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Information on home prices and the situation in the residential and commercial real estate market in Poland in 2023 Q2

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The analysis of the situation in the real estate market in 2023 Q2¹ leads to the following conclusions:

- Since the end of 2022, the housing market has seen an increase in demand amid limited supply. In the last four quarters, a total of approx. 42.0 thousand dwelling construction contracts were sold in Poland's largest primary markets, i.e. approx. 8 thousand less than in the period 2021 Q3 – 2022 Q2 (-16% y/y). Yet in 2023, the number of sold development contracts for the construction of dwellings in those markets started to increase to reach approx. 15.5 thousand in 2023 Q2² (see Table 1). The number of dwellings available on the market dropped significantly and the number of developer dwellings under construction decreased too as developers limited their activity in response to a slump in sales seen in the period 2021 Q3 – 2022 Q4. Home purchases were largely financed with buyers' own funds (approx. 80% of the total value), but demand financed with a bank loan also started to increase gradually.

Table 1 Number of home construction contracts put on the market, sold and remaining on offer in the six largest housing markets in Poland (quarterly data)

	Put on the market	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
2023 Q1	6,852	11,421	43,752
2023 Q2	10,172	15,517	40,584

Source: JLL

- A total of 56.5 thousand dwellings were completed and made ready for occupancy (an increase of approx. 2.1% q/q and an increase of approx. 3.6% y/y), reflecting the activity of developers in previous years. Building permits were issued for 59.9 thousand dwellings, a rise of approx. 15.3% q/q and a fall of approx. 35.8% y/y. The construction of 47.0 thousand dwellings was started, a rise of approx. 21.9 % q/q and a fall

¹ The analysis carried out in this issue of *Information* is based on data available as at the end of 2023 Q2. Data collected in the NBP database during the listings include offers valid as at 1 June 2023 and transactions concluded in the period from 1 March to 31 May 2023. Due to delays in availability of certain data, some charts include information until 2023 Q1 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. Historical data are subject to revision. In the housing price survey (BaRN database) concerning 2023 Q2, approx. 116.0 thousand records were collected, of which approx. 26.2% concerned transactions and 73.8% concerned offers. Altogether, approx. 5.1 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.

of approx. 29.9% y/y. **Costs of housing construction**, i.e. materials, labour, equipment rental, grew less strongly, which was driven by a lower volume of construction and assembly production. **Interest in the purchase of construction sites dwindled and their prices slightly declined.** At the same time, **transactional rental rates per sq. m of housing increased** and **the pace of increase in average nominal transaction prices per sq. m of housing in primary markets slowed.**

- **In primary markets, nominal average transaction prices per sq. m of new housing (PMT) increased slightly in Gdańsk, Łódź, Wrocław and Warsaw, but decreased in 10 cities (see Table 2). Primary markets recorded declines in real transaction prices both relative to the CPI and to wage growth in year-on-year terms. In quarter-on-quarter terms the price dynamics returned on the upward trajectory.**
- **Secondary markets saw stronger increases in nominal prices, especially in Wrocław and 10 cities. The year-on-year growth in real prices in relation to CPI continued to be negative in all the markets. Hedonically adjusted prices of dwellings# increased slightly in Warsaw and in the groups of 6 and 10 cities (see Figures 10). This means that similar dwellings in the analysed cities were sold at higher prices than a quarter earlier. Demand for older and smaller dwellings, yet in better locations, persisted due to their lower purchase cost.**

Table 2 Transaction price growth per square meter of housing in the analysed cities in 2023 Q2

	Nominal price growth q/q		Nominal price growth y/y		Real price growth to CPI */ q/q		Real price growth to CPI */ y/y	
	RPT	RWT	RPT	RWT	RPT	RWT	RPT	RWT
Gdańsk	4.7%	-0.6%	4.5%	1.2%	2.7%	-2.4%	-8.0%	-10.9%
Gdynia	-2.2%	5.0%	4.6%	0.9%	-4.1%	3.1%	-7.8%	-11.1%
Kraków	1.3%	1.3%	4.7%	2.5%	0.6%	-0.6%	-1.7%	-9.7%
Łódź	4.2%	-3.2%	9.5%	-4.3%	2.3%	-5.0%	-2.1%	-15.7%
Poznań	0.9%	-4.1%	6.0%	-2.6%	-1.0%	-1.3%	-6.6%	-14.2%
Wrocław	2.6%	2.5%	10.2%	5.7%	0.7%	0.3%	-2.9%	-6.9%
Warsaw	2.5%	2.4%	6.4%	-4.1%	0.6%	0.3%	-6.3%	-15.5%
6 cities	0.5%	-0.4%	4.4%	0.6%	0.1%	-0.7%	-6.0%	-11.1%
10 cities	-0.7%	2.5%	6.4%	2.5%	-2.2%	1.0%	-4.6%	-9.1%

Note to Table 1: the growth rates of the average transaction price in the secondary market (SMT) are underestimated due to the limited number of transactions available in the Register of Real Estate Prices and Values (Rejestr Cen i Wartości Nieruchomości - RCIWN) (a smaller number of more expensive dwellings). Figures will be revised 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 (apart from Figures 7 and 8).

- **In the first half of 2023, the number of dwellings offered for rent increased³. This was, among other things, a result of the completion of dwellings purchased in the boom period of 2020-2022, when many investors decided to purchase rental housing. The average transactional rental rates per sq. m of housing (exclusive of service charges and utility fees) increased on the previous quarter in Warsaw and in the group of 10 cities** (see Figures 14 and 15), which secured the profitability of rental in these cities. Given the level of interest rates, home rental continues to be a cheaper alternative for housing consumption than home purchase. The professional rental market should continue to grow in the coming years, and the estimated number of rental dwellings put on the market by foreign investment funds in 2023 is expected to reach 6,900 units, mainly in Warsaw, Łódź and Wrocław⁴. However, investment funds are facing financial problems, especially with debt servicing, which may limit their business plans.
- **The marked increase in the level of rents in the case of long-term rental observed in recent quarters** (average in 7 large cities), with nominal home prices rising less rapidly, **caused a slight increase in the profitability ratio of rental housing purchased with cash⁵** (see Table 26), which continues to be low (at the end of the discussed period, the estimated capitalisation rate in Warsaw reached 6.5%). The return on equity (ROE) of a leveraged rental housing investment was unprofitable for another consecutive quarter, especially with the LtV of 80%. The rental housing investment (excluding transaction costs) was still competitive compared with bank deposits. However, the profitability of investing in rental housing is lower than investing in 10-year Treasury bonds due to the high interest rate on Treasury bonds.
- **The estimated affordability of housing in 7 large cities** (based on average monthly wages in the corporate sector) **remained unchanged in relation to the previous quarter**, mainly because of a similar growth in wages and home prices (see Figure 16). The estimated maximum available residential mortgage loan⁶ was at a level similar to the previous quarter's level, the estimated affordability of loan-financed housing was also similar to its value from the previous quarter⁷. These indicators remained unchanged as a result of similar increases in wages and home prices, a slight decline in interest rates on residential mortgage loans and liberalization of the supervisory approach to interest rate buffers in assessing creditworthiness.
- **Sales of residential construction contracts** in Poland's six largest primary markets⁸ (see Table 1 and Figure 57) **were approx. 36% higher** than in the previous quarter and **amounted to approx. 15.5 thousand dwellings** at the end of June 2023. In the last four quarters, a total of approx. 42 thousand residential construction contracts were sold in the largest markets, a decline of approx. 7.8 thousand (-26% y/y). In the last four quarters, approx. 31 thousand residential construction contracts were put on sale in the

³ Based on NBP data and Otdodom publication: „Raport z rynku najmu – czerwiec 2023” [Report on the rental market – June 2023]

⁴ Based on report of PFR Nieruchomości and Polityki Insight „Dekada polskiego rynku najmu” [Decade of the Polish rental market], July 2023

⁵ More information in Part 7 “Analysis of the profitability of investment in housing in selected cities in Poland in 2024 Q2”.

⁶ The maximum housing loan available in a particular market is a measure expressed in PLN thousand, taking into account banks' 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 policy, including lending terms and criteria and the change in interest rate buffer.

⁷ 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), considering 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 primary market and 60% in the secondary market) in a particular market (BaRN). The pace of changes of the index and differences across markets provide important information.

⁸ Based on JLL data.

largest markets, down by approx. 32.3 thousand (-51% y/y). **The supply of unsold contracts for the construction of dwellings in the 6 largest markets decreased by approx. 3.2 thousand units on the previous quarter and amounted to approx. 40.6 thousand at the end of 2022.** The number of offered contracts for so-called "turn-key" dwellings decreased slightly on the previous quarter and amounted to approx. 5.6 thousand.

- **The average time to sell contracts for the construction of dwellings in the primary market in the 6 largest markets, calculated on the basis of the time to sell in the analysed quarter, fell to 3.9 quarters from 4.2 in 2022 Q2** (see Figure 64). At the end of 2023 Q2, the time to sell dwellings in the secondary markets, taking into account only completed transactions, increased slightly in 6 cities to reach approx. 5 months, and remained unchanged totalling approx. 4 months in Warsaw and in 10 cities (see Figure 65).
- **The value of new housing loan disbursements in Poland in 2023 Q2 was lower than the value of loan disbursements in the corresponding period of 2022**, due to a decline in household creditworthiness. The value of new contracts for residential mortgage loans in PLN^{9, 10} (excluding renegotiated contracts) concluded with households in 2023 Q2, according to the NBP data¹¹ amounted to PLN 11.0 billion, i.e. it was higher by approx. PLN 3.8 billion (+52%) on the previous quarter's value, yet lower by approx. PLN 4.6 billion (-29%) compared to 2022 Q2. Currently, in the six largest housing markets in Poland, approx. 81% of the funds used for the financing of home purchases are households' own funds (see Table 3). Loan demand increased in the first half of 2023 mainly as a result of the reduction of the buffer used by banks to evaluate borrowers' creditworthiness, in accordance with the recommendations of the Polish Financial Supervision Authority (KNF)¹², and thanks to the launch of the 2% safe loan. The results of the NBP's survey of the situation in the credit market in 2023 Q3¹³ point to continued tightening of lending criteria (while maintaining the existing loan granting terms and conditions), driven by the deteriorating economic

⁹According to the BIK data, in 2023 Q2, banks and credit unions granted approximately 31.8 thousand residential mortgage loans to individual clients totalling approx. PLN 11.6 billion (compared to 42.2 thousand loan agreements in 2022 Q2 for the amount of PLN 14.7 billion). In 2023 Q2 negative y/y growth in the sales of residential mortgage loan agreements was recorded in all amount ranges. In the period from 2022 Q3 to 2023 Q3, a total of 96.0 thousand residential mortgage loans were taken (a y/y drop of approx. 59%) for the amount of PLN 32.7 billion (a y/y drop of approx. 59%).

¹⁰According to the AMRON report, in 2023 Q2, 30.8 thousand residential mortgage loans were granted (compared to 22.0 thousand in the previous quarter and 38.4 thousand in 2022 Q2), totalling PLN 11.3 billion (compared to vs. PLN 7.5 billion in the previous quarter and PLN 13.5 billion in 2022 Q2). In 2023 Q2, the most frequently granted loans were loans in the range of PLN 200-300 thousand (approx. 24.3%, i.e. 0.5 p.p. less compared to 2022 Q2), the share of loans in excess of PLN 300 thousand increased, and the share of loans below this amount decreased. In the structure of new loans in 2023 Q2, the share of loans with LtV above 80% increased, reaching approximately 22.6%, while the share of loans with other LtV decreased (LtV from 50 to 80% amounting to 52.5%, LtV up to 30% amounting to 13.5%, LtV ranging from 30 to 50% amounting to 11.5%). The share of residential mortgage loans with maturities from 15 to 25 years (33.9%) and with maturities in excess of 35 years (0.6%) increased slightly for another quarter, whereas the share of loans with maturities of up to 15 years (9.4%), 25-35 years (56%) fell. At the end of 2023 Q2, there were approximately 2.3 million active loan agreements (under repayment) (compared with 2.37 million agreements in 2022 Q4), and their value at the end of the discussed period was PLN 478.6 billion (PLN 496 billion in 2022 Q4).

¹¹Data concerning the interest rates on and the value of new residential mortgage loans are based on the NBP data available in the "4 OPN2PLN" tab, on the NBP site: <https://nbp.pl/statystyka-i-sprawozdawczosc/statystyka-monetarna-ifinansowa/statystyka-stop-procentowych/>. According to NBP data, at the end of June 2023, the value of residential mortgage loans granted by banks to households stood at PLN 478.9 billion, i.e. PLN 7.0 billion less than in the previous quarter and PLN 30.8bn less than at the end of June 2022 (down 6.0% y/y, compared to a 4.7% increase in 2022 Q2). In 2023 Q2, the value of residential loans in both PLN (PLN -11.6 billion compared to 2022 Q2) and foreign currency loans (PLN -19.2 billion) decreased in year-on-year terms.

¹²Resolution no. 242/2023 of the Polish Financial Supervision Authority of 19 June 2023 (Official Journal of the Polish Financial Supervision Authority item 14).

¹³"Situation in the credit market - results of the senior loan officer opinion survey, 2023 Q3" NBP, July 2023 <https://nbp.pl/system-finansowy/sytuacja-na-ryнку-kredytowym/>.

outlook and quality of the loan portfolio. For 2023 Q3, the surveyed banks anticipate slight tightening of lending policies and the continuation of the upward trend in demand for housing.

- **For another consecutive quarter, the number of housing loans at a temporarily fixed interest rate accounted for more than half of total loans.** According to the AMRON data, the share of new fixed interest rate loans in the total number of new residential mortgage loans amounted to approx. 63.5% in 2023 Q2, an increase of about 9 percentage points in quarter-on-quarter terms and a drop of 2 percentage points in year-on-year terms (see Figure 30).
- **The estimated return on equity (ROE)¹⁴ on investment projects carried out by residential real estate developers was around 21%, i.e. remained at the previous quarter's level,** still relatively high (see Figure 42). This level of ROE was caused by the increase in housing transaction prices, covering the increase in the cost of housing producers, as well as the high share of leverage in development projects financed by non-bank funds. According to the Coface report¹⁵ the number of insolvencies in the construction sector was estimated at 331 in the first half of 2023 (compared to 280 in the whole of 2022), while in the real estate services sector, it doubled to 53 (see Figure 41). The authors of the report point out that numerous legislative changes and technical problems related to the introduction of the National Debt Register system in 2022 make the number of insolvencies in the construction industry difficult to quantify. At the same time, the stock market indices of construction and development companies have been rising since the beginning of 2023 (see Figure 40).
- **In 2023 Q2 around 56.5 thousand dwellings¹⁶ were completed and made ready for occupancy in Poland, a rise of 3.6% on 2022 Q2 and a rise of 2.1% on the previous quarter** (see Figure 55). Dwellings for sale and rent (approx. 61%) and privately constructed dwellings (approx. 40%) accounted for the majority of completed dwellings. Among the total number of dwellings completed, the share of dwellings completed in what is known as "the rest of Poland" has increased slightly, especially in the neighbourhood of large cities. This is related to the high demand in large cities and the depletion of building sites located within the city administrative boundaries. **The construction of approx. 47.0 thousand dwellings began¹⁷ i.e. 29.2% less than in 2022 Q3, yet 21.9% more than in the previous quarter** (see Figure 56). It should be added that the number of housing construction starts fell in both the largest cities and the rest of Poland

¹⁴ Gross margin should not be equated with developer's profit and depending on the organization of the developer/developer's group, it may include various cost items.

¹⁵ According to Coface experts (*Coface Report - Insolvencies in Poland in the first half of 2023*), the macroeconomic environment in Poland and abroad continues to be unfavourable for companies and may lead to an increase in insolvencies, albeit at a slower pace. Small companies whose economic activities are not diversified are in a more difficult situation. There is a growing number of insolvencies in the construction industry, which struggles with high costs, weak demand and an outflow of workers. The segment of infrastructure construction, especially civil engineering, has secured funds for investment projects, the railway sector, on the other hand, faces financial problems connected with the financing of the indexation of fees for the contractors selected in new tendering procedures. In the residential construction sector, demand was limited, costs increased significantly and access to financing was restrained.

¹⁶ According to the Statistics Poland data, in 2023 Q2, approx. 56.5 thousand dwellings were completed and made ready for occupancy, i.e. about 2.0 thousand more than in 2022 Q2 and 1.2 thousand more than in 2023 Q1. In total, during the last four quarters (2022 Q3 – 2023 Q2) a record high of approx. 241.3 thousand dwellings were completed and made ready for occupancy, i.e. about 2.8 thousand more than a year ago (up 1.2% y/y).

¹⁷ According to the Statistics Poland data, in 2023 Q3, the construction of approx. 53.3 thousand dwellings was started, i.e. approx. 8.2 thousand more compared to 2022 Q3 and approx. 6.3 thousand more than in the previous quarter. Altogether, the last four quarters saw the launch of construction of approx. 174.4 thousand dwellings, i.e. approx. 51.4 thousand less than a year before (a drop of 22.8% y/y).

as a result of falling sales. Also in this segment dwellings for sale and rent (approx. 52%) and privately constructed dwellings (approx. 45%) accounted for the majority of construction starts.

- **High rates of return on housing projects and growing housing demand and sales contributed to the launch of new projects and developers' applying for more home building permits¹⁸, albeit at a significantly lower rate** (the number of building permits issued in 2023 Q2 fell in year-on-year terms by 35.8% compared to 33.4% in 2023 Q1; see Figure 57). Permits were issued and projects were started mainly for the construction of dwellings for sale and rent (approx. 65.2% of all permits) and privately constructed dwellings (approx. 32.1%). The share of permits for the construction of cooperative and subsidized social housing and the number of newly started projects, despite an increase in y/y growth, were still insignificant in the analysed period.
- **Vacancy rates rose slightly in the largest office property markets in 2023 Q2.** At the end of 2023 Q2, the total supply of office space in the 9 largest office markets¹⁹ amounted to approximately 12.8 million sq. m.²⁰, and the new supply stood at approximately 134,500 sq. m. In turn, the stock of space under construction amounted to around 700,000 sq. m.²¹. The vacancy rates in these markets grew to 14.3% from 13.8% in 2023 Q1, whereas in Warsaw alone it reached 11.4%.²² The vacancy rate of office space depends on the age²³ and, above all, the location²⁴ of the office building. Construction of additional space does not automatically lead to an increase in vacancy, but it will generate significant competition for tenants, especially for older (more energy-intensive) buildings in poorer locations. Currently, tenants tend to care more about the quality of the leased space.
- **The estimated return on equity (ROE) on investments in the construction and commercialization of Class A office buildings in Warsaw**, assuming a financial leverage of 80%, increased from 6.5% at the end of 2022 to 7.7% in 2023 Q2, driven by rent increases exceeding increases in construction costs. However, other markets saw further declines in ROE, driven by growing construction costs with virtually stable rents. The estimated decline in ROE for new office buildings coincides with the generally reported significant decline in the number of office buildings under construction. In most voivodship capitals, the annual rent to construction cost ratio (yield, i.e. capitalization rate) is similar, while in the case of Warsaw it is slightly higher. This means that rents and construction costs are generally balanced, while in Warsaw rents are higher than construction costs. Higher rents in Warsaw are due to high demand for Class A office space, which is available in certain areas only. In contrast, production factors for office space (other than land) are imported from all over Poland or from abroad, at the lowest possible price.
- **The estimated return on investment in the already existing Class B office building in Warsaw remained fairly high in Q2;** with a high leverage at the level of 80%, ROE is approx. 8%. However, it should be

¹⁸ According to the Statistics Poland data, approx. 59.9 thousand home construction permits were issued in Poland in 2023 Q2, i.e. approx. 33.4 thousand less than in 2022 Q2 and approx. 7.9 thousand more than in the previous quarter. In total, approx. 238.0 thousand permits were issued in the last four quarters (2022 Q3 – 2023 Q2), i.e. approx. 102.6 thousand less than in the corresponding period of the last year (a fall of 31.1% y/y).

¹⁹ The nine office real estate markets are: Warsaw, Kraków, Wrocław, Tri City, Katowice, Łódź, Poznań, Szczecin, Lublin

²⁰ See: JLL Report: Office real estate markets in Poland, August 2023

²¹ Estimates based on the information presented in JLL Report: Office real estate markets in Poland, August 2023

²² See Colliers, Market Insight, Polska, First Half of 2023.

²³ See Cushman & Wakefield Report, Marketing as one of the key factors supporting the modernisation process of older office buildings, 2018.

²⁴ See Knight Frank, Report: Poland, Commercial Market, First half of 2018.

noted that older office buildings are exposed to two sources of risk. One is growing competition from modern Class A office buildings, which may temporarily lower rents to attract tenants²⁵. The other are rising operating expenses, which, according to the NBP data, are on the rise in Class A and B buildings, with older buildings being less energy efficient. Significant increases in energy costs could translate into even higher operating expenses for older buildings, making them less competitive compared with modern Class A office buildings.

- **In 2023 Q2, the retail sector operated without significant changes. E-commerce continued to develop and it will compete with traditional retailing.** The stock of modern retail space at the end of 2023 Q2 reached approx. 13.59 million sq. m, which means a saturation of 330 sq. m/1000 residents²⁶. Approx. 389.6 thousand sq. m²⁷ of modern retail space was under construction. Thus, it can be concluded that investors regard the traditional retail market in the largest cities as saturated and investment projects are generally undertaken in smaller cities. Stores and service outlets tend to invest in energy-efficient lighting and shopping mall owners tend to reduce energy consumption and waste production. The index²⁸ of average rents and hedonically adjusted rents for retail space for the three analysed cities, namely Warsaw, Poznan and Tri-City, increased due to increased demand for retail space.
- **The market of modern warehouse space in Poland is still in its growth phase, but supply of warehouse space under construction has slowed.** By the end of 2023 Q2, the total warehouse stock had increased to 30.2 million sq. m²⁹, with more than 2.1 million sq. m of modern warehouse space under construction. The vacancy rate all over Poland increased to 6.6%³⁰ and was 0.5% higher than in 2023 Q1.
- **The estimated value of transactions involving commercial real estate purchased for investment purposes³¹, i.e. for rental, amounted to approximately EUR 1.1 billion in 2023 Q2.** Approximately 33.2% of the value of transactions concerned warehouse space, 39.4% for office space, while only 25.1% for retail space.
- **The exposure of the financial sector to corporate real estate (residential, office, retail, warehouse and other real estate) comes in two main forms. The first is related to the financing of real estate with a loan.** Usually, in this case, the loan is secured on real estate, but alternative forms of security are also possible. At the end of 2023 Q2, the value of such loans granted by banks in Poland³² amounted to PLN

²⁵ See: D. Trojanowski, K. Olszewski, J. Łaszek (2023) "Low interest rates and capital misallocation in the office real estate market", study presented at the 33. Scientific Conference of the Scientific Real Estate Association.

²⁶ The value is estimated to be 15% lower from the average for the whole European Union.

²⁷ See: CBRE Report: Commercial market, 2023 Q2, Poland.

²⁸ The average rent index and the hedonic-adjusted rent index for commercial space was reworked for the whole analysed period. The new index is not calculated using the imputation method as before, but on the basis of hedonic regression with zero-one time variables. It is calculated on the basis of rents for retail premises quoted in four consecutive periods. The adjusted index is more resilient to the occasional changes in the number of analysed estates and the premises to let contained in them occurring between the quotations.

²⁹ See: CBRE Report: Industrial and logistic market, 2023 Q2, Poland.

³⁰ See: CBRE Report: Industrial and logistic market, 2023 Q2, Poland.

³¹ Based on data from Comparables.pl. The investments concern the sale of an entire operating company which leases a building and derives revenue from that. Such transactions occur between: 1/ a developer who has commercialised the building and an investor to whom the building is sold, or 2/ two investors.

³² 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 2022. The estimate is made as follows: in line with the international experience, it can be assumed that the LTV ratio in the total stock is 50%. However, saw a decline in the amount of

67.7 billion³³, of which 59% were denominated in EUR. The total value of residential and commercial real estate loans to businesses comprised the following categories:

- the value of corporate residential real estate debt (developer real estate loans for construction, cooperative real estate loans for renovation, etc.) amounted to PLN 5.8 billion, i.e. increased slightly.
- office real estate loans increased on the previous quarter and amounted to PLN 17.9 billion (up from PLN 16.7 billion). Retail real estate loans decreased on the previous quarter to PLN 16.7 billion (down from PLN 17.8 billion), and warehouse and industrial real estate loans stood at PLN 11.2 billion (remained unchanged).
- loans granted for other real estate decreased slightly to PLN 16.2 billion compared to PLN 16.4 billion in 2023 Q1.

The other form of bank exposure is loans taken out by businesses for various purposes, which are secured on real estate. The value of loans to businesses secured by mortgage on commercial real estate remained at approx. PLN 136.8 billion at the end of 2023 Q2. 43% of those loans were denominated in EUR.

- **The quality of loans for corporate real estate did not change significantly compared to the previous quarter.** The non-performing loan (NPL) ratio (phase 3) for office real estate loans increased to 7.6% compared to 6.2 % in 2023 Q1, and for retail real estate loans stood at 12.5%. The NPL ratio for warehouse and industrial real estate loans remained at 3.5%, while the NPL ratio for other real estate stood at 9.5%. The NPL ratio for corporate residential real estate loans improved to 9.5% from 10.4% in 2023 Q1.
- **The share of loans with a significant increase in credit risk (phase 2), which reflects the level of risk observed in the commercial real estate market, improved slightly compared to 2023 Q1.** In the case of office real estate, it amounted to 13.4% in 2023 Q2 compared to 13.9% in Q1, which means an improvement. This ratio for commercial and retail real estate increased slightly to 16.2% from 18.1% in Q1, and for warehouse real estate it increased to 6.3% from 7.8% in 2023 Q1. This may suggest that the situation in the commercial real estate market is steadily improving, although in terms of value in the two largest segments, i.e. office and retail segment, it is still significantly worse than before the outbreak of the COVID-19 pandemic.
- **In small office space markets, the median offer price in Warsaw and Wrocław followed an upward trend, in Poznań a downward trend, while in the remaining cities it was relatively stable.** In the case of small retail real estate, the median of the offer price in the majority of large cities followed a downward trend and in Katowice and Kielce a slight decline.

The following charts illustrate the key developments in the housing market in Poland's major cities in 2023 Q2.

loans for commercial real estate extended by the Polish banks has been observed since 2021, while the stock has 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.

³³ FINREP data.

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 26–39),
- 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 40-53),
- 5) housing construction and the residential market in selected cities in Poland (Figures 54-67),
- 6) offer prices of commercial real estate and the estimated rate of return (Figures 68-80),
- 7) results of the analysis of profitability of investment in housing for rent in selected cities in Poland in 2023 Q2 (Figures 81-90),
- 8) results of the extended analysis of the financial situation of real estate developers, enterprises involved in the construction of buildings, companies involved in the sale of building materials and companies manufacturing building materials (Figures 91-124)

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 used³⁴.

