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Information on home prices and the situation in the housing and commercial real estate market in Poland in 2023 Q3

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The analysis of the situation in the real estate market in 2023 Q3¹ leads to the following conclusions:

Since the beginning of 2023, we have seen an increase in housing demand amid limited supply. The number of sold development contracts for the construction of dwellings in the largest markets has gradually increased throughout 2023 to reach approx. 16.4 thousand in 2023 Q3² (see Table 1). In the last four quarters, a total of approx. 51.8 thousand residential construction contracts were sold in Poland's largest primary markets, i.e. approx. 10.3 thousand more than in 2021 Q4 – 2022 Q3 (+25% y/y). The number of dwellings available on the market dropped significantly, and the number of dwellings under construction continued to be low as a result of higher sales since the time the offer was supplemented by developers. Home purchases were largely financed with buyers' own funds (approx. 76% of the total value), but demand financed with a bank loan also increased in Q3.

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 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
2023 Q3	9,979	16,388	34,294

Note: see Figure 57.

Source: JLL

- In the analysed period, 49.1 thousand dwellings were completed and made ready for occupancy** (a fall of approx. 13.5% q/q and a fall of approx. 15% y/y), reflecting the activity of developers in previous years. **Building permits were issued for 62.4 thousand dwellings**, a rise of approx. 15.3% q/q and a fall of approx. 35.8% y/y. **The construction of 53.3 thousand dwellings was started**, a rise of approx. 13.3% q/q and a fall of approx. 15.7% y/y. **Once again, costs of housing construction**, i.e. materials, labour, equipment rental, grew slightly more strongly in quarter-on-quarter terms, which was driven by a lower volume of construction and assembly production. **Interest in the purchase of construction sites recovered and the prices of construction sites increased.** At the same time, **transactional rental rates per sq. m of**

¹ The analysis carried out in this issue of the Information is based on data available as at the end of 2023 Q3. Data collected in the NBP database during the listings include offers valid as at 1 September 2023 and transactions concluded in the period from 1 June to 31 August 2023. Due to delays in availability of certain data, some charts include information until 2023 Q2 inclusive. The data series with average prices per square metre of housing, commercial rents and transaction prices per square metre of retail space reflect the pool of data available at the cut-off-date. Historic data are subject to revision. In the housing price survey (BaRN database) concerning 2023 Q3, approx. 112.0 thousand records were collected, of which approx. 30.1% concerned transactions and 69.9% concerned offers. Altogether, approx. 5.2 million records have been collected in the BaRN database, of which 25.2% concern transactions and 74.8% concern offers.

² Based on NBP and JLL.

housing increased and increases in average nominal transaction prices per sq. m of housing in primary markets exceeded those recorded in previous quarters.

- In primary markets (new construction), nominal average transaction prices per sq. m of new housing (PMT) increased both in quarter-on-quarter and year-on-year terms, especially in Wrocław, Poznań, Warsaw, Gdynia and Kraków, but decreased in Łódź (see Table 2). Primary markets recorded increases in real transaction prices relative to the CPI and smaller declines in year-on-year terms. Real growth relative to wages was positive in quarter-on-quarter terms in 2023 Q3, but still negative in year-on-year terms (higher wage increases).
- Secondary markets (existing stock) saw stronger increases in nominal prices in quarter-on-quarter terms, especially in Łódź and Kraków. The year-on-year growth in real prices in relation to both the CPI and wage growth continued to be negative in all the markets, especially in Warsaw. Hedonically adjusted prices of dwellings# increased in Warsaw and in all groups of cities (see Figures 2 and 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 Q3

	Nominal price growth				Real price growth in relation to CPI */				Real price growth in relation to wage growth */			
	q/q		y/y		q/q		y/y		q/q		y/y	
	PMT	SMT	PMT	SMT	PMT	SMT	PMT	SMT	PMT	SMT	PMT	SMT
Gdańsk	2.3%	2.3%	0.3%	-1.0%	2.6%	2.8%	-8.6%	-8.1%	0.9%	1.1%	-9.4%	-8.9%
Gdynia	4.2%	0.4%	7.0%	-1.3%	-2.8%	0.7%	-9.4%	-10.1%	-4.4%	-1.0%	-10.2%	-10.0%
Kraków	4.9%	5.6%	5.5%	6.8%	2.4%	5.9%	-1.8%	-2.7%	0.7%	4.1%	-2.7%	-3.6%
Łódź	-0.9%	6.3%	3.0%	-1.7%	-0.6%	6.6%	-6.2%	-10.5%	-2.3%	4.9%	-7.0%	-11.3%
Poznań	5.3%	0.6%	9.8%	1.3%	5.6%	0.9%	-6.6%	-7.7%	3.9%	-0.8%	-0.9%	-8.5%
Wrocław	2.8%	4.6%	11.3%	5.2%	3.1%	5.0%	1.4%	-4.1%	1.4%	3.2%	0.5%	-5.0%
Warsaw	6.4%	3.2%	9.9%	-2.2%	6.8%	3.50%	0.1%	-15.5%	5.0%	1.8%	-0.9%	-11.8%
6 cities	3.3%	4.1%	4.0%	2.7%	2.3%	3.60%	-4.5%	-10.9%	0.6%	1.8%	-5.4%	-7.8%
10 cities	1.7%	2.9%	3.8%	5.9%	2.3%	3.20%	-4.1%	-3.9%	0.5%	1.5%	-.0%	-4.8%

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 and to the wage growth 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.
Source: NBP, Statistics Poland

- In 2023, the number of dwellings offered for rent increased³. This was, among other things, a result of the completion of dwellings purchased in the period 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 slightly on the previous quarter in all groups of cities (see Figures 14 and 15), which slightly boosted the profitability of rental in large cities. Given the level of interest rates, the monthly cost of servicing a loan taken to purchase housing became similar to the cost of home rental in the current quarter. The professional rental market should continue to grow in the coming years, due to the unstable situation in the real estate market, the attractiveness of home prices in Poland compared to other European

³ Based on NBP data, Otodom published by Polityka Insight and „Kwartalnik mieszkaniowy” [Housing Quarterly Review] published by OLX, October 2023

countries and the high nominal cost of mortgage loans. The estimated number of rental dwellings put on the market by foreign investment funds in 2023⁴ is expected to reach 6,900 units, mainly in Warsaw, Łódź and Wrocław, which is supported by the results of tenant surveys (about 40% of the surveyed tenants of such institutional landlords intend to stay in their current places of residence for at least a few years, and 15% of them treat rented dwellings as their residence). However, investment funds are facing financial problems, especially with debt servicing, which may limit their business activity plans.

- **The increase in the level of rents in the case of long-term rental observed in recent quarters** (average in the 7 large cities), with nominal home prices rising more strongly, **caused a slight decrease in the profitability ratio of rental housing purchased with cash**⁵ (see Table 26). The return on equity (ROE) of a leveraged rental housing investment was unprofitable for another consecutive quarter, especially with 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.
- **The estimated affordability of housing in the 7 large cities** (based on average monthly wages in the corporate sector) **decreased slightly on the previous quarter**, mainly as a result of faster home price growth than wage growth (see Figure 16). The estimated maximum available residential mortgage loan⁶ increased slightly on the previous quarter, mainly as a result of a fall in interest rates on residential mortgage loans, while the estimated affordability of loan-financed housing⁷ remained unchanged amid similar increases in wages and home prices and declining interest rates. The liberalization of the supervisory approach to interest rate buffers in assessing creditworthiness was also a factor behind the change in the latter two indicators.
- **Sales of residential construction contracts** in Poland's six largest primary markets⁸ (see Table 1 and Figure 57) **were approx. 6% higher** than in the previous quarter and **amounted to approx. 16.4 thousand dwellings** at the end of September 2023. In the last four quarters, a total of approx. 51.8 thousand residential construction contracts were sold in the largest markets, an increase of approx. 10.3 thousand (+25% y/y). In the last four quarters, approx. 31 thousand residential construction contracts were put on sale in the largest markets, down by approx. 33.8 thousand (-40% y/y). **The supply of unsold contracts for the construction of dwellings in the 6 largest markets decreased by approx. 6.3 thousand units on the previous quarter and amounted to approx. 34.2 thousand at the end of September 2023.** The number

⁴ Based on a report published by PFR Nieruchomości and „Dekada polskiego rynku najmu” [Decade of the Polish rental market] published by Polityka Insight, part I (July 2023) and part II (October 2023).

⁵ More about the rental market in part 7 “Analysis of profitability of investment in housing in selected markets in Poland in 2023 Q3”.

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.

of offered contracts for so-called "turn-key" dwellings decreased on the previous quarter and amounted to approx. 4.5 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 last quarter, fell in the analysed period to 2.6 quarters from 3.9 in 2022 Q3** (see Figure 64). The time to sell dwellings in the secondary markets, taking into account only completed transactions, increased slightly in Warsaw at the end of 2023 Q3 but remained unchanged in 6 and 10 cities, oscillating around 4 months (see Figure 65).
- **The value of new housing loan disbursements in Poland in 2023 Q3 was higher than the value of loan disbursements in the corresponding period of 2022**, due to an increase in household creditworthiness. The value of new contracts for residential mortgage loans in PLN^{9, 10} (excluding renegotiated contracts) concluded with households in 2023 Q3, according to the NBP data¹¹ amounted to PLN 15.2 billion, i.e. it was higher by approx. PLN 4.2 billion (+38%) on the previous quarter's value, and higher by approx. PLN 6 billion (+65%) compared to 2022 Q3. Currently, in the six largest housing markets in Poland, approx. 76% of the funds used for the financing of home purchases are households' own funds (see Table 3). Loan demand increased in 2023 Q3 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 as of July 2023¹³. The results of the NBP's survey of the situation in the credit market in 2023 Q4¹⁴ point to continued tightening of lending criteria (while maintaining the existing loan granting terms and conditions), driven by the deteriorating economic

⁹ According to the BIK data, in 2023 Q3, banks and credit unions granted approximately 42.0 thousand residential mortgage loans to individual clients totalling approx. PLN 16.2 billion (compared to 32.3 thousand loan agreements in the previous quarter for the amount of PLN 11.8 billion and 21.9 thousand loan agreements in 2022 Q3 for the amount of PLN 7.2 billion, respectively). The discussed period saw only positive y/y growth in the sale of residential mortgage loan agreements in all amount ranges in contrast to only negative y/y growth rates recorded in the previous quarter. In the period from 2022 Q4 to 2023 Q3 a total of 116.7 thousand residential mortgage loans were taken (a y/y drop of approx. 36%) for the amount of PLN 42.0 billion (a y/y drop of approx. 33%).

¹⁰ According to the AMRON report, in 2023 Q3, 40.8 thousand residential mortgage loans were granted (compared to 30.8 thousand in the previous quarter and 21.2 thousand in 2022 Q3), totalling PLN 15.8 billion (compared to 11.3 million in the previous quarter and PLN 7.0 billion in 2022 Q3). In 2023 Q3 the most frequently granted loans were loans in the range of PLN 200-300 thousand (approx. 22%, i.e. 3.5 p.p. less compared to 2022 Q3), the share of loans in excess of PLN 300 thousand, including loans in excess of PLN 1 million, increased, and the share of loans below this value decreased. In the structure of new loans in 2023 Q3, the share of loans with LtV above 80% increased, reaching approximately 24.2%, while the share of loans with other LtV decreased (LtV from 50 to 80% amounting to 51.5%, LtV up to 30% amounting to 13.0%, LtV ranging from 30 to 50% amounting to 11.3%). The following quarter saw a slight increase in the share of residential mortgage loans with maturities of more than 35 years (24.2%), from 15 to 25 years (33.9%), whereas the share of loans with maturities of up to 15 years (9.4%), 25-35 years (56%) fell. At the end of 2023 Q3, there were approximately 2.29 million active loan agreements (under repayment) (compared with 2.37 million agreements in 2022 Q3), and their value at the end of the discussed period was PLN 482.7 billion (PLN 496 billion in 2022 Q4).

¹¹ Data 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 September 2023, the value of residential mortgage loans granted by banks to households stood at PLN 483.1 billion, i.e. PLN 4.1 billion more than in the previous quarter but PLN 28bn less than at the end of September 2022 (down 5.5% y/y, compared to a 2.0% increase in 2022 Q3). In 2023 Q3, the value of residential loans in both PLN (PLN -5.5 billion compared to 2022 Q3) and foreign currency loans (PLN -22.5 billion) decreased in year-on-year terms.

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

¹³ Act of 1 October 2021 on family residential mortgage loan and safe credit of 2% (Journal of Laws of 2023, items 859 and 1114).

¹⁴ "Situation in the credit market - results of the senior loan officer opinion survey, 2023 Q4" NBP, October 2023 <https://nbp.pl/system-finansowy/sytuacja-na-ryнку-kredytowym/>.

outlook and quality of the loan portfolio. For 2023 Q4, the surveyed banks anticipate further 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 temporary 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. 75% in 2023 Q3, an increase of about 11 percentage points in quarter-on-quarter terms and a rise of 15 percentage points in year-on-year terms (see Figure 30).
- **The estimated return on equity (ROE)¹⁵ on investment projects carried out by residential real estate developers was around 20%, showing a slight decline on the previous three quarters,** yet it remained at a relatively high level (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 report,¹⁶ the number of insolvencies in the construction sector was estimated at 483 in the three quarters of 2023 (compared to 212 in the corresponding period of the previous year), and in real estate services sector rose to 74 from 45 (see Figure 39). 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 38). According to the National Debt Register, the construction industry's debt at the end of September 2023 exceeded PLN 1.5 billion, an increase of PLN 262 million in year-on-year terms. The bulk of this amount is the debt of sole proprietors and enterprises involved in specialized construction works and erection of buildings¹⁷.
- **In 2023 Q3, some 49.1 thousand dwellings¹⁸ were completed and made ready for occupancy in Poland, a fall of 13.5% on the previous quarter and a fall of 15% on 2022 Q3** (see Figure 53). Dwellings for sale and rent (approx. 66%) and privately constructed dwellings (approx. 31%) accounted for the majority of completed dwellings. The share of dwellings completed in 6 cities in the total number of completed

¹⁵ 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.

¹⁶ According to Coface experts (*Coface Report - Insolvencies in Poland after three quarters of 2023*), the macroeconomic environment in Poland and abroad continues to be unfavorable 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 but does not have enough time to complete them. The railroad sector, on the other hand, faces financial problems connected with the financing of the indexation of fees for contractors selected in new tendering procedures, a solution to which may be bridge pre-financing, in the absence of the funds from the National Recovery Plan. In the residential construction sector, demand was limited, costs increased significantly, yet access to financing improved (including, the "2% safe loan" offered), which slightly reduced the uncertainty for developers launching new investment projects.

¹⁷ According to the press release by the National Debt Register [Krajowy Rejestr Długów (KRD)]: <https://krd.pl/centrum-prasowe/informacje-prasowe/2023/dlug-branzy-budowlanej-przekracza-1-5-mld-zl-wyzwania-rosna-wraz-z-nim>.

¹⁸ According to the Statistics Poland data, in 2023 Q3, approx. 49.1 thousand dwellings were completed and made ready for occupancy, i.e. about 8.7 thousand less than in 2022 Q3 and 7.7 thousand less than in 2023 Q2. In total, during the last four quarters (2022 Q4 – 2023 Q3) a record high of approx. 232.4 thousand dwellings were completed and made ready for occupancy, i.e. about 4.7 thousand less than a year ago (down 2% y/y).

dwellings increased slightly. **The construction of approx. 53.3 thousand dwellings began¹⁹ i.e. 15.7% less than in 2022 Q3, yet 13.3% more than in the previous quarter** (see Figure 54). It should be added that the number of housing construction starts fell in both the largest cities and the rest of Poland. Also in this segment dwellings for sale and rent (approx. 61%) and privately constructed dwellings (approx. 38%) 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 permits²⁰, albeit at a significantly lower rate** (the number of building permits issued in 2023 Q3 increased again in quarter-on-quarter terms by approx. 2.4 thousand, but was 3.8 thousand lower than in 2022 Q3; see Figure 55). Permits were issued mainly for the construction of dwellings for sale and rent (approx. 65.8% of all permits) and owner-occupied dwellings (approx. 31.5%). 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.
- **In 2023 Q3, vacancy rates in the nine largest²¹ office real estate markets remained stable at around 14.3%** and the total office supply was around 12.8 million sq. m.²². Differences across regions could be observed as regards changes in vacancy rates. While the vacancy rate in Warsaw alone fell to 10.6%²³ (from 11.4% in Q2), the vacancy rate in the other 8 markets rose slightly to 17.3%²⁴ (from 17.1% in Q2). The vacancy rate of office space depends on the age²⁵ and, above all, the location²⁶ 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. The spread of teleworking allows tenants to reduce the size of rented space and replace it with space located in energy-efficient office buildings with good transport links.
- **The estimated return on equity (ROE) on investments in the construction and commercialization of Class A office buildings in Warsaw**, assuming a 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 increases in 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

¹⁹ 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).

²⁰ According to the Statistics Poland data, approx. 62.4 thousand home construction permits were issued in Poland in 2023 Q3, i.e. approx. 3.8 thousand less than in 2022 Q3 and approx. 2.4 thousand more than in the previous quarter. In total, approx. 234.3 thousand permits were issued in the last four quarters (2022 Q4 – 2023 Q3), i.e. approx. 89.0 thousand less than in the corresponding period of the last year (a fall of 27.5% y/y).

²¹ The nine office real estate markets are: Warsaw, Kraków, Wrocław, Tri City, Katowice, Łódź, Poznań, Szczecin, Lublin.

²² See: JLL Report: Office real estate markets in Poland, August 2023

²³ See: Colliers Report: Market Insight, Poland, first half of 2023 and Colliers Report: Warsaw, Q3, 2023

²⁴ See: JLL Report: Office real estate markets in Poland, 2023 Q3 and JLL Report: Office real estate markets in Poland, August 2023

²⁵ See Cushman & Wakefield Report, Marketing as one of the key factors supporting the modernisation process of older office buildings, 2018.

