. ROE means net profit/equity contributed.

Source: NBP (rents and calculations), MF (rates of return on 10-year bonds), estimation of construction costs based on Sekocenbud data, BCO Bulletin of process of construction facilities, part I - non-residential buildings, facility 1220-102.

Table 5 Estimated rate of return on equity from investment in the building and putting to commercial use of A class office building in Poznań

Date	Average rent per sq.m of space in EUR - A class	Cost of constructed usable area of offices including land, per sq.m in EUR	ROE at LTC = 0%	ROE at LTC = 50%	ROE at LTC = 80%	Average market rates of 10-year Treasury bonds
2015 Q4	12.8	1645	3.2%	4.5%	8.1%	2.8%
2016 Q4	11.9	1593	3.3%	4.5%	8.3%	3.3%
2017 Q4	12.9	1731	3.7%	5.5%	10.7%	3.4%
2018 Q4	12.2	1825	3.2%	4.4%	8.0%	3.1%
2019 Q4	13.3	1984	3.0%	4.1%	7.1%	2.0%
2020 Q2	12.6	1977	2.6%	3.2%	5.1%	1.4%
2020 Q4	12.3	1989	2.5%	3.0%	4.6%	1.3%
2021 Q2	12.7	2012	2.6%	3.2%	5.0%	1.5%
2021 Q4	12.7	2168	2.4%	2.8%	4.1%	2.4%
2022 Q2	12.9	2430	2.0%	2.0%	1.9%	5.5%

Assumptions: see Table 4

Source: NBP (rents and calculations), MF (rates of return on 10-year bonds), estimation of construction costs based on Sekocenbud data, BCO Bulletin of process of construction facilities, part I - non-residential buildings, facility 1220-102.

Table 6 Estimated rate of return on equity from investment in the building and putting to commercial use of A class office building in the Tricity

Date	Average rent per sq.m of space in EUR - A class	Cost of constructed usable area of offices including land, per sq.m in EUR	ROE at LTC = 0%	ROE at LTC = 50%	ROE at LTC = 80%	Average market rates of 10-year Treasury bonds
2015 Q4	12.7	1728	3.5%	4.9%	9.2%	2.8%
2016 Q4	12.1	1696	2.7%	3.4%	5.6%	3.3%
2017 Q4	12.1	1778	2.8%	3.6%	5.9%	3.4%
2018 Q4	12.7	1829	2.9%	3.8%	6.6%	3.1%
2019 Q4	13.5	1972	3.5%	5.1%	9.6%	2.0%
2020 Q2	13.2	2013	3.5%	4.9%	9.3%	1.4%
2020 Q4	13.0	2040	3.2%	4.4%	8.0%	1.3%
2021 Q2	12.8	2106	2.7%	3.3%	5.3%	1.5%
2021 Q4	13.2	2214	2.2%	2.5%	3.1%	2.4%
2022 Q2	13.3	2549	1.4%	0.7%	-1.4%	5.5%

Assumptions: see Table 4

Source: NBP (rents and calculations), MF (rates of return on 10-year bonds), estimation of construction costs based on Sekocenbud data, BCO Bulletin of process of construction facilities, part I - non-residential buildings, facility 1220-102.

Table 7 Estimated rate of return on equity from investment in the purchase of B class office building from the existing stock in Warsaw

Date	Average rent per sq.m of space in EUR	Smoothed price per sq.m of space in EUR	Calculated capitalisation rate (yield)	ROE at LTC = 0%	ROE at LTC = 50%	ROE at LTC = 80%	Average market rates of 10-year Treasury bonds
2016 Q2	13.8	2162	7.7%	3.0%	4.0%	7.0%	3.0%
2016 Q4	13.3	2080	7.7%	3.0%	4.0%	6.9%	3.3%
2017 Q2	13.1	2104	7.5%	2.8%	3.7%	6.2%	3.3%
2017 Q4	13.2	2117	7.5%	2.8%	3.7%	6.2%	3.4%
2018 Q2	13.2	2268	7.0%	2.6%	3.1%	4.8%	3.2%
2018 Q4	13.6	2284	7.1%	2.7%	3.3%	5.3%	3.1%
2019 Q2	13.3	2194	7.3%	2.7%	3.5%	5.7%	2.7%
2019 Q4	13.5	2144	7.6%	2.9%	3.8%	6.6%	2.0%
2020 Q2	13.5	2102	7.7%	3.0%	4.0%	7.0%	1.4%
2020 Q4	13.4	2143	7.5%	2.9%	3.8%	6.4%	1.3%
2021 Q2	13.5	2085	7.8%	3.0%	4.1%	7.2%	1.5%
2021 Q4	13.6	2104	7.8%	3.0%	4.1%	7.2%	2.4%
2022 Q2	13.8	2274	7.3%	2.7%	3.5%	5.7%	5.5%

Assumptions: The analysis takes into account contractual rents for B class office space, and transaction prices and appraisals of B class office real estate. As there are relatively few transaction prices and appraisals of class B office real estate in a given six-month period, a moving average has been applied, calculated on the basis of the price in a given six-month period and the previous and the next half-year period, with equal weights.

Loan in euro for 25 years has been assumed, equal instalments, payable four times a year. Building depreciation of 2.5%, standard for commercial real estate. It was assumed that the cost of land in the cost of investment is 20%. The calculated capitalisation rate includes the depreciation cost of the building. CIT is included. ROE means net profit/equity contributed.

Source: NBP (data and calculations), MF (rates of return on 10-year bonds)

Table 8 Average prices of housing sq. m in the PM in Gdańsk

specification	IV Q 2021		I Q 2022		II Q 2022		III Q 2022		IV Q 2022	
	offer	trans.	offer	trans.	offer	trans.	offer	trans.	offer	trans.
average price (PLN/sq.m.)	10 856	10 958	11 356	11 231	11 632	10 903	11 620	11 599	11 655	10 703
growth (q-o-q)	105,3	109,1	104,6	102,5	102,4	97,1	99,9	106,4	100,3	92,3
growth (y-o-y)	112,0	116,6	112,8	114,7	119,8	106,3	112,7	115,5	107,4	97,7
dwellings price range	4 161	1 612	5 215	1 225	6 060	1 380	6 549	904	6 356	676
<=8 000 PLN/sq.m	397	240	491	209	452	133	384	96	387	94
(8 001; 10 000] PLN/sq.m	1 717	608	1 998	406	2 403	566	2 637	348	2 465	310
(10 001; 12 000] PLN/sq.m	640	248	803	182	1 002	191	1 166	124	1 212	76
(12 001; 14 000] PLN/sq.m	697	201	967	148	870	318	1 010	118	963	99
>14 001 PLN/sq.m	710	315	956	280	1 333	172	1 352	218	1 329	97
dwellings space range	4 161	1 612	5 215	1 225	6 060	1 380	6 549	904	6 356	676
<= 40 sq.m	759	327	924	326	966	415	1 144	282	1 067	171
(40,1; 60] sq.m	1 808	757	2 295	559	2 629	591	2 915	376	2 758	344
(60,1; 80] sq.m	1 185	357	1 452	254	1 801	277	1 862	160	1 875	131
> 80,1 sq.m	409	171	544	86	664	97	628	86	656	30
average price of 1 sq.m. of dwelling	10 856	10 958	11 356	11 231	11 632	10 903	11 620	11 599	11 655	10 703
<=4 000 sq.m	11 376	11 117	12 059	11 048	12 045	11 161	12 005	10 846	12 145	10 771
(40,1; 60] sq.m	11 090	10 920	11 157	11 036	11 582	10 538	11 547	11 523	11 657	10 486
(60,1; 80] sq.m	10 864	10 591	10 946	11 049	11 160	10 712	11 158	11 968	11 106	10 419
> 80,1 sq.m	12 182	11 591	12 098	13 732	12 512	12 568	12 625	13 708	12 423	14 038
average offer price deviation	-0,9%	x	1,1%	x	6,7%	x	0,2%	x	8,9%	x
<= 40 sq.m	2,3%	x	9,1%	x	7,9%	x	10,7%	x	12,8%	x
(40,1; 60] sq.m	1,6%	x	1,1%	x	9,9%	x	0,2%	x	11,2%	x
(60,1; 80] sq.m	2,6%	x	-0,9%	x	4,2%	x	-6,8%	x	6,6%	x
> 80,1 sq.m	5,1%	x	-11,9%	x	-0,4%	x	-7,9%	x	-11,5%	x

Source: NBP

Table 9 Average prices of housing sq. m in the SM in Gdańsk

specification	IV Q 2021		I Q 2022		II Q 2022		III Q 2022		IV Q 2022	
	offer	trans.	offer	trans.	offer	trans.	offer	trans.	offer	trans.
average price (PLN/sq.m.)	11 444	10 275	12 012	10 336	12 097	10 771	11 931	11 425	12 219	11 526
growth (q-o-q)	102,6	105,2	105,0	100,6	100,7	104,2	98,6	106,1	102,4	100,9
growth (y-o-y)	108,8	113,5	114,1	111,0	111,8	114,8	106,9	116,9	106,8	112,2
dwellings price range	1 539	1 410	1 779	1 254	2 101	1 206	2 336	1 004	2 508	659
<=8 000 PLN/sq.m	113	241	482	197	72	162	100	91	122	62
(8 001; 10 000] PLN/sq.m	467	529	504	444	477	337	589	273	572	176
(10 001; 12 000] PLN/sq.m	450	338	300	350	673	378	699	326	758	192
(12 001; 14 000] PLN/sq.m	234	161	386	156	407	205	458	149	463	103
>14 001 PLN/sq.m	275	141	107	107	472	124	490	165	593	126
dwellings space range	1 539	1 410	1 672	1 254	2 101	1 206	2 336	1 004	2 508	659
<= 40 sq.m	198	318	269	306	342	300	365	268	430	187
(40,1; 60] sq.m	624	674	702	588	923	561	991	491	1 036	320
(60,1; 80] sq.m	483	304	456	263	586	251	678	192	726	117
> 80,1 sq.m	234	114	245	97	250	94	302	53	316	35
average price of 1 sq.m. of dwelling	11 444	10 275	12 012	10 336	12 097	10 771	11 931	11 425	12 219	11 526
<=4 000 sq.m	12 806	11 280	13 722	11 306	13 427	11 952	13 155	12 102	13 573	12 078
(40,1; 60] sq.m	11 489	10 228	12 128	10 296	12 226	10 837	12 052	11 297	12 189	11 566
(60,1; 80] sq.m	11 155	9 782	11 199	9 695	11 371	9 810	11 368	11 059	11 590	11 031
> 80,1 sq.m	10 769	9 065	11 319	9 265	11 502	9 180	11 316	10 520	11 916	9 869
average offer price deviation	11,4%	x	16,2%	x	12,3%	x	4,4%	x	6,0%	x
<= 40 sq.m	13,5%	x	21,4%	x	12,3%	x	8,7%	x	12,4%	x
(40,1; 60] sq.m	12,3%	x	17,8%	x	12,8%	x	6,7%	x	5,4%	x
(60,1; 80] sq.m	14,0%	x	15,5%	x	15,9%	x	2,8%	x	5,1%	x
> 80,1 sq.m	18,8%	x	22,2%	x	25,3%	x	7,6%	x	20,7%	x

Source: NBP

Table 10 Average prices of housing sq. m in the PM in Kraków

specification	IV Q 2021		I Q 2022		II Q 2022		III Q 2022		IV Q 2022	
	offer	trans.	offer	trans.	offer	trans.	offer	trans.	offer	trans.
average price (PLN/sq.m.)	11 010	10 308	11 157	10 539	11 396	11 172	11 729	11 604	11 836	11 182
growth (q-o-q)	103,7	106,1	101,3	102,2	102,1	106,0	102,9	103,9	100,9	96,4
growth (y-o-y)	114,5	117,9	114,5	118,9	112,3	119,2	110,4	119,4	107,5	108,5
dwellings price range	7 073	1 760	6 604	1 580	7 313	1 612	7 161	1 013	6 319	1 124
<=8 000 PLN/sq.m	246	157	169	86	126	47	113	27	80	45
(8 001; 10 000] PLN/sq.m	2 351	728	1 870	635	2 067	523	1 671	302	1 446	339
(10 001; 12 000] PLN/sq.m	2 827	534	2 893	557	2 952	624	2 865	327	2 435	435
(12 001; 14 000] PLN/sq.m	1 061	260	1 055	209	1 152	224	1 270	130	1 186	126
>14 001 PLN/sq.m	588	81	617	93	1 016	194	1 242	227	1 172	179
dwellings space range	7 073	1 760	6 604	1 580	7 313	1 612	7 161	1 013	6 319	1 124
<= 40 sq.m	1578	477	1328	445	1450	458	1279	317	972	366
(40,1; 60] sq.m	3138	736	3046	636	3439	711	3531	435	3159	501
(60,1; 80] sq.m	1864	395	1736	381	1887	317	1858	189	1727	205
> 80,1 sq.m	493	152	494	118	537	126	493	72	461	52
average price of 1 sq.m. of dwelling	11 010	10 308	11 157	10 539	11 396	11 172	11 729	11 604	11 836	11 182
<=4 000 sq.m	11789	10847	12015	11150	12601	11530	12907	12331	13331	11976
(40,1; 60] sq.m	10959	10310	11079	10495	11212	11059	11617	11154	11716	10803
(60,1; 80] sq.m	10395	9816	10622	9860	10771	10646	11139	11004	11224	10675
> 80,1 sq.m	11173	9888	11214	10666	11516	11837	11697	12699	11806	11236
average offer price deviation	6,8%	x	5,9%	x	2,0%	x	1,1%	x	5,9%	x
<= 40 sq.m	8,7%	x	7,8%	x	9,3%	x	4,7%	x	11,3%	x
(40,1; 60] sq.m	6,3%	x	5,6%	x	1,4%	x	4,2%	x	8,4%	x
(60,1; 80] sq.m	5,9%	x	7,7%	x	1,2%	x	1,2%	x	5,1%	x
> 80,1 sq.m	13,0%	x	5,1%	x	-2,7%	x	-7,9%	x	5,1%	x

Source: NBP

Table 11 Average prices of a sq. m of housing in the SM in Kraków

specification	IV Q 2021		I Q 2022		II Q 2022		III Q 2022		IV Q 2022	
	offer	trans.	offer	trans.	offer	trans.	offer	trans.	offer	trans.
average price (PLN/sq.m.)	11 416	10 001	11 845	10 331	12 014	10 487	12 247	11 037	12 575	11 049
growth (q-o-q)	107,5	103,2	103,8	103,3	101,4	101,5	101,9	105,2	102,7	100,1
growth (y-o-y)	116,3	113,0	119,7	115,6	117,4	111,8	115,4	113,8	110,2	110,5
dwellings price range	1 210	1 820	1 535	1 615	1 511	1 066	1 510	1 029	1 312	882
<=8 000 PLN/sq.m	77	307	48	202	27	122	27	90	37	83
(8 001; 10 000] PLN/sq.m	340	719	366	611	328	376	335	284	295	250
(10 001; 12 000] PLN/sq.m	369	490	498	485	511	325	485	360	383	283
(12 001; 14 000] PLN/sq.m	230	213	355	195	371	171	353	178	287	154
>14 001 PLN/sq.m	194	91	268	122	274	72	310	117	310	112
dwellings space range	1 210	1 820	1 535	1 615	1 511	1 066	1 510	1 029	1 312	882
<= 40 sq.m	290	633	410	559	385	400	374	399	275	344
(40,1; 60] sq.m	479	838	628	727	662	470	692	443	569	381
(60,1; 80] sq.m	285	264	327	240	334	149	323	127	292	114
> 80,1 sq.m	156	85	170	89	130	47	121	60	176	43
average price of 1 sq.m. of dwelling	11 416	10 001	11 845	10 331	12 014	10 487	12 247	11 037	12 575	11 049
<=4 000 sq.m	12427	10575	12686	10927	12941	10988	13388	11457	13469	11551
(40,1; 60] sq.m	11206	9667	11374	9923	11636	10229	11785	10632	11941	10615
(60,1; 80] sq.m	10971	9622	11507	10015	11604	9911	11656	10689	12347	10768
> 80,1 sq.m	10993	10191	12211	10772	12241	10633	12937	11967	13610	11631
average offer price deviation	14,1%	x	14,7%	x	14,6%	x	11,0%	x	13,8%	x
<= 40 sq.m	17,5%	x	16,1%	x	17,8%	x	16,9%	x	16,6%	x
(40,1; 60] sq.m	15,9%	x	14,6%	x	13,8%	x	10,8%	x	12,5%	x
(60,1; 80] sq.m	14,0%	x	14,9%	x	17,1%	x	9,0%	x	14,7%	x
> 80,1 sq.m	7,9%	x	13,4%	x	15,1%	x	8,1%	x	17,0%	x