³⁴ The authors used data and studies published by, among others, Sekocenbud, Spectis, PAB and 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
GUS	Statistics Poland
EURIBOR	Euro Interbank Offered 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
RCiWN	Register of Property Prices and Values
RNS	Housing scheme "Rodzina na Swoim" (Family on their Own)
RP	Primary housing market
RW	Secondary housing market
ROE	Return on Equity
WIBOR	Warsaw Interbank Offer 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 6 cities – PM, in PLN

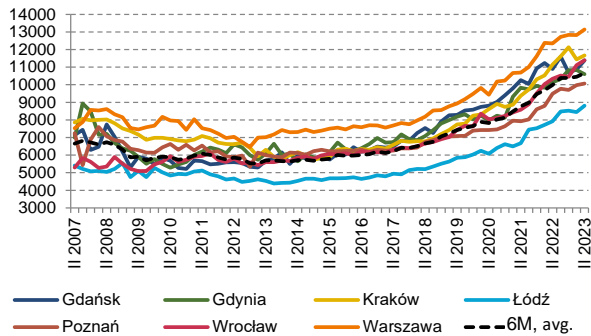
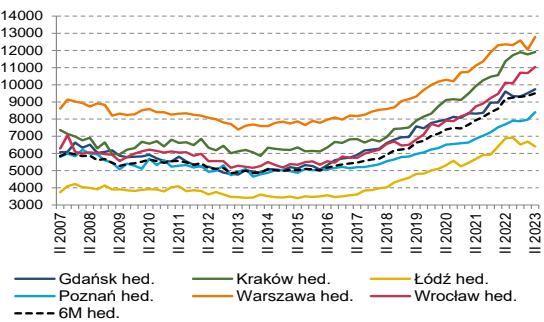


Figure 2 Transaction prices per square metre of housing adjusted by the hedonic index (hed.)*in Warsaw and in 6 cities, in PLN



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://nbp.pl/publikacje/cykliczne-materialy-analityczne-nbp/rynek-nieruchomosci/informacja-kwartalna/> */The hedonic index-adjusted price is the average price in 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

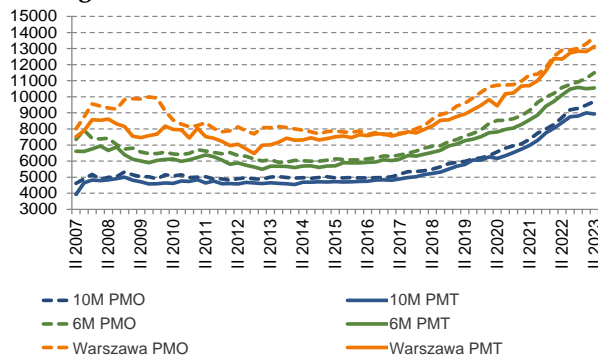
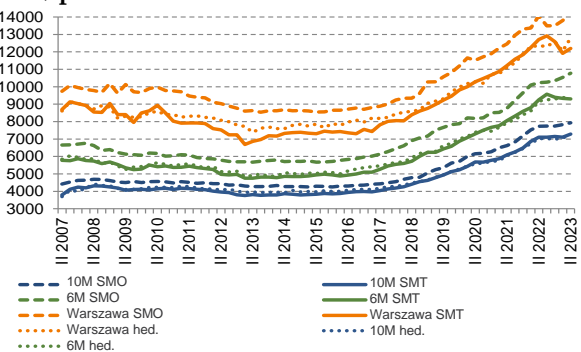


Figure 4 Weighted average price per square metre of housing, offers (O) and transactions (T) and hedonic (hed.) prices - SM



Note to Figures 3-10 and 14-15: prices and rents weighted in the 6 cities and the 10 cities 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

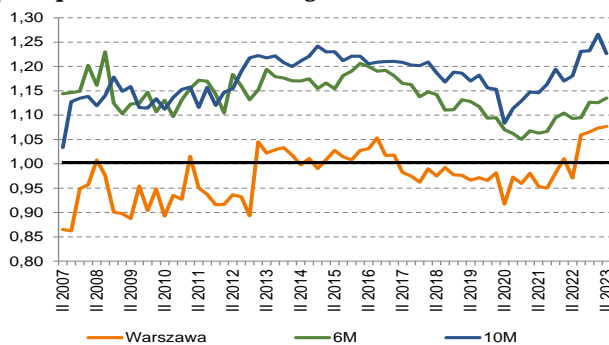
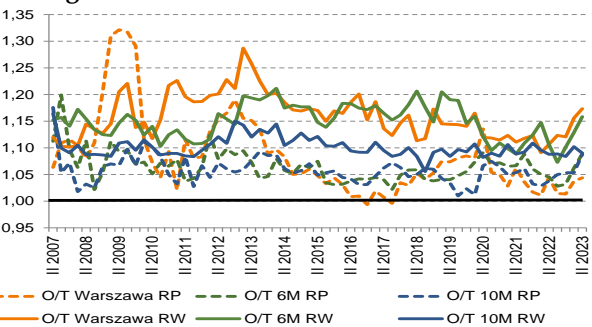


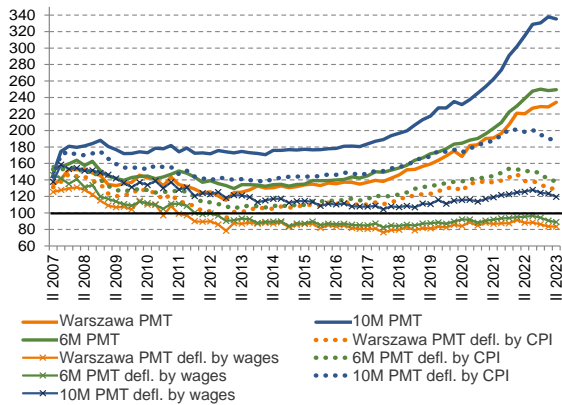
Figure 6 Ratio of the average weighted offer price (O) to transaction price (T) per square meter of housing – PM and SM



Source: NBP

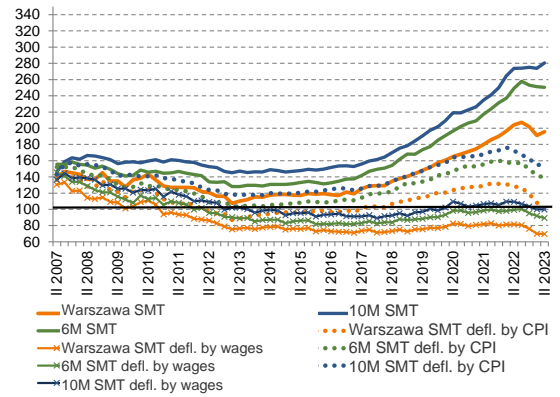
Source: NBP

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 = 100)



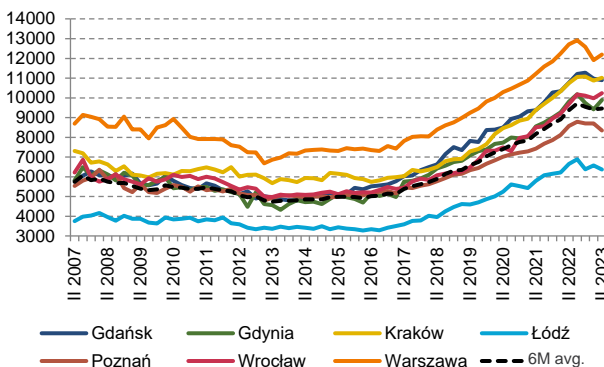
Source: NBP, ZBP (AMRON), Statistics Poland

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 = 100)



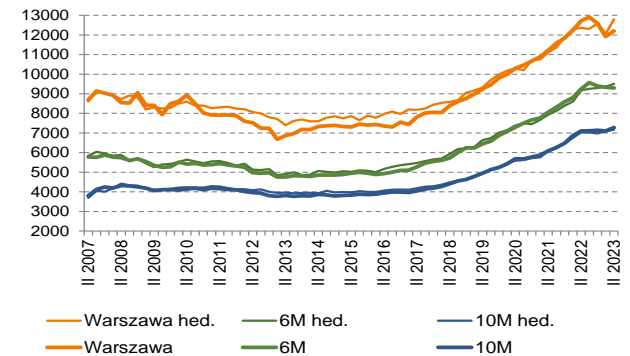
Source: NBP, ZBP (AMRON), Statistics Poland

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



Source: NBP

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



Source: NBP

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

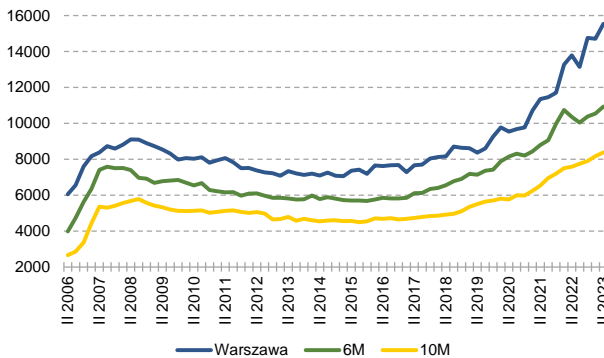
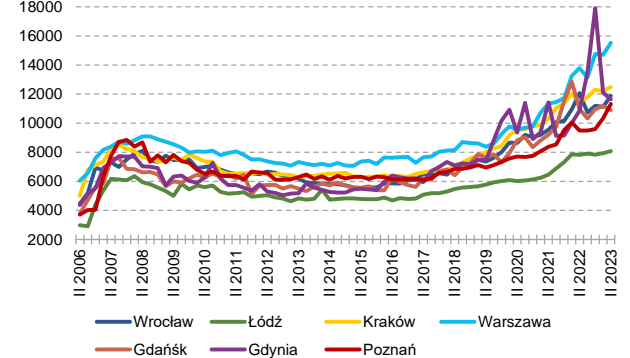


Figure 12 Average offer prices per square metre of housing in PM (Warsaw and 6 cities)

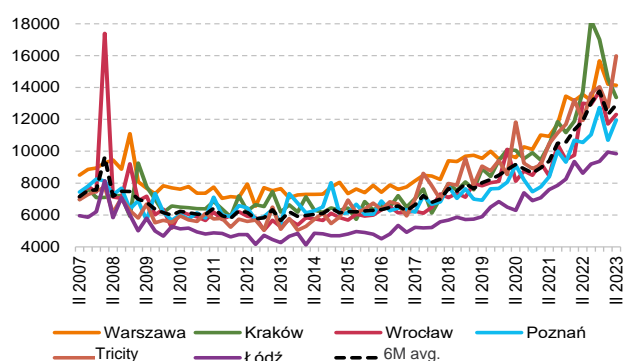


Note to Figures 11-12: prices are collected from all available sources.

Source: PONT Info Nieruchomości

Source: PONT Info Nieruchomości

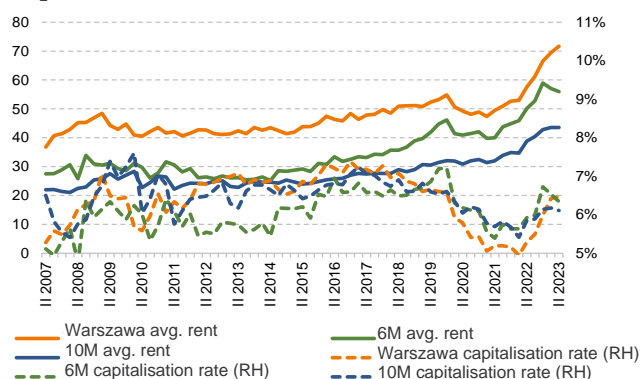
Figure 13 Average offer prices per square metre of housing, new home construction contracts – PM, selected markets



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

Source: JLL

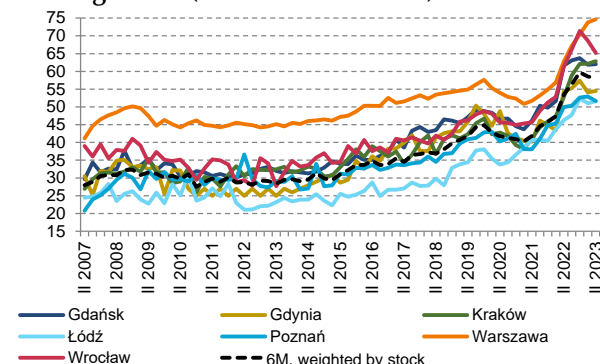
Figure 15 Average rent rates (transactions) per square metre of housing in the SM (LHS) and the estimated profitability of housing rental (RHS) in selected groups of cities



Note to Figure 15: average transaction price per square metre 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

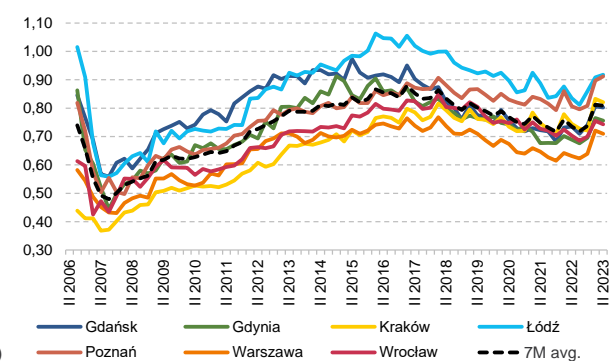
Figure 14 Average offer prices per square metre of housing in PM (Warsaw and 6 cities)



Note: in 2020 the change of sample was observed.

Source: NBP

Figure 16 Estimated availability of housing in 7 cities based on average wages in the enterprise sector (sq. m)

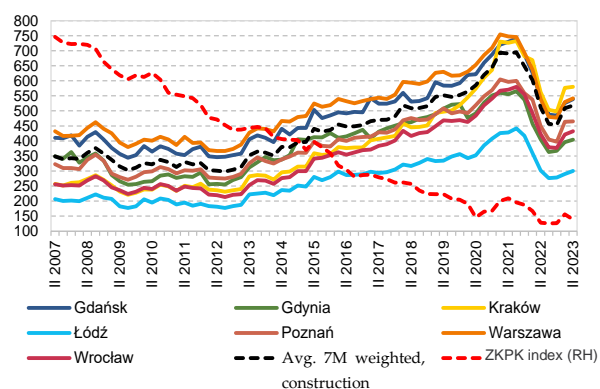


Housing affordability – a measure of potential affordability to purchase housing at the transaction price for an average wage in the enterprise sector in a particular city. It expresses the number of square meters of housing that can be purchased for an average wage in the enterprise sector in a particular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

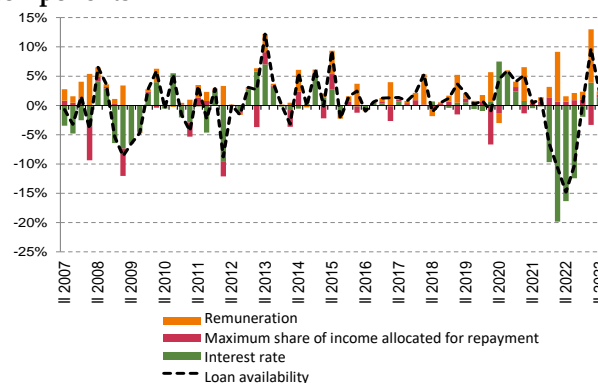
Available residential mortgage loan – a measure specifying the potential maximum residential mortgage loan; expressed in PLN thousand in a given market taking into account banks’ lending requirements and loan parameters (interest rate, amortisation period, minimum subsistence wage as the minimum income 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. ZKPK data have been updated. Methods of computing the index are described in “Situation in the credit market - results of the senior loan officer opinion survey, October 2012”, NBP.

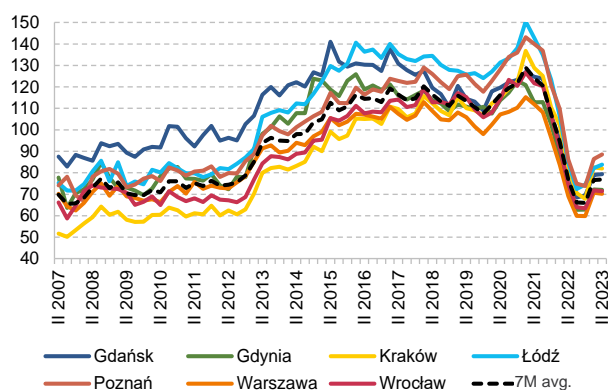
Interest rate on residential mortgage loan weighted by the share of Polish zloty and foreign currency loan.

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



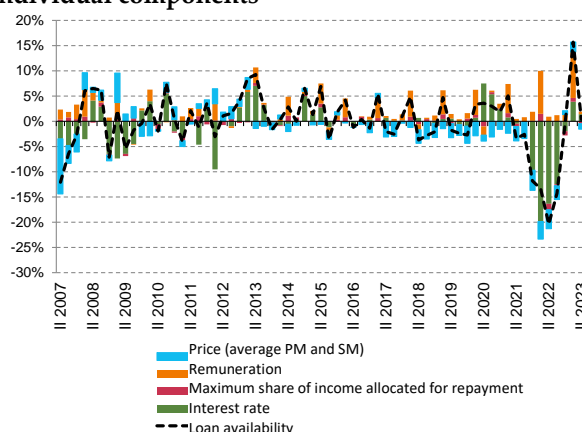
Source: NBP, Statistics Poland

Figure 19 Estimated affordability of loan-financed housing, average for 7M



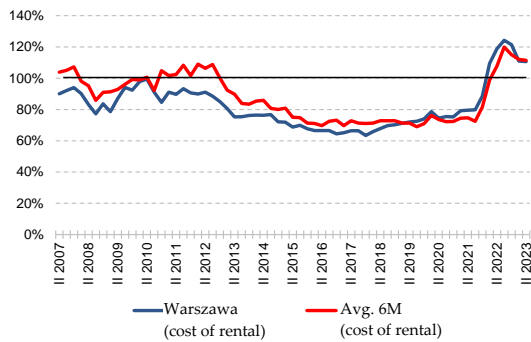
Source: NBP, Statistics Poland

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



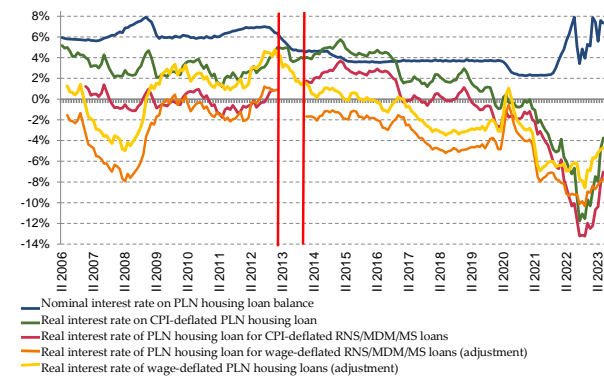
Source: NBP, Statistics Poland

Figure 21 Estimated cost of servicing a residential mortgage loan in relation to the cost of home rental



Note: the estimate concerns an average housing of 50 sq. m; transaction price per 1 sq. m of housing 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 23 Residential mortgage loan burden for consumer, indices deflated by CPI or wage growth in the enterprise sector



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

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

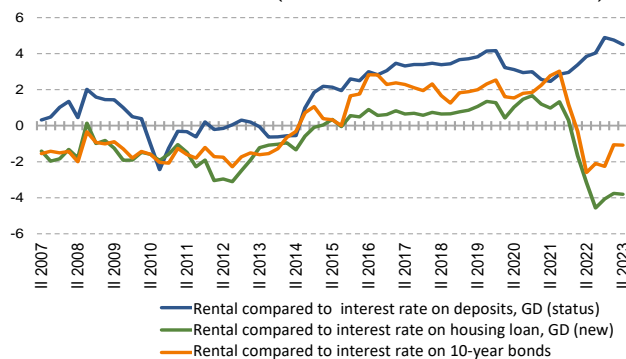
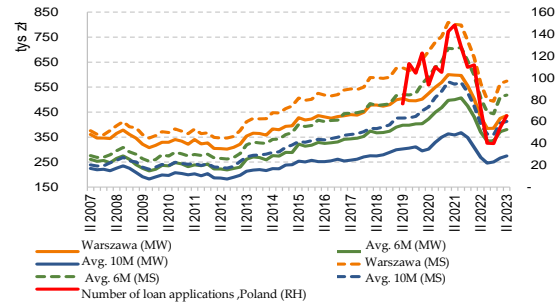
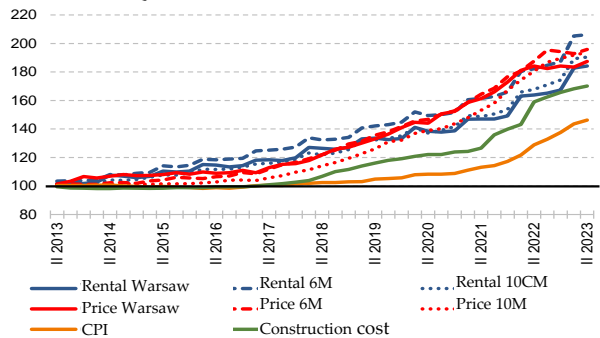


Figure 22 Estimated available mortgage loan for average gross wage in the enterprise sector in selected cities and the number of residential mortgage loan applications in Poland



Note: values estimated assuming a minimum subsistence wage (LW) or an average monthly wage (MW) in the enterprise sector that will be left for the borrower
 Source: NBP, Statistics Poland, BGK, BIK

Figure 24 Changes in the level of transaction priced (Price) and household income (Wages), home construction costs and CPI, average in Warsaw, 6M and 10M (2013 Q1=100)



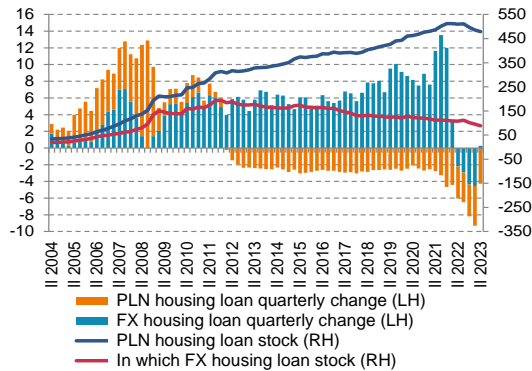
Note: transaction price per sq.m of house 50% SM and 50% PM (together with finishing costs). The price in the primary market was increased by finishing costs. The cost of construction of a half of 1121-302 type building (details in footnote 32). Source: NBP, Statistics Poland

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

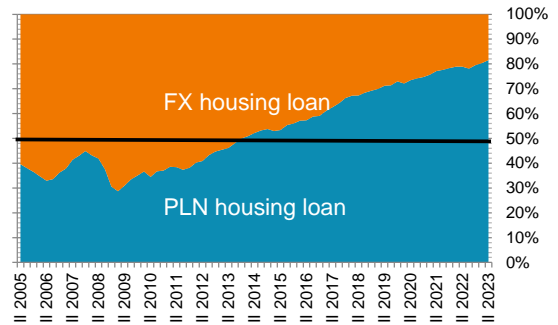
3. Disbursements of residential mortgage loans, interest rates

Figure 26 Stock and q/q changes in residential mortgage loan receivables from households, after adjustments, and currency structure of q/q increases in the stock of loans (PLN billion)



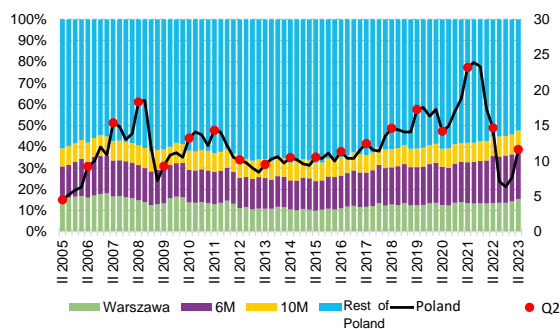
Source: NBP

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



Source: NBP

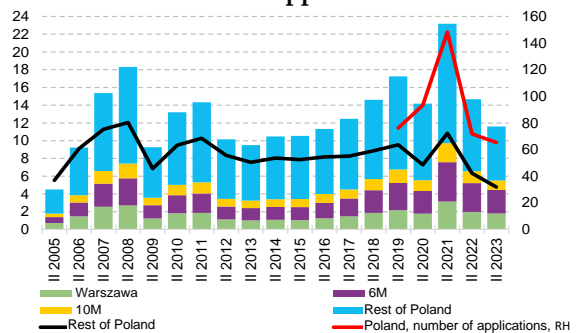
Figure 28 Geographical structure of the value of new residential mortgage loan agreements in PLN in Poland's selected cities (LHS) and the value of loan agreements in Poland (RHS), quarterly data



Note to Figures 28 and 29: the data inform about signed residential mortgage loan contracts rather than about the actual disbursement of loans. Only third quarters are marked by red points in Figure 28.

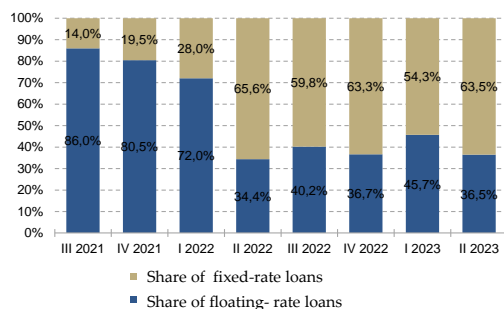
Source: BIK

Figure 29 Value (PLN bn, LHS) and number (RHS) of new residential mortgage loan agreements in Poland's selected cities in the third quarters of 2005-2023 and number of loan applications



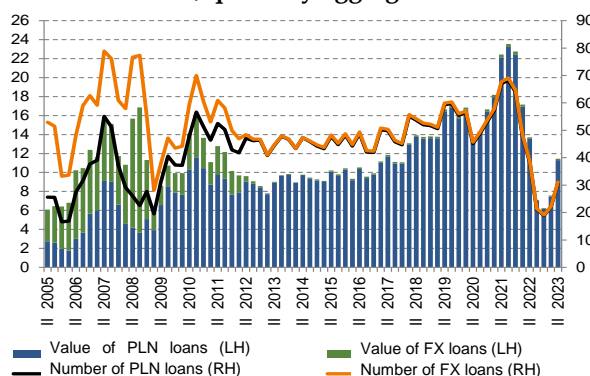
Source: BIK

Figure 30 New residential mortgage loans by type of interest rate



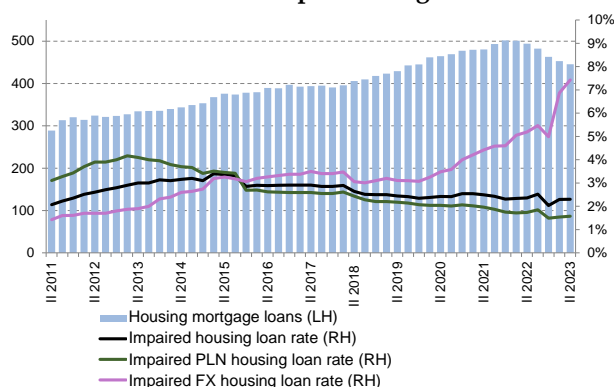
Source: ZBP (AMRON Report for 2023 Q2)

Figure 31 New residential mortgage loan agreements: value and number, quarterly aggregated data



Source: ZBP (AMRON)

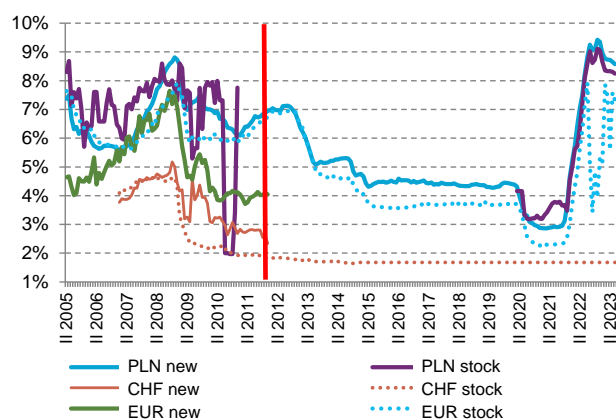
Figure 32 Loans for residential real estate for households and the non-performing loan ratio



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 recognized as non-performing loan receivables in accordance with the Ordinance of the Minister of Finance on establishing provisions against the risk associated with banking activities (in the banks applying the Polish Accounting Standards).