²⁶ See Knight Frank, Report: Poland, Commercial Market, First half of 2018.

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 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 tenants²⁷. 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 Q3 the retail sector operated without significant changes.** The stock of modern retail space at the end of 2023 Q3 reached approx. 13.7 million sq. m, which means into a saturation of 339 sq. m/1000 residents²⁸. Approx. 536,200 sq. m of modern retail space was under construction at the end of 2023 Q3²⁹. Investment projects are generally undertaken in smaller cities. Thus, it can be concluded that investors regard the traditional retail market in the largest cities as saturated. Stores and retail outlets tend to invest in energy-efficient lighting and shopping mall owners tend to reduce energy consumption and waste production³⁰. The index of average rents and hedonically adjusted rents for retail space for the three analysed cities, namely Warsaw, Poznan and Tri-City, increased in Q2, due to increased demand for retail space.
- **The market of modern warehouse space in Poland is still in its growth phase.** By the end of 2023 Q3, the total warehouse stock had increased to 30.5 million sq. m, with more than 3.1 million sq. m of modern warehouse space under construction³¹. The vacancy rate all over Poland increased to 7.7% compared to 6.6% in 2023 Q2. Generally, the vacancy rate of around five per cent is accepted as a natural vacancy rate in the commercial real estate market. It is due to the time required to attract a new tenant and adapt the space to new needs as well as to the fact that the new tenant has to wait for the previous contract to terminate.
- **The estimated value of transactions involving commercial real estate purchased for investment purposes³², i.e. for rental, amounted to approximately EUR 1.4 billion in 2023 Q3.** Approximately 35.9%

²⁷ 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.

²⁸ This value is estimated to be 15% lower than the EU average.

²⁹ See CBRE Report: Commercial market, 2023 Q3, Poland.

³⁰ 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..

³¹ See: CBRE Report: Industrial and logistic market, 2023 Q3, Poland.

³² 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..

of the value of transactions accounted for warehouse space, 34.6% for office space, while only 26.6% 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 Q3, the value of such loans granted by banks in Poland³³ amounted to PLN 68.5 billion³⁴, of which 60% 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 5.4 billion, slightly down from PLN 5.8 billion recorded in the previous quarter.
 - Office real estate loans decreased on the previous quarter and amounted to PLN 17.3 billion (down from PLN 17.9 billion). Retail real estate loans increased on the previous quarter to PLN 17.4 bn. (up from PLN 16.7 billion), and warehouse and industrial real estate loans increased to PLN 12.1 billion (up from PLN 11.2 billion).
 - Loans granted for other real estate increased slightly to PLN 16.4 billion compared to PLN 16.2 billion in 2023 Q2.

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 139 billion at the end of 2023 Q3. 45% 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, phase 3) ratio for office real estate loans remained stable (at 7.7%) and for retail real estate loans improved slightly to 11.6% (from 12.6% in Q2). The NPL ratio for warehouse and industrial real estate loans also improved, to 2.6% from 3.5% in Q2, while the NPL ratio for other real estate remained at 9.4%. The NPL ratio for corporate residential real estate loans improved once again to 8.7% from 9.3% in 2023 Q2.
- **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 Q2.** In the case of office real estate, it amounted to 12.7% in 2023 Q3 compared to 13.3% in Q2. This ratio for retail real estate deteriorated slightly to 17.1% from 16.2% in Q2, and for warehouse real estate it remained at 6%. This may suggest that the situation in the commercial real estate market is steadily improving, although in the two largest segments in terms of value, i.e. office and retail segment, it is still significantly worse than before the outbreak of the COVID-19 pandemic.

³³ 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 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 2022 amounted to PLN 380bn, that the total amount of the loans financing such real estate was about PLN 152bn at the end of 2022. By deducting the loans granted by banks operating in Poland to finance such real estate (PLN 65bn, excluding loans to developers) one arrives at an estimate of loans granted directly and indirectly by banks operating abroad, i.e. PLN 87bn.

³⁴ FINREP data.

- **In small office space markets, the median offer price in Warsaw, Wrocław and Łódź posted a decrease, in Poznań, Kielce and Katowice an increase, while in the remaining cities it was relatively stable.** In the case of small retail real estate, the median of the offer price in Warsaw, Wrocław and Łódź showed a decline, and in Poznań, Katowice and Kielce a slight increase.

The following charts illustrate the key developments in the housing market in Poland's major cities in 2023 Q3.

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 26–37),
- 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 38–51),
- 5) housing construction and the residential market in selected cities in Poland (Figures 52– 65),
- 6) offer prices of commercial real estate and the estimated rate of return (Figures 66–78),
- 7) results of the analysis of profitability of investment in housing for rent in selected cities in Poland in 2023 Q3 (Figures 79-91),
- 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 92-128)

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 used³⁵.

³⁵ 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 sq. m of housing in Warsaw and in 6 cities – PM, in PLN

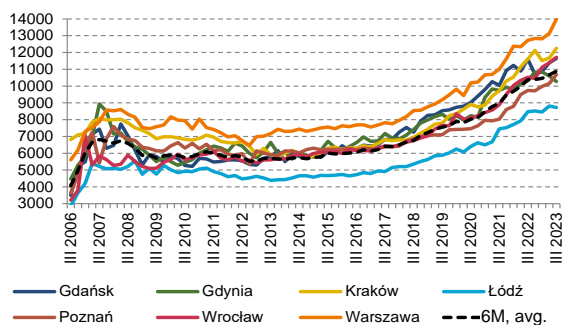
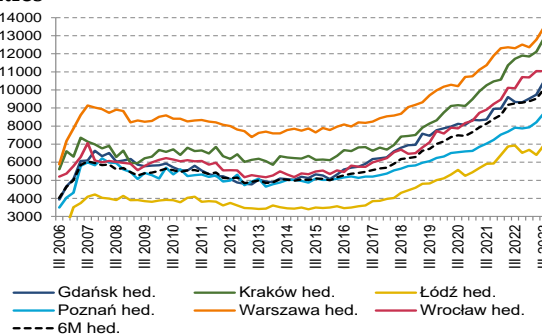


Figure 2 Transaction prices per sq. m of housing adjusted by the hedonic index in Warsaw and in 6 cities



Note: the home price database of NBP (BaRN) has existed since 2006 Q3; 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 sq. m of housing, offers (O) and transactions (T) - PM

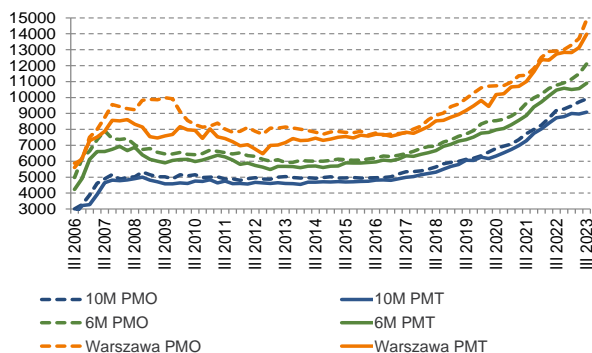
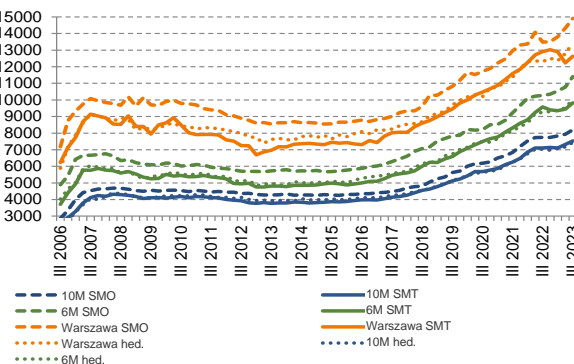


Figure 4 Weighted average price per sq. m of housing, offers (O) and transactions (T) and hedonic (hed.) prices - SM



Note to Figures 3-10 and 14-15: prices and rents weighted in 6 cities and 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 sq. m of housing – PM to SM

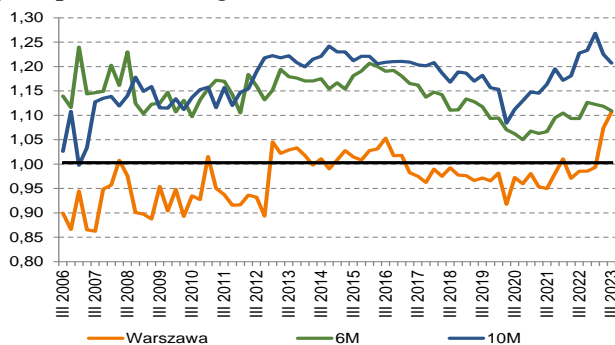
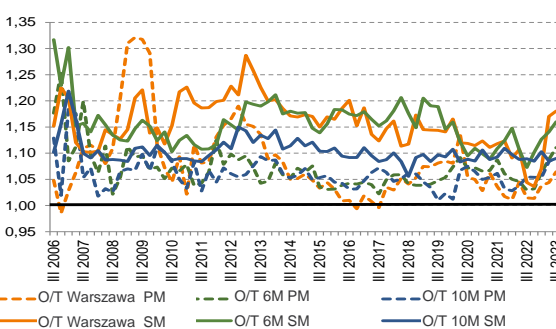


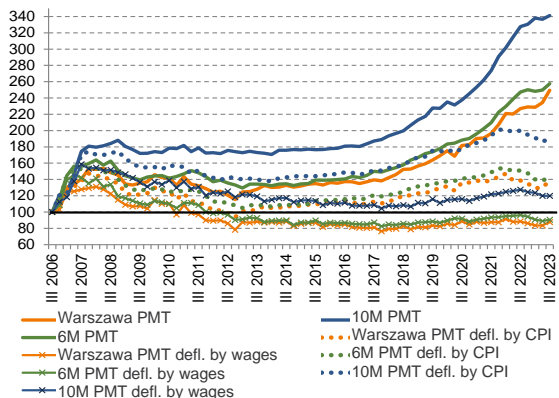
Figure 6 Ratio of the average weighted offer price (O) to transaction price (T) per sq. m of housing – PM and SM



Source: NBP

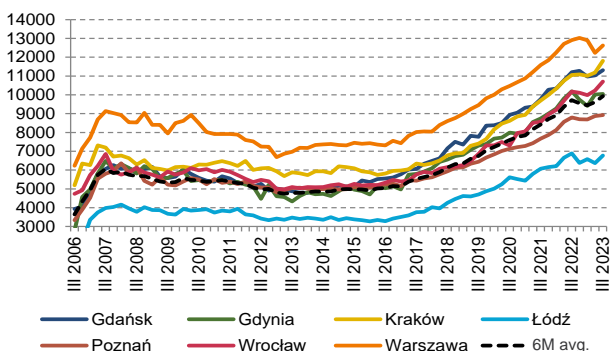
Source: NBP

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



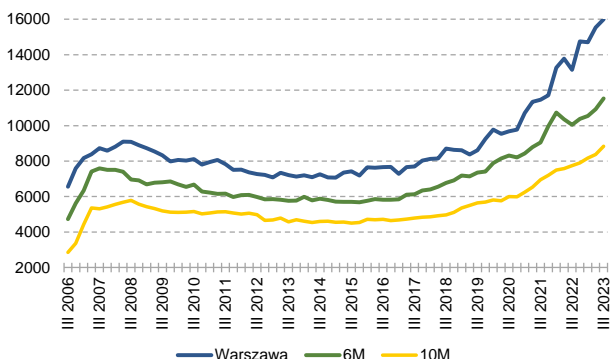
Source: NBP, ZBP (AMRON), Statistics Poland

Figure 9 Transaction price per sq. m of housing in SM in Warsaw and in 6 cities



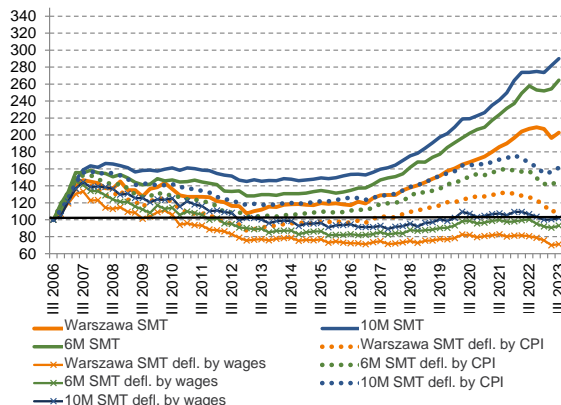
Source: NBP

Figure 11 Average offer prices per sq. m of housing in PM, selected markets



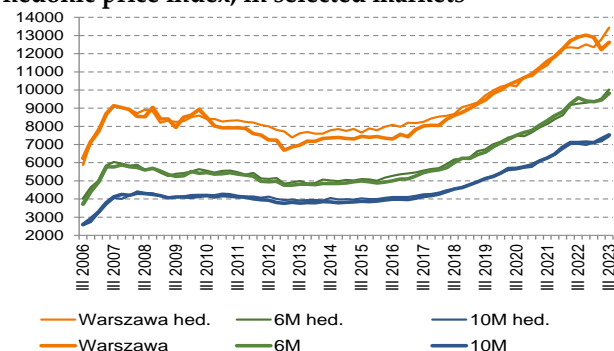
Note to Figures 11-12: prices are collected from all available sources.
Source: PONT Info Nieruchomości

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



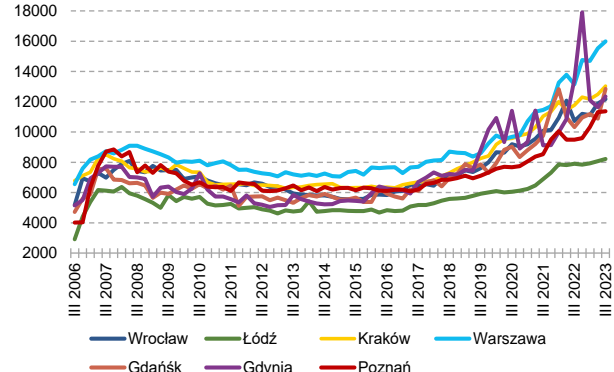
Source: NBP, ZBP (AMRON), Statistics Poland

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



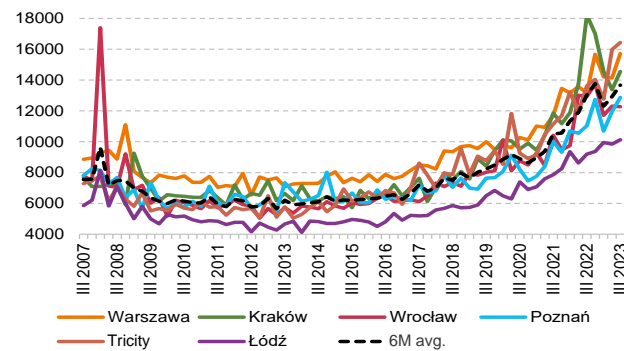
Source: NBP

Figure 12 Average offer prices per sq. m of housing in PM (Warsaw and 6M)



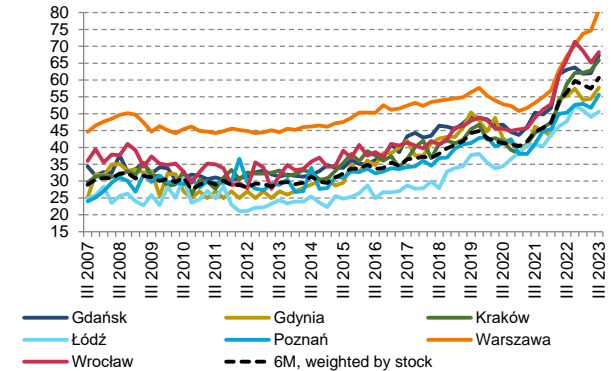
Source: PONT Info Nieruchomości

Figure 13 Average offer prices per sq. m of housing, new home construction contracts – PM, selected markets



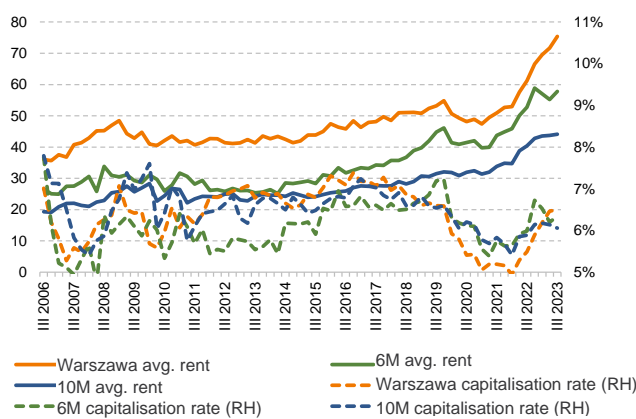
Note: prices refer only to new contracts put on the market for the first time.
Source: JLL

Figure 14 Average rent rates (offers and transactions) per sq. m of housing - SM, selected cities



Note: a change in the sample occurred in 2020
Source: NBP

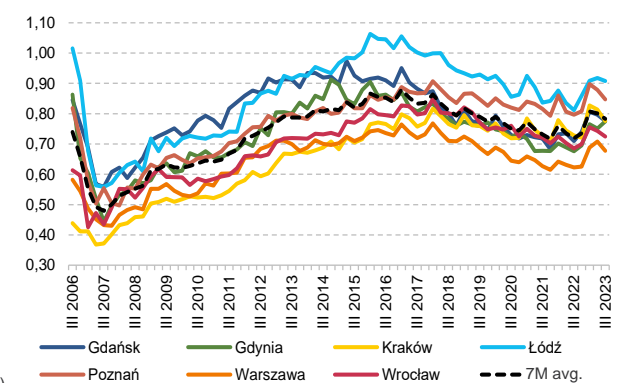
Figure 15 Average rent rates (transactions) per sq. m of housing in the SM (LH) and the estimated profitability of housing rental (RH) in selected cities



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 disinvestment.