Source: NBP

Table 12 Average prices of housing sq. m in the PM in Łódź

specification	IV Q 2021		I Q 2022		IIQ 2022		III Q 2022		IV Q 2022	
	offer	trans.	offer	trans.	offer	trans.	offer	trans.	offer	trans.
average price (PLN/sq.m.)	8 117	7 528	8 145	7 718	8 481	7 929	8 973	8 475	9 152	8 520
growth (q-o-q)	101,4	101,0	100,3	102,5	104,1	102,7	105,8	106,9	102,0	100,5
growth (y-o-y)	120,1	113,6	118,8	118,7	114,5	118,8	112,1	113,8	112,7	113,2
dwelling price range	1 847	471	2 215	403	3 035	649	3 251	365	3 254	381
<=4 000 PLN/sq.m	0	0	0	0	0	0	0	0	0	0
(4 001; 6 000] PLN/sq.m	43	24	53	8	14	5	12	0	13	0
(6 001; 8 000] PLN/sq.m	683	317	933	248	1 135	377	789	143	681	150
(8 001; 10 000] PLN/sq.m	1 066	126	1 131	142	1 574	251	1 708	198	1 663	191
>10 000 PLN/sq.m	55	4	98	5	312	16	742	24	897	40
dwelling space range	1 847	471	2 215	403	3 035	649	3 251	365	3 254	381
<= 40 sq.m	537	139	620	111	878	225	924	154	903	143
(40,1; 60] sq.m	702	181	915	173	1312	254	1437	144	1435	173
(60,1; 80] sq.m	500	124	546	107	691	124	750	55	764	49
> 80,1 sq.m	108	27	134	12	154	46	140	12	152	16
average price of 1 sq.m. of dwelling	8 117	7 528	8 145	7 718	8 481	7 929	8 973	8 475	9 152	8 520
<=4 000 sq.m	8977	8195	8989	8411	9248	8454	9509	8926	9712	9166
(40,1; 60] sq.m	7892	7474	8000	7549	8338	7799	8826	8244	9049	8170
(60,1; 80] sq.m	7630	6863	7538	7302	7912	7476	8598	7823	8631	7856
> 80,1 sq.m	7561	7499	7705	7450	7880	7294	8941	8457	9422	8575
average offer price deviation	7,8%	x	5,5%	x	7,0%	x	5,9%	x	7,4%	x
<= 40 sq.m	9,5%	x	6,9%	x	9,4%	x	6,5%	x	6,0%	x
(40,1; 60] sq.m	5,6%	x	6,0%	x	6,9%	x	7,1%	x	10,8%	x
(60,1; 80] sq.m	11,2%	x	3,2%	x	5,8%	x	9,9%	x	9,9%	x
> 80,1 sq.m	0,8%	x	3,4%	x	8,0%	x	5,7%	x	9,9%	x

Source: NBP

Table 13 Average prices of housing sq. m in the SM in Łódź

specification	IV Q 2021		I Q 2022		IIQ 2022		III Q 2022		IV Q 2022	
	offer	trans.	offer	trans.	offer	trans.	offer	trans.	offer	trans.
average price (PLN/sq.m.)	6 667	6 158	7 018	6 214	6 974	6 652	7 164	6 887	7 203	6 384
growth (q-o-q)	99,8	101,4	105,3	100,9	99,4	107,0	102,7	103,5	100,5	92,7
growth (y-o-y)	116,5	111,5	118,9	114,4	116,0	114,7	107,2	113,4	108,0	103,7
dwelling price range	751	93	868	157	973	188	1 145	77	1 133	157
<= 4 000 PLN/sq.m	15	2	11	10	3	4	6	2	7	13
(4 001; 6 000] PLN/sq.m	239	43	183	67	206	57	202	21	244	56
(6 001; 8 000] PLN/sq.m	381	41	492	62	581	95	669	40	596	64
(8 001; 10 000] PLN/sq.m	104	7	158	17	177	31	226	11	222	17
> 10 001 PLN/sq.m	12	0	24	1	6	1	42	3	64	7
dwelling space range	751	93	868	157	973	188	1 145	77	1 133	157
<= 40 sq.m	190	33	215	56	212	67	286	33	265	77
(40,1; 60] sq.m	284	36	352	74	486	85	566	25	553	61
(60,1; 80] sq.m	153	16	172	16	166	29	170	11	190	9
> 80,1 sq.m	124	8	129	11	109	7	123	8	125	10
average price of 1 sq.m. of dwelling	6 667	6 158	7 018	6 214	6 974	6 652	7 164	6 887	7 203	6 384
<=4 000 sq.m	7 079	6 433	7 307	6 480	7 332	6 873	7 483	7 268	7 544	6 835
(40,1; 60] sq.m	6 748	6 002	7 019	6 298	6 980	6 554	7 001	6 872	7 067	6 132
(60,1; 80] sq.m	6 482	6 107	7 030	5 703	6 921	6 758	7 273	7 222	7 157	5 712
> 80,1 sq.m	6 074	5 833	6 519	5 041	6 327	5 294	7 021	4 899	7 153	5 058
average offer price deviation	8,3%	x	12,9%	x	4,8%	x	4,0%	x	12,8%	x
<= 40 sq.m	10,1%	x	12,8%	x	6,7%	x	3,0%	x	10,4%	x
(40,1; 60] sq.m	12,4%	x	11,4%	x	6,5%	x	1,9%	x	15,3%	x
(60,1; 80] sq.m	6,2%	x	23,3%	x	2,4%	x	0,7%	x	25,3%	x
> 80,1 sq.m	4,1%	x	29,3%	x	19,5%	x	43,3%	x	41,4%	x

Source: NBP

Table 14 Average prices of housing sq. m in the PM in Poznań

specification	IV Q 2021		I Q 2022		IIQ 2022		III Q 2022		IV Q 2022	
	offer	trans.	offer	trans.	offer	trans.	offer	trans.	offer	trans.
average price (PLN/sq.m.)	9 200	8 605	9 841	8 801	9 968	9 502	10 141	9 796	10 304	9 772
growth (q-o-q)	104,8	107,2	107,0	102,3	101,3	108,0	101,7	103,1	101,6	99,8
growth (y-o-y)	115,3	112,7	123,2	110,6	120,7	119,8	115,5	122,1	112,0	113,6
dwelling price range	4 736	1 761	5 080	1 217	5 201	1 122	5 335	749	5 000	772
<=7 000 PLN/sq.m	256	254	106	106	49	34	48	7	38	2
(7 001; 9 000] PLN/sq.m	2 566	967	1 908	703	1 714	585	1 523	285	1 316	257
(9 001; 11 000] PLN/sq.m	1 399	411	2 029	322	2 274	341	2 399	332	2 123	394
(11 001; 13 000] PLN/sq.m	278	65	609	43	768	63	975	71	1 128	69
>13 001 PLN/sq.m	237	64	428	43	396	99	390	54	395	50
dwelling space range	4 736	1 761	5 080	1 217	5 201	1 122	5 335	749	5 000	772
<= 40 sq.m	909	448	1024	269	1076	279	1036	223	985	222
(40,1; 60] sq.m	2156	729	2280	507	2329	498	2491	348	2325	395
(60,1; 80] sq.m	1300	442	1358	337	1384	249	1395	131	1327	124
> 80,1 sq.m	371	142	418	104	412	96	413	47	363	31
average price of 1 sq.m. of dwelling	9 200	8 605	9 841	8 801	9 968	9 502	10 141	9 796	10 304	9 772
<=4 000 sq.m	9 844	9 481	10 562	9 561	10 800	9 865	10 951	10 418	11 275	10 208
(40,1; 60] sq.m	9 137	8 553	9 787	8 825	9 819	9 478	10 057	9 558	10 225	9 671
(60,1; 80] sq.m	8 640	7 855	9 305	8 105	9 494	8 912	9 604	9 251	9 711	9 171
> 80,1 sq.m	9 943	8 443	10 110	8 976	10 231	10 103	10 425	10 118	10 339	10 330
average offer price deviation	6,9%	x	11,8%	x	4,9%	x	3,5%	x	5,4%	x
<= 40 sq.m	3,8%	x	10,5%	x	9,5%	x	5,1%	x	10,4%	x
(40,1; 60] sq.m	6,8%	x	10,9%	x	3,6%	x	5,2%	x	5,7%	x
(60,1; 80] sq.m	10,0%	x	14,8%	x	6,5%	x	3,8%	x	5,9%	x
> 80,1 sq.m	0	x	0	x	0	x	0	x	0	x

Source: NBP

Table 15 Average prices of housing sq. m in the SM in Poznań

specification	IV Q 2021		I Q 2022		IIQ 2022		III Q 2022		IV Q 2022	
	offer	trans.	offer	trans.	offer	trans.	offer	trans.	offer	trans.
average price (PLN/sq.m.)	8 952	7 864	9 402	8 119	9 517	8 501	9 438	8 567	9 543	8 122
growth (q-o-q)	107,6	102,4	105,0	103,2	101,2	104,7	99,2	100,8	101,1	94,8
growth (y-o-y)	114,6	108,9	118,4	111,5	117,0	114,6	113,4	111,6	106,6	103,3
dwelling price range	885	1 444	984	1 222	1 069	1 020	1 104	646	858	343
<=7 000 PLN/sq.m	122	477	83	352	67	180	87	106	73	81
(7 001; 9 000] PLN/sq.m	407	643	406	535	433	482	455	305	344	179
(9 001; 11 000] PLN/sq.m	243	255	331	252	367	284	353	179	262	69
(11 001; 13 000] PLN/sq.m	76	45	105	68	136	55	141	42	121	11
>13 001 PLN/sq.m	37	24	59	15	66	19	68	14	58	3
dwelling space range	885	1 444	984	1 222	1 069	1 020	1 104	646	858	343
<= 40 sq.m	176	419	225	344	214	339	240	206	175	112
(40,1; 60] sq.m	383	666	437	546	517	457	503	310	382	160
(60,1; 80] sq.m	229	277	245	243	251	168	269	94	212	57
> 80,1 sq.m	97	82	77	89	87	56	92	36	89	14
average price of 1 sq.m. of dwelling	8 952	7 864	9 402	8 119	9 517	8 501	9 438	8 567	9 543	8 122
<=4 000 sq.m	9 901	8 529	10 035	8 826	10 493	9 210	10 473	9 089	10 411	8 872
(40,1; 60] sq.m	8 885	7 903	9 318	8 149	9 496	8 267	9 336	8 546	9 441	7 836
(60,1; 80] sq.m	8 347	7 073	8 915	7 438	8 852	7 683	8 994	7 815	8 999	7 230
> 80,1 sq.m	8 920	6 812	9 579	7 067	9 158	8 567	8 595	7 726	9 567	9 026
average offer price deviation	13,8%	x	15,8%	x	12,0%	x	10,2%	x	17,5%	x
<= 40 sq.m	16,1%	x	13,7%	x	13,9%	x	15,2%	x	17,3%	x
(40,1; 60] sq.m	12,4%	x	14,4%	x	14,9%	x	9,2%	x	20,5%	x
(60,1; 80] sq.m	18,0%	x	19,8%	x	15,2%	x	15,1%	x	24,5%	x
> 80,1 sq.m	30,9%	x	35,6%	x	6,9%	x	11,3%	x	6,0%	x

Source: NBP

Table 16 Average prices of housing sq. m in the PM in Warsaw

specification	IV Q 2021		I Q 2022		II Q 2022		III Q 2022		IV Q 2022	
	offer	trans.	offer	trans.	offer	trans.	offer	trans.	offer	trans.
average price (PLN/sq.m.)	11 820	11 621	12 517	12 381	12 895	12 343	12 912	12 727	13 009	12 832
growth (q-o-q)	103,6	105,7	105,9	106,5	103,0	99,7	100,1	103,1	100,8	100,8
growth (y-o-y)	109,9	113,5	114,1	116,1	113,5	115,4	113,2	115,6	110,1	110,4
dwellings price range	8 140	3 895	9 723	3 025	9 640	2 220	15 481	1 768	12 833	1 819
<=4 000 PLN/sq.m	1 633	823	1 498	441	1 145	279	1 145	163	924	135
(4 001; 6 000] PLN/sq.m	3 011	1 403	2 870	955	2 261	671	3 355	440	2 695	471
(6 001; 8 000] PLN/sq.m	1 702	868	2 401	779	2 965	677	5 886	621	4 865	658
(8 001; 10 000] PLN/sq.m	809	479	1 500	359	1 762	333	3 254	309	2 635	304
>10 001 PLN/sq.m	985	322	1 454	491	1 507	260	1 841	235	1 714	251
dwellings space range	8 140	3 895	9 723	3 025	9 640	2 220	15 481	1 768	12 833	1 819
<= 40 sq.m	1 714	969	2 111	844	2 065	671	3 448	593	2 874	578
(40,1; 60] sq.m	3 328	1 602	4 158	1 263	4 122	894	6 664	706	5 469	751
(60,1; 80] sq.m	2 197	902	2 478	622	2 431	443	3 573	289	2 974	315
> 80,1 sq.m	901	422	976	296	1 022	212	1 796	180	1 516	175
average price of 1 sq.m. of dwelling	11 820	11 621	12 517	12 381	12 895	12 343	12 912	12 727	13 009	12 832
<=4 000 sq.m	13 232	12 223	13 811	12 790	14 220	12 718	13 947	12 759	14 023	13 507
(40,1; 60] sq.m	11 556	11 496	12 340	12 378	12 759	12 191	12 779	12 705	12 859	12 592
(60,1; 80] sq.m	10 960	11 079	11 482	11 795	11 790	11 884	12 030	12 233	12 133	11 948
> 80,1 sq.m	12 204	11 866	13 100	12 457	13 395	12 757	13 174	13 495	13 348	13 227
average offer price deviation	1,7%	x	1,1%	x	4,5%	x	1,5%	x	1,4%	x
<= 40 sq.m	8,3%	x	8,0%	x	11,8%	x	9,3%	x	3,8%	x
(40,1; 60] sq.m	0,5%	x	-0,3%	x	4,7%	x	0,6%	x	2,1%	x
(60,1; 80] sq.m	-1,1%	x	-2,7%	x	-0,8%	x	-1,7%	x	1,5%	x
> 80,1 sq.m	2,8%	x	5,2%	x	5,0%	x	-2,4%	x	0,9%	x

Source: NBP

Table 17 Average prices of housing sq. m in the SM in Warsaw

specification	IV Q 2021		I Q 2022		II Q 2022		III Q 2022		IV Q 2022	
	offer	trans.	offer	trans.	offer	trans.	offer	trans.	offer	trans.
average price (PLN/sq.m.)	13 305	11 845	13 366	12 252	14 061	11 790	13 496	11 905	13 498	12 032
growth (q-o-q)	102,7	101,0	100,5	103,4	105,2	96,2	96,0	101,0	100,0	101,1
growth (y-o-y)	111,9	105,8	109,4	112,6	112,8	105,1	104,2	102,8	101,4	101,6
dwellings price range	1 989	3 930	1 975	3 731	1 728	1 294	1 632	1 039	1 392	826
<=9 500 PLN/sq.m	203	743	172	571	92	208	100	154	89	101
(9 501; 11 500] PLN/sq.m	465	1 261	450	1 116	366	471	377	359	374	303
(11 501; 13 500] PLN/sq.m	508	993	530	1 005	405	338	443	279	334	223
(13 501; 15 500] PLN/sq.m	367	569	377	567	336	176	328	158	255	118
>15 501 PLN/sq.m	446	364	446	472	529	101	384	89	340	81
dwellings space range	1 989	3 930	1 975	3 731	1 728	1 294	1 632	1 039	1 392	826
<= 40 sq.m	358	1 208	346	1 101	314	431	324	352	245	338
(40,1; 60] sq.m	804	1 711	832	1 697	733	621	724	484	594	337
(60,1; 80] sq.m	487	625	456	612	368	176	380	155	348	112
> 80,1 sq.m	340	386	341	321	313	66	204	48	205	39
average price of 1 sq.m. of dwelling	13 305	11 845	13 366	12 252	14 061	11 790	13 496	11 905	13 498	12 032
<=4 000 sq.m	14 824	12 411	14 798	12 833	15 612	12 710	14 934	12 752	15 049	12 736
(40,1; 60] sq.m	12 865	11 401	12 920	11 791	13 579	11 265	13 046	11 379	12 981	11 396
(60,1; 80] sq.m	12 586	11 591	12 588	11 848	13 360	11 386	13 076	11 247	12 901	11 460
> 80,1 sq.m	13 776	12 453	14 039	13 463	14 458	11 806	13 591	13 131	14 156	13 070
average offer price deviation	12,3%	x	9,1%	x	19,3%	x	13,4%	x	12,2%	x
<= 40 sq.m	19,4%	x	15,3%	x	22,8%	x	17,1%	x	18,2%	x
(40,1; 60] sq.m	12,8%	x	9,6%	x	20,5%	x	14,7%	x	13,9%	x
(60,1; 80] sq.m	8,6%	x	6,2%	x	17,3%	x	16,3%	x	12,6%	x
> 80,1 sq.m	10,6%	x	4,3%	x	22,5%	x	3,5%	x	8,3%	x