Source: NBP

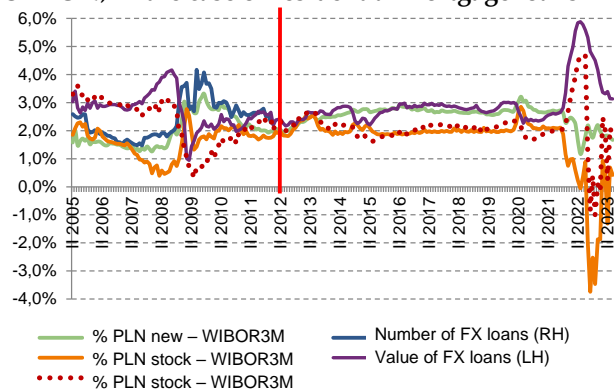
Figure 33 Interest rates on residential mortgage loans to households in Poland



Note to Figures 33 and 34: the red vertical line separates the period with no FX loans which practically ceased to be granted in 2012. Note to Figure 33: the bank margin is the difference between the interest rate on the residential mortgage loan (according to NBP data) and WIBOR3M, EURIBOR3M or LIBORCHF3M/SARON3M (since 2022). The interest rate on the stock of residential mortgage loans is a value illustrating the average interest rate on all the loan agreements existing at the end of the reporting period, whether concluded before the reporting month and continuing in force and new loan agreements, according to the method stated in "User's Guide to Interest Rate Statistics" (https://www.nbp.pl/home.aspx?f=statystyka/pieniezna_and_bankowa/oprocentowanie.html). The marked decrease in the interest rates on stock of loans in particular months of the second half of 2022 is due to the implementation of a so-called "loan repayment holiday" programme. It resulted in a decrease in accrued interest in comparison to monthly average amounts of all the residential mortgage loan agreements.

Source: NBP

Figure 34 Bank margins (for WIBOR 3M, LIBOR, SARON) in the case of residential mortgage loans



Source: NBP

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

Date	Disbursement of residential mortgage loans in Poland	Estimated value of housing transactions in PM and 7M	Loan demand including client's down payment in PM in 7M	Down payment on account of loans in PM in 7M	Cash demand for housing (without down payments) in PM in 7M	Estimated share of cash home purchases in PM in 7M **/
2012 Q1	5,385	3,135	1,228	307	1,907	71%
2012 Q2	7,325	3,079	1,670	418	1,409	59%
2012 Q3	7,661	2,773	1,747	437	1,026	53%
2012 Q4	7,441	3,164	1,697	424	1,467	60%
2022 Q1	17,591	6,158	4,011	1,003	2,148	51%
2022 Q2	15,601	5,757	3,557	889	2,200	54%
2022 Q3	9,196	4,134	2,097	524	2,037	62%
2022 Q4	6,321	5,377	1,441	360	3,935	80%
2023 Q1	7,263	7,179	1,656	414	5,523	82%
2023 Q2	11,016	9,876	2,512	628	7,365	81%

Note to Table 3: the estimates are based on the following assumptions:

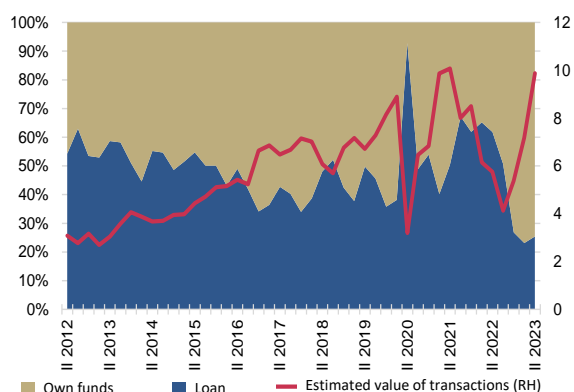
The estimated value of loan disbursements is based on data collected from banks.

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

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

The estimated value of a transaction in the PM in 7 cities (Gdańsk, Gdynia, Kraków, Łódź, Poznań, Warsaw, Wrocław) was calculated by multiplying the average price of a dwelling in the 7 cities (NBP) by its average size in sq.m (Statistics Poland) and the number of dwellings sold (JLL). Based on ZBP data, it was assumed that the value of newly granted loans for home purchases in primary markets of the 7 cities is about 57%. The estimate of cash transactions is the difference between the value of transactions in the markets of the 7 cities and loan disbursements including the buyer's own contribution (down-payment). Date concerning prices and floor areas for all periods are updated.

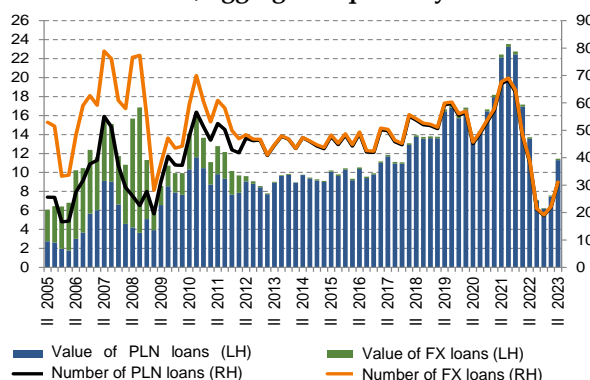
Source: NBP, JLL, ZBP, Statistics Poland

Figure 35 Estimated value of home purchases from developers in 7 cities (PLN million) for cash and with loans

Note to Figure 35: The decline in the estimated share of home purchases in the PM in the 7 cities involving the buyers' own funds seen in 2020 Q2 was due to very low sales of dwellings resulting from pandemic restrictions on movement and the disbursements under loan agreements entered into in prior periods.

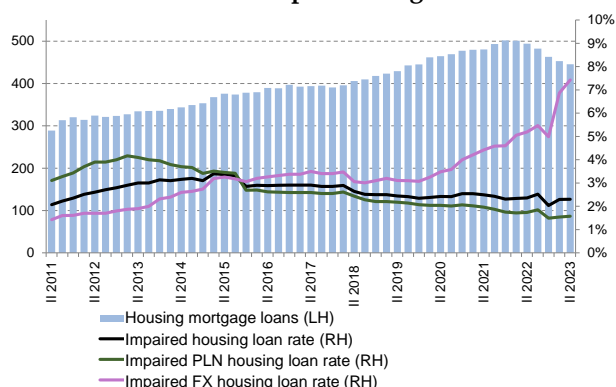
Source: NBP, JLL, ZBP, Statistics Poland

Figure 36 New residential mortgage loan agreements: value and number, aggregated quarterly data



Source: ZBP (AMRON)

Figure 37 Loans for residential real estate for households and the non-performing loan ratio



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 recognized as non-performing loan receivables in accordance with the Ordinance of the Minister of Finance on establishing provisions against the risk associated with banking activities (in the banks applying the Polish Accounting Standards).

Source: NBP

Figure 38 Corporate real estate loans (PLN billion, LHS) and non-performing loans ratio (% , RHS)

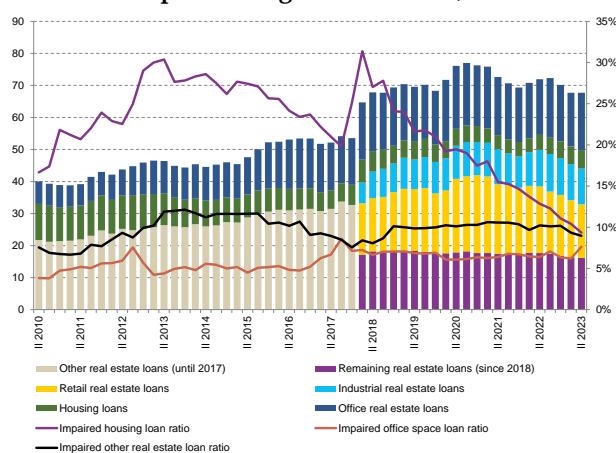
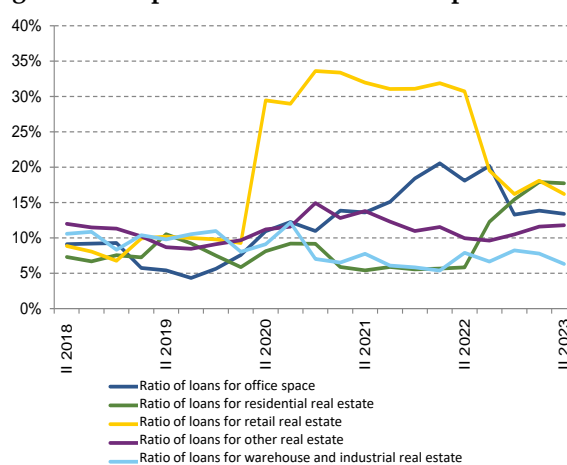
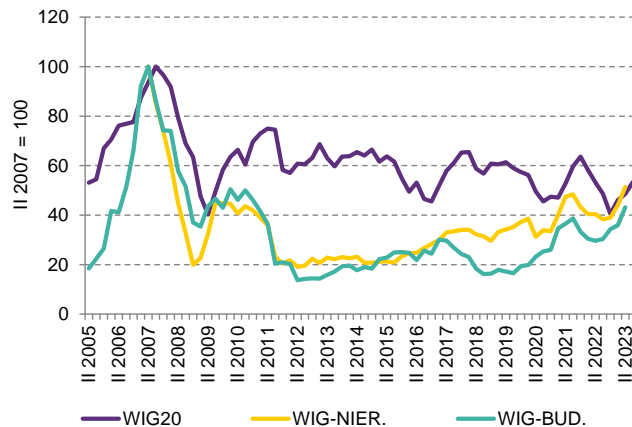


Figure 39 Corporate real estate loans in phase 2.



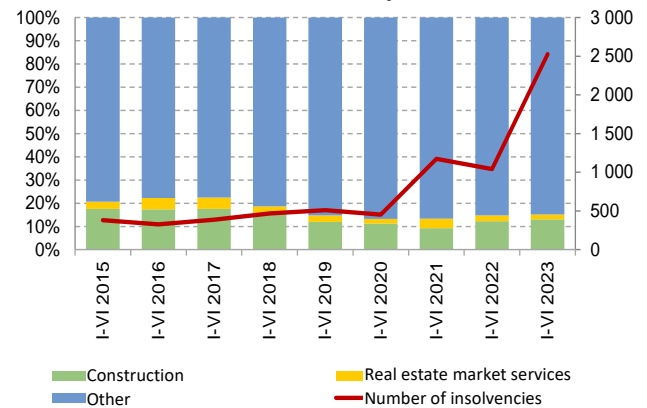
4. Operating profitability of residential and development projects, costs of construction and assembly output and economic situation of real estate developers in Poland

Figure 40 Rescaled stock exchange indices: WIG20 and for real estate developers (WIG-NIER) and construction companies (WIG-BUD) (2007 Q2=100)



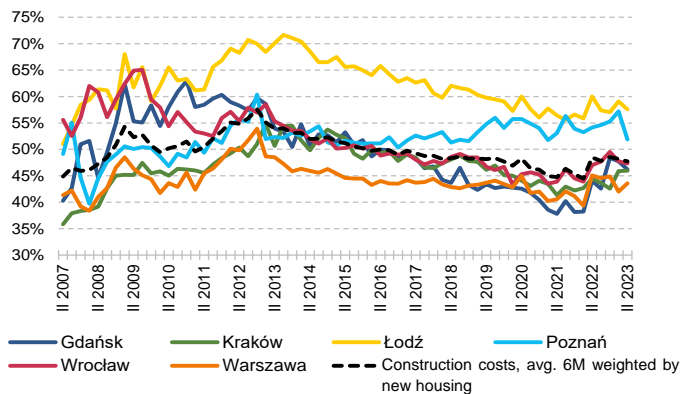
Note: standardised data, 2007 Q2 = 100 (developers' WIG has been listed since 2007 Q2); 2023 Q2, situation as at 10 August 2023
Source: Warsaw Stock Exchange

Figure 41 Structure and number of insolvencies of enterprises, including in the construction industry (as at the end of the first half of the year)



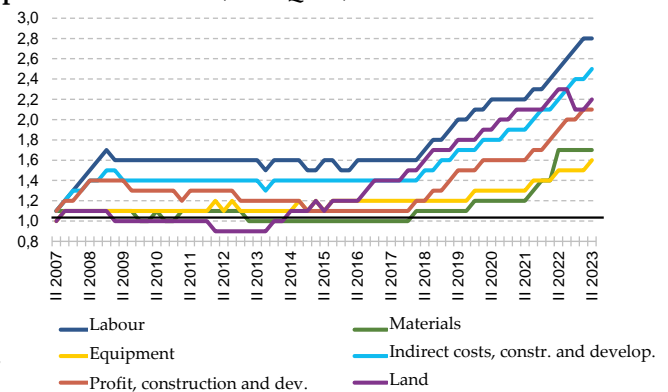
Note: breakdown according to the first entry into the National Court Register (KRS).
Source: Coface Poland

Figure 42 Estimated share of direct costs of construction per square metre of the usable floor area of a residential building (type 1122-302³⁵) in net transaction price in PM 6 cities



Note on Figures 38 and 39: Since 2014, NBP has used its own appraisal of land for multi-family housing construction.
Source: NBP, based on Sekocenbud

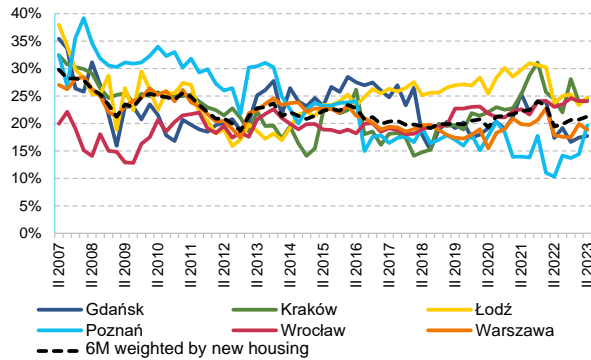
Figure 43 Estimated share of various construction costs per square metre of the residential building's usable floor area (type 1122-30232) in net transaction price in PM of 6M (2007 Q1=1)



Source: NBP, based on Sekocenbud

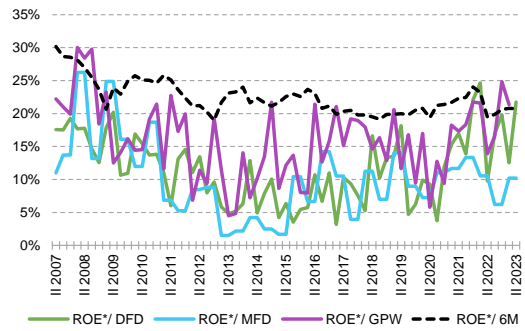
³⁵ Half of the building (type 1122-302) monitored by NBP since 2016 Q2 based on the Sekocenbud data. An average residential five-storey multi-family building, with an underground garage built using the following technology : foundation footings, construction walls and ceilings - monolithic reinforced concrete, curtain walling - bricked walls of hollow MAX blocks. The change of the type of the analysed building in 2017 is connected with the end of preparation of a priced bill of quantities concerning building 1121. The analytical assumptions related to building 1121 have been maintained.

Figure 44 Estimated ROE on investment projects (type 1122-302³⁵) in the largest cities



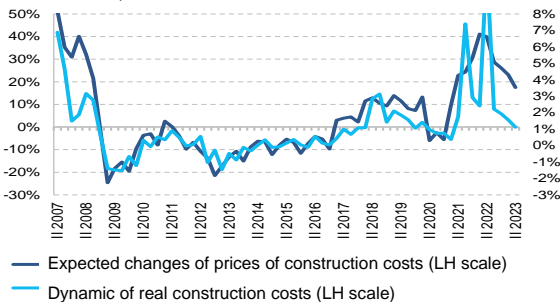
*ROE modified = net financial result/ (sales revenues – net sales revenue); **/ DFD - large developer (with 50 and more staff, according to Statistics Poland), ***/ MFD – average Small Developer (with 9-49 staff),
 Source: NBP, based on Sekocenbud, Statistics Poland (F01)

Figure 45 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**



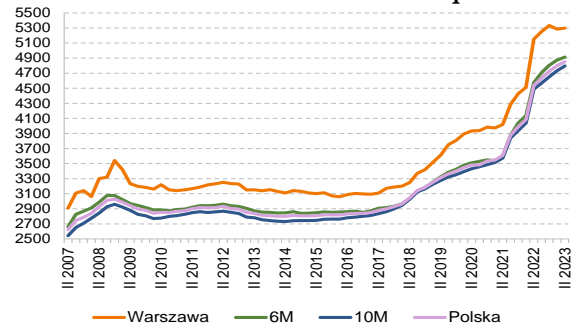
Source: NBP, based on Sekocenbud, Financial statements, Statistics Poland (F01)

Figure 46 Expected changes in prices of construction and assembly works (+3 months) and growth in construction costs of usable floor area of a residential building (type 1122- 302³⁵)



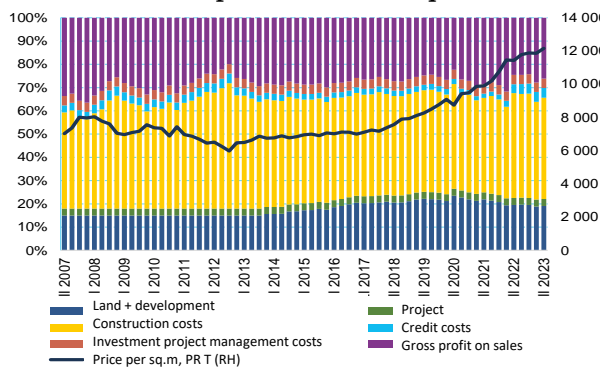
Source: NBP, based on Statistics Poland data (business conditions survey), Sekocenbud

Figure 47 Average cost of building 1 sq. m of the usable floor area of a residential building (type 1122- 302³⁵) in selected markets (PLN/sq.m)



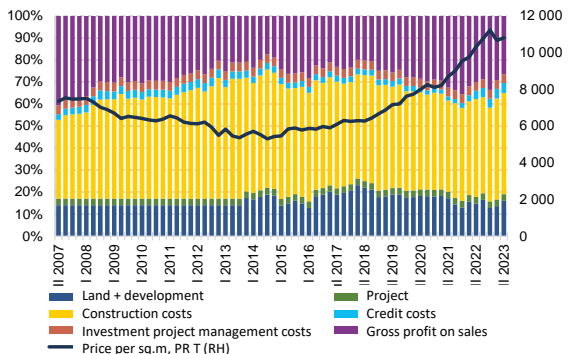
Source: NBP, based on Sekocenbud

Figure 48 Warsaw – estimated structure of net price per square metre of housing usable floor area of the usable floor area of a dwelling in PM (building type 1122-302³⁵) for consumers and price level (PLN/sq.m, RHS)



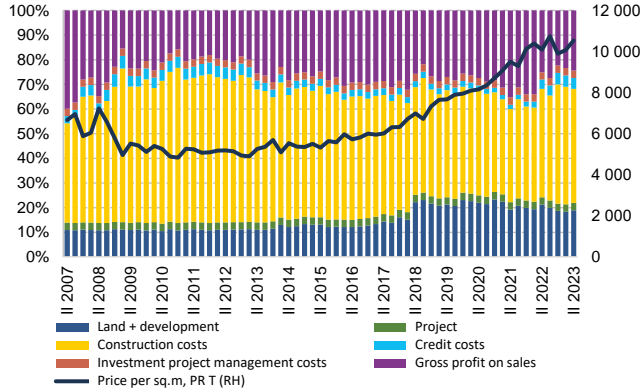
Source: NBP, based on Sekocenbud, JLL

Figure 49 Kraków - estimated structure of net price per square metre of housing usable floor area of the usable floor area of a dwelling in PM (building type 1122-302³⁵) for consumers and price level (PLN/sq.m, RHS)



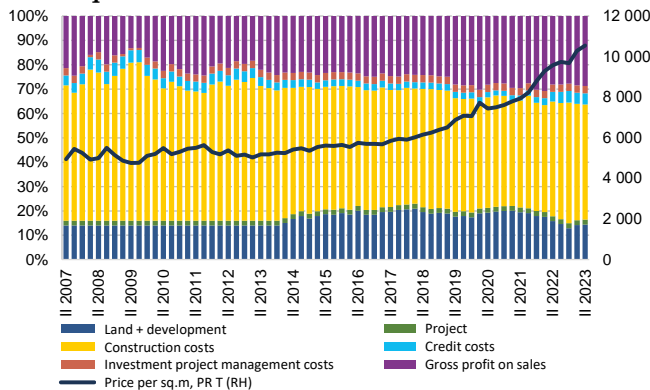
Source: NBP, based on Sekocenbud, JLL

Figure 50 Gdańsk – estimated structure of net price per sq. m of the usable floor area of a dwelling in PM (building type 1122-302³⁵) for consumers and price level (PLN/sq.m, RHS)



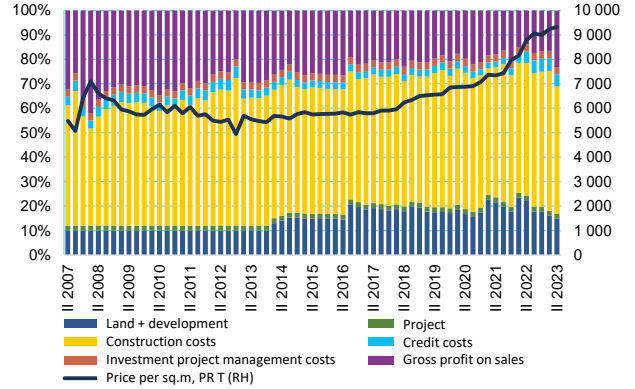
Source: NBP, based on Sekocenbud, JLL

Figure 52 Wrocław – estimated structure of net price per sq. m of the usable floor area of a dwelling in PM (building type 1122-302³⁵) for consumers and price level (PLN/sq.m, RHS)



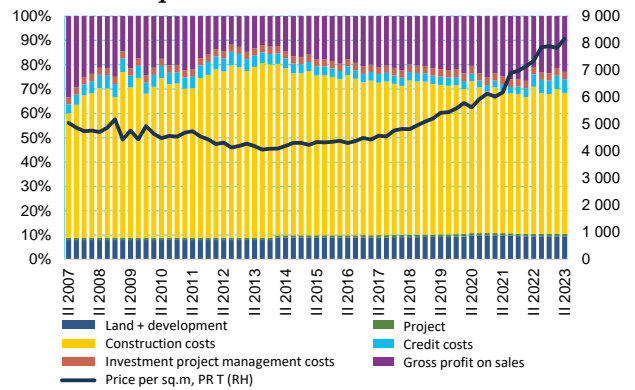
Source: NBP, based on Sekocenbud, JLL

Figure 51 Poznań – estimated structure of net price per sq. m of the usable floor area of a dwelling in PM (building type 1122-302³⁵) for consumers and price level (PLN/sq.m, RHS)



Source: NBP, based on Sekocenbud, JLL

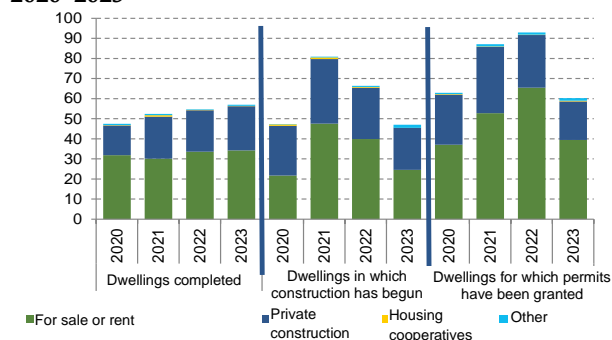
Figure 53 Łódź – estimated structure of net price per sq. m of the usable floor area of a dwelling in PM (building type 1122-302³⁵) for consumers and price level (PLN/sq.m, RHS)



Source: NBP, based on Sekocenbud, JLL

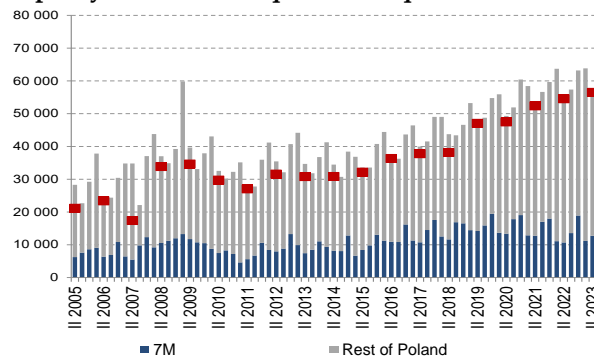
5. Residential construction industry and the housing market in selected cities in Poland

Figure 54 Structure of residential construction investors in Poland in the second quarters of 2020–2023



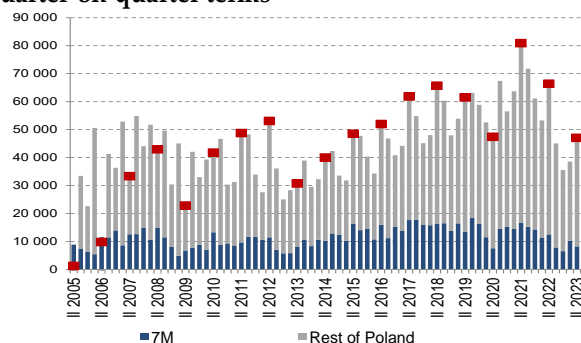
Source: Statistics Poland

Figure 55 Dwellings completed and made ready for occupancy in Poland, in quarter-on-quarter terms



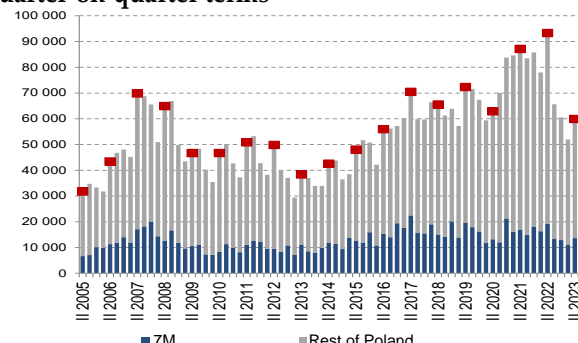
Note: the red squares indicate second quarters only. Source: Statistics Poland

Figure 56 New home construction starts in Poland, in quarter-on-quarter terms



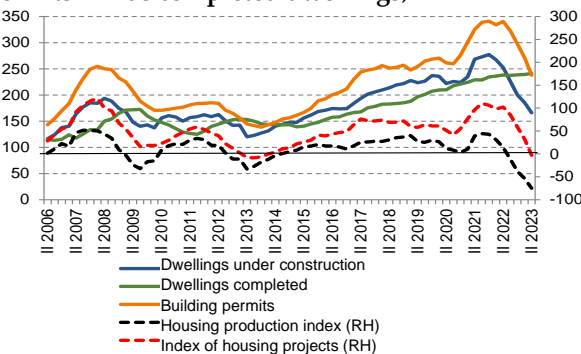
Note: the red squares indicate second quarters only. Source: Statistics Poland

Figure 57 Home building permits issued in Poland, in quarter-on-quarter terms



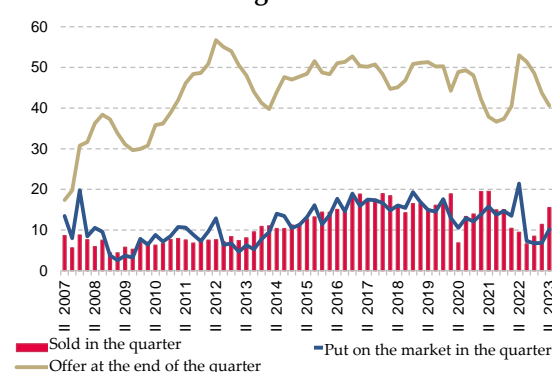
Note: the red squares indicate second quarters only. Source: Statistics Poland

Figure 58 Housing construction in Poland (in thousands of dwellings), dwellings under construction (started dwellings minus completed dwellings) and investment projects in progress (home building permits minus completed dwellings)