Source: NBP

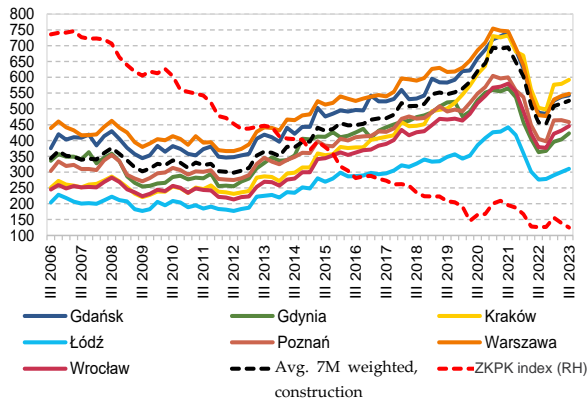
Figure 16 Estimated availability of housing in 7M based on average wages in the enterprise sector (sq. m)



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)



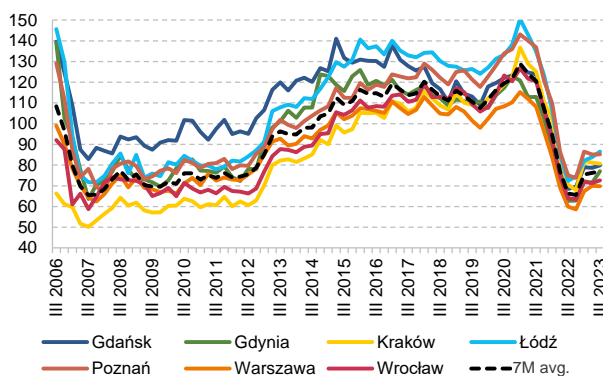
Source: NBP, Statistics Poland

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.

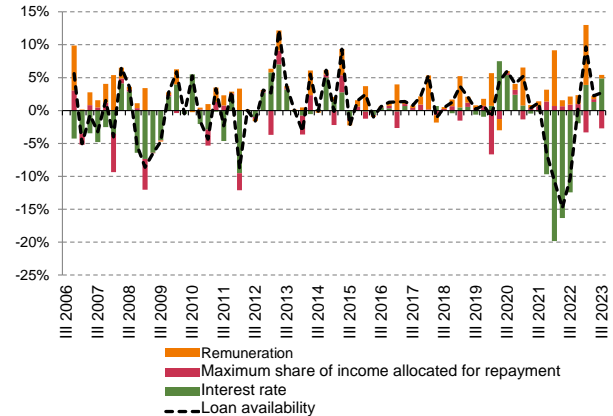
ZKPK Index – accumulated index of changes in banks' lending policy criteria; positive values mean easing, and negative values tightening of lending policy as compared to the initial period i.e. 2003 Q4. ZKPK data have been updated. Methods of computing the index are described in "Situation in the credit 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 19 Estimated affordability of loan-financed housing, average for 7M



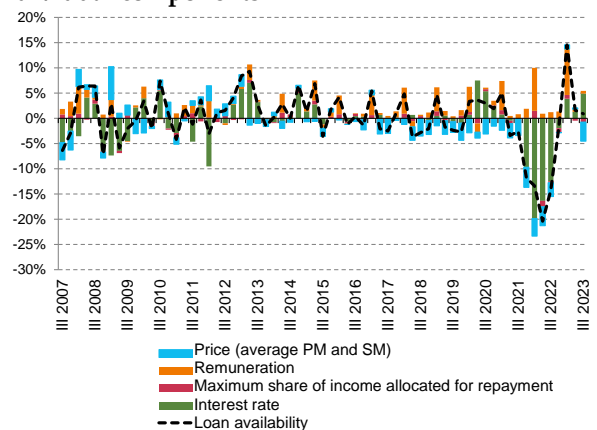
Source: NBP, Statistics Poland

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



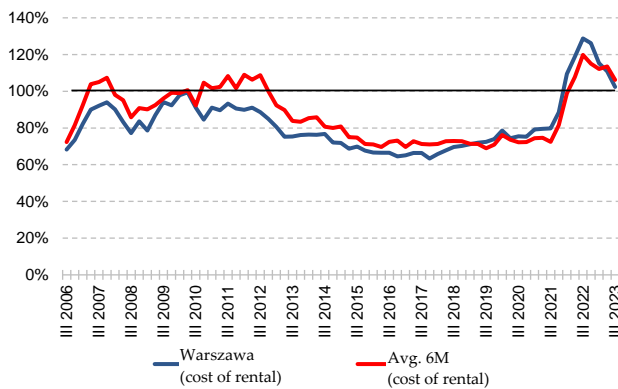
Source: NBP, Statistics Poland

Figure 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



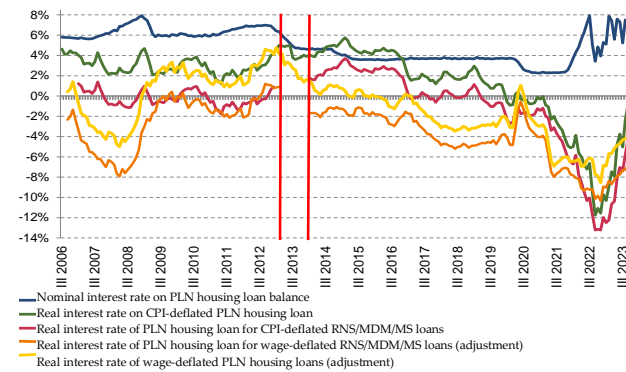
Source: NBP, Statistics Poland

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



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

Figure 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 the 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)

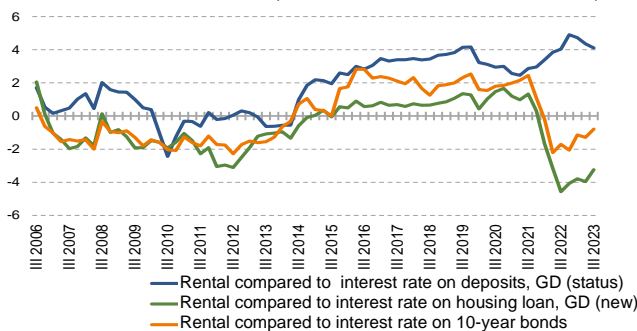
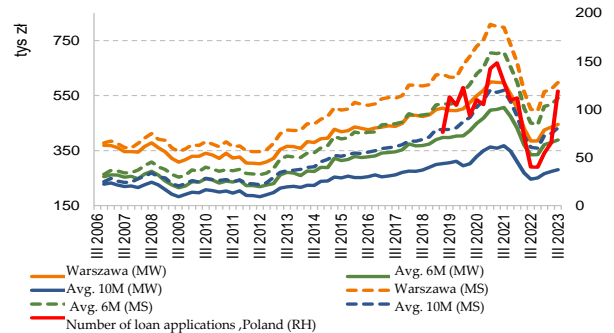


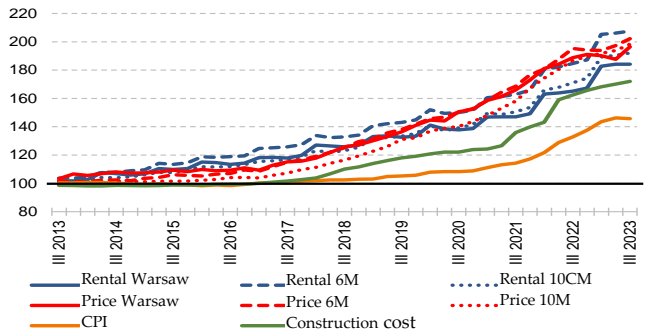
Figure 22 Estimated available mortgage loan for average gross wage in the enterprise sector in selected cities and number of residential mortgage loan applications in Poland



Note: values estimated assuming a minimum subsistence wage (LW) or an average monthly wage (MW) in the enterprise sector 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 a dwelling, 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).

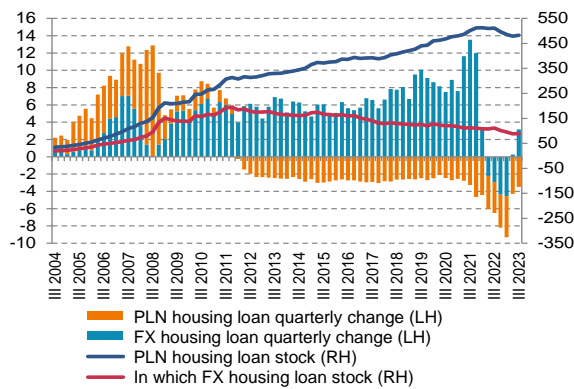
Source: NBP, Statistics Poland

Note to Figure 25: values exceeding 0 denote a 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 disinvestment.

Source: NBP, Statistics Poland

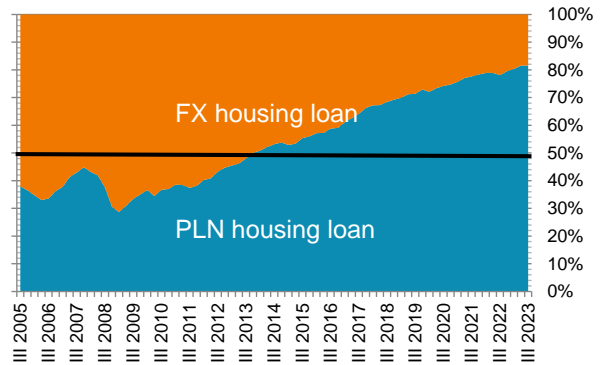
3. Disbursements of residential mortgage loans, interest rates

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)



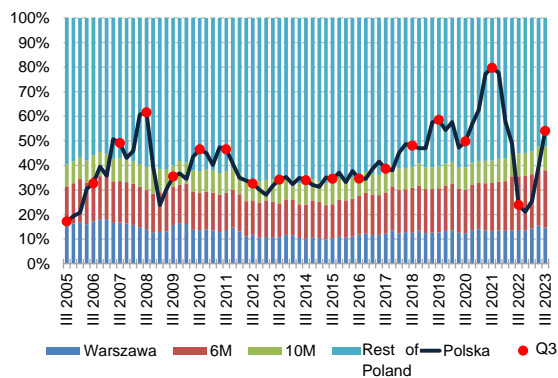
Source: NBP

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



Source: NBP

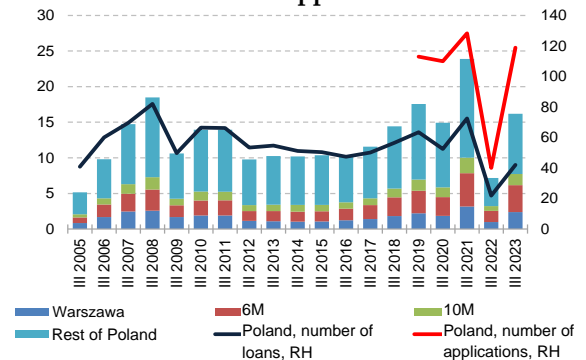
Figure 28 Geographical structure of the value of new residential mortgage loan agreements in PLN in Poland's selected cities (LHS) and the value of loan agreements in Poland (RHS), quarterly data



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

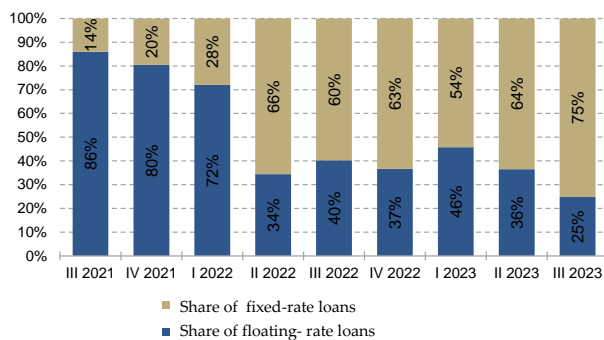
Source: BIK

Figure 29 Value (PLN bn, LH) 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

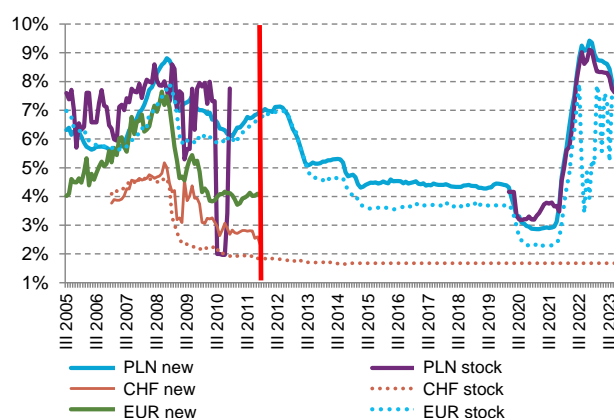


Source: BIK

Figure 30 New residential mortgage loans by type of interest rate



Source: ZBP (AMRON Report for 2023 Q3)

Figure 31 Interest rates on residential mortgage loans for households in Poland


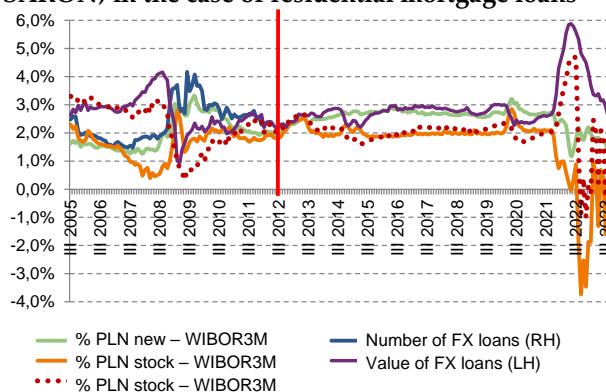
Note to Figure 31 and 32: the red vertical line separates the period with no FX loans which practically ceased to be granted in 2012.

Note to Figure 33: the bank margin is the difference between the interest rate on residential mortgage loan (according to NBP data) and WIBOR3M, EURIBOR3M or LIBORCHF3M/SARON3M (from 2022). The interest rate on the stock of mortgage loans is a value showing the average interest rate on all the existing loan contracts at the end of the reporting period, both those concluded before the reporting month and still in force, as well as contracts newly concluded with the use of the method described in the "User's Guide to Interest Rate Statistics."

(https://www.nbp.pl/home.aspx?f=/statystyka/pieniezna_i_bankowa/oprocentowanie.html).

The marked decrease in the level of interest rate on the stock of loans in particular months in 2022 H2 is due to the implementation of the so-called "loan payment holiday" programme. This resulted in a decrease in the value of interest charged on the average monthly value of the stock of all residential mortgage loan contracts.

Source: NBP

Figure 32 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	6,221	4,011	1,003	2,211	52%
2022 Q2	15,601	5,818	3,557	889	2,261	54%
2022 Q3	9,196	4,175	2,097	524	2,078	62%
2022 Q4	6,321	5,433	1,441	360	3,992	80%
2023 Q1	7,265	7,248	1,656	414	5,592	83%
2023 Q2	11,054	9,992	2,520	630	7,472	81%
2023 Q3	15,216	11,002	3,469	867	7,532	76%

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.

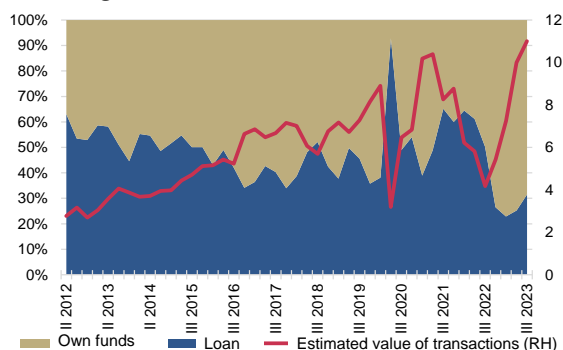
*/ Loan-financed home purchases comprise purchases with a loan and a minimum share of cash (a down payment of 25% was assumed; in big cities, a 20% down payment was more prudent than the requirement of the amended Recommendation S), whereas cash home purchases are a difference between the value of transactions 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 primary market (PM) in the 7 cities (Gdansk, Gdynia, Krakow, Lodz, Poznan, Warsaw, Wroclaw) 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 was about 57%. The estimate of cash transactions is the difference between the value of transactions in the markets of 7M and loan disbursements including the buyer's own contribution (down-payment).. Data concerning prices and floor areas for all periods are updated.

Source: NBP, JLL, ZBP, Statistics Poland

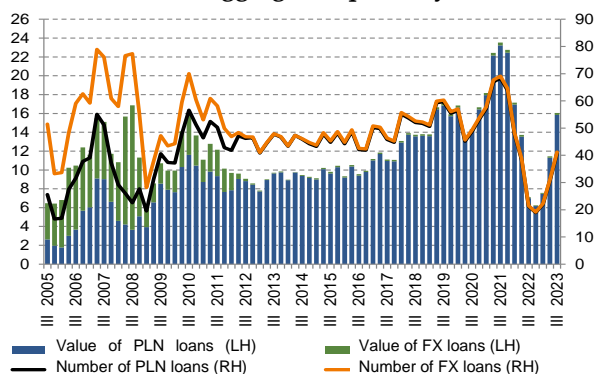
Figure 33 Estimated value of purchases of homes from developers in 7 cities (PLN million) for cash and using loans



Note to Figure 33: 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, whereas the decline recorded in 2022 Q2 was related to low availability of loan-financed housing.