Source: NBP

Table 18 Average prices per 1 sq. m of housing in PM in Wrocław

specification	IV Q 2021		I Q 2022		II Q 2022		III Q 2022		IV Q 2022	
	offer	trans.	offer	trans.	offer	trans.	offer	trans.	offer	trans.
average price (PLN/sq.m.)	10 189	9 507	10 352	10 029	10 789	10 338	10 963	10 520	11 384	10 453
growth (q-o-q)	102,2	106,9	101,6	105,5	104,2	103,1	101,6	101,8	103,8	99,4
growth (y-o-y)	118,1	115,5	114,2	119,1	114,9	120,5	110,0	118,3	111,7	110,0
dwellings price range	4 514	1 556	4 605	1 034	4 501	1 123	5 333	874	4 720	742
<=7 000 PLN/sq.m	154	72	106	11	67	21	43	5	26	11
(7 001; 9 000] PLN/sq.m	1 493	663	1 317	327	1 170	332	969	225	793	212
(9 001; 11 000] PLN/sq.m	1 361	517	1 611	384	1 301	404	1 909	325	1 267	247
(11 001; 13 000] PLN/sq.m	960	226	900	251	1 042	226	1 480	213	1 625	180
>13 001 PLN/sq.m	546	78	671	61	921	140	932	106	1 009	92
dwellings space range	4 514	1 556	4 605	1 034	4 501	1 123	5 333	874	4 720	742
<= 40 sq.m	883	369	896	219	848	307	901	287	393	214
(40,1; 60] sq.m	2102	707	2088	478	2024	504	2570	404	1637	323
(60,1; 80] sq.m	1177	359	1227	259	1236	239	1397	134	1918	155
> 80,1 sq.m	352	121	394	78	393	73	465	49	772	50
average price of 1 sq.m. of dwelling	10 189	9 507	10 352	10 029	10 789	10 338	10 963	10 520	11 384	10 453
<=4 000 sq.m	11362	10171	12011	10758	12602	11389	12607	11367	14408	11667
(40,1; 60] sq.m	10033	9380	10076	10142	10532	10097	10801	10143	11562	10050
(60,1; 80] sq.m	9578	8980	9745	9280	10075	9585	10318	9707	10525	9801
> 80,1 sq.m	10215	9785	9930	9780	10444	10042	10608	10883	11604	9884
average offer price deviation	7,2%	x	3,2%	x	4,4%	x	4,2%	x	8,9%	x
<= 40 sq.m	11,7%	x	11,7%	x	10,6%	x	10,9%	x	23,5%	x
(40,1; 60] sq.m	7,0%	x	-0,7%	x	4,3%	x	6,5%	x	15,0%	x
(60,1; 80] sq.m	6,7%	x	5,0%	x	5,1%	x	6,3%	x	7,4%	x
> 80,1 sq.m	4,4%	x	1,5%	x	4,0%	x	-2,5%	x	17,4%	x

Source: NBP

Table 19 Average prices of housing sq. m in the SM in Wrocław

specification	IV Q 2021		I Q 2022		II Q 2022		III Q 2022		IV Q 2022	
	offer	trans.	offer	trans.	offer	trans.	offer	trans.	offer	trans.
average price (PLN/sq.m.)	9 327	8 953	10 075	9 202	10 453	9 686	10 591	10 178	10 672	10 114
growth (q-o-q)	101,8	104,6	108,0	102,8	103,8	105,3	101,3	105,1	100,8	99,4
growth (y-o-y)	108,5	112,3	115,6	114,2	116,4	113,8	115,6	118,9	114,4	113,0
dwellings price range	2 007	1 085	1 741	1 004	2 058	933	1 374	1 030	2 504	760
<=7 000 PLN/sq.m	155	142	72	129	41	76	32	54	54	49
(7 001; 9 000] PLN/sq.m	835	489	543	383	516	302	304	297	542	193
(9 001; 11 000] PLN/sq.m	694	309	664	331	832	334	566	355	1 032	290
(11 001; 13 000] PLN/sq.m	217	110	279	106	439	161	302	210	520	159
>13 001 PLN/sq.m	106	35	183	55	230	60	170	114	356	69
dwellings space range	2 007	1 085	1 741	1 004	2 058	933	1 374	1 029	2 504	760
<= 40 sq.m	252	270	222	231	285	239	194	298	336	202
(40,1; 60] sq.m	793	540	699	500	887	457	578	487	1113	387
(60,1; 80] sq.m	631	217	548	200	630	186	396	198	729	125
> 80,1 sq.m	331	58	272	73	256	51	206	46	326	46
average price of 1 sq.m. of dwelling	9 327	8 953	10 075	9 202	10 453	9 686	10 591	10 178	10 672	10 114
<=4 000 sq.m	10 673	9 829	11 456	10 183	12 077	10 625	12 157	11 138	12 449	10 960
(40,1; 60] sq.m	9 407	8 827	10 261	8 998	10 527	9 667	10 587	9 890	10 711	9 853
(60,1; 80] sq.m	9 043	8 361	9 539	8 811	9 985	8 791	10 145	9 652	10 095	9 673
> 80,1 sq.m	8 651	8 266	9 549	8 571	9 542	8 721	9 988	9 264	9 995	9 796
average offer price deviation	4,2%	x	9,5%	x	7,9%	x	4,1%	x	5,5%	x
<= 40 sq.m	8,6%	x	12,5%	x	13,7%	x	9,2%	x	13,6%	x
(40,1; 60] sq.m	6,6%	x	14,0%	x	8,9%	x	7,0%	x	8,7%	x
(60,1; 80] sq.m	8,1%	x	8,3%	x	13,6%	x	5,1%	x	4,4%	x
> 80,1 sq.m	4,7%	x	11,4%	x	9,4%	x	7,8%	x	2,0%	x

Source: NBP

7. Analysis of profitability of investment in housing in selected cities in Poland in 2022 Q4³³

The increased demand for rental housing over the past few quarters was mainly caused by external financing conditions in the housing sales segment, both on the primary and on the secondary market. This demand was further reinforced by immigration from Ukraine. This phenomenon was confronted with a limited supply of dwellings for rental, which resulted in rising rents. On the other hand, last quarter saw some changes in the management tactics of developers, which today can be regarded as a mechanism for adapting to the prevailing market conditions. At the same time, investment projects that generated housing stock in the assets of these companies were coming to an end. In the context of an increase in demand for rental housing and high rents, some of the new flats were placed in the rental segment, which allowed some development companies to optimise their revenues by diversifying the forms of their activities. Confirmation of this type of practice is visible in the change in ROE determinant structure where the impact of the core business decreased and, at the same time, the impact of other business, i.e. housing rental, increased. In addition, a growing number of business practices can be observed in the real estate market that aim to diversify their business by increasing the supply of housing in the rental segment. However, this does not imply an increase in the overall level of rental housing stock, but rather a re-allocation of some of this stock to this part of the real estate market. The socio-economic situation in the last few quarters may affect the development of the rental housing segment, mainly through the adaptation of the business tactics of property development companies. In the long term, such companies may treat income from rental housing as a kind of passive income which can improve their liquidity ratios. This type of scenario could increase the supply of housing in the rental segment and stabilise rents. At the same time, however, the same scenario will result in a decrease in the supply of dwellings in the residential sales segment of the primary market.

2022 Q4 saw changes in both capitalisation rates and the profitability of investments in rental housing. Although the high cost of new residential mortgage loans persisted during the period under review, the profitability of this type of investment improved markedly, including in ROE ratios with medium and high external capital commitment. To a large extent, this was the result of changes on the demand side in the residential rental segment, with the simultaneous decline in demand for the purchase of flats, particularly in the primary market. The above phenomena witnessed in 2022 Q4 have become the main price driver.

³³ A simplified analysis of an investment in a dwelling for rental by a private individual, subject to flat-rate tax, is presented. The activity is subject to flat-rate taxation. The profitability of this type of investment was analysed in a group of 6 cities (Gdańsk, Gdynia, Kraków, Łódź, Poznań and Wrocław) and in a group of other cities (Białystok, Bydgoszcz, Katowice, Lublin, Olsztyn, Rzeszów and Szczecin). Three voivodship capitals (Opole, Kielce and Zielona Góra) were omitted due to the small sample size of recorded housing rental transactions. The Warsaw property market is analysed separately due to its specific characteristics. The profitability of investing in rental housing was determined by calculating the capitalisation rate (annual rent to the price per 1 sq. m) and the ROE (return on equity). The capitalisation rate is calculated as a ratio of the annual rental income to the price of one square metre of housing. On the other hand, the ROE was calculated as net profit relative to committed capital. The estimated net operating income was reduced by the estimated total operating expenses (estimated separately for each of the cities analysed on the basis of OLX Group data verified by expert opinions). Such estimated net operating income provides the basis for calculating EBITDA. In this case, different possible levels of leverage were adopted: a fully cash-funded investment (with LTV of 0%) and a loan-financed investment with LTV of 50% as well as a highly leveraged investment with LTV of 80%. In order to calculate the financial profit, we took into account rental income and deducted a flat-rate tax of 8.5%, repayment of interest on the loan as well as depreciation of the building in the amount of 1.5% of its value was included (we assumed two general overhauls in the period of 100 years). The tax is paid on all rental income, before any cost deduction. The transaction price per sq.m of an average dwelling was determined by summing up 50% of the average transaction price in the primary and secondary markets. The price on the primary market was increased by the cost of finishing. Since 2022 Q4, dwelling finishing costs were adopted according to estimates based on Sekocenbud prices. A PLN-denominated loan granted for 25 years, with equal instalments, payable four times a year was adopted. The occupancy rate of 95% was assumed.

The reasons for the observed changes can be sought in the high financial costs of residential mortgage loans. In 2022 Q4, rental rates increased compared to 2021 Q4 by 26.1% in Warsaw, 31.4% in the 6 cities and 21.5% in other cities, respectively. The analysed quarter was another period with accelerating growth of average residential rental rates - y/y growth above 120% had been observed since 2022 Q2. Such developments highlighted the high level of demand in the rental segment, which was met with the supply of this type of dwellings. In addition, a new source of housing supply had emerged: dwellings reallocated from the sales segment. As a result of this fact, the stock of rental housing in the analysed period was characterised by a relatively higher standard and the fact that these dwellings were new.

The capitalisation rate of residential investment is determined by the annual rental income and the price of the dwelling per square metre on the sales market. Residential investment capitalisation levels in 2022 Q4 increased, particularly in the 7 biggest cities in Poland. The capitalisation rate reached 6.1% in Warsaw, 6.7% in the group of 6 cities and 6.1% in the other cities analysed. This means increases of 18.5%, 18.6% and 8.7%, respectively, compared to the corresponding quarter of 2021. At the same time, it should be emphasised that compared to 2022 Q3, the capitalisation rates at the end of 2022 had grown by 7.4% in Warsaw, by 12.2% in the group of 6 cities and by 1.6% in the other cities. This confirms the acceleration of the capitalisation growth rate of residential investment during the analysed period, which is particularly visible in the biggest Polish cities. Analysing the reasons for such a state of affairs in detail, the observed differences between the y/y growth of rental rates and estimated dwelling purchase prices should be highlighted. In the cities where the capitalisation rates grew the most, the differences between the growth rates were also the highest. Such observations may suggest that, in the analysed period, the level of capitalisation was more affected by the changes in demand and supply which determined the level of prices than by macroeconomic phenomena related, for example, to the financial costs of foreign capital. On this basis, it can be concluded that residential investments increased their level of capitalisation due to changes in the structure of transactions between the housing rental and sales segments. Economic conditions limited sales transactions, which re-directed some households to the rental segment. In addition, immigration had increased the demand for rental housing. Also, the fact that some developers had started to offer their flats for rental due to a drop in demand in the primary market, caused a decline in supply in the sales segment. This type of activity was a clear response to the growing demand in the rental segment. In addition, the existing shortage of housing in the rental segment resulted in an increase in rental rates. This type of developments was observed throughout the second half of 2022, but the changes clearly accelerated in Q4.

Interesting results were also observed during the analysis of the residential investment profitability index. In 2022 Q4, the ROE ratio, assuming zero external capital commitment, increased very clearly in all Polish cities analysed. It reached 3.6% in Warsaw, 4.1% in the group of 6 cities and 3.5% in the other cities analysed. It is worth noting that the levels of ROE at LTV=0% in 2022 Q4 approached, and in the group of 6 cities exceeded, their average levels for the period 2015-2022, which currently stand at 3.84% in Warsaw, 3.80% in the group of 6 cities and 3.78% in the group of other Polish cities analysed. However, these results should not be surprising in the context of the changes in the levels of capitalisation rates.

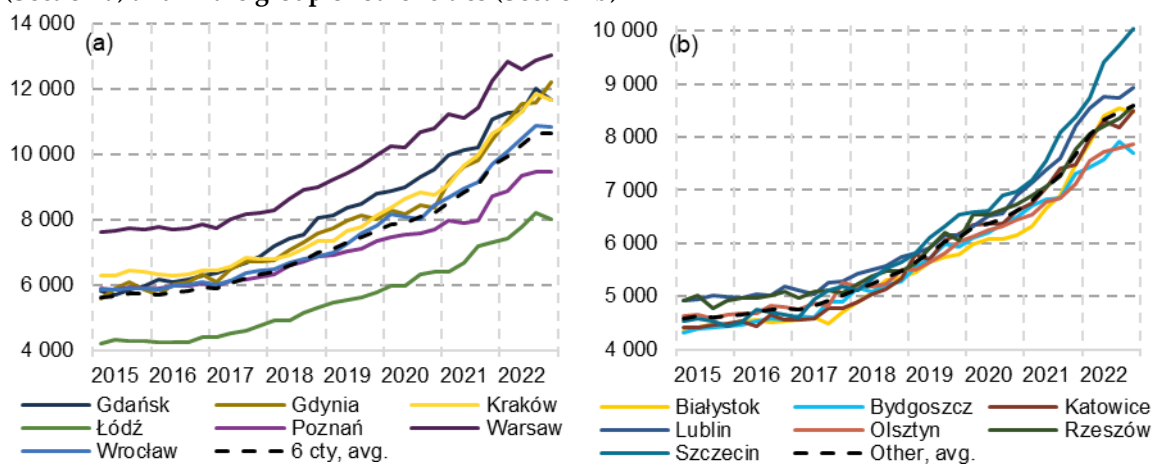
However, characteristic changes were observed in the levels of ROE at LTV=50%. This means that half of the capital for the purchase of a dwelling comes from external financing sources, whose financing costs in 2022 Q4 remained at a relatively high level. In this case, the first signs of an increase in the level of residential investment profitability have become apparent. ROE at LTV=50% reached -2.0% in Warsaw, -1.0% in the group of 6 cities and -2.3% in a group of other cities analysed. Although still negative, these figures increased by 0.5 p.p. in the capital city and by 1.0 p.p. in the group of 6 cities compared to 2022 Q3. The remaining cities recorded a 0.1

p.p. decrease in ROE. However, compared to 2021 Q4, residential investment profitability, with leverage at a level of 50%, still remains 1.5 p.p., 1.6 p.p. and 2.3 p.p. lower, respectively. However, this does not change the fact that 2022 Q4 brought the first signs of a correction of the downward trend in ROE levels. Once again, the major determinant of such changes will be the situation in the housing market, as mentioned earlier.