Note: moving averages for the past four quarters. Source: NBP, based on PABB and Statistics Poland

Figure 59 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, Tri-City, Wrocław, Poznań, Łódź. Source: JLL

Figure 60 Housing supply and the estimated rate of return on housing development projects in PM, avg. in 7 cities

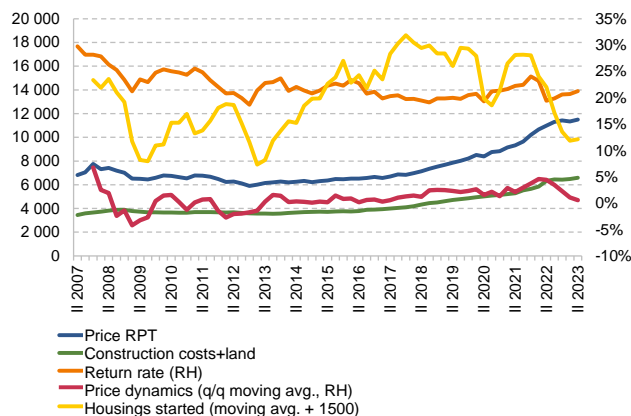
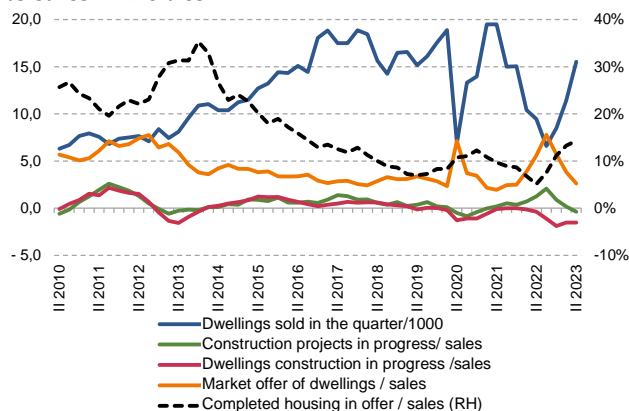


Figure 61 Housing projects, dwellings under construction and finished dwellings offered relative to sales in 7 cities



Note do Figure 61: Housing projects in progress = building permits for dwellings minus completed dwellings; dwellings under construction = started dwellings less completed dwellings; aggregated 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 62 Measure of the match between dwellings offered and demand in terms of floor area ≤ 50 sq. m., PM in selected cities of Poland

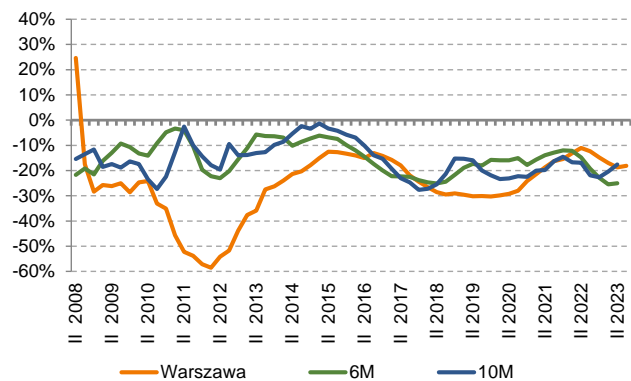
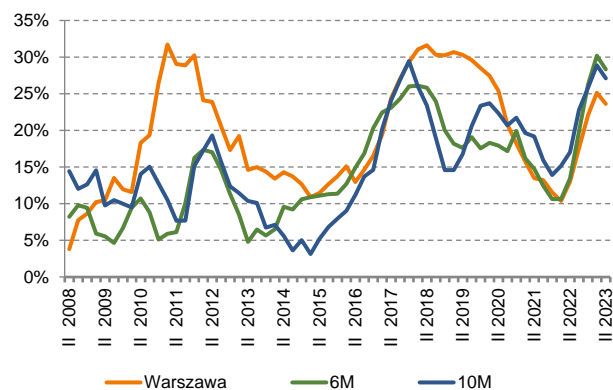


Figure 63 Measure of the match between dwellings offered and demand in terms of floor area >50 sq. m., SM in selected cities of Poland

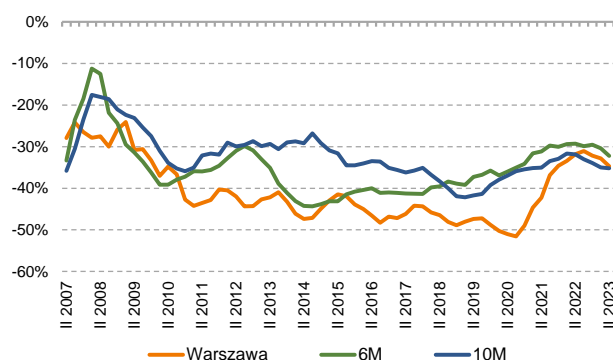


Note: Figure 62 presents, in percentage terms, a short-term mismatch in the primary market between supply (developers' housing offer) and the estimated demand (housing transactions) in terms of the dwelling's size, according to the data from the BaRN database. The mismatch is calculated as the share of dwellings with a usable floor area of up to 50 square meters offered for sale to the number of transactions involving dwellings 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 a surplus of dwellings of this particular size, whereas the negative result indicates a shortage. Figure 63 is parallel for the space above 50 sq.m. Figures 64-65 are parallel, but they concern the SM only.

Source: NBP

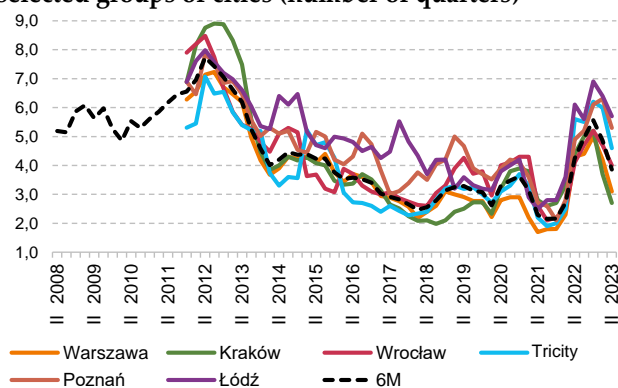
Source: NBP

Figure 64 Measure of the match between dwellings offered vs. demand in terms of floor area ≤ 50 sq. m, SM in selected cities of Poland



Source: NBP

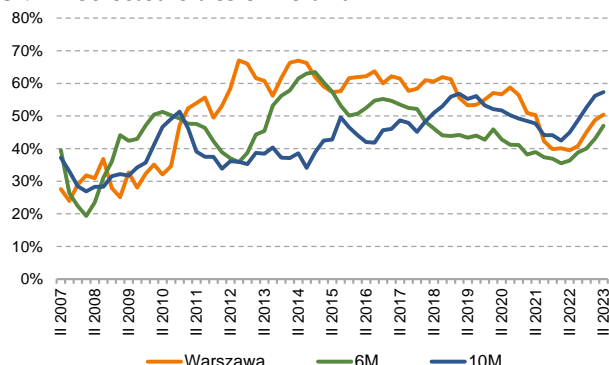
Figure 66 Time to sell dwellings offered in PM in selected groups of cities (number of quarters)



Note: the time to sell dwellings is the ratio of the number of dwellings on offer at the end of the current quarter to the number of dwellings sold in the last four quarters.

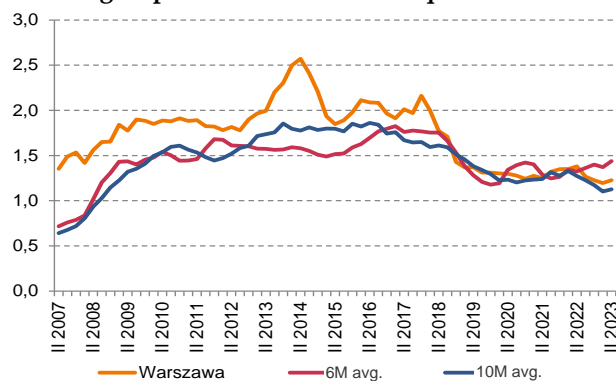
Source: NBP, based on JLL

Figure 65 Measure of the match between dwellings offered and demand in terms of floor area >50 sq. m, SM in selected cities of Poland



Source: NBP

Figure 67 Time to sell dwellings offered in SM in selected groups of cities (number of quarters)

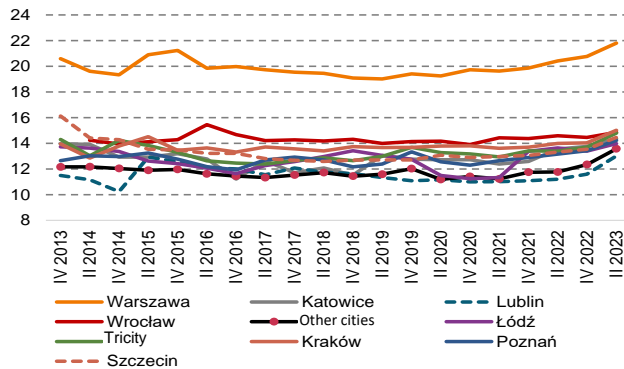


Note: real time to sell dwellings, averaged for the last four quarters; data are not comparable with Figure 64. The time to sell dwellings in the secondary real estate market takes into account only closed sale transactions. The data are underestimated/understated since they do not contain offers listed but not sold yet.

Source: NBP

6. Prices and rents of commercial real estate, investment and financing, operating costs and the estimated rate of return

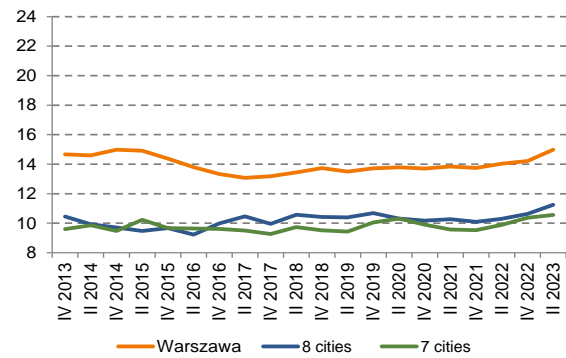
Figure 68 Transaction rents for class A office space (average prices in EUR/sq.m/month)



Note: „other cities” are Białystok, Bydgoszcz, Kielce, Olsztyn, Opole, Rzeszów, Zielona Góra.

Source: NBP

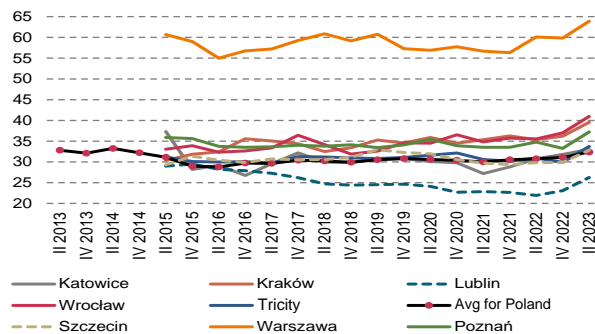
Figure 69 Transaction rents for class B office space (average prices in EUR/sq.m/month)



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

Source: NBP

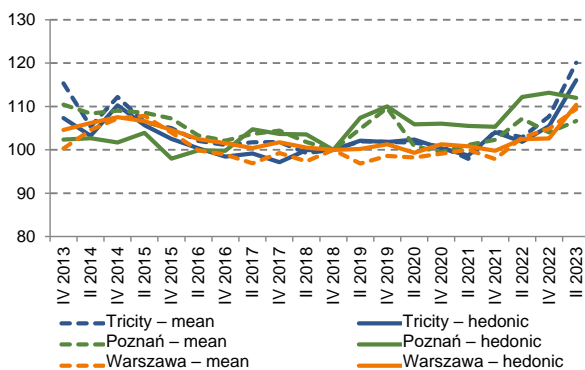
Figure 70 Transaction rents for the lease of 100-500 sq. m of retail space in shopping centres (euro/sq. m/month)



Source: NBP

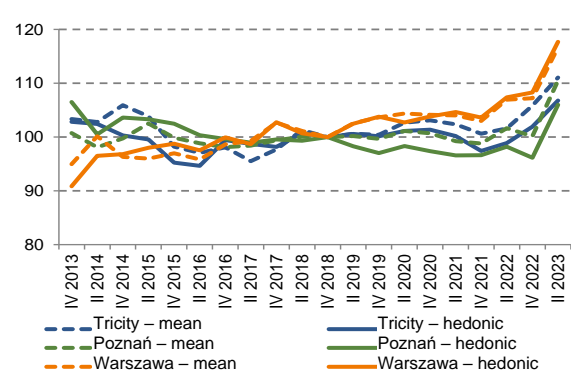
Note to Figure 70: since the beginning of 2015 Q4, the number of records in the base, including respondents, has increased significantly, changing the analysed sample.

Figure 71 Index of rents for offices, average and hedonic (2018 Q4 =100)



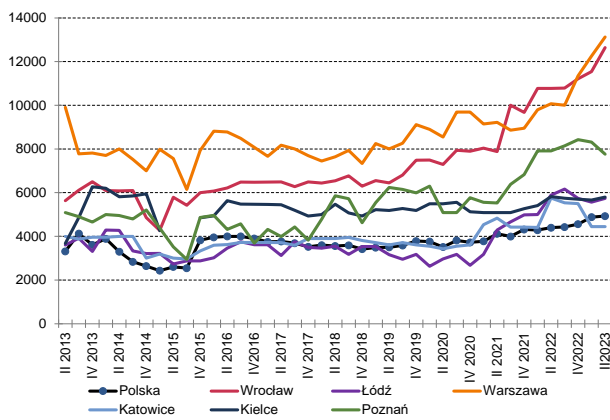
Source: NBP

Figure 72 Index of rents in shopping centres, average and hedonic (2018 Q4 =100)



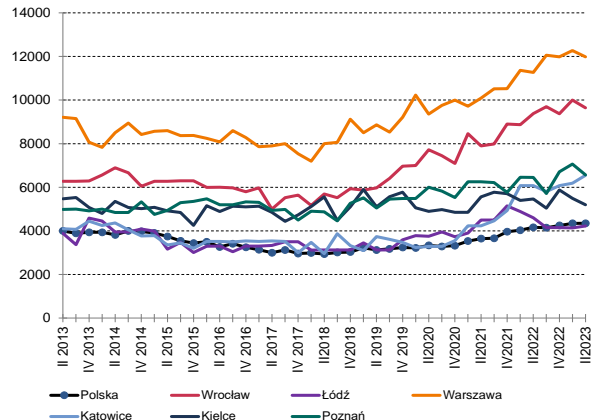
Source: NBP

Figure 73 Median offer price to sell small offices in SM (per sq. m)



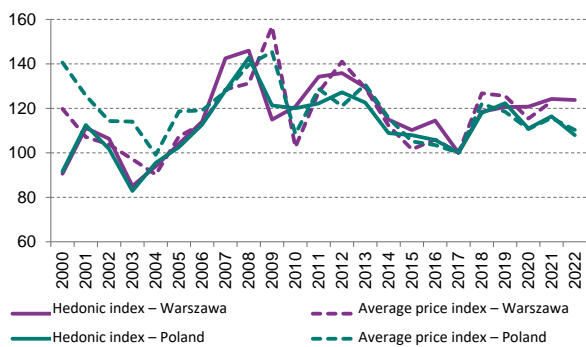
Source: PONT, NBP study

Figure 74 Median offer price to sell small commercial premises in SM (per sq. m)



Source: PONT, NBP study

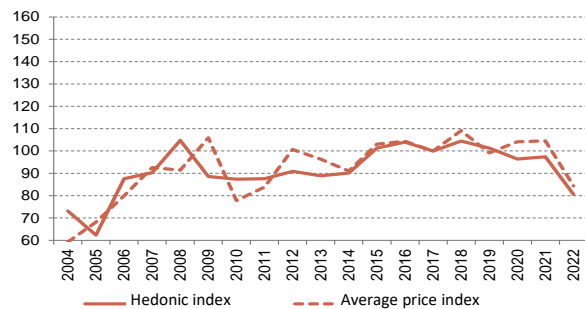
Figure 75 Change in average and hedonic prices of office real estate in Warsaw and the whole of Poland (2017=100) and the implied price index for Warsaw



Note: The analysis covers transaction prices and bank appraisals of commercial real estate.

Source: NBP, Comparables.pl, AMRON

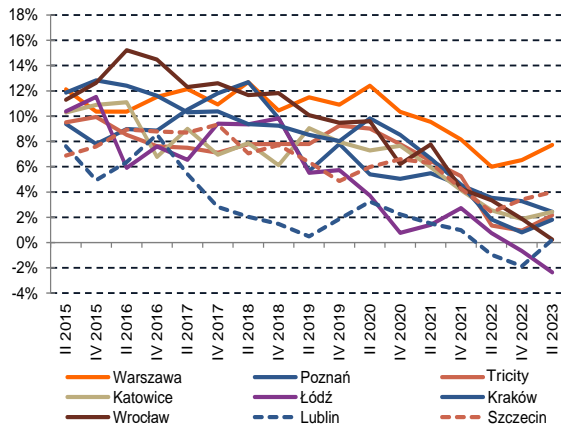
Figure 76 Change in average and hedonic prices of retail real estate in the whole of Poland (2017=100)



Note: The analysis covers transaction prices and bank appraisals of commercial real estate.

Source: NBP, Comparables.pl, AMRON

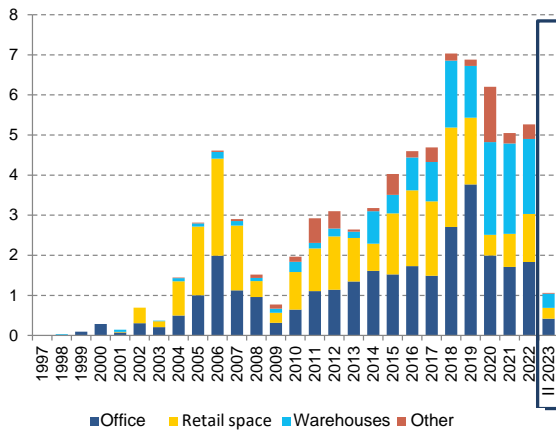
Figure 77 Estimated Return on Equity (ROE) on an investment in the construction and commercialisation of a class A office building, assuming LTC=80%



Note: A description of the ROE calculation method can be found under Tables 3 to 7. Differences in ROE between cities result from different levels of construction costs and different levels of effective rents, i.e. rents adjusted by the vacancy rate in class A office buildings in a given market.

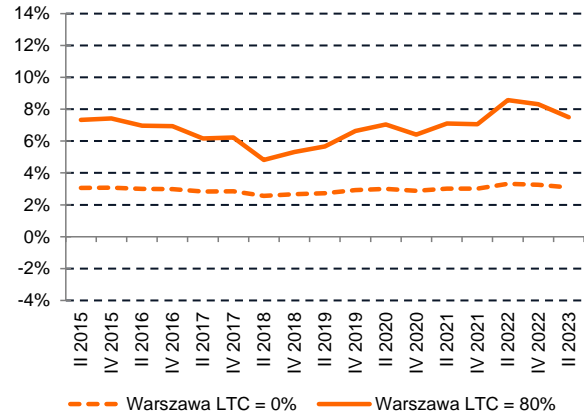
Source: NBP, Sekocenbud, NBP study

Figure 79 Value of investment transactions in commercial real estate in the years and in the 1st half of 2023 (in EUR billion)



Source: Comparables.pl

Figure 78 Estimated Return on Equity (ROE) on an investment concerning the purchase of an existing class B office building in Warsaw



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

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

Figure 80 Operating expenses of a class A and a class B office building in Warsaw (PLN/sq.m/month)

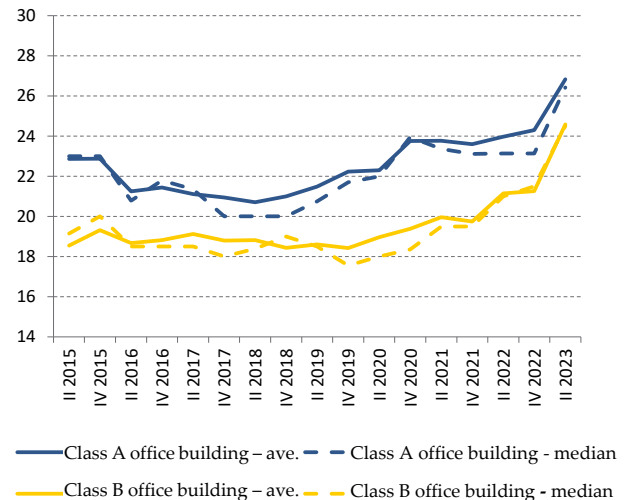


Table 4 Estimated Return on Equity (ROE) on an investment in the construction and commercialisation of a class A office building in Katowice

Date	Avg. rent per sq. m of area in EUR - class A	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 yields on 10-year Treasury bonds
2015 Q2	12.9	1,781	3.7%	5.3%	10.3%	2.8%
2015 Q4	13.2	1,716	3.8%	5.6%	10.9%	2.8%
2016 Q2	12.8	1,664	3.8%	5.6%	11.1%	3.0%
2016 Q4	11.2	1,679	3.0%	3.9%	6.8%	3.3%
2017 Q2	12.6	1,762	3.4%	4.8%	9.0%	3.3%
2017 Q4	11.7	1,773	3.0%	4.0%	7.0%	3.4%
2018 Q2	12.1	1,796	3.2%	4.3%	7.9%	3.2%
2018 Q4	11.5	1,862	2.8%	3.7%	6.1%	3.1%
2019 Q2	13.1	1,925	3.4%	4.8%	9.1%	2.7%
2019 Q4	12.8	1,983	3.2%	4.4%	8.0%	2.0%
2020 Q2	12.2	1,928	3.1%	4.1%	7.3%	1.4%
2020 Q4	12.8	1,962	3.1%	4.3%	7.7%	1.3%
2021 Q2	12.3	1,998	2.8%	3.6%	6.0%	1.5%
2021 Q4	12.7	2,225	2.4%	2.9%	4.1%	2.4%
2022 Q2	13.6	2,467	2.1%	2.2%	2.6%	5.5%
2022 Q4	13.8	2,575	2.0%	1.9%	1.9%	6.7%
2023 Q2	14.4	2,629	2.1%	2.2%	2.4%	6.1%

Assumptions: The cost of construction of an office building (Sekocenbud data) was increased by 15% of the developer's costs associated with related to the organization of the investment project and commercialization commercialisation of the building, as well as the expert-estimate of the cost of the land estimated by experts (based on publicly available information). Loan A loan granted in EUR for 25 years, payable 4 times a year in equal instalments. Depreciation of the building at 2.5% rate, standard for commercial real estate. The income side includes the effective rent, that is the average rent adjusted for vacancy rate in the market. The calculated capitalization rate includes the building's depreciation cost of the building. CIT tax has been taken into account. ROE means net income/equity employed..

Detailed A detailed description of the method is presented in "Box C. Profitability analysis of investment in newly built office real estate and estimated rates of return at different leverage levels" in NBP (2020) "Report on the situation in the residential and commercial real estate market in Poland in 2019".

Source: NBP (rents and calculations), MF (yields on 10-year bonds), construction costs estimation based on Sekocenbud data, "Biuletyn cen obiektów budowlanych BCO cz. I – obiekty kubaturowe, obiekt 1220-102" [Bulletin of Construction Prices Part I - buildings, building type 1220-102].

Table 5 Estimated Return on Equity (ROE) on an investment in the construction and commercialisation of a class A office building in Kraków

Date	Avg. rent per sq. m of area in EUR - class A	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 yields on 10-year Treasury bonds
2015 Q2	14.5	1,837	4.0%	5.9%	11.9%	2.8%
2015 Q4	13.4	1,760	4.2%	6.3%	12.8%	2.8%
2016 Q2	13.6	1,740	4.1%	6.2%	12.4%	3.0%
2016 Q4	13.3	1,726	3.9%	5.8%	11.6%	3.3%
2017 Q2	13.7	1,846	3.7%	5.3%	10.3%	3.3%
2017 Q4	13.6	1,813	3.7%	5.4%	10.4%	3.4%
2018 Q2	13.4	1,876	3.5%	4.9%	9.4%	3.2%
2018 Q4	13.7	1,891	3.5%	4.9%	9.3%	3.1%
2019 Q2	13.7	1,966	3.3%	4.6%	8.5%	2.7%
2019 Q4	13.7	2,030	3.2%	4.4%	8.0%	2.0%
2020 Q2	13.8	1,983	3.6%	5.1%	9.8%	1.4%
2020 Q4	13.8	2,013	3.3%	4.6%	8.5%	1.3%
2021 Q2	13.6	2,029	2.9%	3.9%	6.7%	1.5%
2021 Q4	13.7	2,200	2.5%	3.0%	4.6%	2.4%
2022 Q2	14.0	2,519	2.0%	1.9%	1.8%	5.5%
2022 Q4	14.0	2,586	1.8%	1.5%	0.8%	6.7%
2023 Q2	15.0	2,726	2.9%	3.8%	6.6%	6.1%

Assumptions: see Table 4.

Source: NBP (rents and calculations), MF (yields on 10-year bonds), construction costs estimation based on Sekocenbud data, Biuletyn cen obiektów budowlanych BCO cz. I – obiekty kubaturowe, obiekt 1220-102.

Table 6 Estimated Return on Equity (ROE) on an investment in the construction and commercialisation of a class A office building in Lublin

Date	Avg. rent per sq. m of area in EUR - class A	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 yields on 10-year Treasury bonds
2015 Q2	13.5	1,711	3.1%	4.3%	7.6%	2.8%
2015 Q4	13.0	1,627	2.6%	3.2%	4.9%	2.8%
2016 Q2	12.6	1,601	2.9%	3.7%	6.4%	3.0%
2016 Q4	12.5	1,602	3.3%	4.6%	8.5%	3.3%
2017 Q2	12.1	1,695	2.7%	3.4%	5.4%	3.3%
2017 Q4	11.7	1,670	2.2%	2.3%	2.8%	3.4%
2018 Q2	11.9	1,728	2.0%	2.0%	2.0%	3.2%
2018 Q4	11.8	1,811	1.9%	1.8%	1.5%	3.1%
2019 Q2	11.4	1,859	1.7%	1.4%	0.5%	2.7%
2019 Q4	11.5	1,892	2.0%	1.9%	1.9%	2.0%
2020 Q2	11.5	1,858	2.3%	2.5%	3.2%	1.4%
2020 Q4	11.1	1,910	2.1%	2.1%	2.2%	1.3%
2021 Q2	11.1	1,986	1.9%	1.8%	1.5%	1.5%
2021 Q4	11.4	2,090	1.8%	1.6%	1.0%	2.4%
2022 Q2	11.6	2,340	1.4%	0.9%	-1.0%	5.5%
2022 Q4	11.6	2,339	1.3%	0.6%	-1.9%	6.7%
2023 Q2	13.0	2,513	1.6%	1.3%	0.2%	6.1%

Assumptions: see Table 4. Source: NBP (rents and calculations), MF (yields on 10-year bonds), construction costs estimation based on Sekocenbud data, Biuletyn cen obiektów budowlanych BCO cz. I – obiekty kubaturowe, obiekt 1220-102.