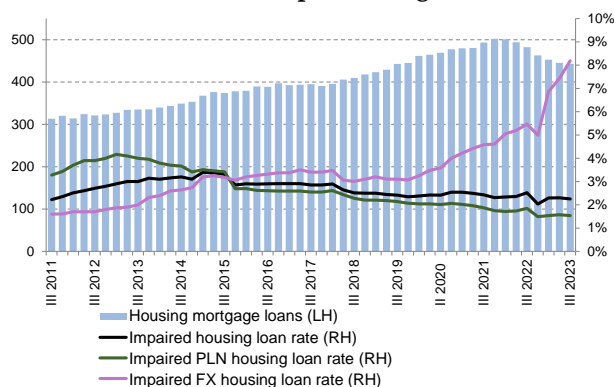
Source: NBP, JLL, ZBP, Statistics Poland

Figure 34 New residential mortgage loan agreements: value and number, aggregated quarterly data



Source: ZBP (AMRON)

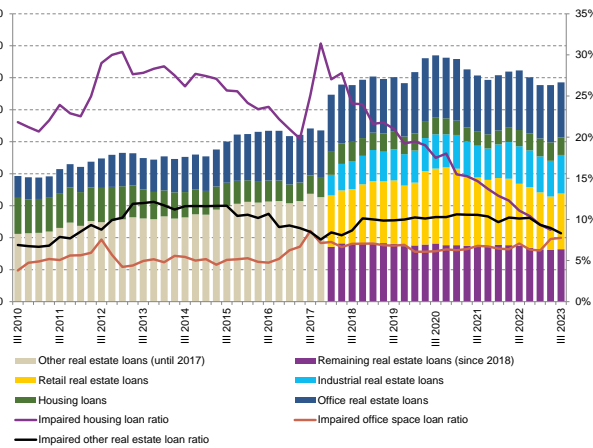
Figure 35 Loans for residential real estate for households and the non-performing loan ratio



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).

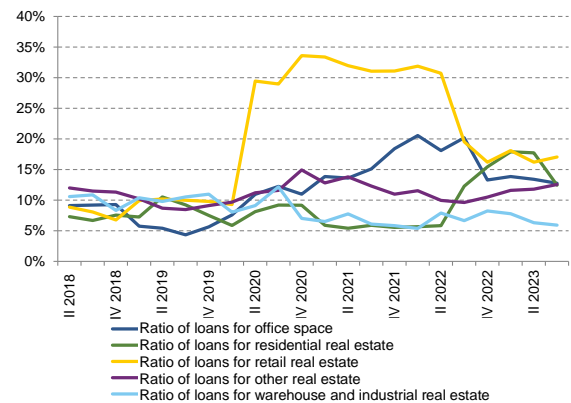
Source: NBP

Figure 36 Corporate real estate loans (PLN billion, LHS) and the non-performing loans ratio (%), (RHS)



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

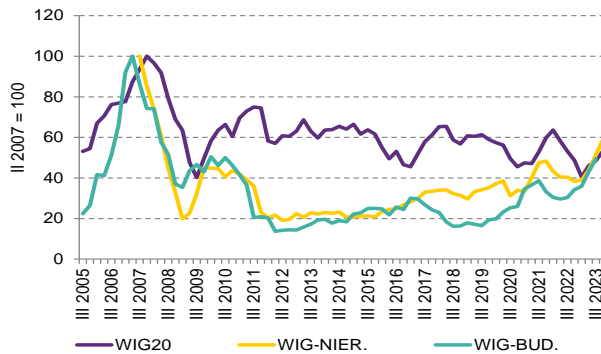
Figure 37 Corporate real estate loans in phase 2.



Note: data exclusive of BGK data.
Source: NBP

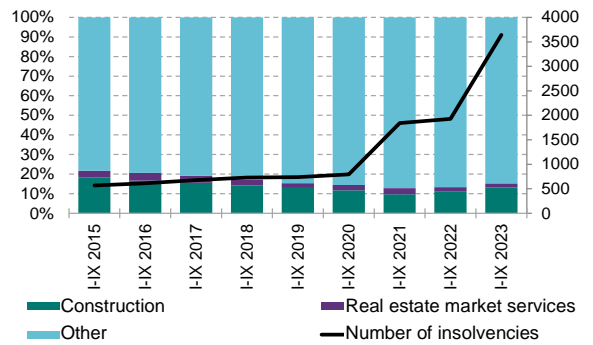
4. Operating profitability of residential and development projects, costs of construction and assembly output and economic situation of real estate developers in Poland

Figure 38 Rescaled stock exchange indices: WIG20 and for real estate developers (WIG-NIER) and construction companies (WIG-BUD) (2007 Q2=100)



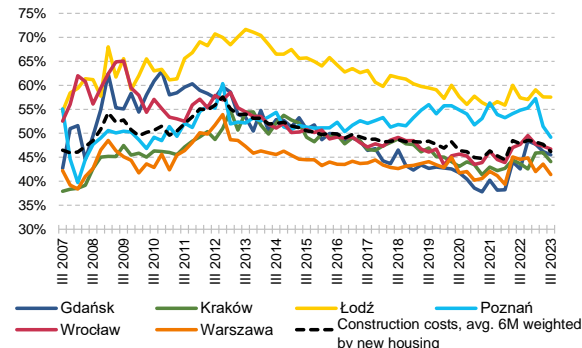
Note: standardised data, 2007 Q2 = 100 (developers' WIG has been listed since 2007 Q2); 2023 Q3, situation as at 22 November 2023
Source: Warsaw Stock Exchange

Figure 39 Structure and number of insolvencies of enterprises, including in the construction industry (as at the end of Q3)



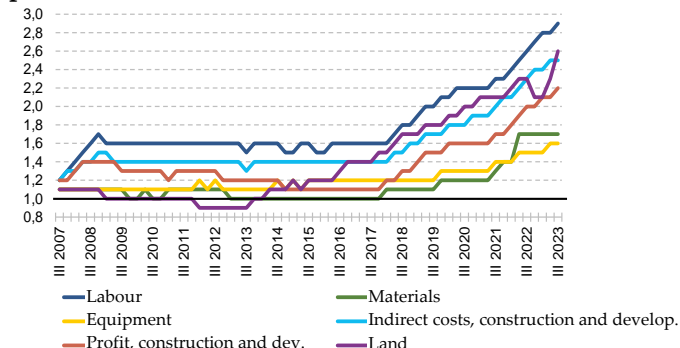
Note: breakdown according to the first entry into the National Court Register (KRS).
Source: Coface Poland

Figure 40 Estimated share of direct costs of construction per sq. m of the usable floor area of a residential building (type 1122-302³⁶) in net transaction price in PM 6M



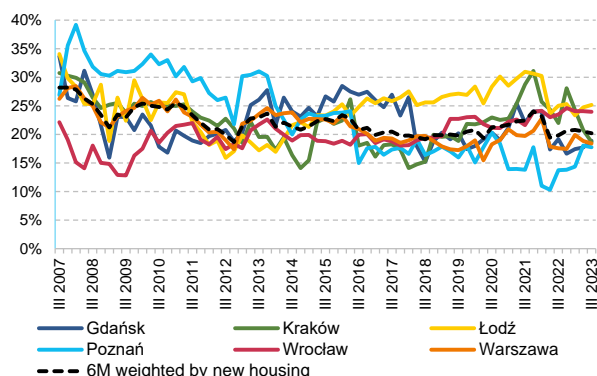
Note to Figures 40 and 41: Since 2014, NBP has used its own appraisal of land for multi-family housing construction.
Source: NBP based on Sekocenbud

Figure 41 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

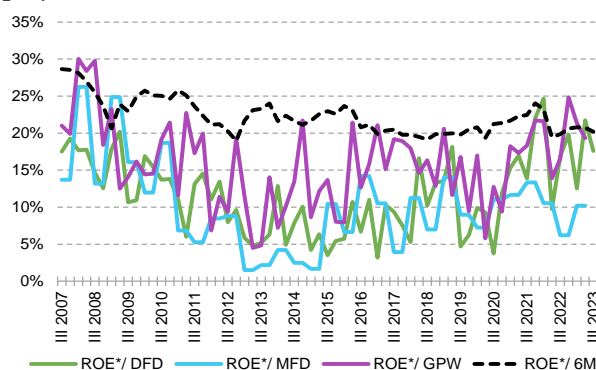
Figure 42 Estimated ROE on investment projects (type 1122-302³⁶) in the largest cities



*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)

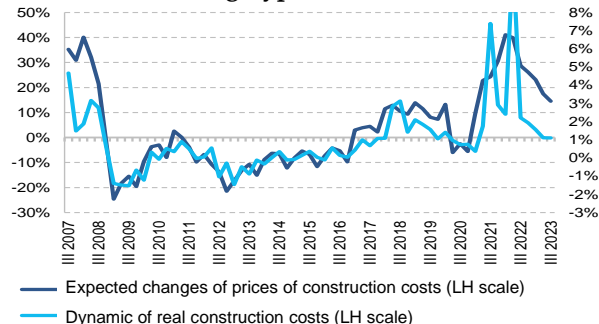
Figure 43 Estimated ROE achieved on development projects by developers listed on the Warsaw Stock Exchange*, big developers (DFD)/ and small developers (MFD)***/ as well as on investment projects in 6M**



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

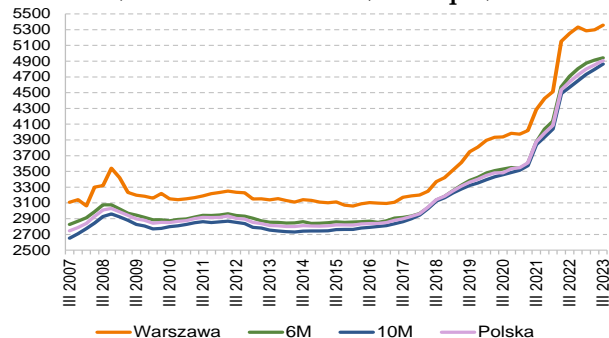
³⁶ Half of the building (type 1122-302) monitored by NBP since 2016 Q2 based on the Sekocenbud data.. An average residential five-storey multi-family building, with an underground garage built using the following technology : foundation footings, construction walls and ceilings - monolithic reinforced 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 Expected changes in prices of construction and assembly works (+3M/months) and growth in construction costs of usable floor area of a residential building (type 1122- 302³⁶)



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

Figure 45 Average cost of building 1 sq. m of the usable floor area of a residential building (type 1122- 302³⁶) in selected markets (PLN/sq.m)



Source: NBP based on Sekocenbud

Figure 46 Warsaw – estimated structure of net price per sq. m of the usable floor area of a dwelling in PM (building type 1122-302²⁹) for consumers and price level (PLN/sq.m, RHS)

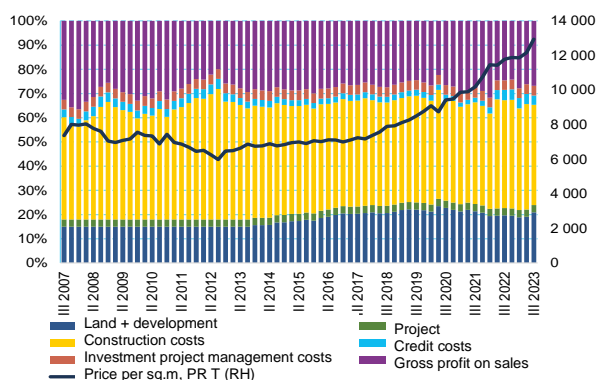


Figure 47 Kraków - estimated structure of net price per sq. m of the usable floor area of a dwelling in PM (building type 1122-302²⁹) for consumers and price level (PLN/sq.m, RHS)

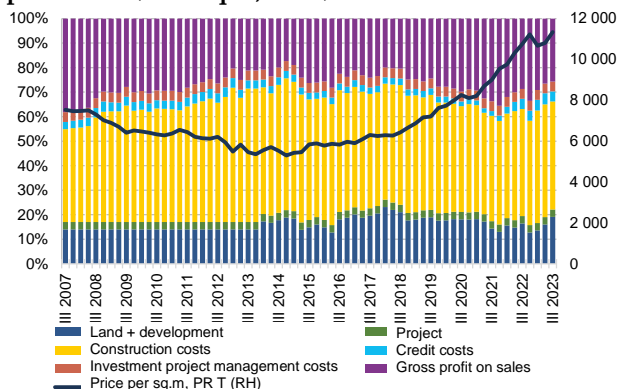
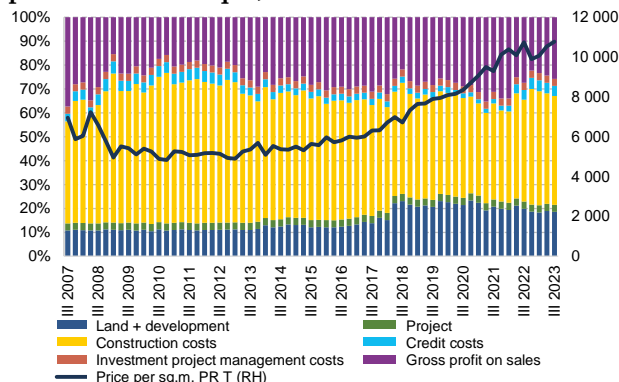
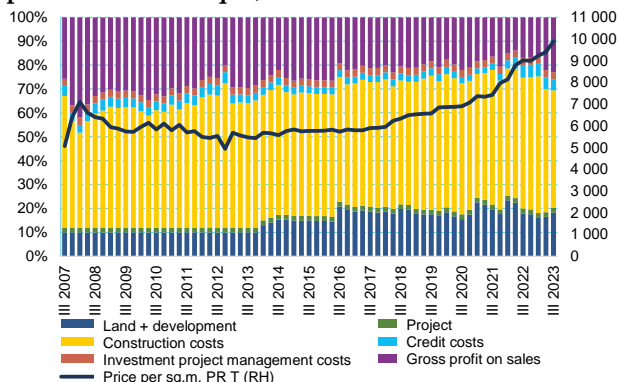


Figure 48 Gdańsk – estimated structure of net price per sq. m of the usable floor area of a dwelling in PM (building type 1122-302²⁹) for consumers and price level (PLN/sq.m, RHS)



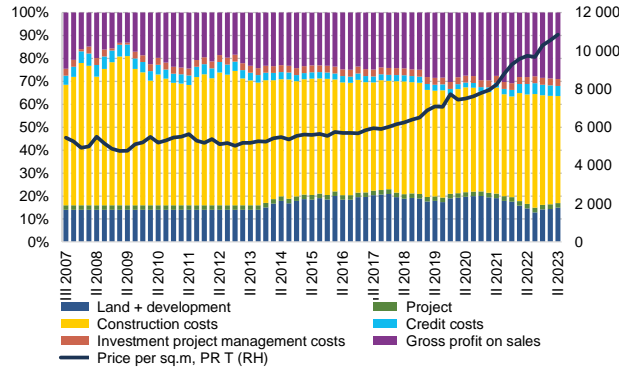
Source: NBP based on Sekocenbud, JLL

Figure 49 Poznań – estimated structure of net price per sq. m of the usable floor area of a dwelling in PM (building type 1122-302²⁹) for consumers and price level (PLN/sq.m, RHS)



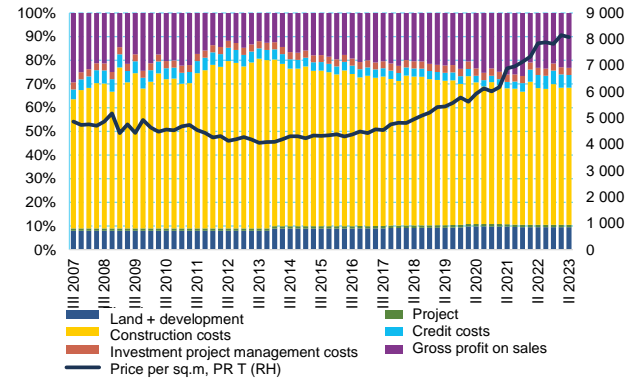
Source: NBP based on Sekocenbud, JLL

Figure 50 Wrocław – estimated structure of net price per sq. m of the usable floor area of a dwelling in PM (building type 1122-302^{29/}) for consumers and price level (PLN/sq.m, RHS)



Source: NBP based on Sekocenbud, JLL

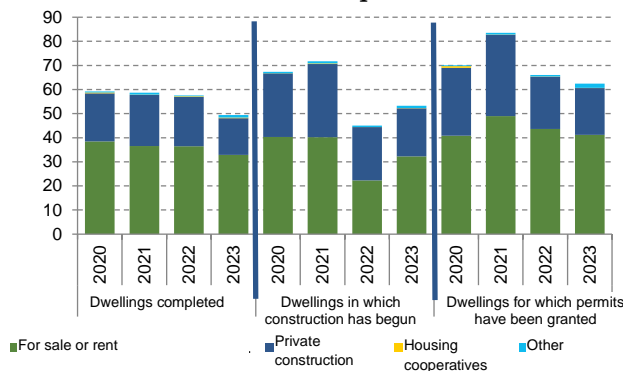
Figure 51 Łódź – estimated structure of net price per sq. m of the usable floor area of a dwelling in PM (building type 1122-302^{29/}) for consumers and price level (PLN/sq.m, RHS)



Source: NBP based on Sekocenbud, JLL

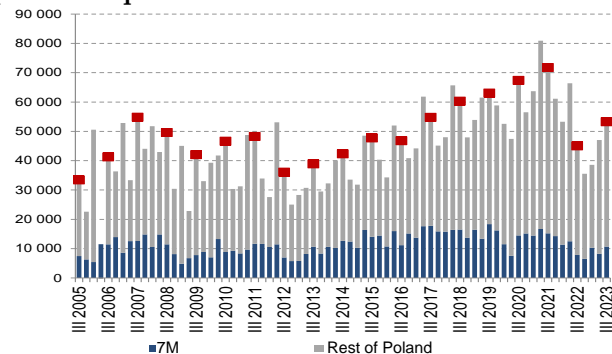
5. Residential construction industry and the housing market in selected cities in Poland

Figure 52 Structure of residential construction investors in Poland in the third quarters of 2018-2023



Source: Statistics Poland

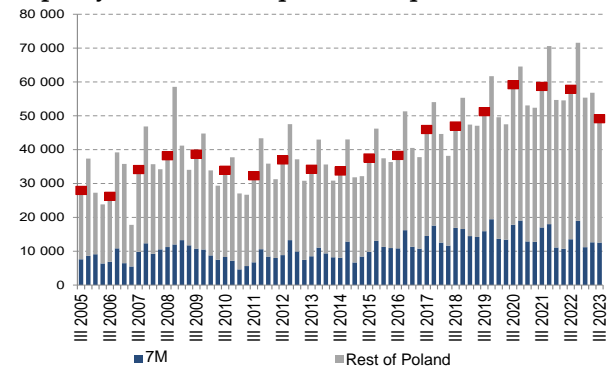
Figure 54 New home construction starts in Poland, in quarter-on-quarter terms



Note: the red squares indicate third quarters only.