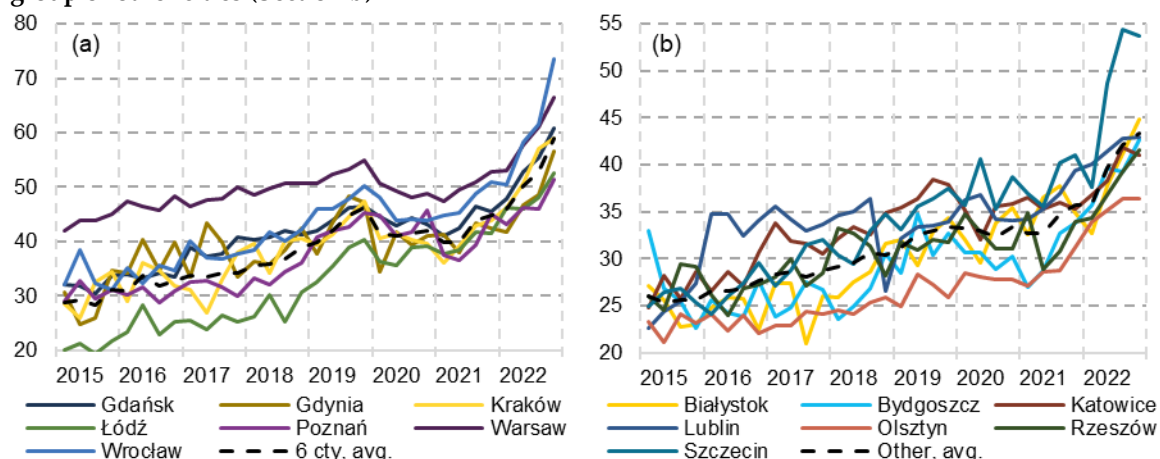
Major changes were observed in relation to the ROE ratio with leveraged home purchase finance at a level of 80%. The results again reveal the first corrections of downward trends. The level of ROE LTV=80% in 2022 Q4 reached -19.0% in Warsaw, -16.5% in the group 6 cities while in 2021 Q4, it reached 17.1 p.p., 17.3 p.p. and 19.6 p.p., respectively. However, compared to 2022 Q3, the aforementioned correction is already visible. ROE increased by 0.9 p.p. in Warsaw and by 2.2 p.p. in the group of 6 cities. However, the remaining cities of Poland once again saw a decline of 0.5 p.p. The rationale for this type of change observed in 2022 Q4 is exactly the same as in the situation of ROE LTV= 50%.

Summing up, 2022 Q4 proved to be a period of first corrections in the downward trends of residential investment profitability levels and an acceleration in the upward momentum of capitalisation rates. The interplay between demand and supply in the housing rental segment, which however remains under the strong pressure of the decline in demand for the purchase of dwellings, and which continues to be hindered by the financial costs of residential mortgage loans, should be considered as the main determinant responsible for such changes. However, the observed correlations revealed that an adequate supply-demand relationship and an increase in rental rates managed to overcome the adverse impact of the borrowing costs on the profitability levels of housing investments.

Figure 75 Estimated transaction prices of an average dwelling (PLN/sq. m) in the group of 6 cities, Warsaw (Section a) and in the group of other cities (Section b)



Source: NBP

Figure 76 Average rents for dwellings (PLN/sq. m) in the group of 6 cities, in Warsaw (Section a) and in the group of other cities (Section b)


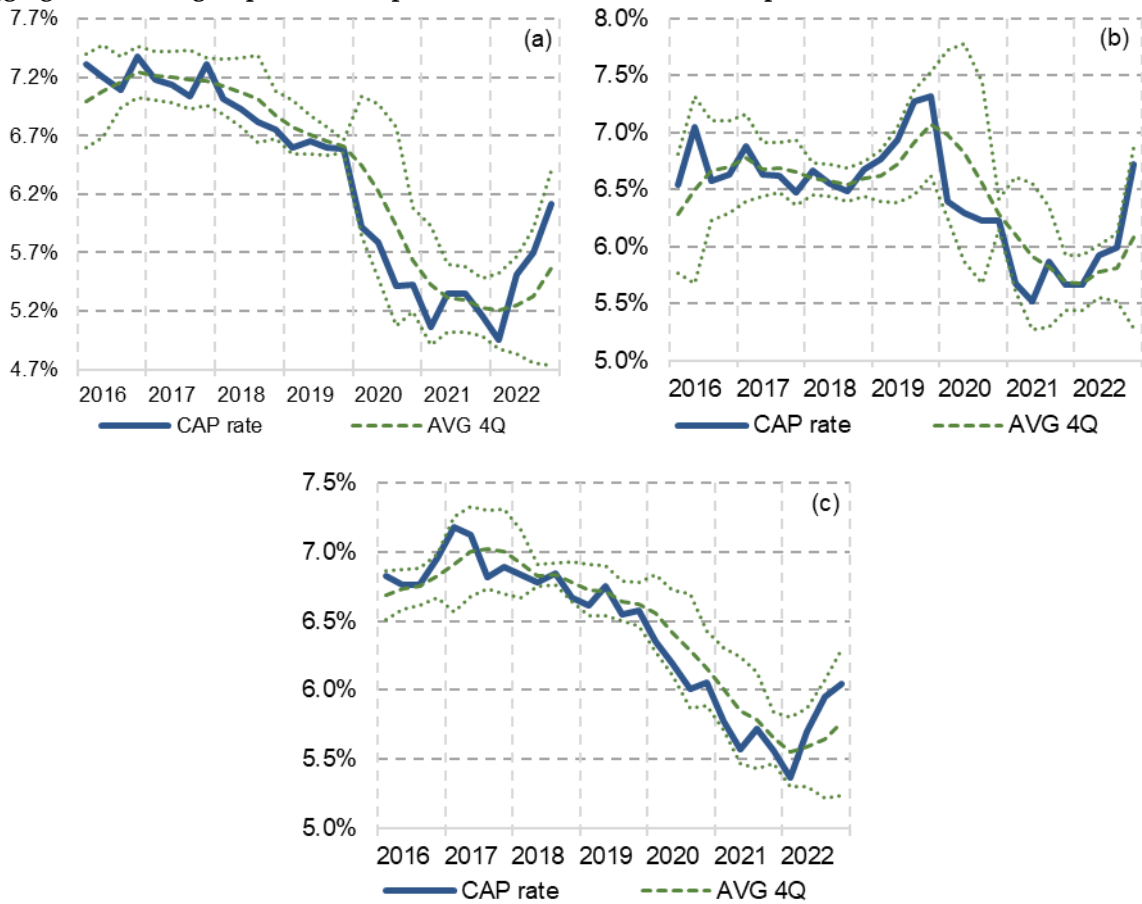
Source: NBP

Table 20 Estimated capitalisation rate in selected cities (%)

Quarter	Białystok	Bydgoszcz	Gdańsk	Gdynia	Katowice	Kraków	Lublin	Łódź	Olsztyn	Poznań	Rzeszów	Szczecin	Wrocław	Warszawa	6 cities	Other
2019 Q1	7.1%	6.2%	6.2%	5.9%	7.3%	6.4%	6.6%	7.2%	5.5%	7.1%	6.8%	6.8%	7.9%	6.6%	6.8%	6.6%
2019 Q2	6.2%	7.3%	6.3%	6.5%	7.7%	6.5%	6.8%	7.6%	6.0%	7.2%	6.3%	7.0%	7.6%	6.7%	6.9%	6.7%
2019 Q3	6.9%	6.1%	6.6%	7.1%	7.6%	6.9%	6.5%	8.3%	5.6%	7.2%	6.2%	6.9%	7.6%	6.6%	7.3%	6.5%
2019 Q4	7.1%	6.6%	6.3%	7.1%	7.4%	7.0%	6.6%	8.4%	5.1%	7.4%	6.3%	6.9%	7.7%	6.6%	7.3%	6.6%
2020 Q1	6.4%	6.0%	6.0%	5.0%	6.7%	5.8%	6.9%	7.3%	5.6%	7.2%	6.4%	6.5%	7.1%	5.9%	6.4%	6.4%
2020 Q2	5.9%	5.9%	5.7%	6.1%	6.0%	5.8%	6.8%	7.1%	5.4%	6.5%	6.0%	7.4%	6.5%	5.8%	6.3%	6.2%
2020 Q3	6.7%	5.4%	5.7%	5.6%	6.7%	5.5%	6.3%	7.4%	5.3%	6.6%	5.6%	6.1%	6.6%	5.4%	6.2%	6.0%
2020 Q4	6.9%	5.6%	5.4%	5.9%	6.5%	5.4%	5.9%	7.3%	5.2%	7.1%	5.5%	6.7%	6.2%	5.4%	6.2%	6.1%
2021 Q1	6.2%	4.8%	4.9%	5.4%	6.5%	4.8%	5.7%	7.1%	5.0%	5.7%	6.1%	6.2%	6.2%	5.1%	5.7%	5.8%
2021 Q2	6.6%	5.1%	5.0%	4.7%	6.0%	4.9%	5.7%	6.9%	5.1%	5.6%	4.9%	5.6%	6.1%	5.3%	5.5%	5.6%
2022 Q3	6.6%	5.7%	5.4%	5.3%	5.8%	5.2%	5.8%	7.0%	5.0%	5.9%	5.1%	6.0%	6.4%	5.4%	5.9%	5.7%
2021 Q4	5.6%	5.6%	4.9%	4.9%	5.7%	5.0%	5.8%	6.8%	5.2%	6.2%	5.2%	5.9%	6.3%	5.2%	5.7%	5.6%
2022 Q1	5.0%	5.8%	5.1%	4.5%	5.5%	5.1%	5.6%	7.4%	5.4%	5.8%	5.1%	5.2%	6.0%	5.0%	5.7%	5.4%
2022 Q2	5.4%	6.3%	5.6%	4.8%	5.5%	5.4%	5.7%	7.1%	5.5%	5.9%	5.4%	6.2%	6.7%	5.5%	5.9%	5.7%
2022 Q3	5.8%	6.0%	5.5%	5.0%	6.1%	5.8%	5.9%	7.0%	5.6%	5.8%	5.6%	6.7%	6.8%	5.7%	6.0%	6.0%
2022 Q4	6.3%	6.7%	6.3%	5.5%	5.8%	6.0%	5.8%	7.9%	5.6%	6.5%	5.8%	6.4%	8.1%	6.1%	6.7%	6.1%

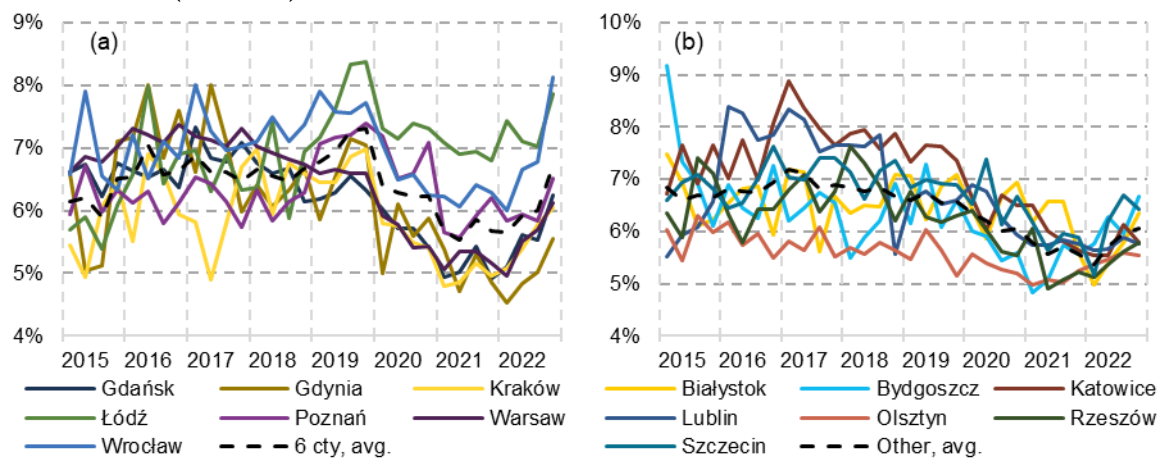
Source: NBP

Figure 77 Estimated capitalisation rate including its annual moving average for Warsaw (panel a) and aggregated for the group of 6 cities (panel b) and other Polish cities (panel c)



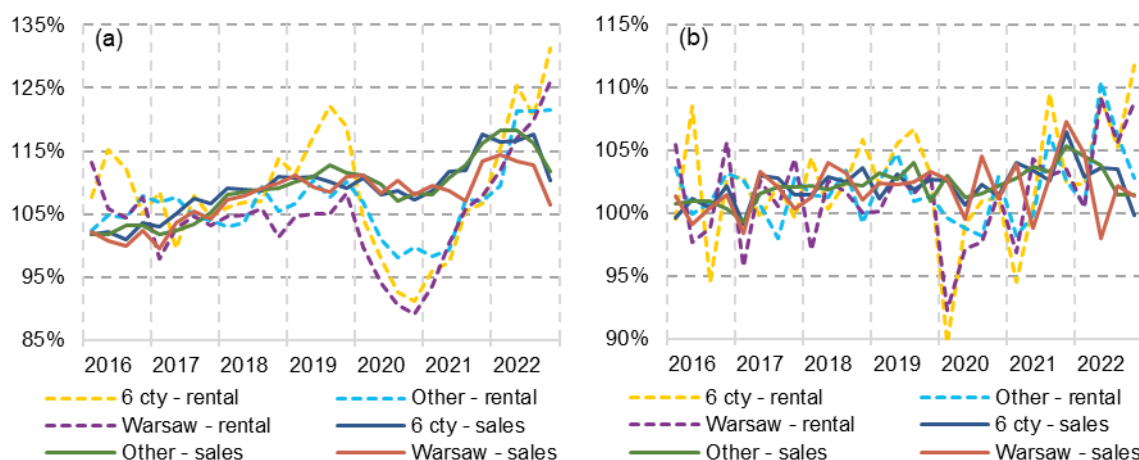
Source: NBP

Figure 78 Estimated capitalisation rate in the group of 6 cities and in Warsaw (Section a) and in the group of other cities (Section b)



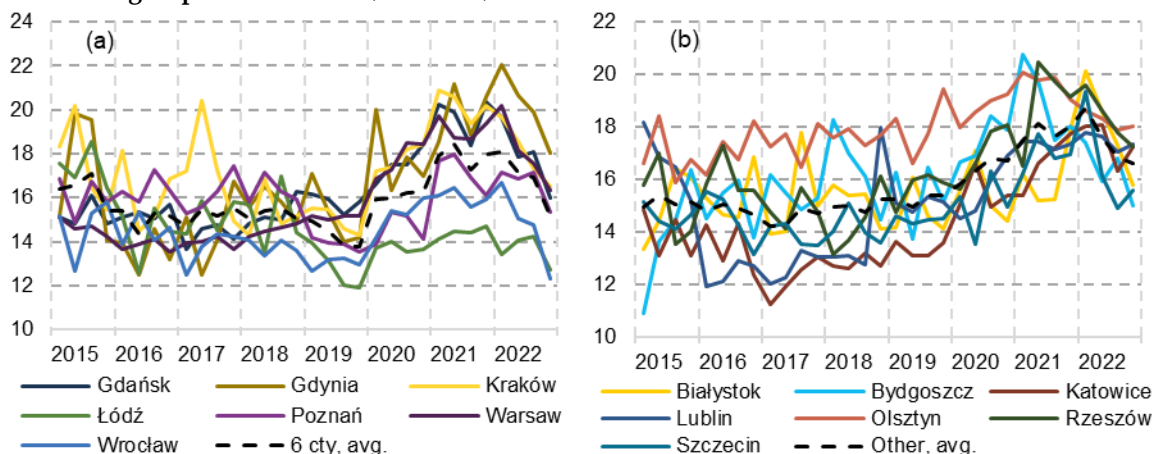
Source: NBP

Figure 79 Index of y/y growth (section a) and q/q growth (section b) of estimated transaction prices and rental rates in the group of 6 cities, in other cities in Poland and in Warsaw



Source: NBP

Figure 80 Estimated timing of payback from investment in the group of 6 cities and in Warsaw (Section a) and in the group of other cities (Section b)



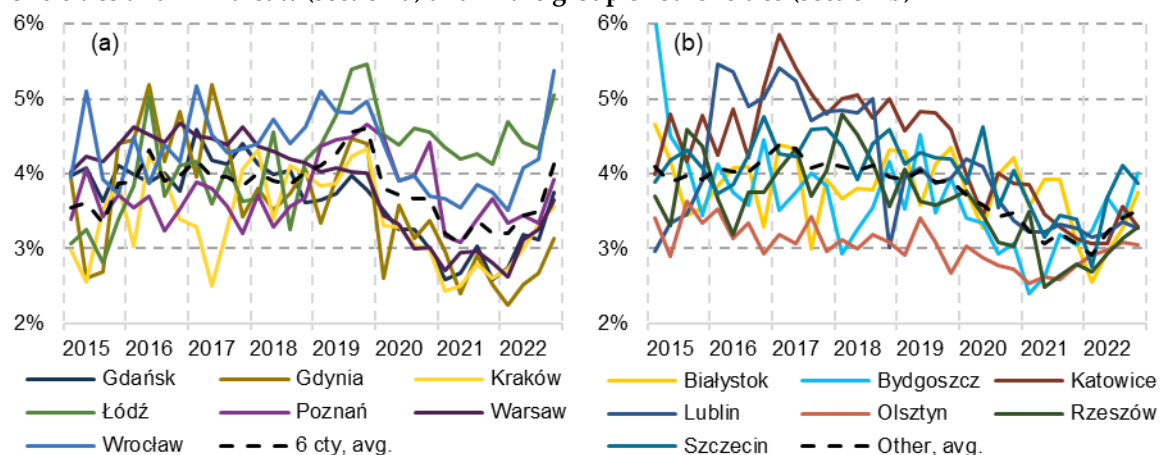
Source: NBP

Table 21 Return on equity (ROE, in %) on a fully cash-funded housing investment (LTV = 0%) in selected cities