Table 7 Estimated Return on Equity (ROE) on an investment in the construction and commercialisation of a class A office building in Łódź

Date	Avg. rent per sq. m of area in EUR - class A	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 yields on 10-year Treasury bonds
2015 Q2	12.6	1,804	3.7%	5.4%	10.4%	2.8%
2015 Q4	12.3	1,708	3.9%	5.8%	11.5%	2.8%
2016 Q2	12.0	1,673	2.8%	3.6%	5.9%	3.0%
2016 Q4	11.7	1,670	3.1%	4.2%	7.6%	3.3%
2017 Q2	12.2	1,766	2.9%	3.8%	6.5%	3.3%
2017 Q4	12.6	1,767	3.5%	5.0%	9.4%	3.4%
2018 Q2	13.0	1,821	3.5%	4.9%	9.4%	3.2%
2018 Q4	13.0	1,875	3.6%	5.1%	9.8%	3.1%
2019 Q2	12.9	1,887	2.7%	3.4%	5.5%	2.7%
2019 Q4	12.7	1,928	2.7%	3.5%	5.7%	2.0%
2020 Q2	11.6	1,935	2.3%	2.7%	3.7%	1.4%
2020 Q4	11.3	1,973	1.8%	1.5%	0.8%	1.3%
2021 Q2	11.5	2,006	1.9%	1.8%	1.4%	1.5%
2021 Q4	13.4	2,210	2.1%	2.3%	2.7%	2.4%
2022 Q2	13.6	2,392	1.7%	1.5%	0.8%	5.5%
2022 Q4	13.5	2,433	1.5%	1.0%	-0.7%	6.7%
2023 Q2	14.0	2,573	1.2%	0.4%	-2.4%	6.1%

Assumptions: see Table 4.

Source: NBP (rents and calculations), MF (yields on 10-year bonds), construction costs estimation based on Sekocenbud data, *Biuletyn cen obiektów budowlanych BCO cz. I – obiekty kubaturowe, obiekt 1220-102*.

Table 8 Estimated Return on Equity (ROE) on an investment in the construction and commercialisation of a class A office building in Poznań

Date	Avg. rent per sq. m of area in EUR - class A	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 yields on 10-year Treasury bonds
2015 Q2	13.26	1,753	3.5%	5.0%	9.4%	2.8%
2015 Q4	12.86	1,682	3.2%	4.3%	7.8%	2.8%
2016 Q2	12.23	1,665	3.4%	4.8%	9.0%	3.0%
2016 Q4	12.02	1,644	3.4%	4.7%	8.9%	3.3%
2017 Q2	12.53	1,765	3.7%	5.4%	10.5%	3.3%
2017 Q4	12.78	1,784	4.0%	5.9%	11.8%	3.4%
2018 Q2	12.69	1,798	4.1%	6.3%	12.7%	3.2%
2018 Q4	12.23	1,874	3.6%	5.1%	9.8%	3.1%
2019 Q2	12.31	1,975	2.7%	3.5%	5.7%	2.7%
2019 Q4	13.24	2,031	3.2%	4.3%	7.8%	2.0%
2020 Q2	12.54	1,978	2.7%	3.4%	5.4%	1.4%
2020 Q4	12.35	1,989	2.6%	3.2%	5.0%	1.3%
2021 Q2	12.67	2,013	2.7%	3.4%	5.5%	1.5%
2021 Q4	12.80	2,168	2.5%	3.0%	4.5%	2.4%
2022 Q2	13.61	2,430	2.3%	2.6%	3.5%	5.5%
2022 Q4	13.31	2,494	2.3%	2.5%	3.3%	6.7%
2023 Q2	13.64	2,596	2.1%	2.2%	2.4%	6.1%

Assumptions: see Table 4.

Source: NBP (rents and calculations), MF (yields on 10-year bonds), construction costs estimation based on Sekocenbud data, *Biuletyn cen obiektów budowlanych BCO cz. I – obiekty kubaturowe, obiekt 1220-102*.

Table 9 Estimated Return on Equity (ROE) on an investment in the construction and commercialisation of a class A office building in Szczecin

Date	Avg. rent per sq. m of area in EUR - class A	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 yields on 10-year Treasury bonds
2015 Q2	13.54	1,837	3.0%	4.0%	6.9%	2.8%
2015 Q4	13.49	1,779	3.1%	4.2%	7.6%	2.8%
2016 Q2	13.22	1,707	3.4%	4.8%	8.9%	3.0%
2016 Q4	13.22	1,742	3.4%	4.7%	8.8%	3.3%
2017 Q2	12.81	1,831	3.3%	4.7%	8.7%	3.3%
2017 Q4	12.69	1,890	3.5%	4.9%	9.3%	3.4%
2018 Q2	12.59	1,981	3.0%	4.0%	7.0%	3.2%
2018 Q4	12.67	2,001	3.1%	4.3%	7.7%	3.1%
2019 Q2	12.66	2,137	2.9%	3.7%	6.4%	2.7%
2019 Q4	12.71	2,179	2.6%	3.1%	4.9%	2.0%
2020 Q2	13.08	2,116	2.8%	3.6%	6.0%	1.4%
2020 Q4	12.90	2,155	2.9%	3.8%	6.6%	1.3%
2021 Q2	12.97	2,232	2.9%	3.7%	6.3%	1.5%
2021 Q4	13.07	2,387	2.5%	2.9%	4.3%	2.4%
2022 Q2	13.33	2,686	2.1%	2.2%	2.4%	5.5%
2022 Q4	13.55	2,678	2.3%	2.6%	3.4%	6.7%
2023 Q2	14.46	2,783	2.4%	2.8%	4.0%	6.1%

Assumptions: see Table 4.

Source: NBP (rents and calculations), MF (yields on 10-year bonds), construction costs estimation based on Sekocenbud data, *Biuletyn cen obiektów budowlanych BCO cz. I – obiekty kubaturowe, obiekt 1220-102*.

Table 10 Estimated Return on Equity (ROE) on an investment in the construction and commercialisation of a class A office building in Tricity

Date	Avg. rent per sq. m of area in EUR - class A	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 yields on 10-year Treasury bonds
2015 Q2	13.0	1,858	3.5%	5.0%	9.5%	2.8%
2015 Q4	12.7	1,817	3.6%	5.2%	9.9%	2.8%
2016 Q2	12.3	1,736	3.3%	4.6%	8.5%	3.0%
2016 Q4	12.1	1,783	3.1%	4.2%	7.6%	3.3%
2017 Q2	12.0	1,842	3.1%	4.2%	7.5%	3.3%
2017 Q4	12.1	1,872	3.0%	4.0%	7.1%	3.4%
2018 Q2	12.7	1,897	3.2%	4.3%	7.8%	3.2%
2018 Q4	12.7	1,927	3.2%	4.3%	7.8%	3.1%
2019 Q2	12.8	2,028	3.2%	4.3%	7.8%	2.7%
2019 Q4	13.5	2,078	3.5%	4.9%	9.3%	2.0%
2020 Q2	13.3	2,013	3.4%	4.8%	9.0%	1.4%
2020 Q4	13.2	2,040	3.2%	4.3%	7.8%	1.3%
2021 Q2	12.9	2,106	2.9%	3.8%	6.5%	1.5%
2021 Q4	13.4	2,215	2.7%	3.3%	5.3%	2.4%
2022 Q2	13.4	2,549	1.9%	1.7%	1.4%	5.5%
2022 Q4	13.7	2,632	1.8%	1.6%	0.9%	6.7%
2023 Q2	14.8	2,740	2.0%	2.1%	2.2%	6.1%

Assumptions: see Table 4.

Source: NBP (rents and calculations), MF (yields on 10-year bonds), construction costs estimation based on Sekocenbud data, *Biuletyn cen obiektów budowlanych BCO cz. I – obiekty kubaturowe, obiekt 1220-102*.

Table 11 Estimated Return on Equity (ROE) on an investment in the construction and commercialisation of a class A office building in Warsaw

Date	Avg. rent per sq. m of area in EUR - class A	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 yields on 10-year Treasury bonds
2015 Q2	21.0	2,897	4.0%	6.0%	12.1%	2.8%
2015 Q4	21.3	2,774	3.7%	5.3%	10.4%	2.8%
2016 Q2	19.9	2,714	3.7%	5.3%	10.4%	3.0%
2016 Q4	20.1	2,714	3.9%	5.8%	11.5%	3.3%
2017 Q2	19.8	2,835	4.0%	6.1%	12.2%	3.3%
2017 Q4	19.6	2,846	3.8%	5.6%	10.9%	3.4%
2018 Q2	19.5	2,868	4.1%	6.3%	12.7%	3.2%
2018 Q4	19.2	2,949	3.7%	5.4%	10.4%	3.1%
2019 Q2	19.1	3,041	3.9%	5.8%	11.5%	2.7%
2019 Q4	19.5	3,123	3.8%	5.6%	10.9%	2.0%
2020 Q2	19.3	3,028	4.1%	6.2%	12.4%	1.4%
2020 Q4	19.7	3,052	3.7%	5.3%	10.3%	1.3%
2021 Q2	19.7	3,065	3.5%	5.0%	9.5%	1.5%
2021 Q4	19.9	3,252	3.2%	4.5%	8.1%	2.4%
2022 Q2	20.4	3,615	2.8%	3.6%	6.0%	5.5%
2022 Q4	20.8	3,606	2.9%	3.8%	6.5%	6.7%
2023 Q2	21.8	3,692	3.1%	4.3%	7.7%	6.1%

Assumptions: see Table 4.

Source: NBP (rents and calculations), MF (yields on 10-year bonds), construction costs estimation based on Sekocenbud data, *Biuletyn cen obiektów budowlanych BCO cz. I – obiekty kubaturowe, obiekt 1220-102*.

Table 12 Estimated Return on Equity (ROE) on an investment in the construction and commercialisation of a class A office building in Wrocław

Date	Avg. rent per sq. m of area in EUR - class A	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 yields on 10-year Treasury bonds
2015 Q2	14.1	1,774	3.9%	5.7%	11.3%	2.8%
2015 Q4	14.2	1,716	4.1%	6.3%	12.6%	2.8%
2016 Q2	15.3	1,652	4.6%	7.3%	15.2%	3.0%
2016 Q4	14.6	1,644	4.5%	7.0%	14.5%	3.3%
2017 Q2	14.1	1,717	4.1%	6.1%	12.3%	3.3%
2017 Q4	14.1	1,700	4.1%	6.2%	12.6%	3.4%
2018 Q2	14.1	1,768	3.9%	5.9%	11.7%	3.2%
2018 Q4	14.4	1,798	4.0%	5.9%	11.8%	3.1%
2019 Q2	14.0	1,866	3.6%	5.2%	10.1%	2.7%
2019 Q4	14.1	1,920	3.5%	5.0%	9.5%	2.0%
2020 Q2	14.2	1,860	3.5%	5.0%	9.6%	1.4%
2020 Q4	13.7	1,901	2.8%	3.7%	6.2%	1.3%
2021 Q2	14.4	1,925	3.2%	4.3%	7.8%	1.5%
2021 Q4	14.2	2,106	2.5%	2.9%	4.2%	2.4%
2022 Q2	14.7	2,402	2.3%	2.5%	3.3%	5.5%
2022 Q4	14.6	2,493	2.0%	2.0%	1.9%	6.7%
2023 Q2	14.9	2,757	1.7%	1.3%	0.2%	6.1%

Assumptions: see Table 4.

Source: NBP (rents and calculations), MF (yields on 10-year bonds), construction costs estimation based on Sekocenbud data, *Biuletyn cen obiektów budowlanych BCO cz. I – obiekty kubaturowe, obiekt 1220-102*.

Table 13 Estimated Return on Equity on an investment in the purchase of class B office building from the existing stock in Warsaw

Date	Average rent per sq.m of office space in EUR	Smoothed price per sq.m of office 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
2015 Q2	14.6	2,312	7.6%	3.0%	3.9%	6.8%	3.4%
2015 Q4	15.0	2,289	7.8%	3.1%	4.3%	7.8%	2.6%
2016 Q2	14.9	2,319	7.7%	3.1%	4.1%	7.3%	2.8%
2016 Q4	14.4	2,222	7.8%	3.1%	4.2%	7.4%	2.8%
2017 Q2	13.8	2,162	7.7%	3.0%	4.0%	7.0%	3.0%
2017 Q4	13.3	2,080	7.7%	3.0%	4.0%	6.9%	3.3%
2018 Q2	13.1	2,104	7.5%	2.8%	3.7%	6.2%	3.3%
2018 Q4	13.2	2,117	7.5%	2.8%	3.7%	6.2%	3.4%
2019 Q2	13.2	2,268	7.0%	2.6%	3.1%	4.8%	3.2%
2019 Q4	13.6	2,284	7.1%	2.7%	3.3%	5.3%	3.1%
2020 Q2	13.3	2,194	7.3%	2.7%	3.5%	5.7%	2.7%
2020 Q4	13.5	2,144	7.6%	2.9%	3.8%	6.6%	2.0%
2021 Q2	13.5	2,102	7.7%	3.0%	4.0%	7.0%	1.4%
2021 Q4	13.4	2,143	7.5%	2.9%	3.8%	6.4%	1.3%
2022 Q2	13.5	2,085	7.8%	3.0%	4.0%	7.1%	1.5%
2022 Q4	14.0	2,147	7.8%	3.3%	4.6%	8.6%	5.5%
2023 Q2	14.2	2,155	7.9%	3.3%	4.5%	8.3%	6.7%
2015 Q2	14.9	2,200	8.1%	3.1%	4.2%	7.5%	6.1%

Assumptions: The analysis assumes contractual rent rates for Class B offices as well as transaction prices and appraisals of Class B office real estate. Because relatively few transaction prices and appraisals of Class B office real estate are available in any 6-month period, a moving average was used. It was calculated on the basis of a price from a given month as well as the preceding and following months, with equal weights.

We assumed a loan for 25 years denominated in euro with equated instalments payable 4 times a year. Standard building depreciation rate of 2.5%, standard for commercial real estate. We assumed that the cost of land accounted for 20% of the cost of the investment project. The resulting capitalisation rate includes the cost of depreciation of the building. CIT included. ROE means net profit/equity engaged.

Source: NBP (data and calculations), MF (yields on 10-year bonds)

Table 14 Average prices per square metre of housing in the primary market in Gdańsk

specification	IIQ 2022		III Q 2022		IV Q 2022		I Q 2023		IIQ 2023	
	offer	trans.	offer	trans.	offer	trans.	offer	trans.	offer	trans.
average price (PLN/sq.m.)	11 632	10 903	11 620	11 599	11 643	10 703	11 808	10 874	11 795	11 384
growth (q-o-q)	102,4	97,1	99,9	106,4	100,2	92,3	101,4	101,6	99,9	104,7
growth (y-o-y)	119,7	106,3	112,7	115,5	104,1	97,7	104,0	96,8	101,4	104,4
dwelling price range	6 060	1 383	6 548	908	6 332	679	5 725	763	4 972	763
<=8 000 PLN/sq.m	461	134	391	96	396	95	339	100	245	86
(8 001; 10 000] PLN/sq.m	2 412	569	2 651	347	2 484	312	1 999	329	1 728	562
(10 001; 12 000] PLN/sq.m	989	184	1 447	130	1 474	78	1 507	89	1 138	231
(12 001; 14 000] PLN/sq.m	884	318	722	111	675	99	600	121	845	273
>14 001 PLN/sq.m	1 314	170	1 337	218	1 303	95	1 280	124	1 016	263
dwelling space range	6 060	1 375	6 548	902	6 332	679	5 725	763	4 972	1 415
<= 40 sq.m	968	414	1 149	280	1 069	173	939	186	830	293
(40,1; 60] sq.m	2 632	590	2 915	376	2 749	344	2 486	332	2 131	694
(60,1; 80] sq.m	1 796	275	1 856	160	1 864	132	1 684	201	1 487	332
> 80,1 sq.m	664	96	628	86	650	30	616	44	524	96
average price of 1 sq.m. of dwelling	11 632	10 898	11 620	11 604	11 643	10 694	11 808	10 874	11 795	11 384
<= 40 sq.m	12 053	11 165	12 008	10 857	12 138	10 763	12 343	11 166	12 209	11 932
(40,1; 60] sq.m	11 581	10 543	11 547	11 523	11 639	10 478	11 812	10 750	11 872	11 302
(60,1; 80] sq.m	11 156	10 680	11 153	11 968	11 097	10 405	11 291	10 180	11 349	10 723
> 80,1 sq.m	12 512	12 557	12 625	13 708	12 410	14 038	12 395	13 744	12 089	12 590
average offer price deviation	6,7%	x	0,2%	x	8,8%	x	8,6%	x	3,6%	x
<= 40 sq.m	8,0%	x	10,6%	x	12,8%	x	10,5%	x	2,3%	x
(40,1; 60] sq.m	9,8%	x	0,2%	x	11,1%	x	9,9%	x	5,0%	x
(60,1; 80] sq.m	4,5%	x	-6,8%	x	6,6%	x	10,9%	x	5,8%	x
> 80,1 sq.m	-0,4%	x	-7,9%	x	-11,6%	x	-9,8%	x	-4,0%	x

Source: NBP

Table 15 Average prices per square metre of housing in the secondary market in Gdańsk

specification	IIQ 2022		III Q 2022		IV Q 2022		I Q 2023		IIQ 2023	
	offer	trans.	offer	trans.	offer	trans.	offer	trans.	offer	trans.
average price (PLN/sq.m.)	12 097	10 771	11 931	11 208	12 219	11 294	12 219	11 278	12 223	10 970
growth (q-o-q)	100,7	104,2	98,6	104,1	102,4	100,8	100,0	99,9	100,0	97,3
growth (y-o-y)	111,8	114,8	106,9	114,7	106,8	109,9	101,7	109,1	101,0	101,8
dwelling price range	2 101	1 206	2 336	1 005	2 508	881	2 394	762	2 047	758
<=8 000 PLN/sq.m	72	162	100	92	122	99	87	100	66	95
(8 001; 10 000] PLN/sq.m	477	337	589	275	572	245	538	218	422	204
(10 001; 12 000] PLN/sq.m	673	378	699	332	758	253	787	230	626	259
(12 001; 14 000] PLN/sq.m	407	205	458	154	463	137	430	98	397	103
>14 001 PLN/sq.m	472	124	490	152	593	147	552	116	536	97
dwelling space range	2 101	1 206	2 336	1 005	2 508	881	2 394	762	2 047	758
<= 40 sq.m	342	300	365	272	430	242	407	191	324	186
(40,1; 60] sq.m	923	561	991	493	1 036	425	1 019	374	837	380
(60,1; 80] sq.m	586	251	678	190	726	165	688	151	590	155
> 80,1 sq.m	250	94	302	50	316	49	280	46	296	37
average price of 1 sq.m. of dwelling	12 097	10 771	11 931	11 208	12 219	11 278	12 223	10 970	12 568	10 899
<= 40 sq.m	13 427	11 952	13 155	12 016	13 573	11 966	13 537	11 620	13 816	11 772
(40,1; 60] sq.m	12 226	10 837	12 052	11 141	12 189	11 246	12 031	10 845	12 522	10 728
(60,1; 80] sq.m	11 371	9 810	11 368	10 648	11 590	10 784	11 877	10 551	12 287	10 319
> 80,1 sq.m	11 502	9 180	11 316	9 594	11 916	9 818	11 865	10 659	11 894	10 687
average offer price deviation	12,3%	x	6,4%	x	8,2%	x	8,3%	x	11,4%	x
<= 40 sq.m	12,3%	x	9,5%	x	13,4%	x	16,5%	x	17,4%	x
(40,1; 60] sq.m	12,8%	x	8,2%	x	8,4%	x	10,9%	x	16,7%	x
(60,1; 80] sq.m	15,9%	x	6,8%	x	7,5%	x	12,6%	x	19,1%	x
> 80,1 sq.m	25,3%	x	17,9%	x	21,4%	x	11,3%	x	11,3%	x

Source: NBP

Table 16 Average prices per square metre of housing in the primary market in Kraków

specification	IIQ 2022		III Q 2022		IV Q 2022		I Q 2023		IIQ 2023	
	offer	trans.	offer	trans.	offer	trans.	offer	trans.	offer	trans.
average price (PLN/sq.m.)	11 390	11 143	11 731	11 603	11 965	12 131	12 140	11 519	13 125	11 669
growth (q-o-q)	102,1	105,8	103,0	104,1	102,0	104,6	101,5	95,0	108,1	101,3
growth (y-o-y)	112,4	118,6	110,5	119,4	108,7	117,7	108,8	109,3	115,2	104,7
dwelling price range	7 283	1 657	7 175	1 073	6 529	1 410	5 730	1 167	4 152	1 587
<=8 000 PLN/sq.m	126	47	113	29	79	48	42	34	9	29
(8 001; 10 000] PLN/sq.m	2 057	552	1 666	314	1 435	351	1 169	330	558	330
(10 001; 12 000] PLN/sq.m	2 951	637	2 865	349	2 456	444	2 001	443	1 185	698
(12 001; 14 000] PLN/sq.m	1 145	227	1 297	149	1 256	144	1 241	156	1 059	289
>14 001 PLN/sq.m	1 004	194	1 234	232	1 303	423	1 277	204	1 341	241
dwelling space range	7 283	1 657	7 175	1 073	6 529	1 410	5 730	1 167	4 152	1 587
<= 40 sq.m	1443	483	1271	343	1022	420	924	307	771	321
(40,1; 60] sq.m	3428	726	3534	458	3258	703	2955	532	2114	805
(60,1; 80] sq.m	1879	322	1873	196	1765	228	1448	260	930	388
> 80,1 sq.m	533	126	497	76	484	59	403	68	337	73
average price of 1 sq.m. of dwelling	11 390	11 143	11 731	11 603	11 965	12 131	12 140	11 519	13 125	11 669
<=40 sq.m	12592	11480	12901	12277	13549	12607	13920	12348	14845	13038
(40,1; 60] sq.m	11208	11029	11623	11165	11854	12155	12008	11440	12824	11463
(60,1; 80] sq.m	10769	10625	11151	11028	11279	11192	11463	10682	12577	11019
> 80,1 sq.m	11492	11837	11697	12677	11878	12089	11452	11595	12590	11383
average offer price deviation	2,2%	x	1,1%	x	-1,4%	x	5,4%	x	12,5%	x
<= 40 sq.m	9,7%	x	5,1%	x	7,5%	x	12,7%	x	13,9%	x
(40,1; 60] sq.m	1,6%	x	4,1%	x	-2,5%	x	5,0%	x	11,9%	x
(60,1; 80] sq.m	1,4%	x	1,1%	x	0,8%	x	7,3%	x	14,1%	x
> 80,1 sq.m	-2,9%	x	-7,7%	x	-1,7%	x	-1,2%	x	10,6%	x

Source: NBP

Table 17 Average prices per square metre of housing in the secondary market in Kraków

specification	IIQ 2022		IIQ 2022		III Q 2022		IV Q 2022		I Q 2023		IIQ 2023	
	offer	trans.	offer	trans.	offer	trans.	offer	trans.	offer	trans.	offer	trans.
average price (PLN/sq.m.)	12 106	10 750	12 106	10 750	12 247	11 057	12 433	11 086	12 649	10 872	13 026	11 018
growth (q-o-q)	102,2	104,1	102,2	104,1	101,2	102,9	101,5	100,3	101,7	98,1	103,0	101,3
growth (y-o-y)	118,3	114,6	118,3	114,6	115,4	114,1	108,9	110,9	106,8	105,2	107,6	102,5
dwelling price range	1 521	1 626	1 521	1 626	1 510	1 617	1 274	1 308	1 228	879	1 162	961
<= 8 000 PLN/sq.m	26	166	26	166	27	129	35	123	26	81	12	80
(8 001; 10 000] PLN/sq.m	328	527	328	527	335	437	288	365	253	277	187	298
(10 001; 12 000] PLN/sq.m	511	508	511	508	485	580	377	414	364	282	350	298
(12 001; 14 000] PLN/sq.m	370	281	370	281	353	297	284	237	277	147	278	170
>14 001 PLN/sq.m	286	144	286	144	310	174	290	169	308	92	335	115
dwelling space range	1 521	1 626	1 521	1 626	1 510	1 617	1 274	1 308	1 228	879	1 162	961
<= 40 sq.m	390	602	390	602	374	605	272	475	265	354	233	369
(40,1; 60] sq.m	665	719	665	719	692	706	559	588	550	377	515	454
(60,1; 80] sq.m	337	233	337	233	323	217	289	182	290	98	276	106
> 80,1 sq.m	129	72	129	72	121	89	154	63	123	50	138	32
average price of 1 sq.m. of dwelling	12 106	10 750	12 106	10 750	12 247	11 057	12 433	11 086	12 649	10 872	13 026	11 018
<= 40 sq.m	13075	11326	13075	11326	13388	11433	13361	11643	13878	11295	14249	11527
(40,1; 60] sq.m	11688	10380	11688	10380	11785	10721	11875	10659	12040	10512	12565	10730
(60,1; 80] sq.m	11710	10284	11710	10284	11656	10880	12289	10884	12442	10735	12920	10397
> 80,1 sq.m	12365	11135	12365	11135	12937	11606	13085	11461	13213	10863	12896	11285
average offer price deviation	12,6%	x	12,6%	x	10,8%	x	12,1%	x	16,3%	x	18,2%	x
<= 40 sq.m	15,4%	x	15,4%	x	17,1%	x	14,8%	x	22,9%	x	23,6%	x
(40,1; 60] sq.m	12,6%	x	12,6%	x	9,9%	x	11,4%	x	14,5%	x	17,1%	x
(60,1; 80] sq.m	13,9%	x	13,9%	x	7,1%	x	12,9%	x	15,9%	x	24,3%	x
> 80,1 sq.m	11,0%	x	11,0%	x	11,5%	x	14,2%	x	21,6%	x	14,3%	x

Source: NBP

Table 18 Average prices per square metre of housing in the primary market in Łódź

specification	IIQ 2022		III Q 2022		IV Q 2022		I Q 2023		IIQ 2023	
	offer	trans.	offer	trans.	offer	trans.	offer	trans.	offer	trans.
average price (PLN/sq.m.)	8 481	7 929	8 973	8 475	9 152	8 520	9 391	8 451	9 465	8 810
growth (q-o-q)	104,1	102,7	105,8	106,9	102,0	100,5	102,6	99,2	100,8	104,2
growth (y-o-y)	114,5	118,8	112,1	113,8	112,7	113,2	115,3	109,5	111,6	111,1
dwelling price range	3 035	649	3 251	365	3 254	381	3 506	405	3 880	482
<= 4 000 PLN/sq.m	0	0	0	0	0	0	0	0	0	0
(4 001; 6 000] PLN/sq.m	14	5	12	0	13	0	4	1	3	0
(6 001; 8 000] PLN/sq.m	1 135	377	789	143	681	150	617	164	798	138
(8 001; 10 000] PLN/sq.m	1 574	251	1 708	198	1 663	191	1 712	207	1 507	282
>10 000 PLN/sq.m	312	16	742	24	897	40	1 173	33	1 572	62
dwelling space range	3 035	649	3 251	365	3 254	381	3 506	405	3 880	482
<= 40 sq.m	878	225	924	154	903	143	1049	120	1103	172
(40,1; 60] sq.m	1312	254	1437	144	1435	173	1560	179	1761	184
(60,1; 80] sq.m	691	124	750	55	764	49	752	90	784	101
> 80,1 sq.m	154	46	140	12	152	16	145	16	232	25
average price of 1 sq.m. of dwelling	8 481	7 929	8 973	8 475	9 152	8 520	9 391	8 451	9 465	8 810
<= 40 sq.m	9248	8454	9509	8926	9712	9166	9989	9163	10317	9513
(40,1; 60] sq.m	8338	7799	8826	8244	9049	8170	9265	8320	9278	8609
(60,1; 80] sq.m	7912	7476	8598	7823	8631	7856	8760	7790	8834	8029
> 80,1 sq.m	7880	7294	8941	8457	9422	8575	9684	8286	8971	8606
average offer price deviation	7,0%	x	5,9%	x	7,4%	x	11,1%	x	7,4%	x
<= 40 sq.m	9,4%	x	6,5%	x	6,0%	x	9,0%	x	8,5%	x
(40,1; 60] sq.m	6,9%	x	7,1%	x	10,8%	x	11,4%	x	7,8%	x
(60,1; 80] sq.m	5,8%	x	9,9%	x	9,9%	x	12,5%	x	10,0%	x
> 80,1 sq.m	8,0%	x	5,7%	x	9,9%	x	16,9%	x	4,2%	x