Source: Statistics Poland

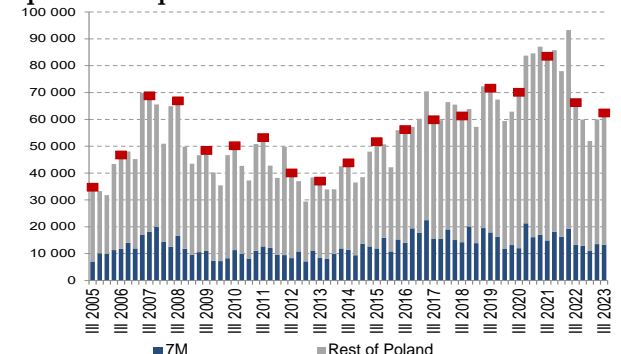
Figure 53 Dwellings completed and made ready for occupancy in Poland, in quarter-on-quarter terms



Note: the red squares indicate third quarters only.

Source: Statistics Poland

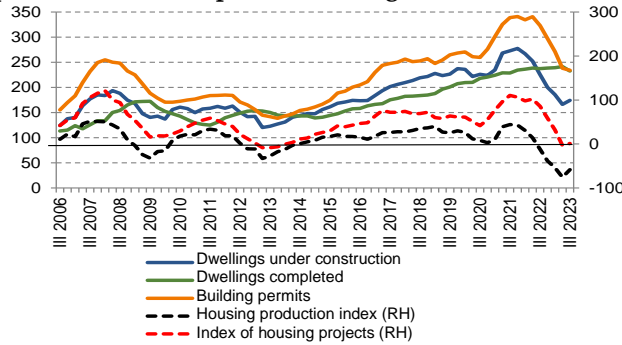
Figure 55 Home building permits issued in Poland, in quarter-on-quarter terms



Note: the red squares indicate third quarters only.

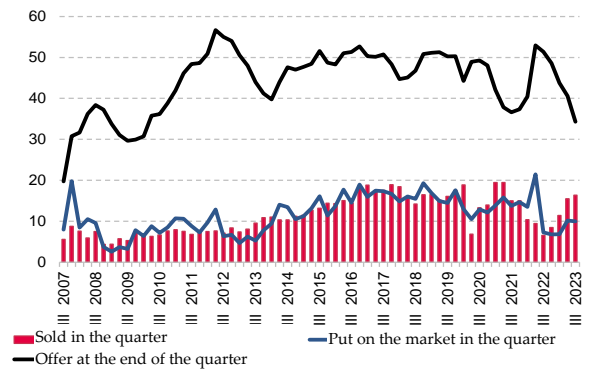
Source: Statistics Poland

Figure 56 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)



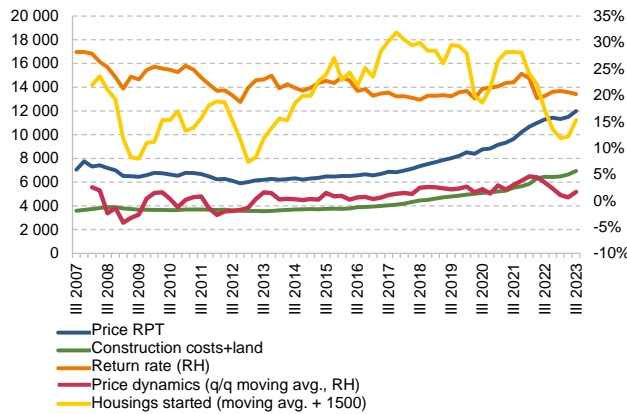
Note: moving averages for the past four quarters.
Source: NBP based on PABB and Statistics Poland

Figure 57 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/d.REAS

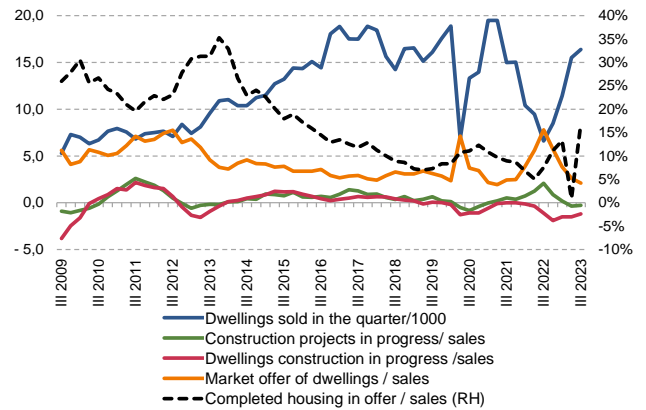
Figure 58 Housing supply and the estimated rate of return on housing development projects in PM, avg. in 7M



Note to Figure 58: 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

Figure 59 Housing projects, dwellings under construction and finished dwellings offered relative to sales in 7M



Source: NBP based on Statistics Poland, JLL

Figure 60 Measure of the match between dwellings offered and demand in terms of floor area ≤ 50 sq. m., PM in selected cities of Poland

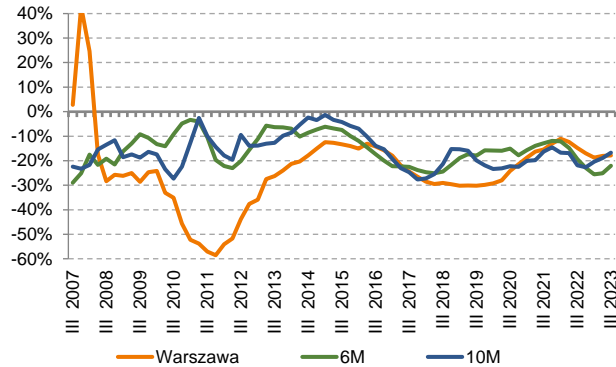
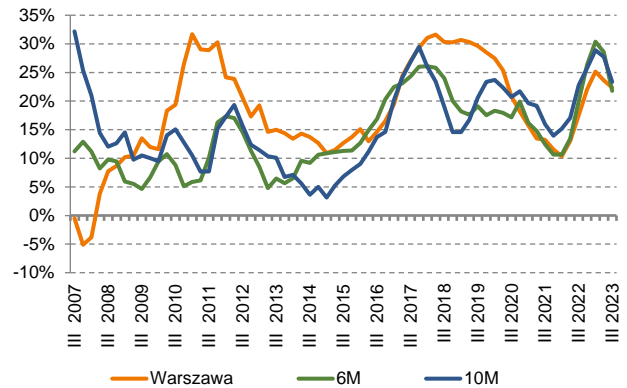


Figure 61 Measure of the match between dwellings offered and demand in terms of floor area >50 sq. m., SM in selected cities of Poland

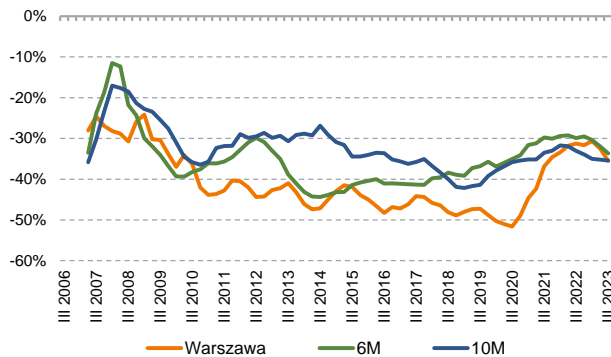


Note: Figure 60 presents, in percentage terms, a short-term mismatch in the primary market between supply (developers' housing offer) and the estimated demand (housing transactions) in terms of the dwelling's size, according to the data from the BaRN database. The mismatch is calculated as the share 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 61 is parallel for the space above 50 sq.m. Figures 61-62 are parallel, but they concern the SM only.

Source: NBP

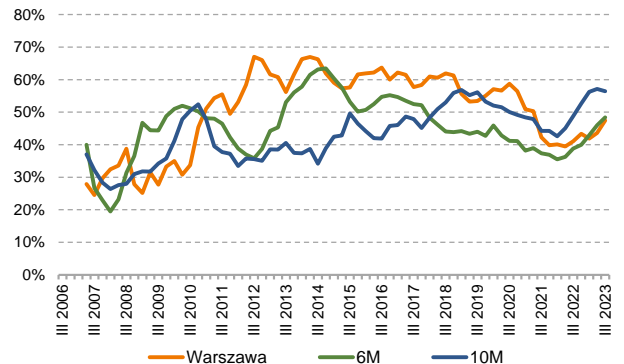
Source: NBP

Figure 62 Measure of the match between dwellings offered vs. demand in terms of floorage ≤ 50 sq. m, SM in selected cities of Poland



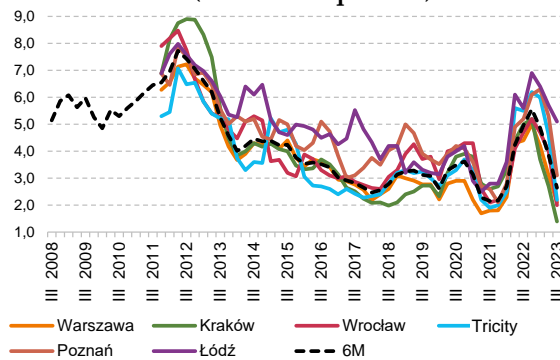
Source: NBP

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



Source: NBP

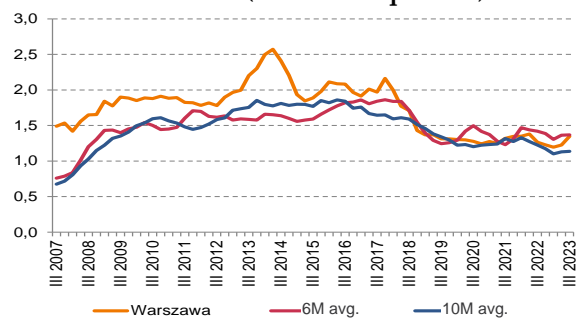
Figure 64 Timeline for selling dwellings offered in PM in selected cities (number of quarters)



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

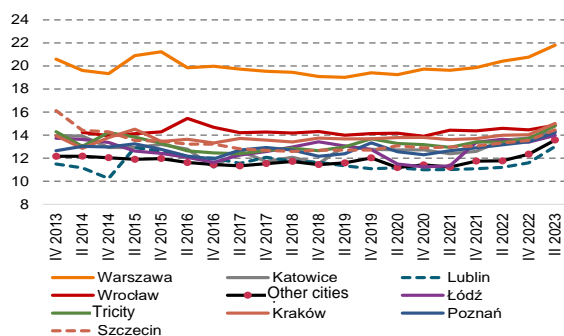
Figure 65 Timeline for selling dwellings offered in SM in selected cities (number of quarters)



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

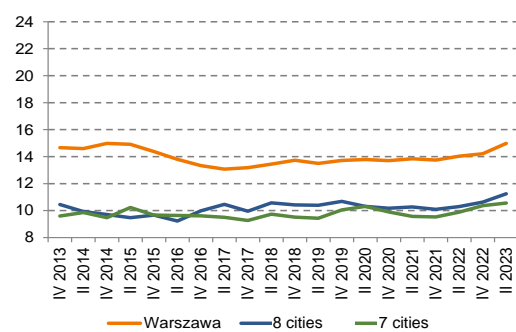
Figure 66 Transaction rents for class A office space (average prices in EUR/sq.m./month)



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

Source: NBP

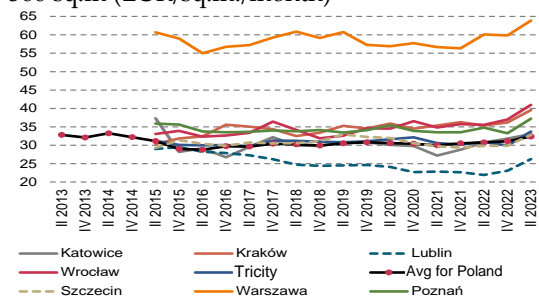
Figure 67 Transaction rents for class B office space (average prices in EUR/sq.m./month)



Note: „8 cities” are Katowice, Kraków, Lublin, Łódź, Poznań, Szczecin, Tri-City Wrocław. „7 cities” are Białystok, Bydgoszcz, Kielce, Olsztyn, Opole, Rzeszów, Zielona Góra.

Source: NBP

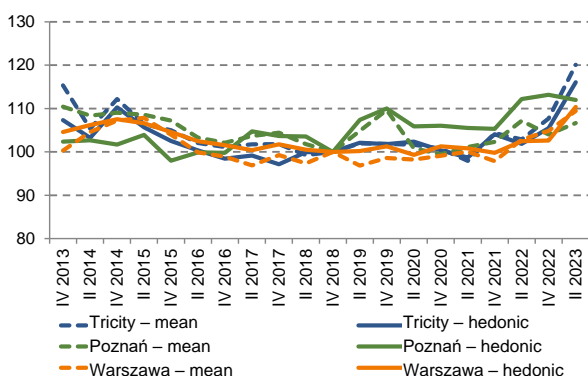
Figure 68 Transaction rents for retail space in shopping centres (shopping malls) with an area of 100-500 sq.m (EUR/sq.m./month)



Note to Figure 68: since the beginning of 2015 Q4, the number of records in the base, including respondents, has increased significantly, changing the analysed sample.

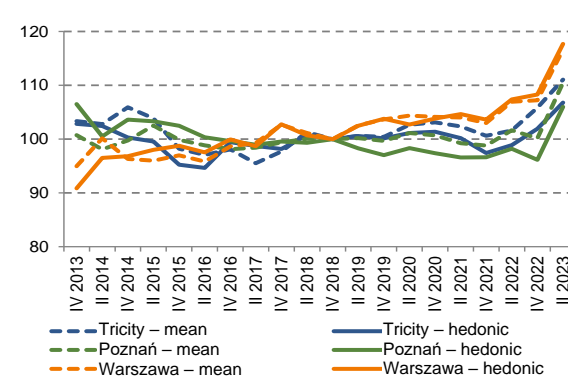
Source: NBP

Figure 69 Index of rents for offices, average and hedonic (2018 Q4 = 100)



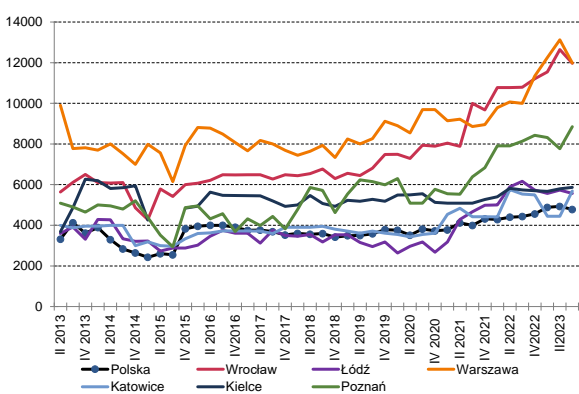
Source: NBP

Figure 70 Index of rents in shopping centres, average and hedonic (2018 Q4 = 100)



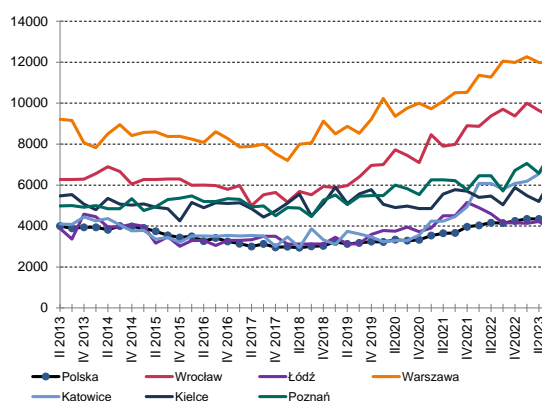
Source: NBP

Figure 71 Median offer price to sell price of small office premises in SM (PLN/sq.m)



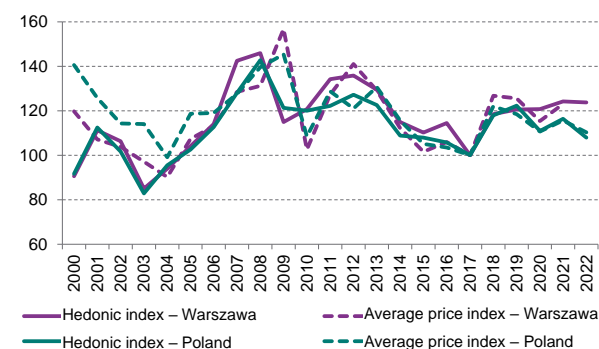
Source: PONT, NBP study

Figure 72 Median offer price to sell of small retail premises in SM (PLN/sq.m)



Source: PONT, NBP study

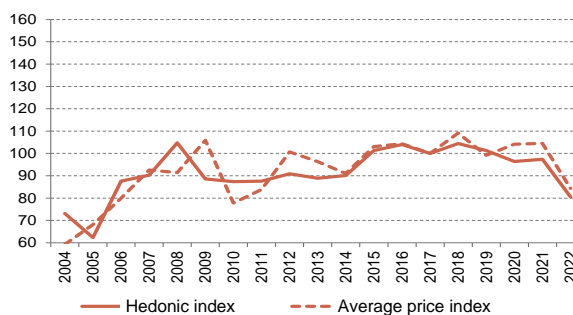
Figure 73 Change in average and hedonic prices of office real estate in Warsaw and the whole of Poland (2017=100) and the implied price index for Warsaw