Quarter	Białystok	Bydgoszcz	Gdańsk	Gdynia	Katowice	Kraków	Lublin	Łódź	Olsztyn	Poznań	Rzeszów	Szczecin	Wrocław	Warszawa	6 cities	Other
2019 Q1	4.3%	3.5%	3.6%	3.3%	4.6%	3.8%	3.9%	4.4%	2.9%	4.4%	4.1%	4.1%	5.1%	4.0%	4.1%	3.9%
2019 Q2	3.6%	4.5%	3.7%	3.9%	4.8%	3.9%	4.1%	4.8%	3.4%	4.5%	3.6%	4.3%	4.8%	4.1%	4.3%	4.0%
2019 Q3	4.1%	3.5%	4.0%	4.5%	4.8%	4.2%	3.9%	5.4%	3.1%	4.5%	3.6%	4.2%	4.8%	4.0%	4.6%	3.9%
2019 Q4	4.3%	3.9%	3.8%	4.4%	4.6%	4.3%	3.9%	5.5%	2.7%	4.7%	3.7%	4.2%	5.0%	4.0%	4.6%	3.9%
2020 Q1	3.8%	3.4%	3.5%	2.6%	4.0%	3.3%	4.2%	4.5%	3.0%	4.5%	3.8%	3.9%	4.4%	3.4%	3.8%	3.7%
2020 Q2	3.3%	3.3%	3.3%	3.6%	3.4%	3.3%	4.1%	4.4%	2.9%	3.9%	3.4%	4.6%	3.9%	3.3%	3.7%	3.6%
2020 Q3	4.0%	2.9%	3.3%	3.1%	4.0%	3.1%	3.6%	4.6%	2.8%	4.0%	3.1%	3.6%	4.0%	3.0%	3.7%	3.4%
2020 Q4	4.2%	3.1%	3.0%	3.4%	3.9%	3.0%	3.4%	4.6%	2.7%	4.4%	3.0%	4.0%	3.7%	3.0%	3.7%	3.5%
2021 Q1	3.6%	2.4%	2.6%	3.0%	3.9%	2.4%	3.2%	4.3%	2.5%	3.2%	3.5%	3.6%	3.7%	2.7%	3.2%	3.2%
2021 Q2	3.9%	2.6%	2.7%	2.4%	3.5%	2.5%	3.2%	4.2%	2.6%	3.1%	2.5%	3.2%	3.6%	3.0%	3.1%	3.1%
2021 Q3	3.9%	3.2%	3.0%	2.9%	3.3%	2.8%	3.3%	4.3%	2.6%	3.4%	2.6%	3.4%	3.9%	3.0%	3.4%	3.2%
2021 Q4	3.1%	3.1%	2.6%	2.5%	3.1%	2.6%	3.3%	4.1%	2.8%	3.7%	2.8%	3.4%	3.8%	2.8%	3.2%	3.1%
2022 Q1	2.6%	3.2%	2.7%	2.2%	3.1%	2.7%	3.2%	4.7%	2.9%	3.3%	2.7%	2.8%	3.5%	2.6%	3.2%	2.9%
2022 Q2	2.9%	3.7%	3.2%	2.5%	3.1%	3.0%	3.2%	4.4%	3.0%	3.4%	2.9%	3.7%	4.1%	3.1%	3.4%	3.2%
2022 Q3	3.3%	3.4%	3.1%	2.7%	3.6%	3.3%	3.4%	4.3%	3.1%	3.3%	3.1%	4.1%	4.2%	3.3%	3.5%	3.4%
2022 Q4	3.8%	4.0%	3.7%	3.1%	3.3%	3.6%	3.3%	5.0%	3.1%	3.9%	3.3%	3.9%	5.4%	3.6%	4.1%	3.5%

Source: NBP

Figure 81 Return on Equity (ROE, %) on a fully cash-funded housing investment (LTV = 0%) in the group of 6 cities and in Warsaw (section a) and in the group of other cities (section b)



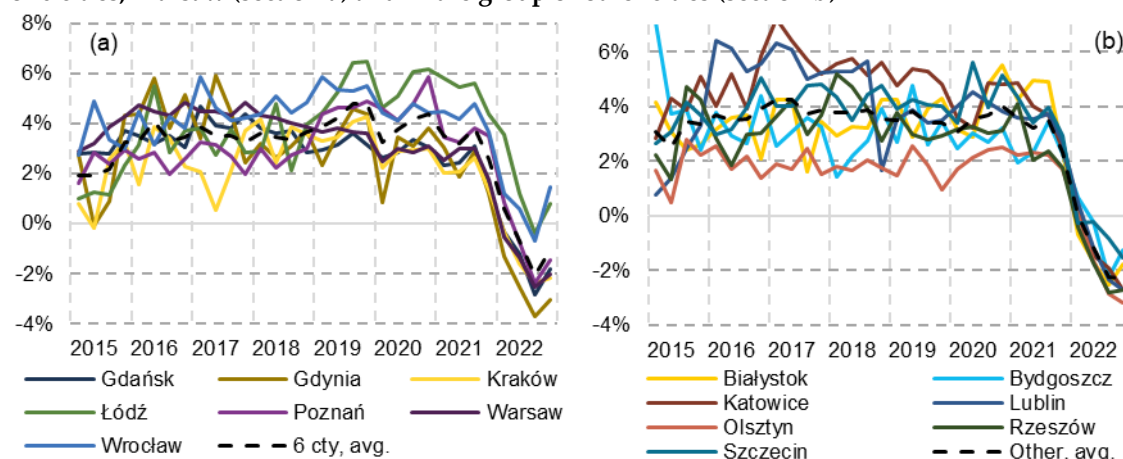
Source: NBP

Table 22 Return on Equity (ROE, %) in the case of a leveraged housing investment (LTV = 50%) in selected cities

Quarter	Białystok	Bydgoszcz	Gdańsk	Gdynia	Katowice	Kraków	Lublin	Łódź	Olsztyn	Poznań	Rzeszów	Szczecin	Wrocław	Warszawa	6 cities	Other
2019 Q1	4.2%	2.7%	3.0%	2.3%	4.8%	3.3%	3.6%	4.4%	1.5%	4.4%	3.8%	3.9%	5.9%	3.7%	3.9%	3.5%
2019 Q2	2.9%	4.7%	3.2%	3.6%	5.4%	3.4%	3.9%	5.3%	2.5%	4.6%	3.0%	4.3%	5.4%	3.9%	4.2%	3.8%
2019 Q3	3.9%	2.6%	3.6%	4.6%	5.3%	4.1%	3.4%	6.5%	1.8%	4.6%	2.8%	4.1%	5.3%	3.7%	4.8%	3.4%
2019 Q4	4.3%	3.5%	3.2%	4.4%	4.8%	4.3%	3.5%	6.5%	0.9%	4.9%	2.9%	4.0%	5.5%	3.6%	4.8%	3.4%
2020 Q1	3.2%	2.5%	2.6%	0.8%	3.6%	2.3%	4.0%	4.7%	1.7%	4.6%	3.2%	3.4%	4.4%	2.5%	3.2%	3.1%
2020 Q2	2.9%	3.0%	2.9%	3.5%	3.2%	2.9%	4.5%	5.1%	2.1%	4.2%	3.2%	5.6%	4.1%	3.0%	3.8%	3.5%
2020 Q3	4.8%	2.7%	3.4%	3.1%	4.9%	3.0%	4.1%	6.1%	2.4%	4.8%	3.0%	3.9%	4.8%	2.8%	4.2%	3.7%
2020 Q4	5.5%	3.2%	3.1%	3.8%	4.8%	3.0%	3.8%	6.2%	2.5%	5.9%	3.1%	5.1%	4.5%	3.1%	4.4%	4.0%
2021 Q1	4.3%	1.9%	2.3%	3.1%	4.9%	2.0%	3.6%	5.8%	2.2%	3.5%	4.1%	4.3%	4.5%	2.6%	3.5%	3.6%
2021 Q2	5.0%	2.3%	2.4%	1.9%	4.0%	2.1%	3.5%	5.5%	2.3%	3.3%	2.1%	3.4%	4.2%	3.0%	3.2%	3.2%
2022 Q3	4.9%	3.5%	3.1%	2.9%	3.7%	2.7%	3.7%	5.6%	2.2%	3.8%	2.4%	3.9%	4.8%	3.0%	3.8%	3.5%
2021 Q4	2.4%	2.3%	1.4%	1.2%	2.5%	1.4%	2.7%	4.4%	1.7%	3.5%	1.8%	2.9%	3.7%	1.8%	2.6%	2.3%
2022 Q1	-0.7%	0.7%	-0.3%	-1.3%	0.3%	-0.3%	0.5%	3.6%	0.0%	0.9%	-0.4%	-0.3%	1.2%	-0.5%	0.6%	0.0%
2022 Q2	-1.7%	-0.2%	-1.2%	-2.5%	-1.4%	-1.6%	-1.2%	1.2%	-1.6%	-0.7%	-1.7%	-0.2%	0.6%	-1.4%	-0.7%	-1.2%
2022 Q3	-2.5%	-2.3%	-2.8%	-3.7%	-1.9%	-2.4%	-2.3%	-0.4%	-2.9%	-2.4%	-2.8%	-0.8%	-0.7%	-2.5%	-2.1%	-2.2%
2022 Q4	-1.8%	-1.3%	-1.8%	-3.0%	-2.7%	-2.2%	-2.7%	0.8%	-3.2%	-1.5%	-2.7%	-1.6%	1.5%	-2.0%	-1.0%	-2.3%

Source: NBP

Figure 82 Return on Equity (ROE, %) in the case of a leveraged housing investment (LTV = 50%) in the group of 6 cities, Warsaw (section a) and in the group of other cities (section b)



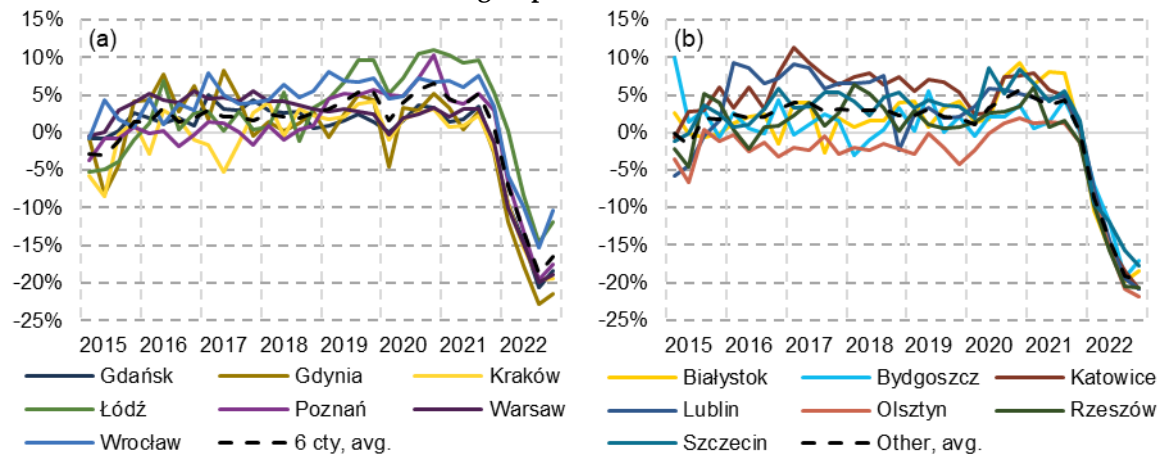
Source: NBP

Figure 23 Return on equity (ROE, in %) on a leveraged housing investment (LTV = 80%) in selected cities

Quarter	Białystok	Bydgoszcz	Gdańsk	Gdynia	Katowice	Kraków	Lublin	Łódź	Olsztyn	Poznań	Rzeszów	Szczecin	Wrocław	Warszawa	6 cities	Other
2019 Q1	4.1%	0.3%	0.9%	-0.7%	5.5%	1.8%	2.4%	4.5%	-2.8%	4.5%	2.9%	3.3%	8.2%	2.7%	3.2%	2.2%
2019 Q2	0.8%	5.4%	1.5%	2.5%	7.0%	2.2%	3.2%	6.8%	-0.1%	5.1%	1.0%	4.2%	7.0%	3.2%	4.2%	3.1%
2019 Q3	3.3%	0.0%	2.5%	5.0%	6.7%	3.8%	2.0%	9.6%	-1.9%	5.1%	0.5%	3.7%	6.7%	2.7%	5.4%	2.1%
2019 Q4	4.2%	2.1%	1.4%	4.4%	5.4%	4.1%	2.1%	9.7%	-4.2%	5.7%	0.8%	3.5%	7.3%	2.5%	5.4%	2.0%
2020 Q1	1.4%	-0.4%	0.1%	-4.5%	2.4%	-0.9%	3.5%	5.1%	-2.3%	5.0%	1.4%	1.9%	4.5%	-0.3%	1.6%	1.1%
2020 Q2	1.8%	2.1%	1.7%	3.3%	2.6%	1.8%	5.9%	7.3%	-0.2%	4.9%	2.6%	8.5%	4.9%	2.0%	4.0%	3.3%
2020 Q3	7.3%	2.0%	3.7%	3.1%	7.5%	2.7%	5.6%	10.4%	1.3%	7.3%	2.8%	5.1%	7.2%	2.4%	5.7%	4.5%
2020 Q4	9.3%	3.6%	3.3%	5.2%	7.6%	3.2%	5.1%	11.0%	1.9%	10.3%	3.4%	8.4%	6.8%	3.4%	6.6%	5.6%
2021 Q1	6.4%	0.6%	1.5%	3.4%	7.8%	0.7%	4.6%	10.3%	1.2%	4.4%	6.0%	6.5%	6.9%	2.1%	4.5%	4.7%
2021 Q2	8.0%	1.5%	1.7%	0.4%	5.6%	0.9%	4.5%	9.4%	1.5%	3.8%	0.8%	4.1%	6.1%	3.1%	3.7%	3.7%
2022 Q3	7.9%	4.3%	3.4%	2.8%	4.8%	2.3%	4.9%	9.6%	1.2%	5.2%	1.5%	5.5%	7.6%	3.1%	5.2%	4.3%
2022 Q4	0.2%	0.0%	-2.4%	-2.7%	0.4%	-2.2%	1.0%	5.3%	-1.4%	3.0%	-1.4%	1.6%	3.5%	-1.3%	0.8%	0.1%
2022 Q1	-10.4%	-7.0%	-9.5%	-12.0%	-7.9%	-9.5%	-7.4%	0.3%	-8.7%	-6.5%	-9.7%	-9.4%	-5.7%	-10.0%	-7.2%	-8.6%
2022 Q2	-15.6%	-11.9%	-14.4%	-17.7%	-15.0%	-15.3%	-14.3%	-8.3%	-15.4%	-13.1%	-15.7%	-11.9%	-9.9%	-14.8%	-13.1%	-14.3%
2022 Q3	-19.9%	-19.2%	-20.6%	-22.8%	-18.4%	-19.6%	-19.4%	-14.6%	-20.8%	-19.5%	-20.6%	-15.7%	-15.3%	-19.9%	-18.7%	-19.1%
2022 Q4	-18.4%	-17.1%	-18.4%	-21.5%	-20.8%	-19.3%	-20.8%	-11.9%	-21.9%	-17.6%	-20.7%	-17.8%	-10.3%	-19.0%	-16.5%	-19.6%