Source: NBP

Table 19 Average prices per square metre of housing in the secondary market in Łódź

specification	IIQ 2022		III Q 2022		IV Q 2022		I Q 2023		IIQ 2023	
	offer	trans.	offer	trans.	offer	trans.	offer	trans.	offer	trans.
average price (PLN/sq.m.)	6 974	6 652	7 164	6 887	7 203	6 384	7 373	6 579	7 526	6 366
growth (q-o-q)	99,4	107,0	102,7	103,5	100,5	92,7	102,4	103,1	102,1	96,8
growth (y-o-y)	116,0	114,7	107,2	113,4	108,0	103,7	105,1	105,9	107,9	95,7
dwelling price range	973	188	1 145	77	1 133	157	1 167	125	1 361	178
<= 4 000 PLN/sq.m	3	4	6	2	7	13	5	1	6	6
(4 001; 6 000] PLN/sq.m	206	57	202	21	244	56	231	55	241	82
(6 001; 8 000] PLN/sq.m	581	95	669	40	596	64	602	50	703	66
(8 001; 10 000] PLN/sq.m	177	31	226	11	222	17	239	12	276	15
> 10 001 PLN/sq.m	6	1	42	3	64	7	90	7	135	9
dwelling space range	973	188	1 145	77	1 133	157	1 167	125	1 361	178
<= 40 sq.m	212	67	286	33	265	77	276	45	335	57
(40,1; 60] sq.m	486	85	566	25	553	61	557	56	605	92
(60,1; 80] sq.m	166	29	170	11	190	9	201	15	238	21
> 80,1 sq.m	109	7	123	8	125	10	133	9	183	8
average price of 1 sq.m. of dwelling	6 974	6 652	7 164	6 887	7 203	6 384	7 373	6 579	7 526	6 366
<= 40 sq.m	7 332	6 873	7 483	7 268	7 544	6 835	7 693	6 832	7 983	7 043
(40,1; 60] sq.m	6 980	6 554	7 001	6 872	7 067	6 132	7 177	6 233	7 231	6 056
(60,1; 80] sq.m	6 921	6 758	7 273	7 222	7 157	5 712	7 523	6 699	7 705	6 165
> 80,1 sq.m	6 327	5 294	7 021	4 899	7 153	5 058	7 307	7 269	7 432	5 633
average offer price deviation	4,8%	x	4,0%	x	12,8%	x	12,1%	x	18,2%	x
<= 40 sq.m	6,7%	x	3,0%	x	10,4%	x	12,6%	x	13,4%	x
(40,1; 60] sq.m	6,5%	x	1,9%	x	15,3%	x	15,1%	x	19,4%	x
(60,1; 80] sq.m	2,4%	x	0,7%	x	25,3%	x	12,3%	x	25,0%	x
> 80,1 sq.m	19,5%	x	43,3%	x	41,4%	x	0,5%	x	31,9%	x

Source: NBP

Table 20 Average prices per square metre of housing in the primary market in Poznań

specification	IIQ 2022		III Q 2022		IV Q 2022		I Q 2023		IIQ 2023	
	offer	trans.	offer	trans.	offer	trans.	offer	trans.	offer	trans.
average price (PLN/sq.m.)	9 968	9 495	10 145	9 775	10 325	9 711	10 682	9 980	10 804	10 067
growth (q-o-q)	101,3	108,0	101,8	102,9	101,8	99,3	103,5	102,8	101,1	100,9
growth (y-o-y)	120,7	119,7	115,5	121,8	112,2	112,8	108,5	113,5	108,4	106,0
dwelling price range	5 201	1 134	5 313	778	4 941	845	4 705	737	5 098	1 112
<=7 000 PLN/sq.m	49	34	48	7	35	4	37	2	3	4
(7 001; 9 000] PLN/sq.m	1 714	593	1 510	300	1 273	299	1 002	250	1 125	331
(9 001; 11 000] PLN/sq.m	2 274	345	2 391	344	2 114	418	2 027	311	2 181	522
(11 001; 13 000] PLN/sq.m	768	63	975	72	1 124	74	1 029	142	1 107	189
>13 001 PLN/sq.m	396	99	389	55	395	50	610	32	682	66
dwelling space range	5 201	1 134	5 313	778	4 941	845	4 705	737	5 098	1 112
<= 40 sq.m	1076	284	1031	231	973	239	830	225	874	307
(40,1; 60] sq.m	2329	505	2476	365	2293	427	2212	334	2352	486
(60,1; 80] sq.m	1384	249	1393	135	1318	138	1302	145	1497	249
> 80,1 sq.m	412	96	413	47	357	41	361	33	375	70
average price of 1 sq.m. of dwelling	9 968	9 495	10 145	9 775	10 325	9 711	10 682	9 980	10 804	10 067
<= 40 sq.m	10 800	9 851	10 953	10 424	11 294	10 172	11 956	10 677	12 031	10 720
(40,1; 60] sq.m	9 819	9 466	10 065	9 525	10 249	9 628	10 503	9 881	10 651	9 972
(60,1; 80] sq.m	9 494	8 912	9 606	9 218	9 724	9 121	10 143	9 168	10 230	9 422
> 80,1 sq.m	10 230	10 103	10 425	10 118	10 385	9 863	10 794	9 785	11 192	10 165
average offer price deviation	5,0%	x	3,8%	x	6,3%	x	7,0%	x	7,3%	x
<= 40 sq.m	9,6%	x	5,1%	x	11,0%	x	12,0%	x	12,2%	x
(40,1; 60] sq.m	3,7%	x	5,7%	x	6,4%	x	6,3%	x	6,8%	x
(60,1; 80] sq.m	6,5%	x	4,2%	x	6,6%	x	10,6%	x	8,6%	x
> 80,1 sq.m	1,3%	x	0	x	0	x	0	x	10,1%	x

Source: NBP

Table 21 Average prices per square metre of housing in the secondary market in Poznań

specification	IIQ 2022		III Q 2022		IV Q 2022		I Q 2023		IIQ 2023	
	offer	trans.	offer	trans.	offer	trans.	offer	trans.	offer	trans.
average price (PLN/sq.m.)	9 517	8 570	9 438	8 787	9 543	8 709	9 914	8 707	9 956	8 346
growth (q-o-q)	101,2	105,5	99,2	102,5	101,1	99,1	103,9	100,0	100,4	95,9
growth (y-o-y)	117,0	115,4	113,4	114,5	106,6	110,8	105,4	107,2	104,6	97,4
dwelling price range	1069	1259	1 104	1 031	858	949	858	706	1 024	466
<=7 000 PLN/sq.m	67	218	87	168	73	190	67	133	62	98
(7 001; 9 000] PLN/sq.m	433	570	455	429	344	381	291	302	356	234
(9 001; 11 000] PLN/sq.m	367	370	353	318	262	250	268	194	334	102
(11 001; 13 000] PLN/sq.m	136	75	141	84	121	101	158	55	186	24
>13 001 PLN/sq.m	66	26	68	32	58	27	74	22	86	8
dwelling space range	1069	1259	1 104	1 031	858	949	858	706	1 024	466
<= 40 sq.m	214	404	240	328	175	289	174	257	218	180
(40,1; 60] sq.m	517	560	503	474	382	428	354	308	423	193
(60,1; 80] sq.m	251	216	269	152	212	168	242	109	278	75
> 80,1 sq.m	87	79	92	77	89	64	88	32	105	18
average price of 1 sq.m. of dwelling	9517	8570	9 438	8 787	9 543	8 709	9 914	8 707	9 956	8 346
<= 40 sq.m	10493	9232	10 473	9 443	10 411	9 515	11 029	9 320	10 946	9 090
(40,1; 60] sq.m	9496	8359	9 336	8 727	9 441	8 490	9 808	8 491	9 776	8 109
(60,1; 80] sq.m	8852	7832	8 994	8 031	8 999	8 112	9 333	7 912	9 422	7 147
> 80,1 sq.m	9158	8700	8 595	7 859	9 567	8 098	9 730	8 575	10 040	8 449
average offer price deviation	11,0%	x	7,4%	x	9,6%	x	13,9%	x	19,3%	x
<= 40 sq.m	13,7%	x	10,9%	x	9,4%	x	18,3%	x	20,4%	x
(40,1; 60] sq.m	13,6%	x	7,0%	x	11,2%	x	15,5%	x	20,6%	x
(60,1; 80] sq.m	13,0%	x	12,0%	x	10,9%	x	18,0%	x	31,8%	x
> 80,1 sq.m	5,3%	x	9,4%	x	18,1%	x	13,5%	x	18,8%	x

Source: NBP

Table 22 Average prices per square metre of housing in the primary market in Warsaw

specification	IIQ 2022		III Q 2022		IV Q 2022		I Q 2023		IIQ 2023	
	offer	trans.	offer	trans.	offer	trans.	offer	trans.	offer	trans.
average price (PLN/sq.m.)	12 895	12 343	12 912	12 727	13 009	12 836	13 302	12 818	13 713	13 135
growth (q-o-q)	103,0	99,7	100,1	103,1	100,8	100,9	102,2	99,9	103,1	102,5
growth (y-o-y)	113,5	115,4	113,2	115,6	110,1	110,5	106,3	103,5	106,3	106,4
dwelling price range	9 640	2 220	15 481	1 768	12 833	1 849	12 256	2 348	10 057	3 549
<=9 500 PLN/sq.m	1 145	279	1 145	163	924	135	867	169	549	257
(9 501; 11 500] PLN/sq.m	2 261	671	3 355	440	2 695	476	2 245	588	1 647	732
(11 501; 13 500] PLN/sq.m	2 965	677	5 886	621	4 865	671	4 538	871	3 741	1 225
(13 501; 15 500] PLN/sq.m	1 762	333	3 254	309	2 635	316	2 734	407	2 054	768
>15 501 PLN/sq.m	1 507	260	1 841	235	1 714	251	1 872	313	2 066	567
dwelling space range	9 640	2 220	15 481	1 768	12 833	1 849	12 256	2 348	10 057	3 549
<= 40 sq.m	2 065	671	3 448	593	2 874	583	2 648	747	2 070	973
(40,1; 60] sq.m	4 122	894	6 664	706	5 469	771	5 214	942	4 340	1 499
(60,1; 80] sq.m	2 431	443	3 573	289	2 974	319	2 971	454	2 414	786
> 80,1 sq.m	1 022	212	1 796	180	1 516	176	1 423	205	1 233	291
average price of 1 sq.m. of dwelling	12 895	12 343	12 912	12 727	13 009	12 836	13 302	12 818	13 713	13 135
<= 40 sq.m	14 220	12 718	13 947	12 759	14 023	13 517	14 344	13 341	14 654	14 247
(40,1; 60] sq.m	12 759	12 191	12 779	12 705	12 859	12 587	13 107	12 615	13 634	12 733
(60,1; 80] sq.m	11 790	11 884	12 030	12 233	12 133	11 975	12 484	12 137	12 935	12 440
> 80,1 sq.m	13 395	12 757	13 174	13 495	13 348	13 231	13 780	13 354	13 936	13 374
average offer price deviation	4,5%	x	1,5%	x	1,3%	x	3,8%	x	4,4%	x
<= 40 sq.m	11,8%	x	9,3%	x	3,7%	x	7,5%	x	2,9%	x
(40,1; 60] sq.m	4,7%	x	0,6%	x	2,2%	x	3,9%	x	7,1%	x
(60,1; 80] sq.m	-0,8%	x	-1,7%	x	1,3%	x	2,9%	x	4,0%	x
> 80,1 sq.m	5,0%	x	-2,4%	x	0,9%	x	3,2%	x	4,2%	x

Source: NBP

Table 23 Average prices per square metre of housing in the secondary market in Warsaw

specification	IIQ 2022		III Q 2022		IV Q 2022		I Q 2023		IIQ 2023	
	offer	trans.	offer	trans.	offer	trans.	offer	trans.	offer	trans.
average price (PLN/sq.m.)	14 073	12 714	13 499	12 916	13 501	12 585	13 802	11 916	14 316	12 199
growth (q-o-q)	105,3	103,8	95,9	101,6	100,0	97,4	102,2	94,7	103,7	102,4
growth (y-o-y)	112,9	113,3	104,2	111,5	101,5	106,3	103,3	97,3	101,7	95,9
dwelling price range	1 719	3 932	1 631	3 331	1 391	1 542	1 191	527	1 116	971
<=9 500 PLN/sq.m	91	443	99	343	88	158	64	104	59	122
(9 501; 11 500] PLN/sq.m	362	1 083	377	853	374	460	284	169	227	330
(11 001; 13 500] PLN/sq.m	402	1 053	443	908	334	438	305	116	264	259
(13 501; 15 500] PLN/sq.m	336	724	328	625	255	254	219	82	208	144
>15 501 PLN/sq.m	528	629	384	602	340	232	319	56	358	116
dwelling space range	1 719	3 932	1 631	3 331	1 391	1 542	1 191	527	1 116	971
<= 40 sq.m	312	1 204	324	1 036	245	565	215	178	176	320
(40,1; 60] sq.m	730	1 811	724	1 495	594	644	526	228	451	412
(60,1; 80] sq.m	366	596	380	514	348	232	295	94	284	172
> 80,1 sq.m	311	321	203	286	204	101	155	27	205	67
average price of 1 sq.m. of dwelling	14 073	12 714	13 499	12 916	13 501	12 585	13 802	11 916	14 316	12 199
<= 40 sq.m	15 624	13 209	14 934	13 326	15 049	12 964	15 182	13 087	15 604	13 091
(40,1; 60] sq.m	13 586	12 226	13 046	12 398	12 981	12 059	13 424	11 397	13 516	11 645
(60,1; 80] sq.m	13 374	12 705	13 076	12 672	12 901	12 540	13 424	10 666	13 621	11 601
> 80,1 sq.m	14 484	13 628	13 612	14 573	14 180	13 934	13 893	12 926	15 929	12 876
average offer price deviation	10,7%	x	4,5%	x	7,3%	x	15,8%	x	17,4%	x
<= 40 sq.m	18,3%	x	12,1%	x	16,1%	x	16,0%	x	19,2%	x
(40,1; 60] sq.m	11,1%	x	5,2%	x	7,6%	x	17,8%	x	16,1%	x
(60,1; 80] sq.m	5,3%	x	3,2%	x	2,9%	x	25,9%	x	17,4%	x
> 80,1 sq.m	6,3%	x	-6,6%	x	1,8%	x	7,5%	x	23,7%	x

Source: NBP

Table 24 Average prices per square metre of housing in the primary market in Wrocław

specification	IIQ 2022		III Q 2022		IV Q 2022		I Q 2023		IIQ 2023	
	offer	trans.	offer	trans.	offer	trans.	offer	trans.	offer	trans.
average price (PLN/sq.m.)	10 789	10 338	10 963	10 520	11 384	10 453	11 948	11 112	12 201	11 397
growth (q-o-q)	104,2	103,1	101,6	101,8	103,8	99,4	105,0	106,3	102,1	102,6
growth (y-o-y)	114,9	120,5	110,0	118,3	111,7	110,0	115,4	110,8	113,1	110,2
dwelling price range	4 501	1 123	5 333	874	4 720	742	4 248	954	3 909	1 350
<=7 000 PLN/sq.m	67	21	43	5	26	11	19	7	11	11
(7 001; 9 000] PLN/sq.m	1 170	332	969	225	793	212	603	202	287	203
(9 001; 11 000] PLN/sq.m	1 301	404	1 909	325	1 267	247	996	309	1 065	459
(11 001; 13 000] PLN/sq.m	1 042	226	1 480	213	1 625	180	1 470	237	1 421	386
>13 001 PLN/sq.m	921	140	932	106	1 009	92	1 160	199	1 125	291
dwelling space range	4 501	1 123	5 333	874	4 720	742	4 248	954	3 909	1 350
<= 40 sq.m	848	307	901	287	393	214	742	255	689	244
(40,1; 60] sq.m	2024	504	2570	404	1637	323	2011	442	1852	681
(60,1; 80] sq.m	1236	239	1397	134	1918	155	1074	203	1015	318
> 80,1 sq.m	393	73	465	49	772	50	421	54	353	107
average price of 1 sq.m. of dwelling	10 789	10 338	10 963	10 520	11 384	10 453	11 948	11 112	12 201	11 397
<= 40 sq.m	12602	11389	12607	11367	14408	11667	14778	12913	14770	13456
(40,1; 60] sq.m	10532	10097	10801	10143	11562	10050	11589	10608	11840	11172
(60,1; 80] sq.m	10075	9585	10318	9707	10525	9801	10646	10153	11131	10153
> 80,1 sq.m	10444	10042	10608	10883	11604	9884	11999	10333	12159	11825
average offer price deviation	4,4%	x	4,2%	x	8,9%	x	7,5%	x	7,1%	x
<= 40 sq.m	10,6%	x	10,9%	x	23,5%	x	14,4%	x	9,8%	x
(40,1; 60] sq.m	4,3%	x	6,5%	x	15,0%	x	9,2%	x	6,0%	x
(60,1; 80] sq.m	5,1%	x	6,3%	x	7,4%	x	4,9%	x	9,6%	x
> 80,1 sq.m	4,0%	x	-2,5%	x	17,4%	x	16,1%	x	2,8%	x

Source: NBP

Table 25 Average prices per square metre of housing in the secondary market in Wrocław

specification	IIQ 2022		III Q 2022		IV Q 2022		I Q 2023		IIQ 2023	
	offer	trans.	offer	trans.	offer	trans.	offer	trans.	offer	trans.
average price (PLN/sq.m.)	10 453	9 686	10 591	10 178	10 672	10 114	10 978	9 980	11 296	10 234
growth (q-o-q)	103,8	105,3	101,3	105,1	100,8	99,4	102,9	98,7	102,9	102,5
growth (y-o-y)	116,4	113,8	115,6	118,9	114,4	113,0	109,0	108,5	108,1	105,7
dwelling price range	2 058	933	1 374	1 030	2 504	760	2 440	742	2 281	967
<=7 000 PLN/sq.m	41	76	32	54	54	49	26	58	28	62
(7 001; 9 000] PLN/sq.m	516	302	304	297	542	193	475	197	398	250
(9 001; 11 000] PLN/sq.m	832	334	566	355	1 032	290	979	275	883	330
(11 001; 13 000] PLN/sq.m	439	161	302	210	520	159	555	139	540	216
>13 001 PLN/sq.m	230	60	170	114	356	69	405	73	432	109
dwelling space range	2 058	933	1 374	1 029	2 504	760	2 440	742	2 281	967
<= 40 sq.m	285	239	194	298	336	202	309	193	314	233
(40,1; 60] sq.m	887	457	578	487	1113	387	1103	351	961	480
(60,1; 80] sq.m	630	186	396	198	729	125	733	148	667	192
> 80,1 sq.m	256	51	206	46	326	46	295	50	339	62
average price of 1 sq.m. of dwelling	10 453	9 686	10 591	10 178	10 672	10 114	10 978	9 980	11 296	10 234
<= 40 sq.m	12 077	10 625	12 157	11 138	12 449	10 960	12 821	11 248	13 080	11 199
(40,1; 60] sq.m	10 527	9 667	10 587	9 890	10 711	9 853	11 052	9 792	11 406	10 071
(60,1; 80] sq.m	9 985	8 791	10 145	9 652	10 095	9 673	10 498	8 959	10 618	9 622
> 80,1 sq.m	9 542	8 721	9 988	9 264	9 995	9 796	9 965	9 433	10 662	9 767
average offer price deviation	7,9%	x	4,1%	x	5,5%	x	10,0%	x	10,4%	x
<= 40 sq.m	13,7%	x	9,2%	x	13,6%	x	14,0%	x	16,8%	x
(40,1; 60] sq.m	8,9%	x	7,0%	x	8,7%	x	12,9%	x	13,3%	x
(60,1; 80] sq.m	13,6%	x	5,1%	x	4,4%	x	17,2%	x	10,4%	x
> 80,1 sq.m	9,4%	x	7,8%	x	2,0%	x	5,6%	x	9,2%	x

Source: NBP

7. Analysis of the profitability of housing investment in selected cities in Poland in 2023 Q2³⁶

Only minor changes in market interest rates and the profitability of investment in rental housing were observed in 2023 Q2. However, this does not mean that the upward trend which started in the second half of 2022 was stopped. Rather, the changes result from negative changes in the transaction prices of rental housing in relations to the level of rents. A slight improvement in the financing terms, which is of great importance for investment in housing leveraged with external capital in the form of mortgage loans, may suggest that the slowdown seen in 2023 Q2 was mainly caused by the situation in the housing market.

In 2023 Q2, the capitalisation rate in Warsaw reached 6.5%, marking a slight increase of 0.7% q/q and a 22.2% rise on 2022 Q2. The average capitalisation rate in the group of 6 cities amounted to 6.4%. It is 6.5% more than in 2022 Q2, but 3.0% less than in 2023 Q1, when it dropped 3.0% on 2022 Q4. As far as the other analysed group of cities is concerned, the average capitalisation rate came to 6.1% in 2023 Q2. It means it increased by 6.9% y/y, but dropped 1.4% on 2023 Q1. The data lead to a conclusion that 2023 Q2 saw a certain correction of the capitalisation rates of housing investment. It can be seen that the capitalisation rates have come down to almost reach the average levels from four quarters in the group of 6 cities and the group of other cities. However, a big potential for changes can be seen in the former group, which may imply a greater volatility of the capitalisation rate in the coming quarters. Yet, the analysis of the other city group paints a different picture. In their case, the room for potential change is clearly narrowing, which may indicate that the changes will be much smaller. In Warsaw, the adjustment of the capitalisation rate moved away from the high levels, while remaining above the annual averages. At the same time, there is plenty of room for potential volatility.

The changes that occurred in the market during the analysed quarter also affected the growth in the profitability of housing investment measured by ROE. Assuming an LTV=0%, ROE on housing investment in 2023 Q2 reached 3.9% in Warsaw, 3.8% in the group of 6 cities and 3.5% in the group of other cities. This means that ROE increased by 34.5%, 9.4% and 10.3%, respectively, on 2022 Q2. At the same time, ROE on unleveraged housing investment grew in Warsaw by 0.9% compared to 2023 Q1, but decreased by 4.3% in the group of 6 cities and by 2.1% q/q in the group of other cities. The levels of ROE on investments with an LTV=0% changed in a very similar way as the capitalisation rates. This means a certain slowdown in profitability growth, which is determined by changes in estimated transaction prices and home rents in all the analysed cities.

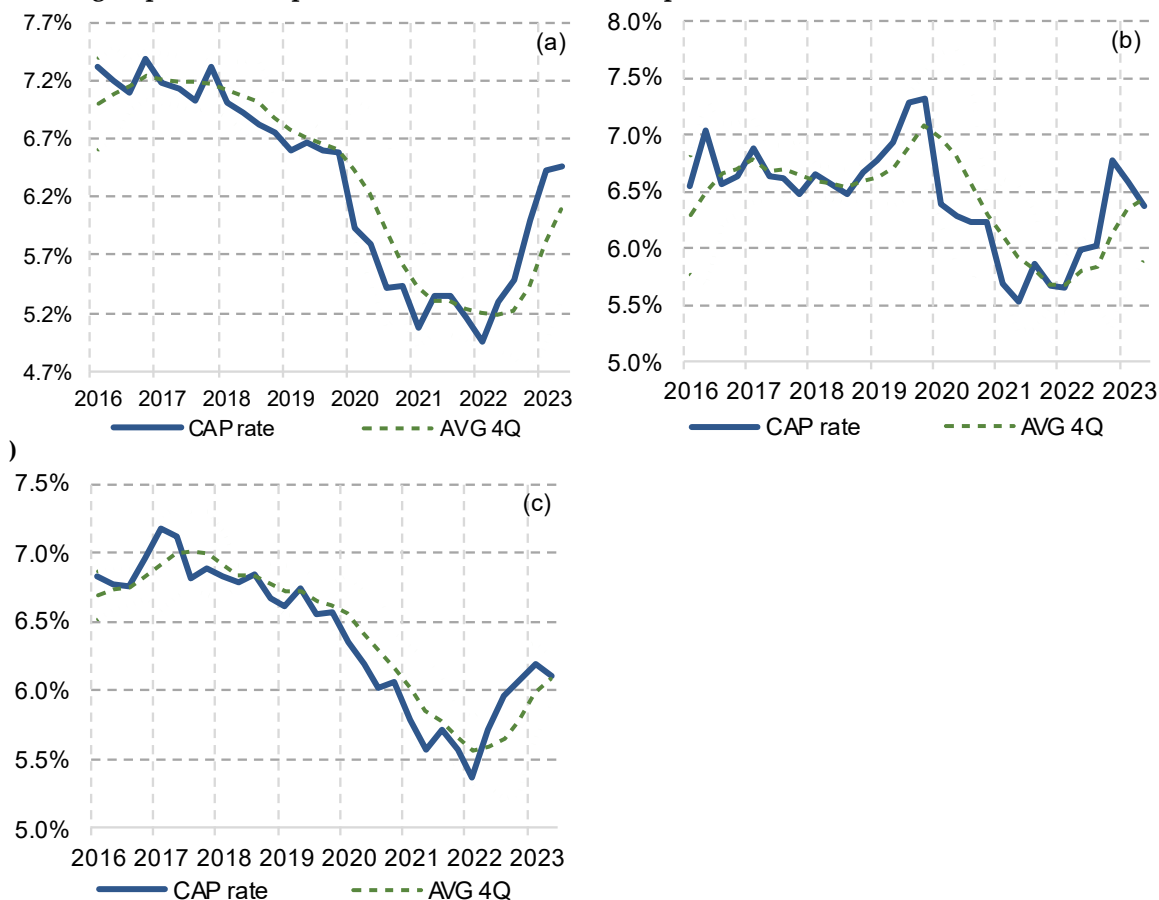
³⁶ A simplified analysis of the profitability of investment in rental housing by private individuals taxable with lump-sum tax. The profitability of this type of investment in a group of six cities (Gdansk, Gdynia, Krakow, Lodz, Poznan and Wroclaw) and in a group of other cities (Białystok, Bydgoszcz, Katowice, Lublin, Olsztyn, Rzeszow and Szczecin) was analysed. Three voivodeship capitals (Opole, Kielce and Zielona Góra) were left out due to an insufficient sample of home rental transactions. Warsaw's real estate market is analysed and presented separately due to its specificity. The profitability of an investment in rental housing was determined by calculating the capitalization rate and ROE (Return on Equity). The capitalization rate is calculated as the ratio of the annual rental income (based on weighted average rates in PLN/square meter according to BARN surveys for an average dwelling) to the price of a dwelling per square meter (BARN survey data). ROE was calculated as net profit in relation to equity capital employed. At the same time, the estimated net operating income was reduced by the estimated total operating expenses (estimated separately for each of the analyzed cities on the basis of OLX Group data verified by expert opinions). The net operating profit estimated in this way serves as the basis for calculating the EBITDA. In this case, different possible leverage levels were assumed: cash-financed investment (LTV 0%) and loan-financed investment, for which LTV is 50%, and highly leveraged investment with LTV 80%. In order to calculate financial profit, we took into account rental income and deducted a lump-sum tax of 8.5%, loan interest payments as well as depreciation of the building at the rate of 1.5% of its value (two general overhauls over a period of 100 years were assumed). Tax is paid on the entire rental income, before expenses. The transaction price per square meter of an average dwelling was determined by summing 50% of the average transaction price in the primary and secondary markets based on transaction-weighted average prices according to the BARN survey. The price in the primary market was increased by the cost of finishing according to the Sekocenbud data. Beginning from 2022 Q4, the cost of home finishing has been based on Sekocenbud prices. The underlying assumptions include a PLN-denominated loan for 25 years, with equal instalments payable 4 times a year and a 95% occupancy rate.