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

Source: NBP, Comparables.pl, AMRON

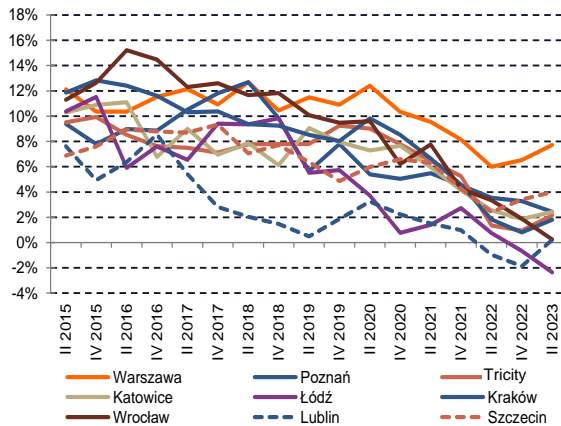
Figure 74 Change in average and hedonic prices of retail real estate in the whole of Poland (2017=100)



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

Source: NBP, Comparables.pl, AMRON

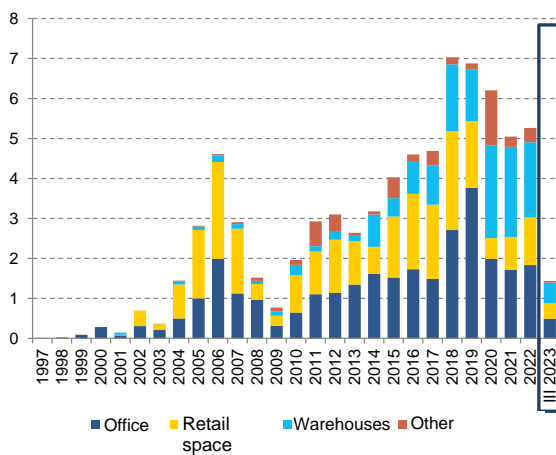
Figure 75 Estimated Return on Equity (ROE) on an investment in the construction and commercialisation of a class A office building, assuming financial of leverage LTC=80%



Note: A description of the ROE calculation method can be found under Tables 3 to 5. 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 a given market

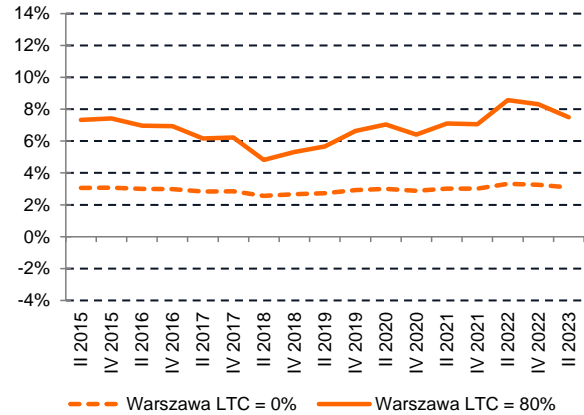
Source: NBP, Sekocenbud, NBP study

Figure 77 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 76 Estimated Return on Equity (ROE) on an investment concerning the purchase of class B office building from the existing stock in Warsaw



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

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

Figure 78 Operating expenses of a class A and a class B office building in Warsaw (PLN/sq.m/month)

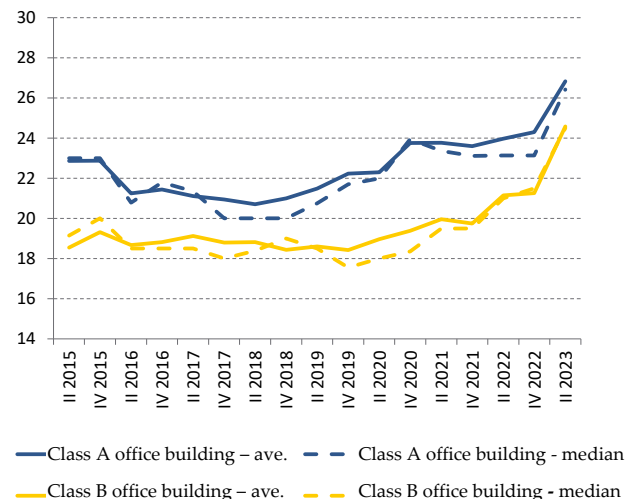


Table 4 Estimated Return on Equity (ROE) on an investment in the construction and commercialisation of a Class A office building in Katowice

Date	Average rent per sq. m of space in EUR – class A	Cost of built usable area of office space with land in EUR	ROE at LTC = 0%	ROE at LTC = 50%	ROE at LTC = 80%	Average yield 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 related to the organization of the investment project and commercialisation of the building, as well as the expert-estimate of the cost of land (based on publicly available information). A loan granted in EUR for 25 years, payable 4 times a year in equal installments. 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 depreciation cost of the building. CIT tax has been taken into account. ROE means net income/equity employed.

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 class A office building in Kraków

Date	Average rent per sq. m of space in EUR – class A	Cost of built usable area of office space with land in EUR	ROE at LTC = 0%	ROE at LTC = 50%	ROE at LTC = 80%	Average yield 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" [Bulletin of Construction Prices Part I - buildings, building type 1220-102]

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

Date	Average rent per sq. m of space in EUR – class A	Cost of built usable area of office space with land in EUR	ROE at LTC = 0%	ROE at LTC = 50%	ROE at LTC = 80%	Average yield 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" [Bulletin of Construction Prices Part I - buildings, building type 1220-102]

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

Date	Average rent per sq. m of space in EUR – class A	Cost of built usable area of office space with land in EUR	ROE at LTC = 0%	ROE at LTC = 50%	ROE at LTC = 80%	Average yield 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" [Bulletin of Construction Prices Part I - buildings, building type 1220-102]

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

Date	Average rent per sq. m of space in EUR – class A	Cost of built usable area of office space with land in EUR	ROE at LTC = 0%	ROE at LTC = 50%	ROE at LTC = 80%	Average yield 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	2596	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" [Bulletin of Construction Prices Part I - buildings, building type 1220-102]

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

Date	Average rent per sq. m of space in EUR – class A	Cost of built usable area of office space with land in EUR	ROE at LTC = 0%	ROE at LTC = 50%	ROE at LTC = 80%	Average yield 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" [Bulletin of Construction Prices Part I - buildings, building type 1220-102]

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

Date	Average rent per sq. m of space in EUR – class A	Cost of built usable area of office space with land in EUR	ROE at LTC = 0%	ROE at LTC = 50%	ROE at LTC = 80%	Average yield 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%
IV 2022	13.7	2,632	1.8%	1.6%	0.9%	6.7%
II 2023	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" [Bulletin of Construction Prices Part I - buildings, building type 1220-102]

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

Date	Average rent per sq. m of space in EUR – class A	Cost of built usable area of office space with land in EUR	ROE at LTC = 0%	ROE at LTC = 50%	ROE at LTC = 80%	Average yield 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" [Bulletin of Construction Prices Part I - buildings, building type 1220-102]

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

Date	Average rent per sq. m of space in EUR – class A	Cost of built usable area of office space with land in EUR	ROE at LTC = 0%	ROE at LTC = 50%	ROE at LTC = 80%	Average yield 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%
II 2023	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" [Bulletin of Construction Prices Part I - buildings, building type 1220-102]

Tabela 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
2014 Q2	14.6	2,312	7.6%	3.0%	3.9%	6.8%	3.4%
2014 Q4	15.0	2,289	7.8%	3.1%	4.3%	7.8%	2.6%
2015 Q2	14.9	2,319	7.7%	3.1%	4.1%	7.3%	2.8%
2015 Q4	14.4	2,222	7.8%	3.1%	4.2%	7.4%	2.8%
2016 Q2	13.8	2,162	7.7%	3.0%	4.0%	7.0%	3.0%
2016 Q4	13.3	2,080	7.7%	3.0%	4.0%	6.9%	3.3%
2017 Q2	13.1	2,104	7.5%	2.8%	3.7%	6.2%	3.3%
2017 Q4	13.2	2,117	7.5%	2.8%	3.7%	6.2%	3.4%
2018 Q2	13.2	2,268	7.0%	2.6%	3.1%	4.8%	3.2%
2018 Q4	13.6	2,284	7.1%	2.7%	3.3%	5.3%	3.1%
2019 Q2	13.3	2,194	7.3%	2.7%	3.5%	5.7%	2.7%
2019 Q4	13.5	2,144	7.6%	2.9%	3.8%	6.6%	2.0%
2020 Q2	13.5	2,102	7.7%	3.0%	4.0%	7.0%	1.4%
2020 Q4	13.4	2,143	7.5%	2.9%	3.8%	6.4%	1.3%
2021 Q2	13.5	2,085	7.8%	3.0%	4.0%	7.1%	1.5%
2022 Q2	14.0	2,147	7.8%	3.3%	4.6%	8.6%	5.5%
2022 Q4	14.2	2,155	7.9%	3.3%	4.5%	8.3%	6.7%
2023 Q2	14.9	2,200	8.1%	3.1%	4.2%	7.5%	6.1%

Assumptions: The analysis assumes contractual rental 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 (rates of return on 10-year bonds)

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

specification	III Q 2022		IV Q 2022		I Q 2023		IIQ 2023		III Q 2023	
	offer	trans.	offer	trans.	offer	trans.	offer	trans.	offer	trans.
average price (PLN/sq.m.)	11 619	11 604	11 643	10 694	11 808	10 874	11 793	11 384	12 233	11 643
growth (q-o-q)	99,9	106,5	100,2	92,2	101,4	101,7	99,9	104,7	103,7	102,3
growth (y-o-y)	112,7	115,5	104,1	97,6	104,0	96,8	101,4	104,5	105,3	100,3
dwelling price range	6 545	902	6 330	679	5 725	763	4 970	1 415	4 503	1 374
<=8 000 PLN/sq.m	392	96	397	95	340	100	256	86	205	51
(8 001; 10 000] PLN/sq.m	2 649	347	2 482	312	1 998	329	1 736	563	1 017	550
(10 001; 12 000] PLN/sq.m	1 460	131	1 486	78	1 519	89	1 378	251	1 552	284
(12 001; 14 000] PLN/sq.m	708	111	663	99	588	121	592	253	687	182
>14 001 PLN/sq.m	1 336	217	1 302	95	1 280	124	1 008	262	1 042	307
dwelling space range	6 545	902	6 330	679	5 725	763	4 970	1 415	4 503	1 374
<= 40 sq.m	1 149	280	1 069	173	939	186	833	294	687	281
(40,1; 60] sq.m	2 914	376	2 749	344	2 486	332	2 132	694	1 951	666
(60,1; 80] sq.m	1 856	160	1 864	132	1 684	201	1 481	331	1 331	353
> 80,1 sq.m	626	86	648	30	616	44	524	96	534	74
average price of 1 sq.m. of dwelling	11 619	11 604	11 643	10 694	11 808	10 874	11 793	11 384	12 233	11 643
<=40 sq.m	12 008	10 857	12 138	10 763	12 343	11 166	12 215	11 928	12 313	12 474
(40,1; 60] sq.m	11 546	11 523	11 639	10 478	11 812	10 750	11 872	11 306	12 416	11 681
(60,1; 80] sq.m	11 153	11 968	11 097	10 405	11 291	10 180	11 339	10 715	11 797	10 617
> 80,1 sq.m	12 628	13 708	12 412	14 038	12 395	13 744	12 089	12 590	12 551	13 034
average offer price deviation	0,1%	x	8,9%	x	8,6%	x	3,6%	x	5,1%	x
<= 40 sq.m	10,6%	x	12,8%	x	10,5%	x	2,4%	x	-1,3%	x
(40,1; 60] sq.m	0,2%	x	11,1%	x	9,9%	x	5,0%	x	6,3%	x
(60,1; 80] sq.m	-6,8%	x	6,6%	x	10,9%	x	5,8%	x	11,1%	x
> 80,1 sq.m	-7,9%	x	-11,6%	x	-9,8%	x	-4,0%	x	-3,7%	x

Source: NBP

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

specification	III Q 2022		IV Q 2022		I Q 2023		IIQ 2023		III Q 2023	
	offer	trans.	offer	trans.	offer	trans.	offer	trans.	offer	trans.
average price (PLN/sq.m.)	11 931	11 429	12 219	11 278	12 223	10 970	12 568	11 053	12 995	11 312
growth (q-o-q)	98,6	106,1	102,4	98,7	100,0	97,3	102,8	100,8	103,4	102,3
growth (y-o-y)	106,9	117,0	106,8	109,8	101,8	106,1	103,9	102,6	108,9	99,0
dwelling price range	2 336	1 020	2 508	881	2 394	762	2 047	1 102	2 229	288
<=8 000 PLN/sq.m	103	92	123	100	89	101	67	126	71	17
(8 001; 10 000] PLN/sq.m	598	282	579	248	548	220	432	307	384	73
(10 001; 12 000] PLN/sq.m	690	328	755	251	781	227	618	366	620	109
(12 001; 14 000] PLN/sq.m	458	151	459	135	427	99	394	149	454	58
>14 001 PLN/sq.m	487	167	592	147	549	115	536	154	700	31
dwelling space range	2 336	1 020	2 508	881	2 394	762	2 047	1 102	2 229	288
<= 40 sq.m	385	274	450	245	420	192	340	275	344	91
(40,1; 60] sq.m	997	499	1 038	422	1 030	375	835	558	889	148
(60,1; 80] sq.m	661	194	711	165	670	149	581	216	678	46
> 80,1 sq.m	293	53	309	49	274	46	291	53	318	3
average price of 1 sq.m. of dwelling	11 931	11 429	12 219	11 278	12 223	10 970	12 568	11 053	12 995	11 312
<= 40 sq.m	13 128	12 079	13 566	11 937	13 566	11 620	13 851	12 044	14 589	12 426
(40,1; 60] sq.m	12 058	11 301	12 176	11 257	11 996	10 836	12 488	10 754	13 069	10 852
(60,1; 80] sq.m	11 305	11 090	11 556	10 784	11 871	10 566	12 267	10 546	12 334	10 758
> 80,1 sq.m	11 334	10 520	11 924	9 818	11 879	10 659	11 902	11 117	12 472	8 716
average offer price deviation	4,4%	x	8,3%	x	11,4%	x	13,7%	x	14,9%	x
<= 40 sq.m	8,7%	x	13,6%	x	16,8%	x	15,0%	x	17,4%	x
(40,1; 60] sq.m	6,7%	x	8,2%	x	10,7%	x	16,1%	x	20,4%	x
(60,1; 80] sq.m	1,9%	x	7,2%	x	12,3%	x	16,3%	x	14,6%	x
> 80,1 sq.m	7,7%	x	21,5%	x	11,4%	x	7,1%	x	43,1%	x

Source: NBP

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

specification	III Q 2022		IV Q 2022		I Q 2023		IIQ 2023		III Q 2023	
	offer	trans.	offer	trans.	offer	trans.	offer	trans.	offer	trans.
average price (PLN/sq.m.)	11 731	11 603	11 965	12 131	12 140	11 519	13 125	11 669	14 216	12 240
growth (q-o-q)	103,0	104,1	102,0	104,6	101,5	95,0	108,1	101,3	108,3	104,9
growth (y-o-y)	110,5	119,4	108,7	117,7	108,8	109,3	115,2	104,7	121,2	105,5
dwelling price range	7 175	1 073	6 529	1 410	5 730	1 167	4 152	1 587	3 272	1 669
<=8 000 PLN/sq.m	113	29	79	48	42	34	9	29	2	6
(8 001; 10 000] PLN/sq.m	1 666	314	1 435	351	1 169	330	558	330	292	288
(10 001; 12 000] PLN/sq.m	2 865	349	2 456	444	2 001	443	1 185	698	507	624
(12 001; 14 000] PLN/sq.m	1 297	149	1 256	144	1 241	156	1 059	289	1 006	444
>14 001 PLN/sq.m	1 234	232	1 303	423	1 277	204	1 341	241	1 465	307
dwelling space range	7 175	1 073	6 529	1 410	5 730	1 167	4 152	1 587	3 272	1 669
<= 40 sq.m	1271	343	1022	420	924	307	771	321	560	305
(40,1; 60] sq.m	3534	458	3258	703	2955	532	2114	805	1520	870
(60,1; 80] sq.m	1873	196	1765	228	1448	260	930	388	871	398
> 80,1 sq.m	497	76	484	59	403	68	337	73	321	96
average price of 1 sq.m. of dwelling	11 731	11 603	11 965	12 131	12 140	11 519	13 125	11 669	14 216	12 240
<= 40 sq.m	12901	12277	13549	12607	13920	12348	14845	13038	16162	14100
(40,1; 60] sq.m	11623	11165	11854	12155	12008	11440	12824	11463	14109	11943
(60,1; 80] sq.m	11151	11028	11279	11192	11463	10682	12577	11019	13225	11555
> 80,1 sq.m	11697	12677	11878	12089	11452	11595	12590	11383	14020	11874
average offer price deviation	1,1%	x	-1,4%	x	5,4%	x	12,5%	x	16,1%	x
<= 40 sq.m	5,1%	x	7,5%	x	12,7%	x	13,9%	x	14,6%	x
(40,1; 60] sq.m	4,1%	x	-2,5%	x	5,0%	x	11,9%	x	18,1%	x
(60,1; 80] sq.m	1,1%	x	0,8%	x	7,3%	x	14,1%	x	14,5%	x
> 80,1 sq.m	-7,7%	x	-1,7%	x	-1,2%	x	10,6%	x	18,1%	x