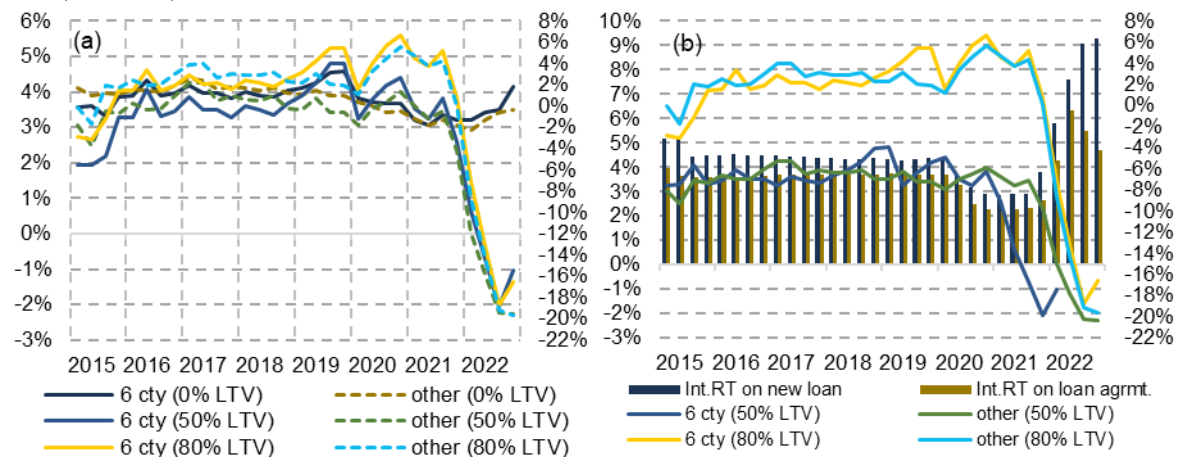
Source: NBP

Figure 83 Return on Equity (ROE, %) in the case of a leveraged housing investment (LTV = 80%) in the group of 6 cities, Warsaw (section a) and in the group of other cities (section b)



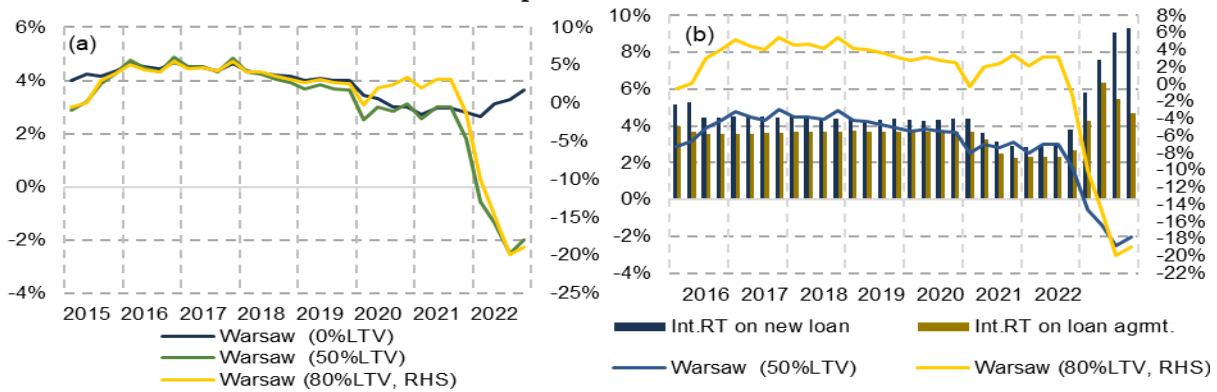
Source: NBP

Figure 84 Comparison of the return on equity (ROE, in %) on housing investment for the group of 6 cities and the group of other cities at selected levels of the LTV ratio (section a) and in comparison to loan interest rate (section b)



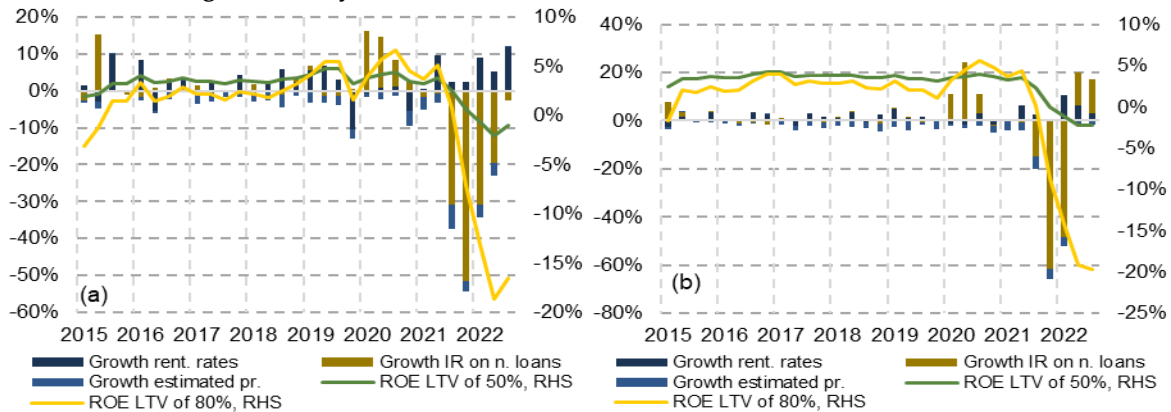
Source: NBP

Figure 85 Comparison of the return on equity (ROE, in %) on housing investment for Warsaw at selected levels of the LTV ratio (section a) and in comparison to loan interest rate (section b)



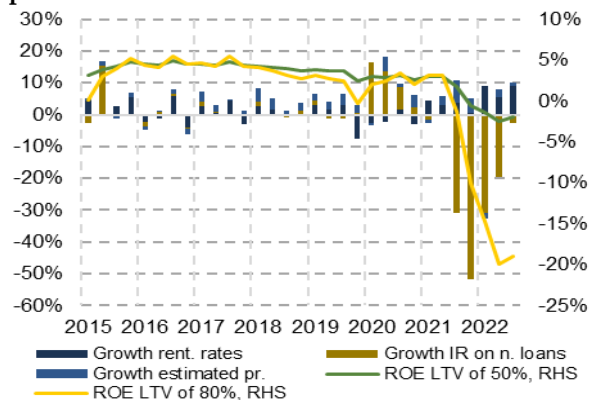
Source: NBP

Figure 86. Estimated ROE for LTV 50% and 80% and the impact of quarterly changes in interest rates on new housing loans, estimated housing transaction prices and rental rates in the group of 6 cities (section a) and the remaining cities analysed (section b)



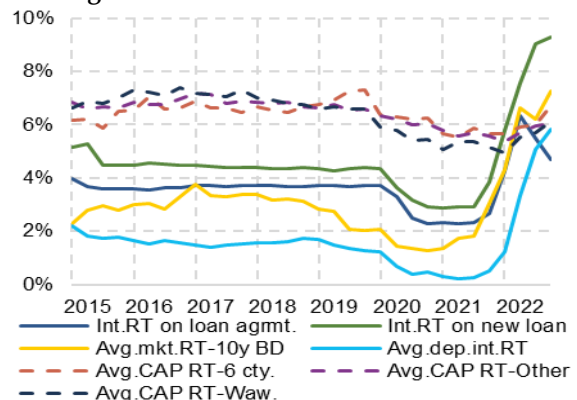
Source: NBP

Figure 87. Estimated ROE for LTV 50% and 80% and the impact of quarterly changes in interest rates on new housing loans, estimated housing transaction prices and rental rates in Warsaw



Source: NBP

Figure 88. Comparison of interest rates on bonds, deposits and costs of residential mortgage loans against the average capitalisation of investment in housing for rental



Source: NBP

8. Development, construction sector and primary market in surveys of development firms³⁴

Financial standing of development companies in the NBP developers' questionnaire surveys

After two years of record high housing sales results in the primary market, 2022 was marked by a significant decline in contracting and ended with a significant oversupply of offers, including a high proportion of unsold work in progress and a cautious approach to starting new investments or subsequent stages of ongoing projects. At the end of 2022, the oversupply of dwellings in the primary market was indicated by 76% of respondents, with 48% of respondents indicating a significant prevalence of supply over demand. The financial standing of the vast majority of housing developers at the end of 2022 remained good and stable, mainly in the group of high production capacity entities with an apparent downward trend in the condition of a considerable number of smaller entities.

The number of dwellings sold by the survey respondents in 2022 was 43% lower than the number of contracts in 2021. On the basis of the data cyclically collected by NBP, a deepening q/q decline was recorded in the sales of dwellings on the primary market in the country (by 23%, 44% and 55% y/y in 2022 Q1, Q2, Q3, respectively). A higher decline in sales occurred in the 10 cities (by 47%) and in Warsaw (by 48%) than in the 6 cities (by 38%), which resulted from a higher percentage of cash buyers for investment purposes. Housing sales registered in the three quarters of 2022 were weaker than the results recorded in the same period in 2016-2021 and remained 46% and 5% higher than the same period in 2014 and 2015, respectively. In 2022 Q4, the surveyed developers reported a slight deceleration in the decline of housing contracting which, as they believe, is slowly stabilising the level of contracting in the primary market at a low level. On the other hand, a group of more than a dozen developers listed on the Catalyst market sold 3,403 dwellings in 2022 Q4, which means a 25.8% q/q increase and a 34.9% y/y decrease.³⁵ A 2% higher level of surveyed developers' sales plans for 2023 and an 18% higher level for 2024 in relation to the number of dwellings actually sold in 2022 confirms the expected stabilisation of sales at the current level in 2023 and a slight improvement in 2024.

The significantly lower y/y sales in 2022 were mainly a consequence of the tightening of the criteria for granting residential mortgage loans, the deterioration of the financial standing of households and the high comparative base in 2021. In addition, as factors affecting the decline in their contracting, the developers referred to the uncertain geopolitical and social situation, increasing competition among developers as a result of increasing bargaining power for a buyer and problems related to the sale of dwellings on the secondary market in order to purchase a dwelling on the primary market mainly to improve living conditions. In 2022 Q4, it was pointed out that the number of buyers investing their money in housing had decreased due to the concerns over

³⁴ Developers who participated in the "Survey of supply levels with demand elements in the primary market in multifamily housing" conducted by Narodowy Bank Polski in November and at the beginning of December 2022 accounted for an estimated 25% of development firms investing in multifamily housing projects in the country. The structure of the construction companies which took part in the "Survey of the financial standing and production capacity of construction companies providing, among others, residential construction services" at the same time, comprised approx. 23% micro businesses, 50% small entities, 24% medium-sized companies and 3% large volume construction entities. Approximately 90% of the surveyed developers and more than 80% of the surveyed construction companies also took part in the previous issues of the surveys (in December 2022, in November and February 2020 and in February 2019), which ensured a high comparability of the results and conclusions of the previous surveys. The analysis of the data derived from the questionnaire surveys was supplemented by interviews with representatives of selected developers and construction companies as well as by calculations and conclusions resulting from F01 reports submitted to Statistics Poland, with the breakdown into two groups of companies: small companies - employing from 9 to 49 persons (data available until the first half of 2022 in semi-annual periods) and larger-sized companies employing above 49 persons (data available until 2022 Q3 in quarterly periods), engaged in the implementation of building construction projects (PKD 41.10).

³⁵ "Standing of the largest residential real estate developers of the Catalyst market after 2022 Q3", Nawigator Brokerage House, Warsaw, January 2023.

spending significant savings and as a result of the amendments to the “Tenant” Act” as a result of which it will be more difficult to enforce the payment of rent or to the tenant. Factors boosting sales in the primary market mainly included the investment of funds in residential real estate and the acquisition of flats for rent. The scale of purchases of dwellings by foreign individuals and the level of purchases by investment funds had a minor impact on the level of sales in 2022.

The structure of developers according to the number of dwellings they managed to contract during the year changed. The group of small developers, i.e. with annual sales of less than 100 dwellings (83% of respondents in 2022 vs. 67% in 2021 and 73% in 2020), increased and significantly prevailed. However, the share of medium-sized developers, i.e. with contracting from 100 to 500 dwellings (14% of respondents in 2022 versus 28% in 2021 and 21% in 2020) and large developers, i.e. with sales of more than 500 dwellings (3% of respondents in 2022 versus 5% in 2021 and 6% in 2020), decreased.

According to the survey data, the economic standing of a vast majority of housing developers at the end of 2022 was good, though with a visible deterioration trend in the case of some respondents (the number of respondents assessing the situation as good at the end of 2022 declined by 14 p.p., to 69% from 83% at the end of 2021). The percentage of developers saying their financial standing was poor increased by 21 p.p. (to 27% at the end of 2022 from 6% at the end of 2021), and 4% faced a poor situation, but for 3% the chances of survival were realistic. The disparity in the financial standing of developers intensified. Those with high production and sales capacity had a better economic standing. The percentage of respondents among medium-sized and very numerous small entities rating the their condition as poor increased significantly. In their forecasts for 2023, the majority of respondents (61%) anticipated no change in their current economic standing, 25% expected a downturn, including a half of large companies, while 13% of all respondents saw an opportunity for improvement. When asked about the major factors affecting their financial condition, as many as 98% of entities referred to problems of home buyers in obtaining financing, which, according to 55% of respondents, posed a high risk of a significant decrease in the company income and a deterioration in liquidity and debt ratios. The majority of respondents saw a serious risk of difficulties for construction companies in raising external financing, the continuation of significant increases in project delivery costs and a high likelihood of developers abandoning new project starts, which could result in a loss of business continuity. A smaller number of developers were concerned about the difficulty in obtaining financing for new projects (36%) and, in fewer cases, the failure to complete the ongoing projects (9%). 11% of respondents were worried about the risk of their business closure and 3% about their bankruptcy or being taken over by another entity (3%).

At the end of 2022, the majority of developers (79%) had no liquidity problems, but this was a 12 p.p. and 2 p.p. lower percentage than at the end of 2021 and 2020, respectively. Occasional liquidity problems were reported more often by small entities (20%) than by larger companies (3%). In 2023, the prevailing group expected the situation to persist in terms of both liquidity (62%) and the settlement of liabilities due to bank loans (44%) and non-bank liabilities (65%), while about 20% expected that difficulties in these respects would intensify.

At the end of 2022, there were more surveyed developers (33%) who did not have a bank loan than at the end of each of the previous three years, and the majority (63%) had not applied for bank financing in the past year. The banks refused a loan to 12% of developers for various reasons, including the main reasons, such as significant weakening of demand in the housing market and a decline in revenues, and to a lesser extent a lack and deterioration of creditworthiness or a lack of adequate security. As a result of the existing situation, there were 11 p.p. fewer developers who were granted bank funding (25% in 2022 vs. 36% in 2021, 34% in 2020 and

43% in 2019). In 2023, mainly large companies (83%) intend to apply for a development loan for projects, followed by medium-sized companies (56%) and small companies (45%), which confirms greater financial problems of smaller entities, their weaker financial standing and increased caution in starting new projects. A high proportion of developers (36% of medium-sized and small respondents) expressed concern about the risk of failure to raise funding for their new investment projects in 2023.

The structure of liabilities was similar to the previous year's, which confirms the stable level of equity and third-party capital, despite the decrease in revenue from new contracted housing sales. The high share of equity (48%) demonstrates a considerable financial independence of the respondents and provides security for creditors to recover their funds in the event of the failure of the company. As the share of contracts for dwellings in the external sources of financing decreased, so did the share of funds from down payments by purchasers of dwellings, which represent an important source of project financing (17%-18% of total liabilities at the end of 2022 Q1, Q2 and Q3 compared to 20%-21% at the end of 2021 and 2020, respectively) and an increase in liabilities to economic operators and project subcontractors (23% share at the end of 2022 Q3 compared to 20%, on average, in 2021). A continuation of this trend will increase payment bottlenecks and undermine developers' liquidity.

In the questionnaire survey, significantly more developers reported a declining return on sales in 2022 (62%) than in 2021 (21%) and achieving an unsatisfactory but positive margin (58% in 2022 vs. 35% in 2021), which predominantly indicates a slower pace of growth in housing prices compared to costs. A significant erosion of profitability was reported by more small developers (35%) than medium-sized (27%) and large developers (17%). A greater percentage of project developers in the 10 city group (72%) than in the 6 city group (55%) and in the large developer group reported a declining return on sales. As a consequence, nearly 50% fewer businesses achieved satisfactory returns (34% in 2022 compared to 63% in 2021). Sales losses were incurred by 10% of respondents, which included small companies with a limited production capacity. 21% of respondents achieved similar returns on sales as last year. 16% of companies investing in good locations, mainly in Warsaw and Gdańsk, and a handful of entities in other large cities reported an increase in their sales margins. The gross margin on sales in smaller markets and suburbs and in average locations was estimated at 16%-20%. Higher levels were achieved in good locations and in premium developments. However, it should be borne in mind that a significant proportion are projects with a return rate of up to 20%, which dominate the market and have been most affected by the decline in sales revenue. In December 2022, developers did not see any good prospects for the housing market for the following year, as expressed by almost half of the operators (48%), expecting a decline in the return on sales in 2023. The possibility of maintaining returns at 2022 levels was forecast by 37% of respondents, while 15% expected an improvement. The persistence of the good economic climate for several years has led to the emergence of many new players in the industry, which have not yet developed their strong position in the market and may find it difficult to remain in the market in difficult times.