Yet, in 2023 Q2 the situation in housing investment with a leverage level of LTV=50% was different. In this case, the ROE ratios remained below zero. In Warsaw, ROE reached -0.8%, -1.0% in the group of 6 cities and -1.5% in the group of other cities. This means a slight increase of 0.2 pp. on 2023 Q1 and 1.0 pp. y/y in Warsaw. In the group of 6 cities in turn, ROE dropped 0.2 pp. q/q and 0.4 pp. y/y. ROE on investments with an LTV=50% did not change in practice in the group of other cities compared to 2023 Q1, as the difference was a mere 0.01 pp. However, the ratio decreased by 0.4 pp. y/y. In this case, a certain slowdown can be seen in the profitability rates on new housing investments started in the second half of 2022. While ROE declined in the group of 6 cities, it cannot be inferred on that basis that the upward trend will not grow stronger in the future periods. This is supported by the cost of mortgages, which did not change in 2023 Q2 compared to the preceding quarter. The cost is at the same time lower than in the second half of 2022. What is more, the cost of a new mortgage decreased by 0.2% in 2023 Q2 compared to the previous quarter. In this context, we may conclude that the negative changes in the profitability of investments with a leverage level of LTV=50% are mainly driven by the situation in the property market rather than the financing conditions.

Similar conclusions can be drawn from the analysis of the profitability of housing investment leveraged at LTV=80%. In this case, ROE in 2023 Q2 amounted to -14.9% in Warsaw, -15.5% in the group of 6 cities and -16.8% in the group of other Polish cities. This means that it grew 0.9 pp. on 2023 Q1 and 0.8 pp. on 2022 Q2 in Warsaw. In the group of 6 cities, ROE decreased 0.2 pp. q/q and 2.6 pp. y/y. The profitability ratio grew 0.3 pp. on the preceding quarter, but dropped 2.6 pp. on 2022 Q2.

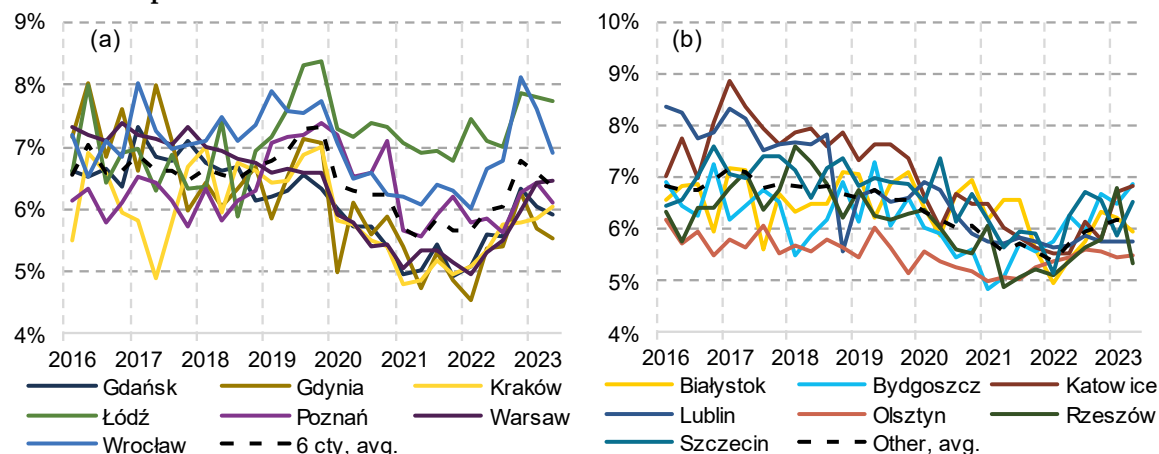
The analysis of profitability of housing investment in 2023 Q2 leads to one key conclusion. The slowdown in the capitalisation rates and profitability levels of housing investments was by and large caused by a rapid decrease in rents and a slower growth in transaction prices of dwellings. As a result, rental income and net profit decreased. While the financing terms improved a little, namely the cost of the stock of loans and the cost of new residential mortgage loans, the upward trend of profitability slowed down a little, regardless of the leverage level.

Figure 81 Estimated capitalisation rate and its annual moving average for Warsaw (panel a) and aggregated for the group of 6 cities (panel b) and other Polish cities (panel c)



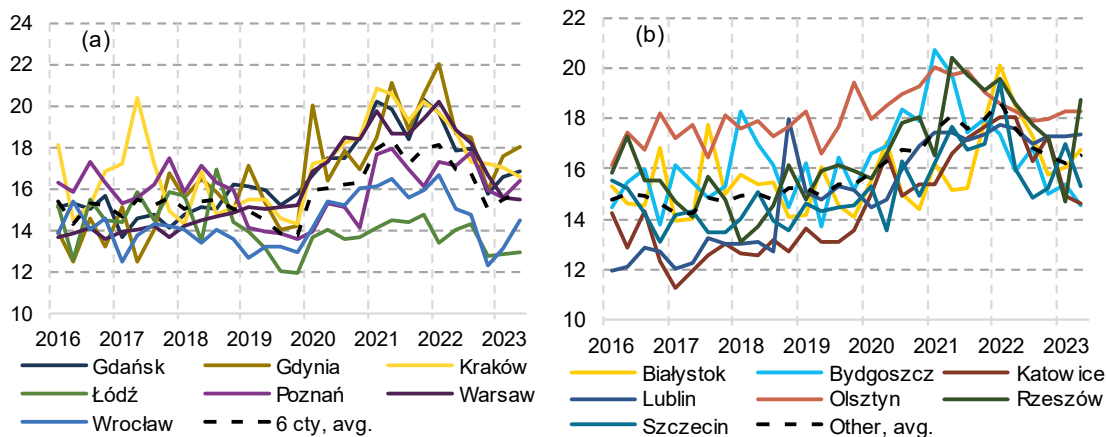
Source: NBP

Figure 82 Estimated capitalisation rate in the group of 6 cities and in Warsaw (panel a) and in the group of other cities (panel b)



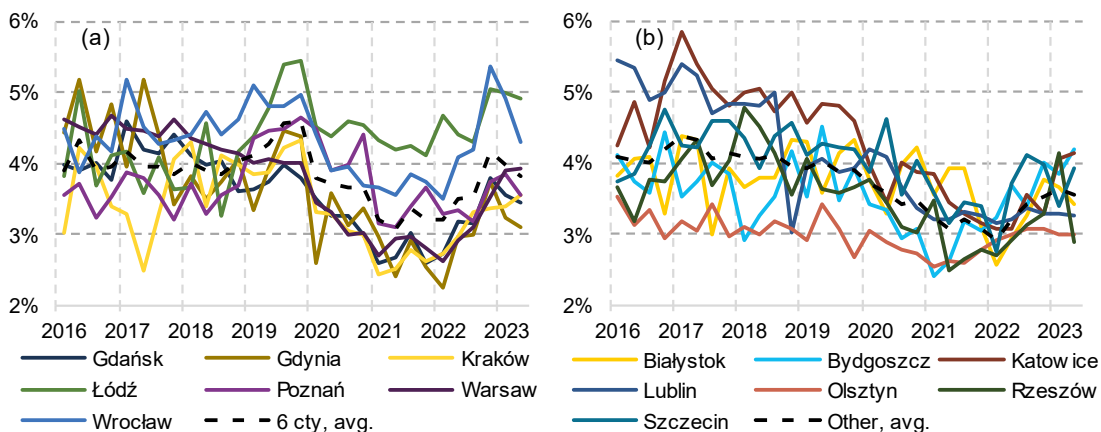
Source: NBP

Figure 83 Estimated timing of payback from investment in the group of 6 cities and in Warsaw (panel a) and in the group of other cities (panel b)



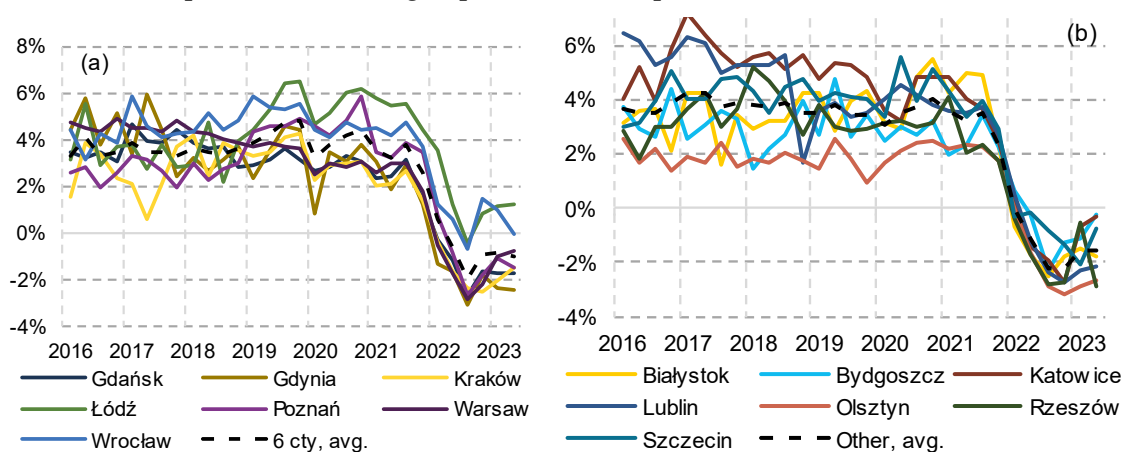
Source: NBP

Figure 84 Return on equity (ROE, in %) on a fully cash-funded housing investment (LTV = 0%) in selected cities



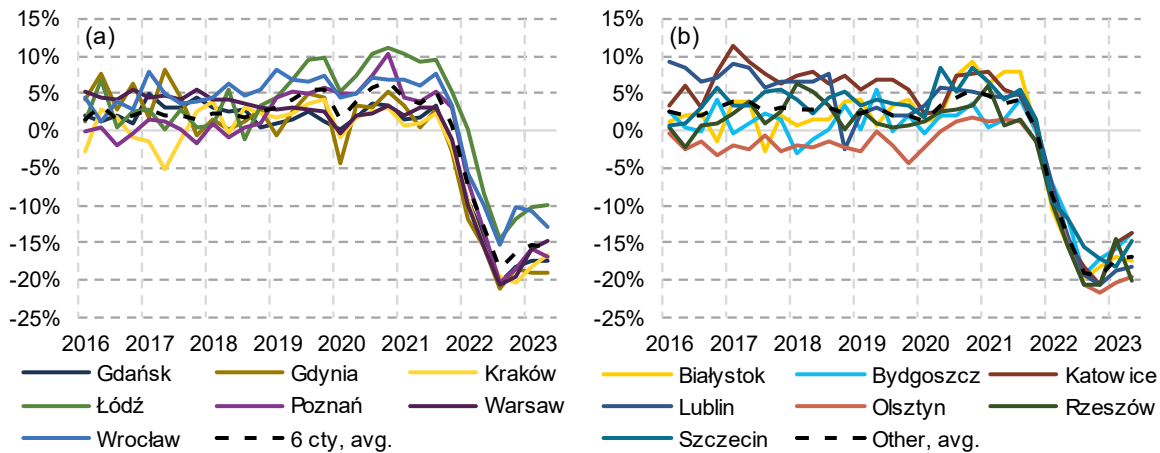
Source: NBP

Figure 85 Return on Equity (ROE, %) on leveraged housing investment (LTV = 50%) in the group of 6 cities, Warsaw (panel a) and in the group of other cities (panel b)



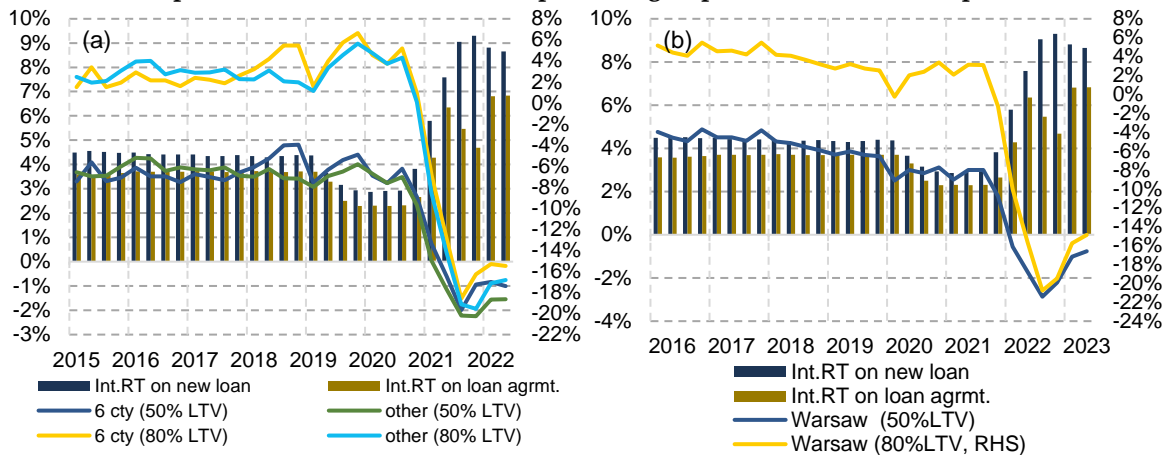
Source: NBP

Figure 86 Return on Equity (ROE, %) on leveraged housing investment (LTV = 80%) in the group of 6 cities, Warsaw (panel a) and in the group of other cities (panel b)



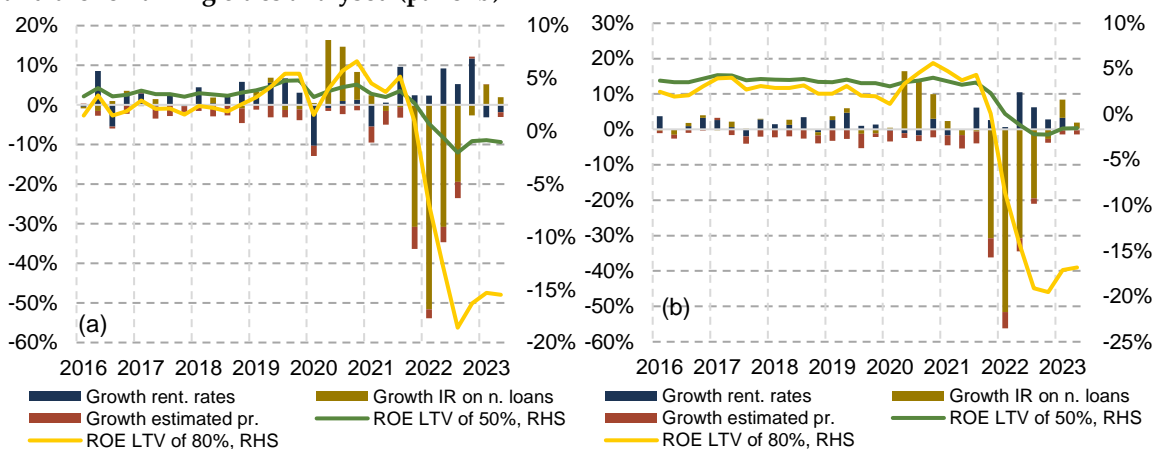
Source: NBP

Figure 87 Comparison of the return on equity (ROE, in %) on a housing investment at selected levels of the LTV ratio (panel a) with loan interest rate, panel a – group of 6 and other cities, panel b – Warsaw



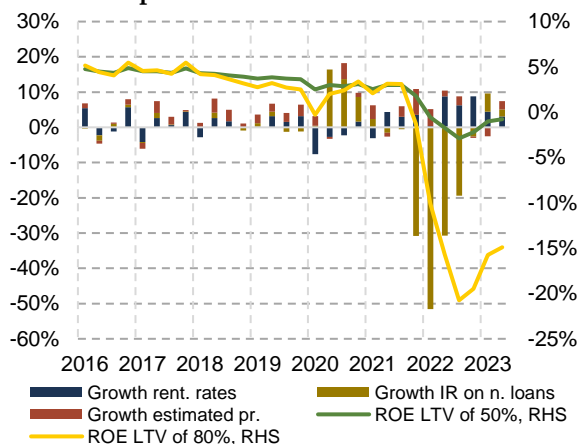
Source: NBP

Figure 88 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 rent rates in the group of 6 cities (panel a) and the remaining cities analysed (panel b)



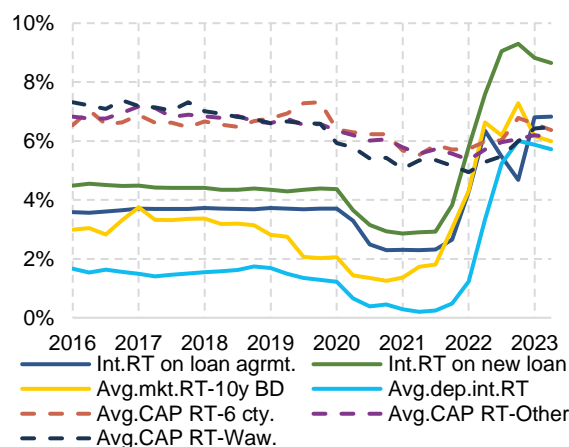
Source: NBP

Figure 89 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 rent rates in Warsaw



Source: NBP

Figure 90 Comparison of interest rates on bonds, deposits and costs of residential mortgage loans to the average capitalisation of an investment in housing for rental



Source: NBP

8. Analysis of the standing of developers, the residential and non-residential construction industry and related entities

Analysis of the financial standing of developers³⁷

According to the financial data presented in F01 reports until June 2023, developers maintained a lower level of housing production in 2023 Q2. Supply of new housing decreased further, in spite of a marked uptick in demand in the housing market, including in the number of buyers financing home purchases with a bank loan. The significantly lower number of dwellings started than the number of completed dwellings (by 65% in 2022 Q3, 107% in 2022 Q4, 31% in 2023 Q1 and by 37% in 2023 Q2, respectively) is a confirmation of the low level of developers' investment activity for the fourth quarter in a row. The q/q increase in the number of dwellings for sale and rental whose construction started in April-June 2023 was small (5%) and not enough to balance growing demand with appropriate supply. The small number of new investment projects was partly due to developers being cautious in increasing new supply and starting new projects in order to maintain: the seller's market, the level of home prices and good sales margins. What also contributed to the small scope of new production was varied standing of individual developers. Entities with an established, stable financial position efficiently launched projects, adjusting supply to the growing demand supported by bank loans. Developers with a weaker standing and smaller capacity focused on selling homes in ongoing investment projects, finalising construction and staying profitable. Some developers experienced problems with restoring production capacity as suggested by a 40% drop y/y in the number of building permits issued in 2023 Q2 and a smaller share of land reserve than in the previous quarters, both within the group of large and of small developers. The continued improvement in home sales in 2023 Q2 is confirmed by the number of home sale contracts published by the several housing developers listed on the Catalyst market and the

³⁷ The calculations and the conclusions presented in this edition of Information are primarily based on data published in F01 reports submitted to Statistics Poland by two groups of companies: small companies with 9-49 staff (data available on a semi-annual basis until the end of the first half of 2023) and bigger companies with over 49 staff (data available on a quarterly basis until 2023 Q3), whose business is the development of building projects (PKD 41.10). The review of the financial statements of the developers listed on the Warsaw Stock Exchange is based on data for the period until 2023 Q1.

Stock Exchange (sale of 6,026 housing units; 34% y/y more and 13% q/q more, respectively). Demand in 2023 Q2 was underpinned by the stabilisation of interest rates and expectation of rate cuts, the relaxation of creditworthiness assessment criteria by the Polish Financial Supervision Authority and a bigger increase in wages than in home prices. The announcement of the launch of the “2% Safe Mortgage” programme was also a factor encouraging creditworthy individuals who had been waiting for a decrease in home prices to purchase a dwelling.

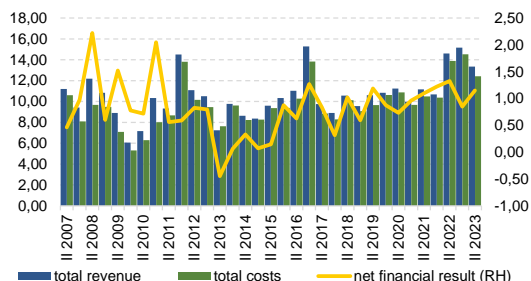
The analysis of the financial data of large developers (with more than 49 staff) available until June 2023 showed that their economic situation was sound, with a slight improvement in profitability. In 2023 Q2, the group completed fewer dwellings, scaled down work in progress and had a slightly weaker but still good financial liquidity. Their liquidity ratios improved, net profits increased while the stock of completed dwellings shrunk. They continued to increase their bank debt and increased investment outlays. The stabilisation of construction costs and growing sales led to a slight improvement in financial performance. At the end of June 2023, 72% of large developers reported a net profit, compared to 66% in the preceding quarter and 74% in 2022 Q2. A bigger increase in revenues than in costs enabled them to achieve more satisfying profitability ratios (17.9% ROS, 4.4% ROE and 2.5% ROA in 2023 Q2 vs. 11.1% ROS, 2.2% ROE and 1.5% ROA in 2023 Q1; and 8.9% ROS, 3.3% ROE and 1.7% ROA in 2022 Q2). Productivity improved while the average headcount decreased. The main reason for the increase in fixed assets was a growth in expenditure on fixed assets, which confirms the good financial standing of some of the large developers. In 2023 Q2, compared to 2022 Q2, the share of all the components of current assets decreased, with work in progress decreasing the most (from 36% to 28%), followed by finished dwellings, inventory of materials, land reserves and cash. Halting new projects helped maintain a low level of trade payables. The recovery in demand enabled developers to sell off finished dwellings, which shows that large developers had no major inventory turnover problems. The average inventory turnover cycle reduced to 188 days. The predominant source of financing was equity (56% of total liabilities). The debt and assets to equity ratios remained positive, even though the latter worsened as a result of increased expenditure on fixed assets. Bank loans increased (to 12% of total liabilities in 2023 Q2 vs. 6% in 2023 Q1), which confirms the good standing of large developers, in the opinion of the banks, and a recovery in the housing market. The level of operating expenses financed with bank loans increased at a time of lower income from prepayments by home buyers. Debt resulting from debt securities and bonds issued by the developers listed on the Catalyst market declined further. The short-term liabilities settlement period became slightly longer (to 188 days) and the receivables collection period extended to 90 days.

According to the financial accounts until March 2023, the dozen or so developers listed on the WSE maintained a high share of inventories in total assets, which confirms the substantial level of their production in progress and a high production capacity. In 2023 Q1, the number of dwellings handed over to the buyers decreased. This group of developers maintained the best operating expense ratio of the three developer groups and the shortest receivables collection period (41 days). Positive cash flows from operating activities and net cash flows point to the sound standing of these entities. A drop in the share of payables to contractors (to 18% of total liabilities) and a rise in the share of equity to 45% improved the financial standing. The share of home buyers' prepayments virtually did not change.

Small developers (with 9 to 49 staff) reported in their financial statements for the first half of 2023 a growing and high level of work in progress, a low but stable level of completed dwellings and a small decrease in land reserves and cash. A decrease in the share of equity (to 36% of total liabilities) and an increase in the share of external debt, mainly bank loans (to 23%) resulted in a worse debt to equity ratio, financial liabilities to equity

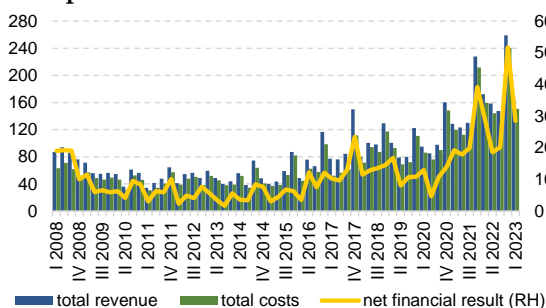
ratio and liquidity ratios. The ratios were low but safe in the first half of 2023. The financial standing of developers in the category of small developers varied. The operating expense ratio improved (to 0.89), but was still worse than in the other developer categories.

Figure 91 Economic indicators of developers with 9-49 staff



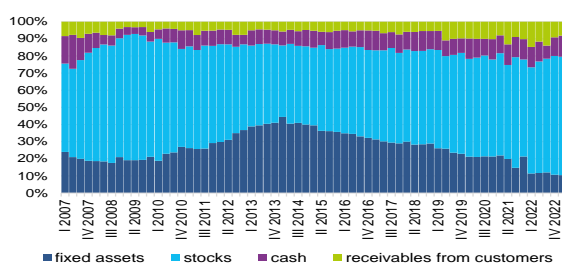
Source: NBP, based on Statistics Poland (F01)

Figure 93 Economic indicators of WSE-listed developers



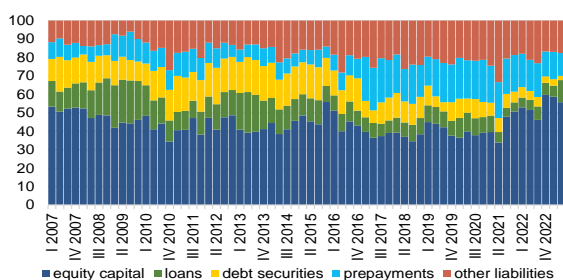
Source: NBP, based on Quant Research sp. z o.o.

Figure 95 Structure of assets of WSE-listed developers



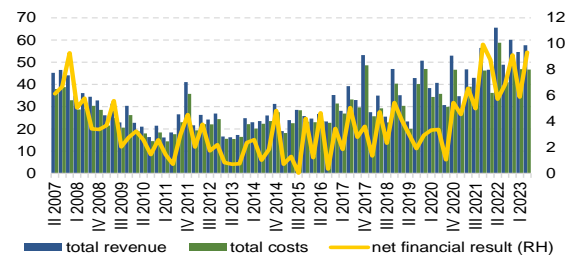
Source: NBP, based on Quant Research sp. z o.o.