Source: NBP

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

specification	III Q 2022		IV Q 2022		I Q 2023		IIQ 2023		III Q 2023	
	offer	trans.	offer	trans.	offer	trans.	offer	trans.	offer	trans.
average price (PLN/sq.m.)	12 247	11 057	12 433	11 086	12 649	11 011	13 026	11 185	14 186	11 810
growth (q-o-q)	101,2	102,9	101,5	100,3	101,7	99,3	103,0	101,6	108,9	105,6
growth (y-o-y)	115,4	114,1	108,9	110,9	106,8	106,6	107,6	104,0	115,8	106,8
dwelling price range	1 510	1 617	1 274	1 308	1 228	1 018	1 162	1 347	911	1 189
<=8 000 PLN/sq.m	27	129	35	123	26	92	12	98	10	66
(8 001; 10 000] PLN/sq.m	335	437	288	365	253	309	187	392	83	247
(10 001; 12 000] PLN/sq.m	485	580	377	414	364	323	350	434	207	388
(12 001; 14 000] PLN/sq.m	353	297	284	237	277	171	278	250	226	274
>14 001 PLN/sq.m	310	174	290	169	308	123	335	173	385	214
dwelling space range	1 510	1 617	1 274	1 308	1 228	1 018	1 162	1 347	911	1 189
<= 40 sq.m	374	605	272	475	265	411	233	505	214	420
(40,1; 60] sq.m	692	706	559	588	550	438	515	623	357	551
(60,1; 80] sq.m	323	217	289	182	290	114	276	166	231	166
> 80,1 sq.m	121	89	154	63	123	55	138	53	109	52
average price of 1 sq.m. of dwelling	12 247	11 057	12 433	11 086	12 649	11 011	13 026	11 185	14 186	11 810
<= 40 sq.m	13 388	11 433	13 361	11 643	13 878	11 421	14 249	11 758	15 675	12 455
(40,1; 60] sq.m	11 785	10 721	11 875	10 659	12 040	10 625	12 565	10 747	13 663	11 277
(60,1; 80] sq.m	11 656	10 880	12 289	10 884	12 442	10 891	12 920	10 844	13 750	11 619
> 80,1 sq.m	12 937	11 606	13 085	11 461	13 213	11 277	12 896	11 944	13 899	12 846
average offer price deviation	10,8%	x	12,1%	x	14,9%	x	16,5%	x	20,1%	x
<= 40 sq.m	17,1%	x	14,8%	x	21,5%	x	21,2%	x	25,9%	x
(40,1; 60] sq.m	9,9%	x	11,4%	x	13,3%	x	16,9%	x	21,2%	x
(60,1; 80] sq.m	7,1%	x	12,9%	x	14,2%	x	19,1%	x	18,3%	x
> 80,1 sq.m	11,5%	x	14,2%	x	17,2%	x	8,0%	x	8,2%	x

Source: NBP

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

specification	III Q 2022		IV Q 2022		I Q 2023		II Q 2023		III Q 2023	
	offer	trans.	offer	trans.	offer	trans.	offer	trans.	offer	trans.
average price (PLN/sq.m.)	8 973	8 475	9 152	8 520	9 391	8 451	9 465	8 810	9 594	8 731
growth (q-o-q)	105,8	106,9	102,0	100,5	102,6	99,2	100,8	104,2	101,4	99,1
growth (y-o-y)	112,1	113,8	112,7	113,2	115,3	109,5	111,6	111,1	106,9	103,0
dwelling price range	3 251	365	3 254	381	3 506	405	3 880	482	4 282	527
<=4 000 PLN/sq.m	0	0	0	0	0	0	0	0	0	0
(4 001; 6 000] PLN/sq.m	12	0	13	0	4	1	3	0	5	1
(6 001; 8 000] PLN/sq.m	789	143	681	150	617	164	798	138	687	149
(8 001; 10 000] PLN/sq.m	1 708	198	1 663	191	1 712	207	1 507	282	1 772	305
>10 000 PLN/sq.m	742	24	897	40	1 173	33	1 572	62	1 818	72
dwelling space range	3 251	365	3 254	381	3 506	405	3 880	482	4 282	527
<= 40 sq.m	924	154	903	143	1049	120	1103	172	1335	132
(40,1; 60] sq.m	1437	144	1435	173	1560	179	1761	184	1911	265
(60,1; 80] sq.m	750	55	764	49	752	90	784	101	804	103
> 80,1 sq.m	140	12	152	16	145	16	232	25	232	27
average price of 1 sq.m. of dwelling	8 973	8 475	9 152	8 520	9 391	8 451	9 465	8 810	9 594	8 731
<= 40 sq.m	9509	8926	9 712	9 166	9989	9163	10317	9513	10380	9508
(40,1; 60] sq.m	8826	8244	9 049	8 170	9265	8320	9278	8609	9388	8665
(60,1; 80] sq.m	8598	7823	8 631	7 856	8760	7790	8834	8029	8958	8105
> 80,1 sq.m	8941	8457	9 422	8 575	9684	8286	8971	8606	8974	7970
average offer price deviation	5,9%	x	7,4%	x	11,1%	x	7,4%	x	9,9%	x
<= 40 sq.m	6,5%	x	6,0%	x	9,0%	x	8,5%	x	9,2%	x
(40,1; 60] sq.m	7,1%	x	10,8%	x	11,4%	x	7,8%	x	8,3%	x
(60,1; 80] sq.m	9,9%	x	9,9%	x	12,5%	x	10,0%	x	10,5%	x
> 80,1 sq.m	5,7%	x	9,9%	x	16,9%	x	4,2%	x	12,6%	x

Source: NBP

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

specification	III Q 2022		IV Q 2022		I Q 2023		II Q 2023		III Q 2023	
	offer	trans.	offer	trans.	offer	trans.	offer	trans.	offer	trans.
average price (PLN/sq.m.)	7 164	6 887	7 203	6 384	7 373	6 579	7 526	6 366	7 810	6 768
growth (q-o-q)	102,7	103,5	100,5	92,7	102,4	103,1	102,1	96,8	103,8	106,3
growth (y-o-y)	107,2	113,4	108,0	103,7	105,1	105,9	107,9	95,7	109,0	98,3
dwelling price range	1 145	77	1 133	157	1 167	125	1 361	178	1 095	254
<= 4000 PLN/sq.m	6	2	7	13	5	1	6	6	4	7
(4 001; 6 000] PLN/sq.m	202	21	244	56	231	55	241	82	155	73
(6 001; 8 000] PLN/sq.m	669	40	596	64	602	50	703	66	510	132
(8 001; 10 000] PLN/sq.m	226	11	222	17	239	12	276	15	294	30
> 10 000 PLN/sq.m	42	3	64	7	90	7	135	9	132	12
dwelling space range	1 145	77	1 133	157	1 167	125	1 361	178	1 095	254
<= 40 sq.m	286	33	265	77	276	45	335	57	299	93
(40,1; 60] sq.m	566	25	553	61	557	56	605	92	423	117
(60,1; 80] sq.m	170	11	190	9	201	15	238	21	210	34
> 80,1 sq.m	123	8	125	10	133	9	183	8	163	10
average price of 1 sq.m. of dwelling	7 164	6 887	7 203	6 384	7 373	6 579	7 526	6 366	7 810	6 768
<= 40 sq.m	7 483	7 268	7 544	6 835	7 693	6 832	7 983	7 043	8 045	6 962
(40,1; 60] sq.m	7 001	6 872	7 067	6 132	7 177	6 233	7 231	6 056	7 691	6 990
(60,1; 80] sq.m	7 273	7 222	7 157	5 712	7 523	6 699	7 705	6 165	7 997	6 727
> 80,1 sq.m	7 021	4 899	7 153	5 058	7 307	7 269	7 432	5 633	7 448	6 025
average offer price deviation	4,0%	x	12,8%	x	12,1%	x	18,2%	x	15,4%	x
<= 40 sq.m	3,0%	x	10,4%	x	12,6%	x	13,4%	x	15,6%	x
(40,1; 60] sq.m	1,9%	x	15,3%	x	15,1%	x	19,4%	x	15,0%	x
(60,1; 80] sq.m	0,7%	x	25,3%	x	12,3%	x	25,0%	x	18,9%	x
> 80,1 sq.m	43,3%	x	41,4%	x	0,5%	x	31,9%	x	23,6%	x

Source: NBP

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

specification	III Q 2022		IV Q 2022		I Q 2023		IIQ 2023		III Q 2023	
	offer	trans.	offer	trans.	offer	trans.	offer	trans.	offer	trans.
average price (PLN/sq.m.)	10 152	9 736	10 326	9 716	10 682	9 974	10 807	10 150	11 556	10 689
growth (q-o-q)	101,9	102,5	101,7	99,8	103,4	102,7	101,2	101,8	101,1	100,9
growth (y-o-y)	115,6	121,3	112,2	112,9	108,5	113,4	108,4	106,9	108,4	106,0
dwelling price range	5 284	807	4 929	859	4 701	757	5 086	1 182	4 896	1 073
<=7 000 PLN/sq.m	48	7	35	4	37	2	3	4		5
(7 001; 9 000] PLN/sq.m	1 487	322	1 270	302	1 001	263	1 123	333	810	187
(9 001; 11 000] PLN/sq.m	2 387	350	2 106	426	2 026	312	2 171	547	1 595	510
(11 001; 13 000] PLN/sq.m	974	73	1 123	76	1 028	146	1 107	222	1 342	254
>13 001 PLN/sq.m	388	55	395	51	609	34	682	76	1 149	117
dwelling space range	5 284	807	4 929	859	4 701	757	5 086	1 182	4 896	1 073
<= 40 sq.m	1019	243	967	245	828	228	873	331	904	271
(40,1; 60] sq.m	2460	383	2288	432	2211	347	2346	509	2164	522
(60,1; 80] sq.m	1393	134	1317	140	1301	148	1495	264	1421	242
> 80,1 sq.m	412	47	357	42	361	34	372	78	407	38
average price of 1 sq.m. of dwelling	10 152	9 736	10 326	9 716	10 682	9 974	10 807	10 150	11 556	10 689
<= 40 sq.m	10 980	10 340	11 304	10 163	11 959	10 666	12 032	10 860	12 814	11 885
(40,1; 60] sq.m	10 076	9 481	10 251	9 626	10 503	9 853	10 653	10 007	11 334	10 520
(60,1; 80] sq.m	9 605	9 238	9 725	9 144	10 143	9 211	10 233	9 518	10 964	9 588
> 80,1 sq.m	10 415	10 118	10 385	9 937	10 794	9 893	11 207	10 218	12 007	11 495
average offer price deviation	4,3%	x	6,3%	x	7,1%	x	6,5%	x	7,3%	x
<= 40 sq.m	6,2%	x	11,2%	x	12,1%	x	10,8%	x	12,2%	x
(40,1; 60] sq.m	6,3%	x	6,5%	x	6,6%	x	6,5%	x	6,8%	x
(60,1; 80] sq.m	4,0%	x	6,3%	x	10,1%	x	7,5%	x	8,6%	x
> 80,1 sq.m	0	x	4,5%	x	0	x	0	x	0	x

Source: NBP

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

specification	III Q 2022		IV Q 2022		I Q 2023		IIQ 2023		III Q 2023	
	offer	trans.	offer	trans.	offer	trans.	offer	trans.	offer	trans.
average price (PLN/sq.m.)	9 438	8 802	9 543	8 706	9 914	8 696	9 956	8 868	10 667	8 921
growth (q-o-q)	99,2	102,8	101,1	98,9	103,9	99,9	100,4	102,0	107,1	100,6
growth (y-o-y)	113,4	114,7	106,6	110,7	105,4	107,0	104,6	103,5	113,0	101,3
dwelling price range	1 104	1 034	858	955	858	780	1 024	1 045	764	437
<=7 000 PLN/sq.m	87	168	73	192	67	152	62	188	30	41
(7 001; 9 000] PLN/sq.m	455	429	344	382	291	327	356	408	188	220
(9 001; 11 000] PLN/sq.m	353	319	262	253	268	213	334	305	268	129
(11 001; 13 000] PLN/sq.m	141	84	121	101	158	63	186	109	168	32
>13 001 PLN/sq.m	68	34	58	27	74	25	86	35	110	15
dwelling space range	1 104	1 034	858	955	858	780	1 024	1 045	764	437
<= 40 sq.m	240	331	175	291	174	278	218	346	136	141
(40,1; 60] sq.m	503	474	382	431	354	342	423	457	310	180
(60,1; 80] sq.m	269	152	212	168	242	120	278	178	207	98
> 80,1 sq.m	92	77	89	65	88	40	105	64	111	18
average price of 1 sq.m. of dwelling	9 438	8 802	9543	8706	9914	8696	9 956	8 868	10 667	8 921
<= 40 sq.m	10 473	9 483	10411	9518	11029	9305	10 946	9 568	11 558	9 625
(40,1; 60] sq.m	9 336	8 727	9441	8485	9808	8492	9 776	8 730	10 799	8 700
(60,1; 80] sq.m	8 994	8 031	8999	8112	9333	7921	9 422	8 026	10 113	8 368
> 80,1 sq.m	8 595	7 859	9567	8064	9730	8521	10 040	8 407	10 238	8 615
average offer price deviation	7,2%	x	9,6%	x	14,0%	x	12,3%	x	19,6%	x
<= 40 sq.m	10,4%	x	9,4%	x	18,5%	x	14,4%	x	20,1%	x
(40,1; 60] sq.m	7,0%	x	11,3%	x	15,5%	x	12,0%	x	24,1%	x
(60,1; 80] sq.m	12,0%	x	10,9%	x	17,8%	x	17,4%	x	20,9%	x
> 80,1 sq.m	9,4%	x	18,6%	x	14,2%	x	19,4%	x	18,8%	x

Source: NBP

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

specification	III Q 2022		IV Q 2022		I Q 2023		II Q 2023		III Q 2023	
	offer	trans.	offer	trans.	offer	trans.	offer	trans.	offer	trans.
average price (PLN/sq.m.)	12 912	12 727	13 009	12 836	13 302	12 818	13 713	13 135	14 880	13 980
growth (q-o-q)	100,1	103,1	100,8	100,9	102,2	99,9	103,1	102,5	108,5	106,4
growth (y-o-y)	113,2	115,6	110,1	110,5	106,3	103,5	106,3	106,4	115,2	109,9
dwelling price range	15 481	1 768	12 833	1 849	12 256	2 348	10 057	3 549	9 691	3 596
<=9 500 PLN/sq.m	1 145	163	924	135	867	169	549	257	339	121
(9 501; 11 500] PLN/sq.m	3 355	440	2 695	476	2 245	588	1 647	732	1 150	576
(11 501; 13 500] PLN/sq.m	5 886	621	4 865	671	4 538	871	3 741	1 225	2 959	1 078
(13 501; 15 500] PLN/sq.m	3 254	309	2 635	316	2 734	407	2 054	768	1 998	970
>15 501 PLN/sq.m	1 841	235	1 714	251	1 872	313	2 066	567	3 245	851
dwelling space range	15 481	1 768	12 833	1 849	12 256	2 348	10 057	3 549	9 691	3 596
<= 40 sq.m	3 448	593	2 874	583	2 648	747	2 070	973	2 041	1 071
(40,1; 60] sq.m	6 664	706	5 469	771	5 214	942	4 340	1 499	4 117	1 495
(60,1; 80] sq.m	3 573	289	2 974	319	2 971	454	2 414	786	2 352	722
> 80,1 sq.m	1 796	180	1 516	176	1 423	205	1 233	291	1 181	308
average price of 1 sq.m. of dwelling	12 912	12 727	13 009	12 836	13 302	12 818	13 713	13 135	14 880	13 980
<= 40 sq.m	13 947	12 759	14 023	13 517	14 344	13 341	14 654	14 247	15 761	14 824
(40,1; 60] sq.m	12 779	12 705	12 859	12 587	13 107	12 615	13 634	12 733	14 817	13 740
(60,1; 80] sq.m	12 030	12 233	12 133	11 975	12 484	12 137	12 935	12 440	14 218	13 007
> 80,1 sq.m	13 174	13 495	13 348	13 231	13 780	13 354	13 936	13 374	14 895	14 494
average offer price deviation	1,5%	x	1,3%	x	3,8%	x	4,4%	x	6,4%	x
<= 40 sq.m	9,3%	x	3,7%	x	7,5%	x	2,9%	x	6,3%	x
(40,1; 60] sq.m	0,6%	x	2,2%	x	3,9%	x	7,1%	x	7,8%	x
(60,1; 80] sq.m	-1,7%	x	1,3%	x	2,9%	x	4,0%	x	9,3%	x
> 80,1 sq.m	-2,4%	x	0,9%	x	3,2%	x	4,2%	x	2,8%	x