Assessment of the primary market and housing buyers' behaviour in developer surveys

According to developers, the high inflation rate and the continued good economic climate in the housing rental market encouraged people to invest their savings in higher-standard dwellings in good locations. Buyers of housing for cash in a difficult economic environment prefer developers with a strong market position and financial standing. The structure of private buyers has changed significantly in terms of the purpose of purchasing a dwelling. At the end of 2022, it was estimated that 30% of individuals had purchased dwellings for personal use and 70% for investment purposes. In projects with an average location in 2022, a drop in the number of individuals buying their first home reached -80%, while for buyers of the next dwelling, i.e. for

home improvements, -50%. For several years, Polish private individuals have predominated among the buyers, reaching a level of approximately 93%. The share of others is limited and has changed insignificantly (5% - foreign individuals, approx. 1% - investment funds and 1% - companies and other entities). In developments located on the outskirts of the largest markets, a small percentage of developers reported an increase in the sale of dwellings to Ukrainian individuals who arrived for profit-earning purposes before 24 February 2022. In 2022, no more than one dwelling was purchased by 86% of individuals, 13% purchased between 2 to 99 dwellings and 1% purchased more than 100 dwellings. Purchases of more than 100 dwellings at a time in 2022 (block purchases) mainly involved large developers. As residential mortgage loans became less and less available in 2022, the share of transactions financed by bank decreased significantly when the buyers purchased a dwelling for their own use (down to 40% of transactions in 2022 compared to more than 60% in previous years), the share of dwellings purchased with a prevailing share of own funds increased (to 25% of transactions in 2022 compared to 20% in 2021 and 18% in 2020) as well as those financing the purchase exclusively with their own cash (to 35% in 2022 compared to 18% in 2021, 22% in 2020 and 20% in 2019). Among dwellings purchased for rent, transactions financed with own funds significantly dominated, with their share rising to 68% in 2022 compared to 51% in 2021. At the same time, the share of dwellings purchased with a prevailing share of own funds decreased to 22% and those financed with a bank loan to 10%. 81% of the buyers who purchased dwellings with the intention of reselling in a favourable period financed the purchase with their own funds only, 13% with a majority of own funds and 7% with a bank loan, compared to 59%, 23% and 17%, respectively in 2021.

In 2022 Q4, compared to 2022 Q3, almost a half of the developers (48%) indicated no change in prices in the primary market, 34% a slight increase (by 7%) and 18% of entities reduced prices by 4%, which confirms the nominal and real slowdown in housing price growth. According to developers, there was room for negotiation in the second half of 2022, which mainly concerned large flats and the last or less attractive units in buildings at the final stage of construction (e.g. free parking space or storage cell, flexible repayment level, finishing of one of the rooms). The majority of developers (63%) anticipated a lower price increase for primary market flats in 2023 (by 10% on average) than in 2022 (by 13% on average). The survey of developers shows that the market response may depend on the type and location of the project and the individual financial standing of the developer. Price increases are possible mainly in the so-called "enhanced standard" and premium segments, in developments implemented in good central locations. According to developers, in the last months of 2022 and in January 2023, the freeze in housing prices resulted from a low demand, while their slight increase was due to high pressure from rising construction costs, including the prices of construction materials, the prices of contractors' services and the more and more visible process of reducing housing supply. A small percentage of the surveyed developers (10%) provide in their agreements with homebuyers for the indexation of subsequent payments of sold dwellings or an adjustment of the dwelling price in the form of a single payment, e.g. by the inflation rate. Developers raise or maintain prices of dwellings to make the most efficient use of their offering in order to maximise the profitability of their projects. In 2022, the increase in the transaction price of dwellings on the primary market in 7 cities, including Warsaw, was slightly lower than the rate of increase in the construction cost of a 5-storey multi-family residential building (18% up). In 10 cities, housing prices rose a few per cent higher than construction costs.

According to the survey data, among the surveyed developers, the supply of dwellings available for sale at the end of 2022 was 32% higher than at the end of 2021 and comparable to that at the end of 2022 Q3. The prevailing number of dwellings on offer belonged to small developers (up to 81% of surveyed entities), followed by medium-sized (16% of respondents) and large (3% of respondents) developers. The high level of offers, including at the work-in-progress stage, at a time of rising construction costs and low sales creates a liquidity

risk for developers. The share of turn-key premises in the offer recorded a further decrease (9% at the end of 2022 compared to 11% at the end of 2021). The high level of dwellings completed and put into use in 2022 (a growth of 1.7% on 2021, according to the Statistics Poland data) indicates that construction work is carried out without major disruption. These dwellings had been largely sold at an earlier stage of production and did not have a major impact on the developments in the housing supply in 2022.

Survey data on the actual number of dwellings put on the market confirm the prudent policy of developers in 2022. The number of dwellings actually put on the market was 9% lower than earlier plans for 2022 and 26% lower for the number of dwellings marketed in 2021. The highest deceleration in new market launches in 2022 compared to 2021 was reported by small operators (-27%) and medium-sized companies (-42%). The survey respondents predicted a decline in supply in 2023 by developers with more limited capital resources. Developers with an established and stable financial position intend to develop and introduce projects in all business segments, although with greater caution and financial discipline.

2022 saw a significant decline in the number of new projects started by the developers, as evidenced by survey data (down 34% y/y) and Statistics Poland data on the number of dwellings started (down 27.8% y/y). Production was reduced by 50% of the respondents and 61% anticipated a further reduction in 2023, including a higher percentage in the group of 10 cities (69%), a lower percentage in the group of 6 cities (48%). The higher total number of dwellings planned by the respondents to be started in the next two years, relative to completion in 2022, indicates their considerable capacity, including a slight optimism mainly among the group of 40% of the respondents. Long-term postponement of the start of new projects or subsequent phases of investments may result in a lack of orders for some construction companies and their elimination from the market, while in the period of economic recovery, it will once again cause a lack of contractors and an increase in the prices of their services.

According to the estimates published by Statistics Poland, at the end of 2022, 833.0 thousand dwellings remained under construction, down 4.4% y/y, which confirms the continued high level of work in progress in an environment of weak demand for new dwellings. A high rate of housing production with low levels of buyer activity may result in a deterioration of the financial standing of developers. According to NBP data, the share of non-contracted work in progress increased significantly over the two-year period (to an 81% share in 2022 Q3, compared to 60% in 2021 Q2), which, if revenues remained low for a long time, might result in economic problems for the company and related parties in the implementation of projects and a lack of funds to complete some investments. The percentage of dwellings sold in buildings at the production stage decreased (to 9% in 2022 Q3, compared to 24% in 2021 Q2), which means a lower income from down payments by purchasers during the ongoing works. At the end of 2022 Q3, 46% of work in progress was located in the 6 cities, 28% in Warsaw and 26% in the 10 cities. According to the survey respondents, 68% of the dwellings in the pipeline at the end of 2022 should be completed in 2023 and 32% - in 2024 and beyond. Assuming that investment projects are delivered on schedule and given the announced prudence in starting new projects, 2024 could mean a rather difficult period in securing new orders in residential construction, a shortage of sales offers and rising housing prices in the primary market. Moreover, the decline in revenues and the deterioration of the financial situation of some developers may prolong construction time, generate additional costs and be conducive to the build-up of payment bottlenecks.

The share of dwellings sold in turn-key buildings declined (to 2% in 2022 Q3, compared to 7% in 2021 Q2). For many years, the majority of dwellings on the primary market in Poland have been sold at the production

stage. The decline in sales of finished dwellings affected all the markets analysed and confirms the decrease in demand even for finished product in less attractive locations.

Taking into account the weak demand in the sales market and the good economic climate in the rental market, some developers started in 2022 or are now considering extending the scope of their activities in 2023 to include renting their own dwellings and managing them (indicated by 33% of developers), renting their own dwellings with an option of purchase by the tenant (24% of respondents) and selling dwellings to an investor, but still renting and managing them (20% of respondents). The implementation of the aforementioned options was reported much more frequently by large companies than by the medium-sized and small entities and by a significant percentage of developers implementing their projects in Warsaw.

The surveyed developers listed higher construction costs than in the previous year (an increase of 23% on average in the cost of building one square metre of usable floor area of housing, including 56% in loan costs, 20% in overheads and 16% in project costs) among the increasing factors limiting production, in addition to the most significant and visible reason, which is the significant decrease in sales and revenues. Several percent of the respondents were further hindered in starting new projects by problems in raising external funding and their poor financial standing. Significantly fewer operators than in 2021 indicated difficulties in obtaining administrative decisions, in acquiring construction sites and in finding project contractors. A similar increase in construction costs and dwelling prices resulted in maintaining the estimated price structure of a square metre of housing.

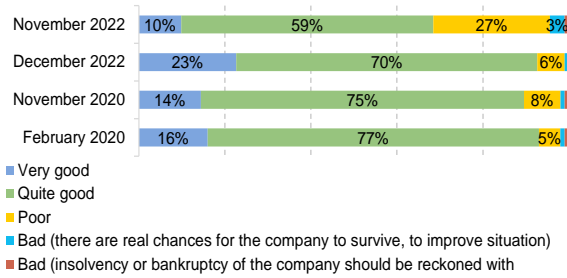
All large companies, 77% of medium-sized companies and 47% of small entities reported acquiring land in 2022, which means that more than a half (53%) of the most numerous group of small entities did not purchase land to carry out housing projects. The decline in the percentage of developers who acquired land was mainly the result of a prudent approach by developers to investing due to the high uncertainty concerning the scale of the downturn in the housing market. The growth rate of land prices slowed down (a 17% growth in 2022 in average locations, compared to 27% in 2021 and 13% in 2020, while in very good locations a 30% increase was noted in 2022 compared to 42% in 2021). The stock of land held by a comparable group of developers as in the previous three years (79% of respondents) and a similar percentage of dwellings planned to be built with planning permission granted (49%) indicate a continuing opportunity for rapid increases in production and sales offers in the primary market.

There was a decrease in the number of residential building permits issued in the country (12.8 per cent less than in 2021), which is an important indicator of developers' production capacity. The percentage decrease in permits issued is the result of a historically high base in 2021 (an increase of over 23% in 2021 compared to 2020), as well as the downturn in the housing market in 2022 and a reduced scale of investment by small developers in building land, the possession of which is a prerequisite for applying for a building permit.

In the opinion of developers, the falling demand for housing may be a difficult test for some development companies. Entities with more extensive financial resources should be able to cope better with a challenging and shrinking market by downshifting their operations to slower turnover and adapting to market opportunities. Given the approximately two-year production period and unfavourable sales conditions, developers will bear the burden of financing construction and maintaining administration. The problem of low revenues with rising costs associated with the work in progress may spell difficulties for related entities (finishing companies, wholesalers and building material manufacturers). At the same time, the downturn in housing construction may dampen the growth in prices of construction materials, prices of services provided by contractors and

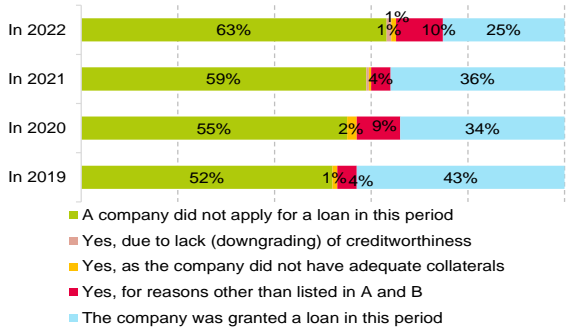
subcontractors. Smaller developers, with a high level of work in progress and burdened by the cost of loans and liabilities for construction services rendered, may not survive the hardship of falling revenues. The lack of sales at the initial stages of investment generates the need to seek external funding. Banks, seeing the risks posed by the deepening decline in developers' revenues, more and more frequently require a higher own contribution and pre-sales or refuse to grant financing. The greater the uncertainty on the demand side, the bigger the banks' pressure on an adequate risk premium.

Figure 89 Developers' assessment of their current financial standing (in %)



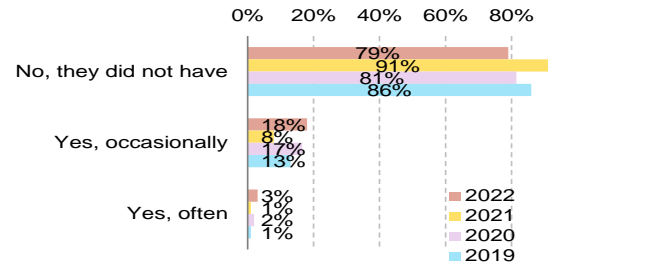
Source: NBP survey

Figure 91 Structure of responses to the question whether a company was refused a bank loan (in %)



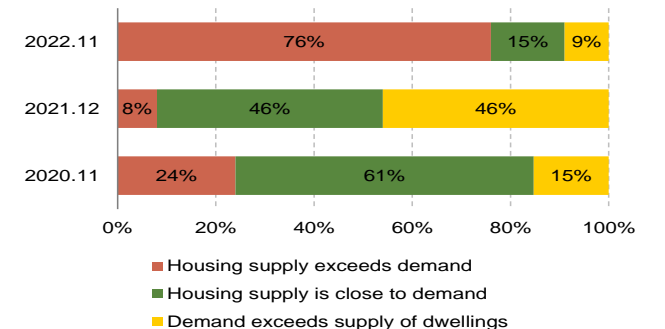
Source: NBP survey

Figure 90 Structure of responses to the question on whether developers had liquidity problems (in %)



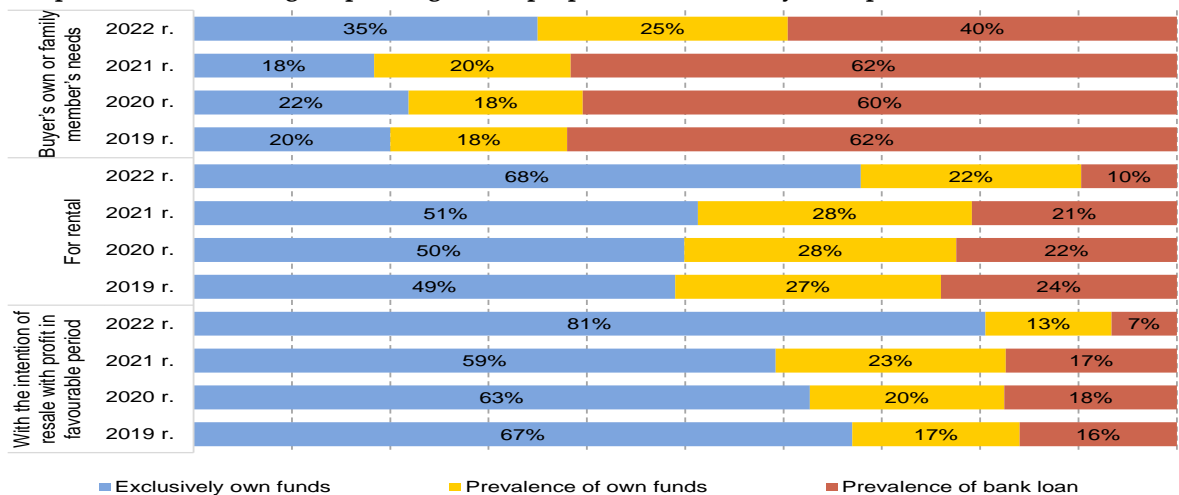
Source: NBP survey

Figure 92 Supply to demand ratio as assessed by surveyed developers (%)



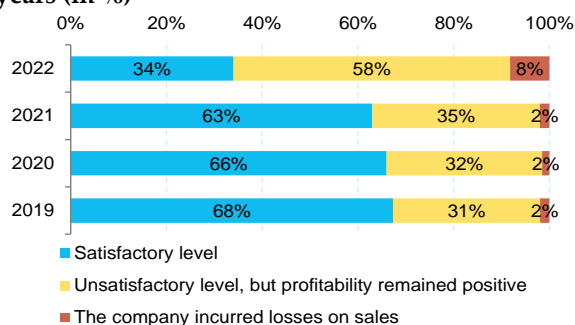
Source: NBP survey

Figure 93 Structure of developers' responses to the question about the share of different sources of financing for the purchase of dwellings depending on the purpose for which they were purchased (in %)



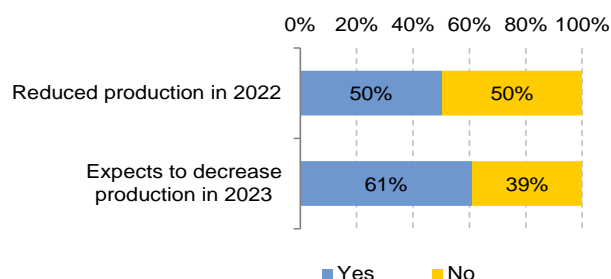
Source: NBP survey

Figure 94 Assessment of Return on Sales (net result) achieved by real estate developers in individual years (in %)