Figure 97 Structure of liabilities of developers with more than 49 staff



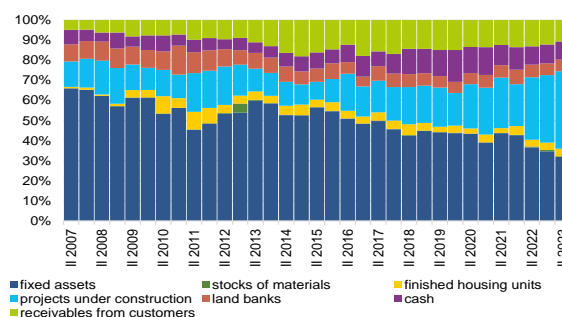
Source: NBP, based on Statistics Poland (F01)

Figure 92 Economic indicators of developers with more than 49 staff



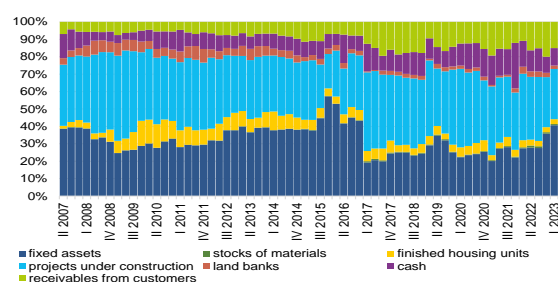
Source: NBP, based on Statistics Poland (F01)

Figure 94 Structure of assets of developers with 9-49 staff



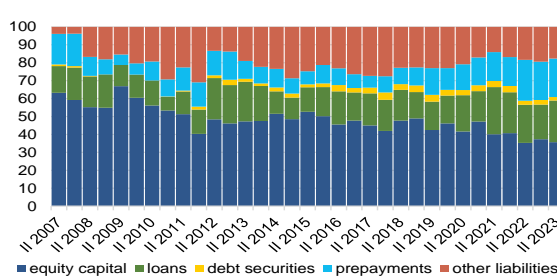
Source: NBP, based on Statistics Poland (F01)

Figure 96 Structure of assets of developers with more than 49 staff



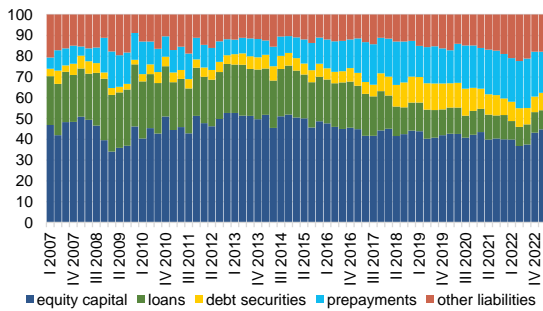
Source: NBP, based on Statistics Poland (F01)

Figure 98 Structure of liabilities of developers with 9-49 staff



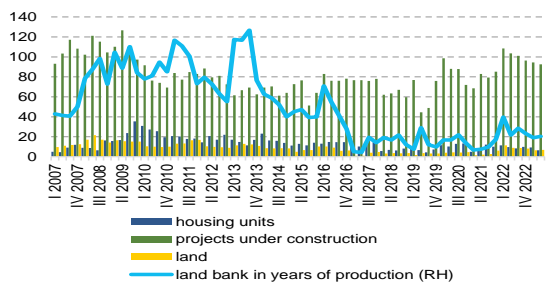
Source: NBP, based on Statistics Poland (F01)

Figure 99 Structure of liabilities of WSE-listed developers



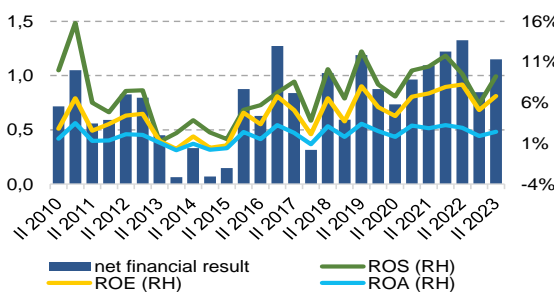
Source: NBP, based on Quant Research sp. z o.o.

Figure 101 Situation of developers with more than 49 staff



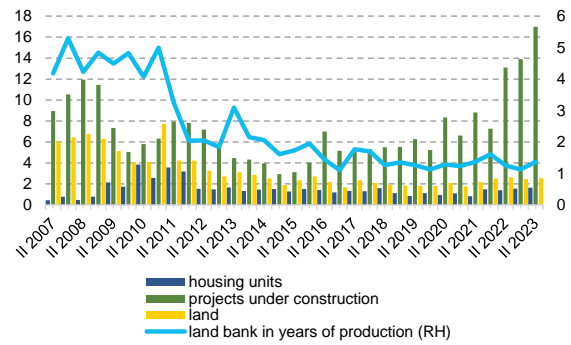
Source: NBP, based on Statistics Poland (F01)

Figure 103 Profitability of operations of developers with 9-49 staff



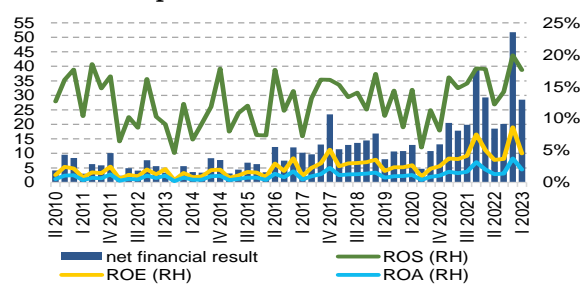
Source: NBP, based on Statistics Poland (F01)

Figure 100 Situation of developers with 9-49 staff



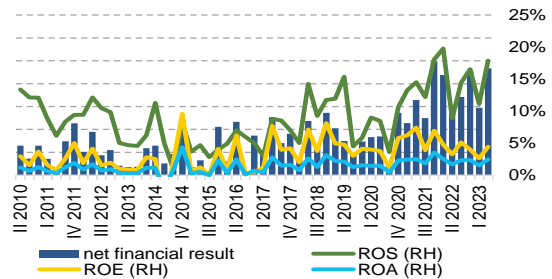
Source: NBP, based on Statistics Poland (F01)

Figure 102 Profitability of operations of WSE-listed developers



Source: NBP, based on Quant Research sp. z o.o.

Figure 104 Profitability of operations of developers with more than 49 staff



Source: NBP, based on Statistics Poland (F01)

Analysis of the financial situation of residential and non-residential construction companies³⁸

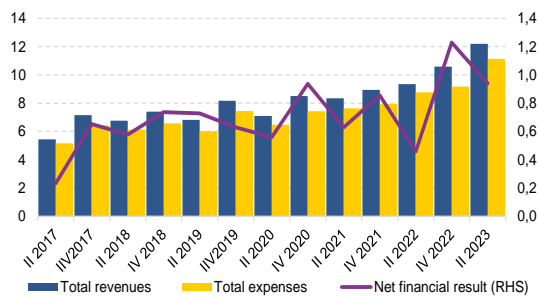
According to data published by Statistics Poland, in 2023 Q2 the construction industry reported an improvement in economic indicators, including short-term forecasts. A review of financial data published by larger construction companies (with more than 49 staff) in their F-01 reports showed a decrease in total revenues by 12%, total expenses by 10% and net profit by 27%, which drove the sales margin down by 2 pp. (11.8%). The upward pressure on prices of own services decreased owing to the smaller growth in the prices of building materials. The negative impact of the growing share of payroll expenses intensified. The companies were highly diversified in terms of return on sales. They reported an increase in the share of receivables in total assets to 37% vs. 36% in 2022 Q2, 32% in 2021 Q2 and 30% in 2020 Q2, which led to the extension of the receivables collection cycle to 95 days. The value of production in progress and finished works in 2023 Q2 was similar to the values reported for one year. As a result of normalisation of the situation in the building materials market and a lower activity in the residential and non-residential construction industry, the share of materials inventory decreased. Return on Equity stayed at 2.9% for a second consecutive quarter, vs. 4.3% in 2022 Q2. External capital remained the predominant source of funding for larger construction companies (53% of total liabilities). Liabilities to contractors went up 8% y/y to 44% of total liabilities, and the payment period extended to 127 days, which improved the effectiveness of financing and liquidity ratios, albeit slightly. The growing share of equity led to an improvement in debt ratio and ROE.

In 2023 Q2, small residential and non-residential construction companies improved their sales margins by 2.5 pp. to 7.9%, as a result of a 31% surge in total revenues in y/y terms, and a smaller increase in total expenses (by 27%). As did larger companies, they passed on the risk of price increases to subcontractors, as indicated by a 58% y/y increase in third party services coupled with a slower growth in wages (0.9%), and a drop in energy and materials consumed (15%). In consequence, Return on Sales of small companies dropped to 7.9% vs. 8.7% on average in the past two years. Performance in terms of receivables collection was worse, amounting to 112 days vs. 72 days in 2022 Q2 and 81 days on average in the past two years. The 50% share of receivables in total liabilities reported by 37% of small construction companies and a high level of finished products, growing for a second consecutive quarter suggest that the companies have past-due receivables and problems collecting them. The high level of receivables reported by small companies in the first half of 2023 resulted in the increase of liabilities to contractors from 26% to 40% y/y in total liabilities. The payment period extended to 151 days. Demand for working capital was satisfied by delaying payment of liabilities. The increase in payables reduced the share of equity in total liabilities to 50% and liquidity ratios to a low but safe level. In spite of the dynamic changes in the structure of funding, debt ratios remained safe. From January to June 2023, only 63% of small construction companies reported a profit, given big differences between them in ROS, and 10% had trouble maintaining liquidity.

ROS, and 10% had trouble maintaining liquidity.

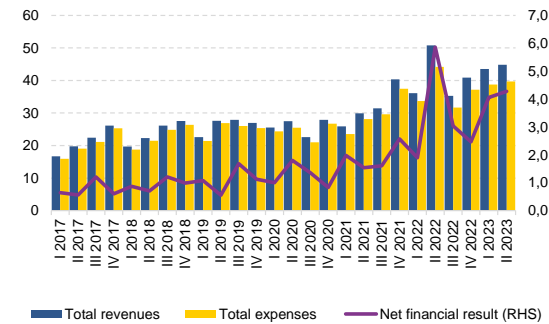
³⁸ The calculations and the conclusions presented in this edition of the Information are primarily based on data published in F01 reports submitted to Statistics Poland by two groups of companies: small companies with 9-49 staff (data available on a semi-annual basis until the end of the first half of 2023) and bigger companies with over 49 staff (data available on a quarterly basis until 2023 Q2 at quarterly intervals), which are involved in residential and non-residential building construction (PKD 41.20).

Figure 105 Economic indicators of construction companies with 9-49 staff



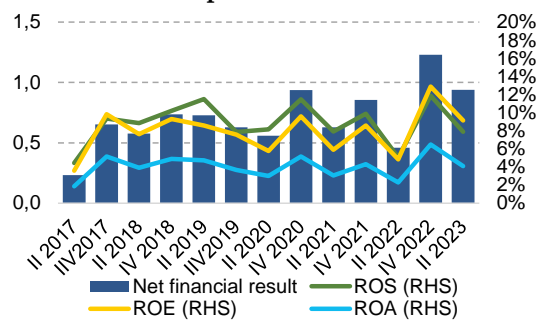
Source: NBP, based on Statistics Poland

Figure 106 Economic indicators of construction companies with more than 49 staff



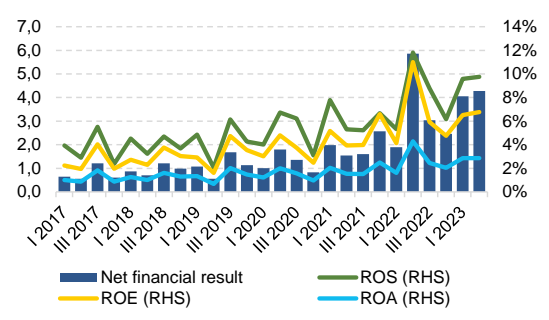
Source: NBP, based on Statistics Poland

Figure 107 Profitability of operations of construction companies with 9-49 staff



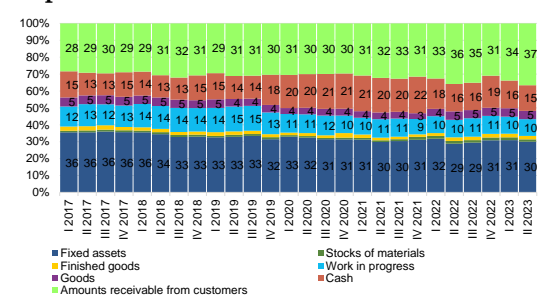
Source: NBP, based on Statistics Poland

Figure 108 Profitability of operations of construction companies with more than 49 staff



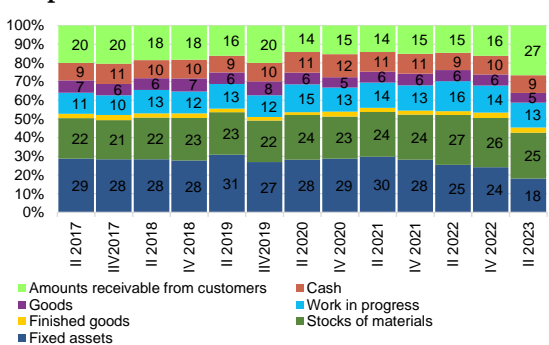
Source: NBP, based on Statistics Poland

Figure 109 Structure of assets of construction companies with more than 49 staff



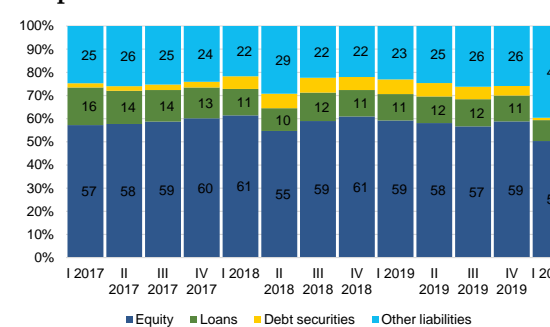
Source: NBP, based on Statistics Poland

Figure 110 Structure of assets of construction companies with 9-49 staff



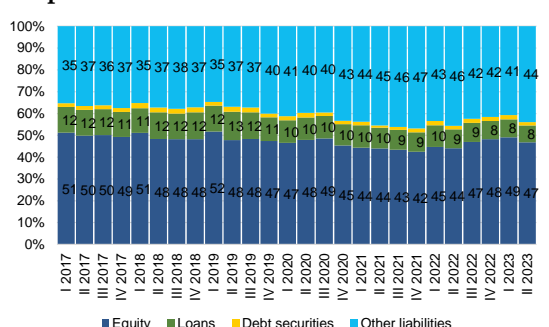
Source: NBP, based on Statistics Poland

Figure 111 Structure of liabilities of construction companies with 9-49 staff

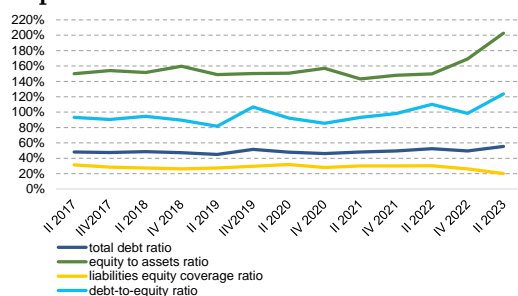


Source: NBP, based on Statistics Poland

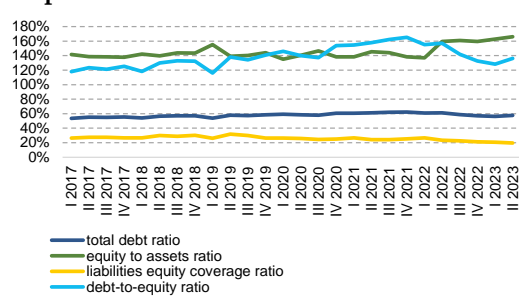
Figure 112 Structure of liabilities of construction companies with more than 49 staff



Source: NBP, based on Statistics Poland

Figure 113 Debt and equity ratios of construction companies with 9-49 staff

Source: NBP, based on Statistics Poland

Figure 114 Debt and equity ratios of construction companies with more than 49 staff

Source: NBP, based on Statistics Poland

Analysis of the financial situation of building materials wholesalers³⁹

A smaller scope of works in the residential and non-residential construction industry resulted in a drop in demand for building materials, leading to slower growth in their prices. According to the data of Polskie Składy Budowlane Group, the prices of materials in the period from January to June 2023, compared to the corresponding period of 2022, increased by an average of 9.0% in almost all commodity groups surveyed, vs. a 30% y/y increase from January to June 2022. Prices of materials increased by 25% from January to December 2022 and by 14% from January to March 2023, showing a continued decline in their growth rate in 2023 Q2.

The analysis of the data of large building materials wholesalers (with more than 49 staff) reported in F01 reports until June 2023 showed a slight improvement in their overall financial standing in 2023 Q2 compared to the previous quarter, including profitability, despite a decrease in average liquidity, which continued to be positive. The overall condition, including liquidity and profitability, of small building materials wholesalers (with 9 to 49 staff) is visibly better than that of bigger companies. Both categories of wholesalers reported lower profitability ratios from the second half of 2022 to June 2023 than in earlier periods.

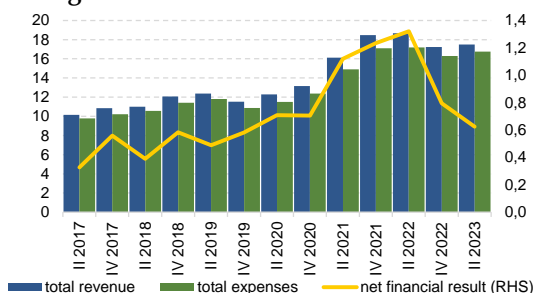
As far as larger wholesalers are concerned, the average total revenue dropped more considerably in 2023 Q2 than total expenses, compared with 2022 Q2, although their volumes increased. It should also be noted that net profit very clearly increased, comparing 2023 Q2 with 2023 Q1 (by 318%). The percentage of companies which reported a net profit continued to be low (66% vs. 54% in 2022 Q1 and 91% in 2022 Q2), which points to a high diversification of the financial standing in this category of wholesalers. The year-on-year drop in net profit and a decrease in the percentage of wholesalers reporting a net profit mean that most of them achieve less satisfactory profit margins on the sale of building materials than in previous periods. The profitability ratios improved in this category compared with the previous quarter, although they were below the levels seen in 2022 Q2 (3.4% ROS, 3.5% ROE and 1.7% ROA in 2023 Q2 vs. 1.2% ROS, 1.1% ROE and 0.5% ROA in 2022 Q1, and 5.2% ROS, 5.8% ROE and 2.8% ROA in 2022 Q2). Average liquidity in the group of large wholesalers remained at a favourable level, albeit slightly weaker, due to the high share of liabilities to contractors. A small reduction in inventories might have resulted from the fact that building materials wholesalers adjusted to the situation in the housing market (a smaller number of projects started), but their share in total assets remained high (24%). The inventory turnover cycle, receivables collection cycle and the

³⁹ The calculations and the conclusions presented in this edition of Information are primarily based on data published in F01 reports submitted to Statistics Poland by two groups of companies: small companies with 9-49 staff (data available on a semi-annual basis until the end of the first half of 2023) and bigger companies with over 49 staff (data available on a quarterly basis until 2023 Q2 in quarterly intervals), which conduct operations of agents engaged in the sale of wood and building materials (PKD 4613) and are engaged in the wholesale of building materials and sanitary equipment (PKD 4673). The accounting records were supplemented with information on the change in prices of building materials („Zmiana cen materiałów dla budownictwa oraz do domu i ogrodu – analiza PSB” [“Change in prices of materials for construction and home and garden - PSB analysis”] in March and June 2023, December and September 2022, PSB Handel Group, January, April and July 2023, and October 2022).

liabilities payment cycle improved. Equity is a stable and dominant source of financing (50% of total liabilities at the end of June 2023.). The total debt, assets-to-equity and debt-to-equity ratios remained at a good and safe level. The analysis of external sources of financing showed a stable share of bank loan, which amounted to 11.3%, the lowest level in several years (12%-13% of total liabilities for more than two years).

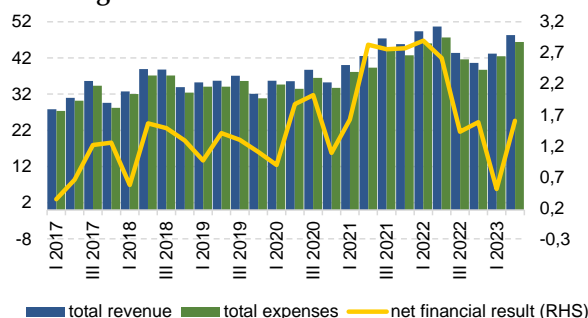
In the group of small building materials wholesalers, the inventory turnover cycle, the receivables collection and payables payment periods became longer. The share of receivables in total assets and the share of payables to contractors in total liabilities increased compared to the previous half-year period. Equity is a stable and dominant source of financing (55% of total liabilities at the end of June 2023). The total debt, assets-to-equity and debt-to-equity ratios remained at a good and safe level. The debt due to outstanding bank loans remained stable. The profitability ratios worsened compared with the previous and corresponding 6-month period, though the figures are more satisfactory than those reported by larger wholesalers. The share of profitable businesses decreased considerably (to 74% in in the first half of 2023 vs. 89% in the first half of 2022). A less advantageous operating expense ratio (0.96 in the first half of 2023 vs. an average of 0.93 in 2022) indicates a slightly weaker financial standing of small wholesalers.

Figure 115 Economic indicators of wholesalers of building materials with 9-49 staff



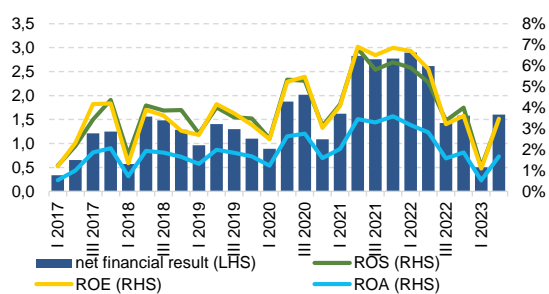
Source: NBP, based on Statistics Poland (F01)

Figure 116 Economic indicators of wholesalers of building materials with more than 49 staff



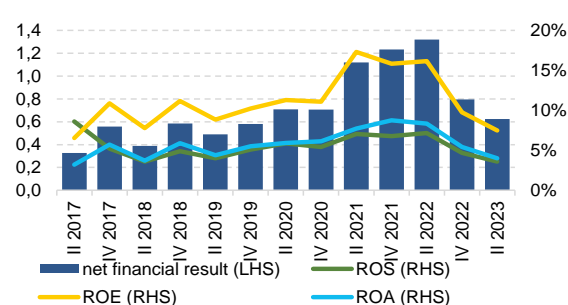
Source: NBP, based on Statistics Poland (F01)

Figure 117 Profitability of operations of wholesalers of building materials with more than 49 staff



Source: NBP, based on Statistics Poland (F01)

Figure 118 Profitability of operations of wholesalers of building materials with 9-49 staff



Source: NBP, based on Statistics Poland (F01)

Analysis of the financial situation of building materials manufacturers⁴⁰

In 2023 Q2, the economic condition of building materials manufacturers was affected by high commodity prices and a decline in demand for materials as a result of low activity of developers and the general social

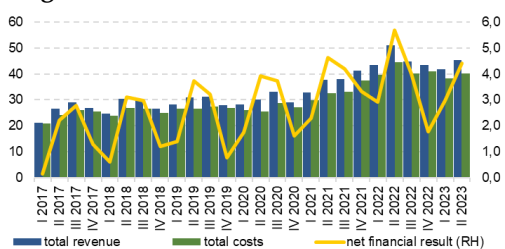
⁴⁰ The calculations and the conclusions presented in this edition of Information are primarily based on data published in F01 reports submitted to Statistics Poland by two groups of companies: small companies with 9-49 staff (data available on a semi-annual basis until the end of the first half of 2023) and bigger companies with over 49 staff (data available on a quarterly basis until 2023 Q2 in quarterly intervals), which are involved in building materials manufacturing (PKD 1623, 2223, 2320, 2332, 2351, 2352, 2361, 2362, 2363, 2364).

and economic uncertainty. From April to June 2023, building materials manufacturers reported a reduction in work in progress, including in materials and energy consumed, and growing payroll expenses. Their liquidity was good and the debt ratios were safe for the creditors.

The financial data of larger manufacturers for 2023 Q2 showed a decline in total revenues (by 11%), total expenses (by 10%) and net financial result (by 22%) compared to the corresponding period of 2022. At the end of 2023 Q2, the share of profitable larger companies was 75%, which means that there was a considerable percentage of those with a negative net financial result (25%) and that the financial standing of building materials manufacturers varied. In earlier periods, i.e. 2017-2022, the share of profitable larger manufacturers was considerably larger (an average of 82%). In 2023 Q2, they reported a slightly worse ROS (10.1%), ROE (5.1%) and ROA (3.0%) than in 2022 Q2 (11.4%, 5.1% and 3.0%, respectively). They maintained good turnover ratios (receivables turnover cycle of 46 days, payables settlement period of 76 days). The inventory turnover cycle was short and amounted to 52 days. At the end of June 2023, equity was a predominant source of funding (61% of total liabilities). Debt resulting from bank loans remained at the previous quarter's level, i.e. approx. 14% of total liabilities (an increase of 2 pp. compared to 2021-2022).

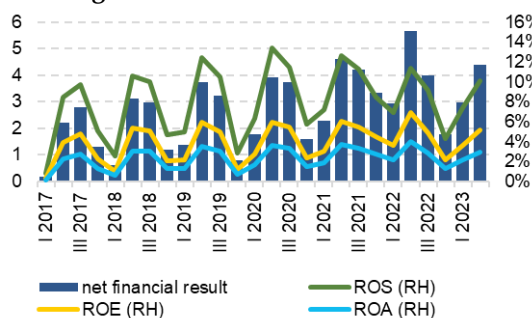
The financial reports of smaller companies for the first half of 2023 showed stable total revenues and total expenses at similar levels to those in the first half of 2022, whereas the net financial result decreased by 8%. Smaller manufacturers were in a worse financial situation and reported a much lower ROS (6.5% in the first half of 2023) than big companies. On the other hand, they reported a better ROE (6.8%) and ROA (4.3%). The operating expense ratio remained at 0.93 and the share of profitable companies was stable (65% at the end of the first half of 2023 vs. 66% at the end of the first half of 2022).

Figure 119 Economic indicators of producers of building materials with more than 49 staff



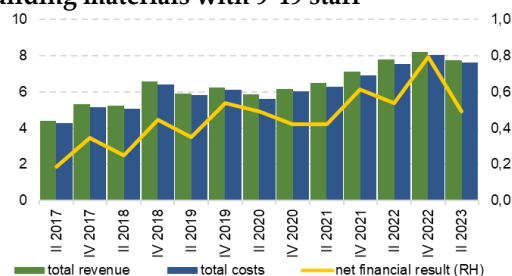
Source: NBP, based on Statistics Poland (F01)

Figure 121 Profitability of operations of producers of building materials with more than 49 staff



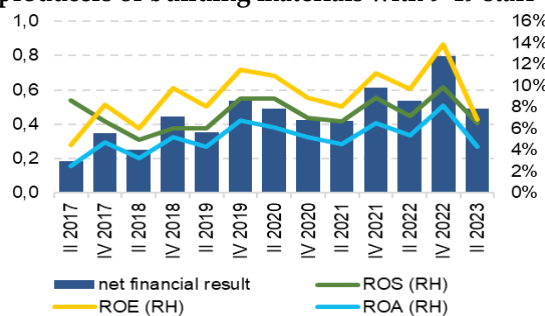
Source: NBP, based on Statistics Poland (F01)

Figure 120 Economic indicators of producers of building materials with 9-49 staff



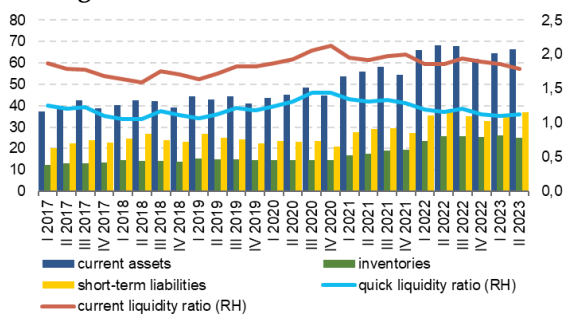
Source: NBP, based on Statistics Poland (F01)

Figure 122 Profitability of operations of producers of building materials with 9-49 staff



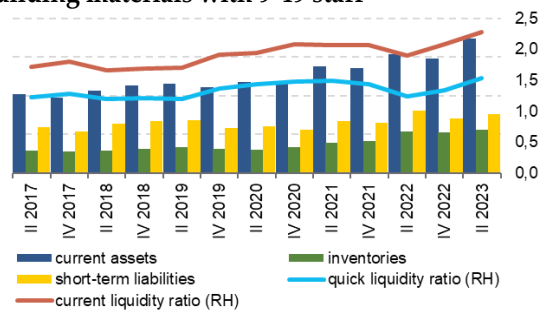
Source: NBP, based on Statistics Poland (F01)

Figure 123 Liquidity ratios of producers of building materials with more than 49 staff



Source: NBP, based on Statistics Poland (F01)

Figure 124 Liquidity ratios of producers of building materials with 9-49 staff



Source: NBP, based on Statistics Poland (F01)

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