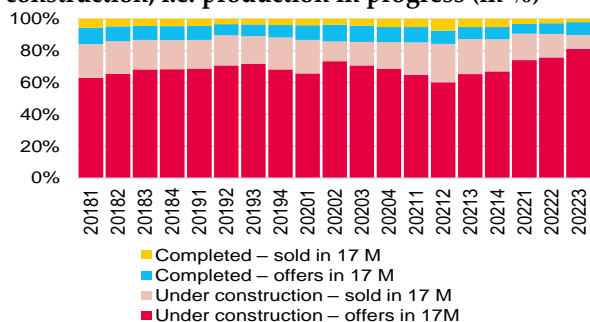
Source: NBP survey

Figure 95 Share of developers that reduced production of dwellings in 2022 and their projections for 2023 (in %)



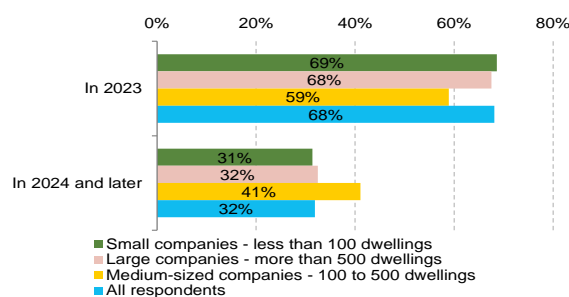
Source: NBP survey

Figure 96 Structure of dwellings sold and on offer, broken down by dwellings completed and under construction, i.e. production in progress (in %)



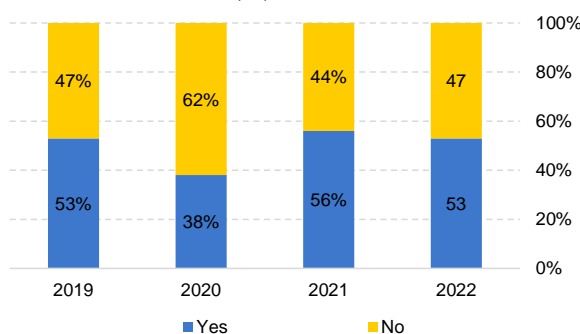
Source: NBP survey

Figure 97 Work in progress - dwellings planned for completion in 2023 and in 2024 and beyond - developers' indications by entity size (in %)



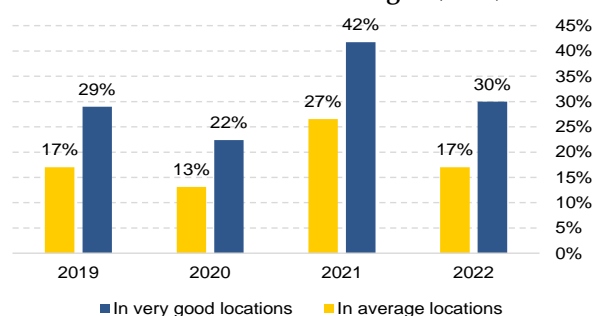
Source: NBP survey

Figure 98 Structure of responses to the question whether developers acquired land for residential construction in 2022 (%)



Source: NBP survey

Figure 99 Structure of answers to the question on how much (y/y average) net prices of land for multi-family residential construction have changed (in %)



Source: NBP survey

Financial standing of residential construction companies

For residential and non-residential construction companies, as for real estate developers, 2022 was a period of major diversification both in terms of readings of economic indicators and sentiment assessment. Unexpected dynamic changes in the environment brought about the need for construction companies to abandon the ways of working that had been practised over the past several years of good economic climate. The effect of the changes was a more diversified financial standing of companies in the industry. Despite an increase in revenue and net profit, an overwhelming percentage of construction companies reported a decline in sales margin in 2022 compared to 2021 (87% of respondents), while for 60% of companies its level was unsatisfactory. On the one hand, the relatively good, averaged financial data for the period from January to September 2022 and, on the other hand, the high dynamics of changes in the environment and the diversified assessment of the current situation at the end of 2022 and the expected situation in 2023 demonstrate a high uncertainty and diversity of the economic condition of the industry players.

In the survey, the majority of residential and non-residential construction companies (59%) assessed their economic situation as good, but the percentage was 22 p.p. lower than at the end of 2021. A downturn in 2023 is expected by 35% of the respondents, indicating as the main reasons the increase in the prices of commodities and materials (16% of responses), the growth in the prices of electricity (12%), the decrease in the profitability of contracts (10%), the increase in the price of third-party services and difficulties in signing subcontractors (10%). In the first half of 2022, averaged data from the F-01 reports of large companies showed a good financial performance due to the inflation premium created in an environment of dynamic price growth in cost components, which was accrued when the construction of a record high number of dwellings was completed. The analysis of the financial data of the larger residential and non-residential companies for 2022 Q1-Q3 revealed significant diversity in the financial situation within this group. The percentage of companies whose condition was poor or very poor was 23% and mainly comprised companies with lower revenues (14%).³⁶ On the other hand, the survey showed that 42% of the respondents assessed their current standing as unfavourable. According to the financial data, the low level of financial result, which translated into a low level of return on sales, concerned 45% of entities with revenues of up to PLN 20 million. In the survey, only slightly more micro and small businesses expressed optimism in the assessments of their condition. The responses concerning key aspects of doing business in 2022 did not indicate the emergence of any significant issues. Compared to the survey at the end of 2021, there was a slight increase (to 9%) in the percentage of respondents who had liquidity problems, and the percentage of companies having problems with the settlement of non-bank liabilities (up to 9%). Financing of operations for 67% of companies was based on equity and trade credit, while banks refused to lend to only 8% of companies, which confirms the good standing of the industry. The low exposure of banks in the construction industry is confirmed by the financial data - in large companies the share of loans in liabilities, as in the previous year, amounted to 9%. The positive image of the industry is overshadowed by a significant increase in the cost of completed contracts, which has forced 68% of companies to undertake efforts to obtain additional payment from the principals. Half of the construction companies applying for budget renegotiation have been awarded additional funds. According to the declarations of 84% of respondents to the survey, the problem of underestimation of funds will increase in cost estimates in 2023, amid a dynamic growth of costs.

³⁶ Ratings indicating a weak or poor situation were assigned to companies which, according to the F-01 reports for 2022 Q1-Q3, incurred a loss.

Table 24 Financial performance of larger construction companies (employing more than 49 people) for 2022 Q1-Q3, by revenue volume

Revenue (PLN million)	loss			profit			Total number of companies	Total in %	Total average ROS
	Number of companies	% of companies	average ROS	Number of companies	% of companies	Average ROS			
to 20	44	45%	-22.3%	53	55%	12.2%	97	100%	-3.4%
from 20 to 50	14	16%	-3.7%	72	84%	6.0%	86	100%	4.4%
from 50 to 100	6	18%	-8.8%	27	82%	6.6%	33	100%	3.8%
from 100 to 200	2	7%	-3.9%	27	93%	6.9%	29	100%	6.1%
from 200 to 500	7	11%	-3.0%	56	89%	5.5%	63	100%	4.6%
over 500	2	13%	-0.5%	13	87%	16.1%	15	100%	13.9%
Final total	75	23%	-14.9%	248	77%	7.9%	323	100%	2.6%

Source: NBP based on Statistics Poland (F01).

The rapid decline in demand in the primary housing market quickly verified the plans of developers, which led to changes in the demand for the services of construction companies visible in the statistics published by Statistics Poland concerning residential construction as well as in the economic climate surveys. According to the survey data, 34% of the respondents expected a sustained decline of demand for their services (none of the large companies was expecting such a change). In 2023, the majority of companies were going to maintain or increase employment (79% of indications). The respondents almost unequivocally anticipated further increases in 2023 in both the price of services performed (by 17%) and the major cost components, including the price of third-party services (by 18%), the price of construction materials (by 22%), wages (by 13%) and electricity (by 89%). Given the anticipated growth in costs and decline in demand for services, 39% of the respondents expected problems in maintaining liquidity, 35% - problems in payment of non-bank liabilities and 25% - problems related to the settlement of bank liabilities. The results of the survey suggest a deterioration of financial standing of construction companies in 2023, however, to a very moderate degree. The adverse consequences of changes in the market for construction services will affect mostly micro enterprises and small businesses.

Companies' efforts to curb rising costs include, on the one hand, passing them on to the prices of the services they sell and, on the other hand, over-purchasing materials in a dynamic environment of rising prices of materials. Such measures resulted in an increase in current assets (receivables and inventories) generating an increase in working capital requirements, which construction companies covered mainly by increasing liabilities and extending the time of their settlement. Financial data from the F-01 financial statements of larger construction companies indicate that the leverage built in this way has had a positive effect for high revenue earners. In the case of small companies, the weaker financial performance and the deterioration in the performance indicators confirm that they have been at the heart of the negative changes in the industry resulting from cost increases and the prospects of a downturn.

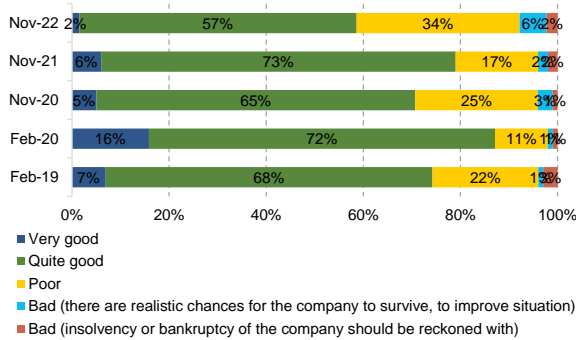
Table 25 Effects of financial leverage of larger construction companies (employing more than 49 people) in the period of 2022 Q1-Q3, by revenue volume

Revenue (PLN million)	positive leverage effect	negative leverage effect	Total
to 20	62%	38%	100%
from 20 to 50	79%	21%	100%
from 50 to 100	87%	13%	100%
from 100 to 200	91%	9%	100%

from 200 to 500	93%	7%	100%
over 500	93%	7%	100%
Final total	78%	22%	100%

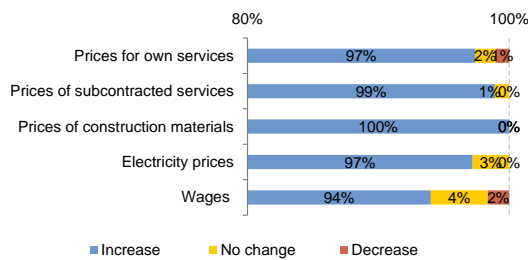
Source: NBP based on Statistics Poland (F01).

Figure 100 Assessment of the current financial standing of construction companies in questionnaire surveys (in %)



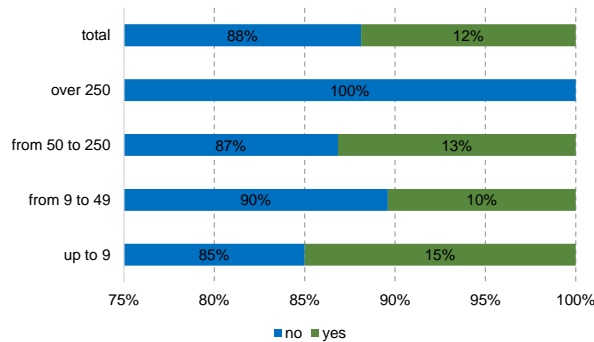
Source: NBP survey

Figure 102 Percentage of indicated direction of change in own prices and prices of basic cost components in 2022 compared to 2021 according to surveyed companies (in %)



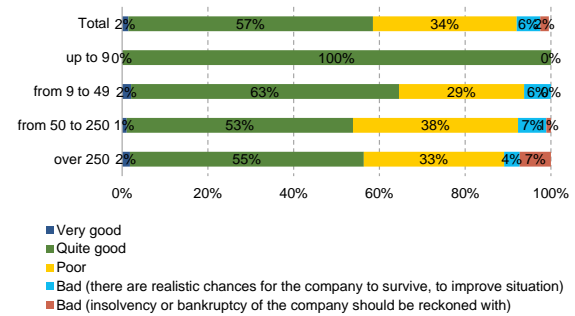
Source: NBP survey

Figure 104 Percentage of companies that abandoned further implementation of the contract for residential construction services in 2022 (in %)



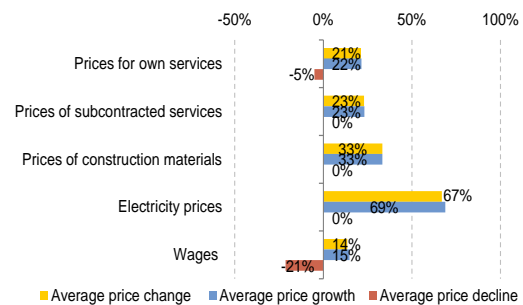
Source: NBP survey

Figure 101 Assessment of the current financial standing of construction companies by number of employees at the end of 2021 (in %)



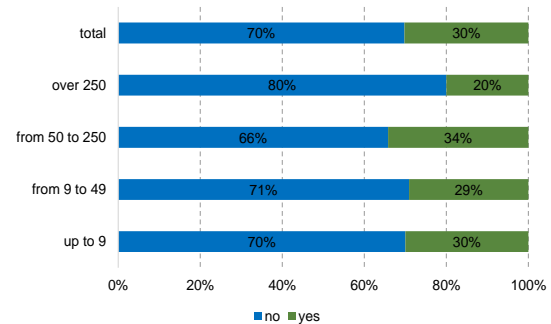
Source: NBP survey

Figure 103 Average changes in prices and the value of basic cost components of surveyed companies in 2022 compared to 2021 (in %)



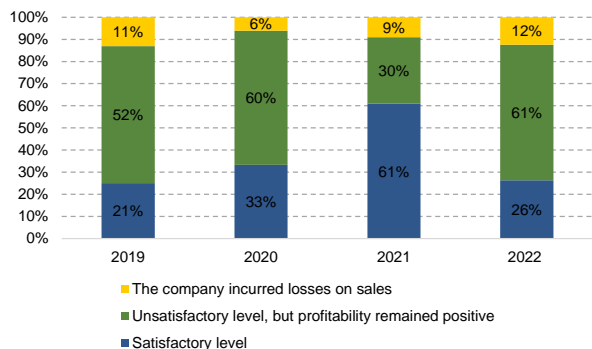
Source: NBP survey

Figure 105 Percentage of companies that resigned from signing a new contract for residential construction services in 2022 (in %)



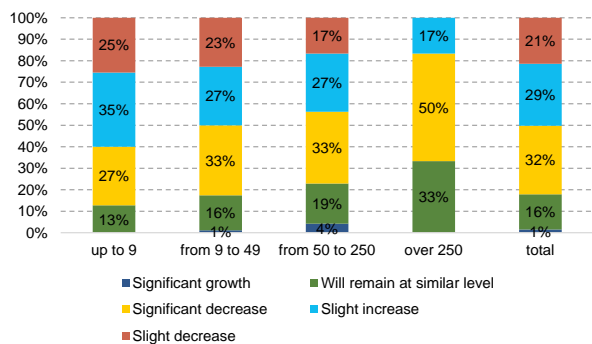
Source: NBP survey

Figure 106 Assessment of profitability of sales compared to the previous year in the questionnaire surveys conducted in 2019-2022 (in %)



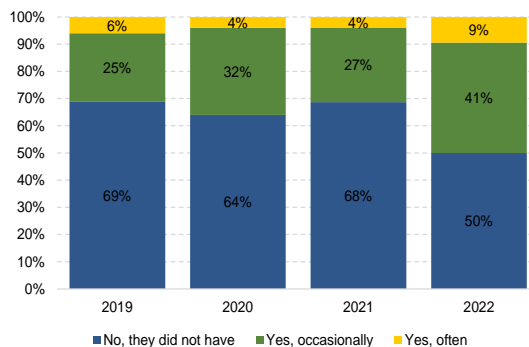
Source: NBP survey

Figure 108 Change in return on sales predicted by respondents in 2023 compared to 2022 according to employment size (in %)



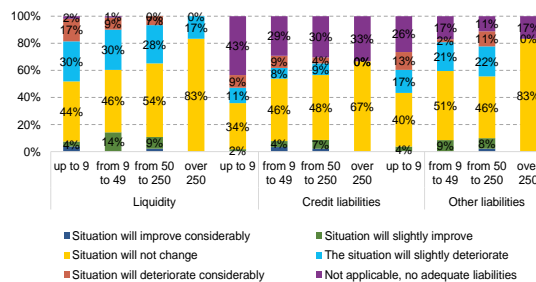
Source: NBP survey

Figure 107 Frequency of liquidity problems in 2019-2022 in questionnaire surveys (in %)



Source: NBP survey

Figure 109 Change in the area of liquidity and settlement of liabilities predicted by respondents in 2023 compared to 2022 according to employment size (in %)



Source: NBP survey

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