Source: NBP

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

specification	III Q 2022		IV Q 2022		I Q 2023		II Q 2023		III Q 2023	
	offer	trans.	offer	trans.	offer	trans.	offer	trans.	offer	trans.
average price (PLN/sq.m.)	13 484	12 917	13 499	13 026	13 807	12 900	14 316	12 234	14 910	12 629
growth (q-o-q)	95,8	101,6	100,1	100,8	102,3	99,0	103,7	94,8	104,1	103,2
growth (y-o-y)	104,1	111,5	101,5	110,0	103,3	105,3	101,7	96,2	110,6	97,8
dwelling price range	1 602	3 318	1 374	2 921	1 187	1 817	1 116	987	1 054	1 167
<=9 500 PLN/sq.m	98	343	87	268	64	221	59	122	37	112
(9 501; 11 500] PLN/sq.m	372	850	370	779	283	483	227	333	173	352
(11 501; 13 500] PLN/sq.m	436	901	332	769	303	428	264	262	246	325
(13 501; 15 500] PLN/sq.m	321	623	250	527	218	338	208	148	192	213
>15 501 PLN/sq.m	375	601	335	578	319	347	358	122	406	165
dwelling space range	1 602	3 318	1 374	2 921	1 187	1 817	1 116	987	1 054	1 167
<= 40 sq.m	314	1 033	243	980	214	527	176	326	173	382
(40,1; 60] sq.m	710	1 487	589	1 253	523	819	451	418	433	516
(60,1; 80] sq.m	377	513	341	461	295	320	284	176	262	196
> 80,1 sq.m	201	285	201	227	155	151	205	67	186	73
average price of 1 sq.m. of dwelling	13 484	12 917	13 499	13 026	13 807	12 900	14 316	12 234	14 910	12 629
<= 40 sq.m	14 946	13 322	15 050	13 196	15 193	13 390	15 604	13 102	16 567	13 671
(40,1; 60] sq.m	13 038	12 400	12 978	12 495	13 430	12 399	13 516	11 712	14 235	12 013
(60,1; 80] sq.m	13 084	12 673	12 887	13 112	13 424	12 726	13 621	11 621	14 437	11 670
> 80,1 sq.m	13 522	14 581	14 191	15 047	13 893	14 275	15 929	12 876	15 604	14 113
average offer price deviation	4,4%	x	3,6%	x	7,0%	x	17,0%	x	18,1%	x
<= 40 sq.m	12,2%	x	14,0%	x	13,5%	x	19,1%	x	21,2%	x
(40,1; 60] sq.m	5,1%	x	3,9%	x	8,3%	x	15,4%	x	18,5%	x
(60,1; 80] sq.m	3,2%	x	-1,7%	x	5,5%	x	17,2%	x	23,7%	x
> 80,1 sq.m	-7,3%	x	-5,7%	x	-2,7%	x	23,7%	x	10,6%	x

Source: NBP

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

specification	III Q 2022		IV Q 2022		I Q 2023		II Q 2023		III Q 2023	
	offer	trans.	offer	trans.	offer	trans.	offer	trans.	offer	trans.
average price (PLN/sq.m.)	10 963	10 520	11 384	10 453	11 948	11 112	12 201	11 397	12 836	11 713
growth (q-o-q)	101,6	101,8	103,8	99,4	105,0	106,3	102,1	102,6	105,2	102,8
growth (y-o-y)	110,0	118,3	111,7	110,0	115,4	110,8	113,1	110,2	117,1	111,3
dwellings price range	5 333	874	4 720	742	4 248	954	3 909	1 350	2 918	1 506
<=7 000 PLN/sq.m	43	5	26	11	19	7	11	11	5	2
(7 001; 9 000] PLN/sq.m	969	225	793	212	603	202	287	203	128	172
(9 001; 11 000] PLN/sq.m	1 909	325	1 267	247	996	309	1 065	459	495	456
(11 001; 13 000] PLN/sq.m	1 480	213	1 625	180	1 470	237	1 421	386	1 252	472
>13 001 PLN/sq.m	932	106	1 009	92	1 160	199	1 125	291	1 038	404
dwellings space range	5 333	874	4 720	742	4 248	954	3 909	1 350	2 918	1 506
<= 40 sq.m	901	287	393	214	742	255	689	244	503	288
(40,1; 60] sq.m	2570	404	1637	323	2011	442	1852	681	1278	821
(60,1; 80] sq.m	1397	134	1918	155	1074	203	1015	318	822	311
> 80,1 sq.m	465	49	772	50	421	54	353	107	315	86
average price of 1 sq.m. of dwelling	10 963	10 520	11 384	10 453	11 948	11 112	12 201	11 397	12 836	11 713
<= 40 sq.m	12607	11367	14408	11667	14778	12913	14770	13456	15652	13516
(40,1; 60] sq.m	10801	10143	11562	10050	11589	10608	11840	11172	12594	11607
(60,1; 80] sq.m	10318	9707	10525	9801	10646	10153	11131	10153	11673	10466
> 80,1 sq.m	10608	10883	11604	9884	11999	10333	12159	11825	12351	11198
average offer price deviation	4,2%	x	8,9%	x	7,5%	x	7,1%	x	9,6%	x
<= 40 sq.m	10,9%	x	23,5%	x	14,4%	x	9,8%	x	15,8%	x
(40,1; 60] sq.m	6,5%	x	15,0%	x	9,2%	x	6,0%	x	8,5%	x
(60,1; 80] sq.m	6,3%	x	7,4%	x	4,9%	x	9,6%	x	11,5%	x
> 80,1 sq.m	-2,5%	x	17,4%	x	16,1%	x	2,8%	x	10,3%	x

Source: NBP

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

specification	III Q 2022		IV Q 2022		I Q 2023		II Q 2023		III Q 2023	
	offer	trans.	offer	trans.	offer	trans.	offer	trans.	offer	trans.
average price (PLN/sq.m.)	10 591	10 178	10 672	10 114	10 978	9 980	11 296	10 234	12 090	10 709
growth (q-o-q)	101,3	105,1	100,8	99,4	102,9	98,7	102,9	102,5	107,0	104,6
growth (y-o-y)	115,6	118,9	114,4	113,0	109,0	108,5	108,1	105,7	114,2	105,2
dwellings price range	1 374	1 030	2 504	760	2 440	742	2 281	967	1 949	1 019
<=7 000 PLN/sq.m	32	54	54	49	26	58	28	62	18	42
(7 001; 9 000] PLN/sq.m	304	297	542	193	475	197	398	250	242	206
(9 001; 11 000] PLN/sq.m	566	355	1 032	290	979	275	883	330	571	370
(11 001; 13 000] PLN/sq.m	302	210	520	159	555	139	540	216	576	239
>13 001 PLN/sq.m	170	114	356	69	405	73	432	109	542	162
dwellings space range	1 374	1 029	2 504	760	2 440	742	2 281	967	1 949	1 019
<= 40 sq.m	194	298	336	202	309	193	314	233	266	241
(40,1; 60] sq.m	578	487	1113	387	1103	351	961	480	754	512
(60,1; 80] sq.m	396	198	729	125	733	148	667	192	599	202
> 80,1 sq.m	206	46	326	46	295	50	339	62	330	64
average price of 1 sq.m. of dwelling	10 591	10 178	10 672	10 114	10 978	9 980	11 296	10 234	12 090	10 709
<= 40 sq.m	12 157	11 138	12 449	10 960	12 821	11 248	13 080	11 199	14 009	11 913
(40,1; 60] sq.m	10 587	9 890	10 711	9 853	11 052	9 792	11 406	10 071	12 477	10 482
(60,1; 80] sq.m	10 145	9 652	10 095	9 673	10 498	8 959	10 618	9 622	11 176	10 330
> 80,1 sq.m	9 988	9 264	9 995	9 796	9 965	9 433	10 662	9 767	11 320	9 199
average offer price deviation	4,1%	x	5,5%	x	10,0%	x	10,4%	x	12,9%	x
<= 40 sq.m	9,2%	x	13,6%	x	14,0%	x	16,8%	x	17,6%	x
(40,1; 60] sq.m	7,0%	x	8,7%	x	12,9%	x	13,3%	x	19,0%	x
(60,1; 80] sq.m	5,1%	x	4,4%	x	17,2%	x	10,4%	x	8,2%	x
> 80,1 sq.m	7,8%	x	2,0%	x	5,6%	x	9,2%	x	23,1%	x

Source: NBP

1. Analysis of profitability of housing investment in selected cities in Poland in 2023 Q3³⁷

In 2023 Q3, a positive trend in the profitability of investment in rental housing resumed. The observed changes are a result of changes in the transaction prices of dwellings in relation to changes in rental levels. During the analysed period, the upward trend in transaction prices of average dwellings in Poland became slightly steeper compared to the first half of the year. Year-on-year increases in transaction prices, which are relevant for the profitability of housing investment, were observed again. Equally important were changes in average home rental rates. Although the pace of these changes clearly slowed down compared to the previous few quarters, it was still faster than changes in estimated home prices.

The changes in estimated housing transaction prices and rental rates described above have significantly affected the capitalization rate of housing investment. This is due to the fact that the capitalization rate depends on the annual rental income and the price per sq. m of housing in the home sale market. In 2023 Q3, the capitalization rate in Warsaw stood at 6.3%, meaning an increase of 15.7% y/y and at the same time a decrease of 1.7% on the 2023 Q2 figure. Again, the highest capitalization rates were observed in Wrocław and Łódź (7.0%). The changes were directly reflected in the change of the payback period. In Warsaw in 2023 Q3, this period was 15 years and 9 months, in the group of six cities 14 years and 4 months and in the group of other voivodeship capitals - 16 years.

The changes observed in the analysed quarter in the real estate market also affected growth in profitability of housing investment expressed in ROE terms, with net profits being further discounted by mortgage costs. As a result, estimated ROE continues to vary strongly due to the level of external capital employed. Assuming an LTV of 0%, the ROE on residential investments was 3.8% in 2023 Q3 in Warsaw and in the group of six cities, and 3.5% in the group of other voivodeship capitals. This means that ROE increased by 24.2%, 7.0% and 1.7%, respectively, compared to 2022 Q3. At the same time, the ROE on housing investment without external capital fell by 2.3% in Warsaw and in the group of other cities by 1.9% compared to 2023 Q2. On the other hand, it increased by 2.4% in quarter-on-quarter terms in the group of six cities. Consequently, changes in ROE on investment projects with LTV=0% were very similar to the changes in the capitalization rates. This implies a

³⁷ 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 (Bialystok, 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 was 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.

certain slowdown in yield growth, which continues to be determined by changes in estimated transaction prices and home rents in all the analysed cities.

Yet, in 2023 Q3 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 -0.5%, in the group of 6 cities -0.7% and in the group of other analysed cities -1.2%. This means that in 2023 Q3 increases of 2.4 p.p., 1.3 p.p. and 1.0 p.p., respectively, were observed compared to 2022 Q3.

Similar conclusions can be drawn from the analysis of the profitability of housing investment leveraged at LTV=80%. In this case, however, ROE in 2023 Q3 was -13.6% in Warsaw, -14.0% in the group of 6 cities and -15.4% in the group of other Polish cities. This means that its value increased in Warsaw by 1.4 p.p. compared to 2023 Q2, and by 7.2 p.p. compared to 2022 Q3.

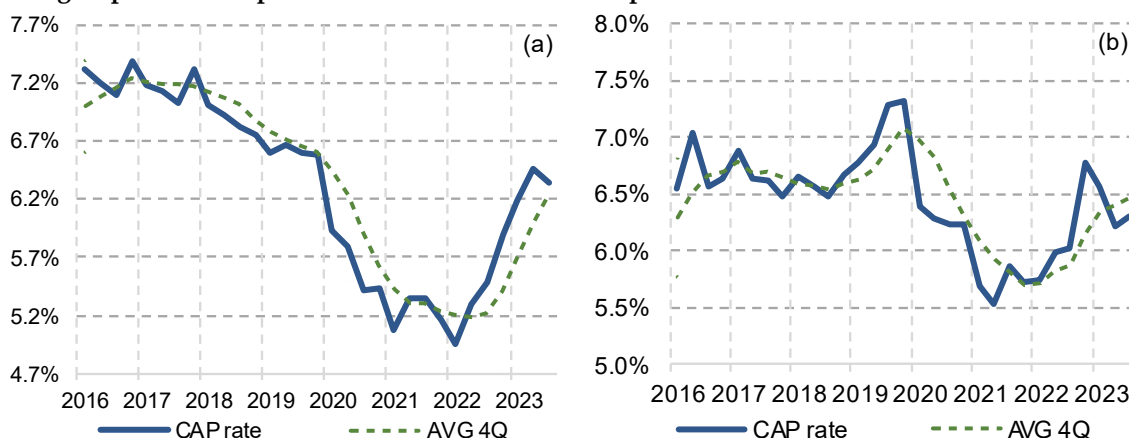
The increase in the return rates and profitability levels of this type of investment, observed during the analysed period, was largely driven by faster increases in rental rents and slower increases in home transaction prices. This resulted in higher rental income and net income. At the same time, as financial conditions in terms of the cost of service of the stock of mortgage loans and new mortgage agreements improved, the upward trend in profitability also continued, regardless of the level of external capital leverage.

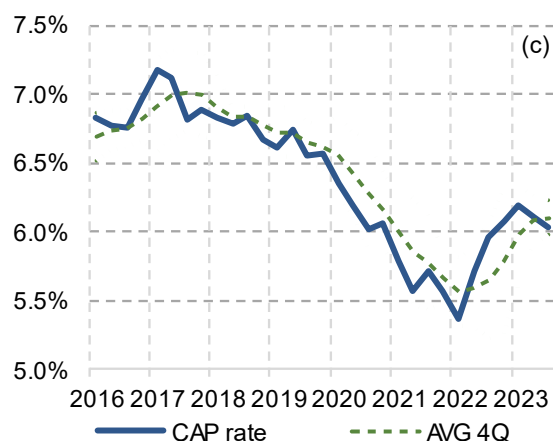
Table 26 Estimated capitalisation rates in selected cities (in %)

Quarter	Białystok	Bydgoszcz	Gdańsk	Gdynia	Katowice	Kraków	Lublin	Łódź	Olsztyn	Poznań	Rzeszów	Szczecin	Wrocław	Warszawa	6 cities	Other
2020 Q1	6.4%	6.0%	6.0%	5.0%	6.7%	5.8%	6.9%	7.3%	5.6%	7.2%	6.4%	6.5%	7.1%	5.9%	6.4%	6.4%
2020 Q2	5.9%	5.9%	5.7%	6.1%	6.0%	5.8%	6.8%	7.1%	5.4%	6.5%	6.0%	7.4%	6.5%	5.8%	6.3%	6.2%
2020 Q3	6.7%	5.4%	5.7%	5.6%	6.7%	5.5%	6.3%	7.4%	5.3%	6.6%	5.6%	6.1%	6.6%	5.4%	6.2%	6.0%
2020 Q4	6.9%	5.6%	5.4%	5.9%	6.5%	5.4%	5.9%	7.3%	5.2%	7.1%	5.5%	6.7%	6.2%	5.4%	6.2%	6.1%
2021 Q1	6.2%	4.8%	4.9%	5.4%	6.5%	4.8%	5.7%	7.1%	5.0%	5.7%	6.1%	6.2%	6.2%	5.1%	5.7%	5.8%
2021 Q2	6.6%	5.1%	5.0%	4.7%	6.0%	4.9%	5.7%	6.9%	5.1%	5.6%	4.9%	5.6%	6.1%	5.3%	5.5%	5.6%
2021 Q3	6.6%	5.7%	5.4%	5.3%	5.8%	5.2%	5.8%	7.0%	5.0%	5.9%	5.1%	6.0%	6.4%	5.4%	5.9%	5.7%
2021 Q4	5.6%	5.6%	4.9%	5.1%	5.7%	5.0%	5.8%	6.8%	5.2%	6.2%	5.2%	5.9%	6.3%	5.2%	5.7%	5.6%
2022 Q1	5.0%	5.8%	5.1%	5.0%	5.5%	5.1%	5.6%	7.5%	5.4%	5.8%	5.1%	5.2%	6.0%	4.9%	5.7%	5.4%
2022 Q2	5.4%	6.3%	5.6%	5.4%	5.5%	5.3%	5.7%	7.1%	5.5%	5.8%	5.4%	6.2%	6.7%	5.3%	6.0%	5.7%
2022 Q3	5.8%	6.0%	5.5%	5.4%	6.1%	5.8%	5.9%	7.0%	5.6%	5.6%	5.6%	6.7%	6.8%	5.5%	6.0%	6.0%
2022 Q4	6.3%	6.7%	6.3%	6.3%	5.8%	5.8%	5.8%	7.9%	5.6%	6.3%	5.8%	6.6%	8.1%	5.9%	6.8%	6.1%
2023 Q1	6.2%	6.5%	6.0%	5.7%	6.7%	5.8%	5.8%	7.8%	5.5%	6.4%	6.8%	5.9%	7.6%	6.2%	6.6%	6.2%
2023 Q2	6.0%	6.9%	5.9%	5.5%	6.8%	6.0%	5.8%	7.0%	5.5%	5.9%	5.3%	6.5%	6.9%	6.5%	6.2%	6.1%
2023 Q3	5.9%	6.7%	6.0%	5.5%	6.2%	6.0%	6.0%	7.0%	5.7%	6.3%	5.8%	5.9%	7.0%	6.3%	6.3%	6.0%

Source: NBP

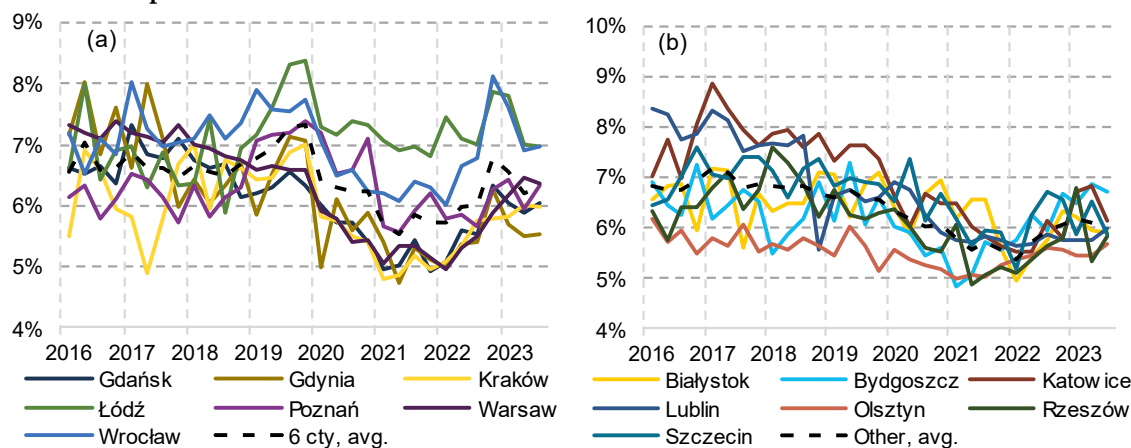
Figure 79 Estimated capitalisation rate and its annual moving average for Warsaw (panel a) and aggregated for the group of 6 cities (panel b) and other Polish cities (panel c)





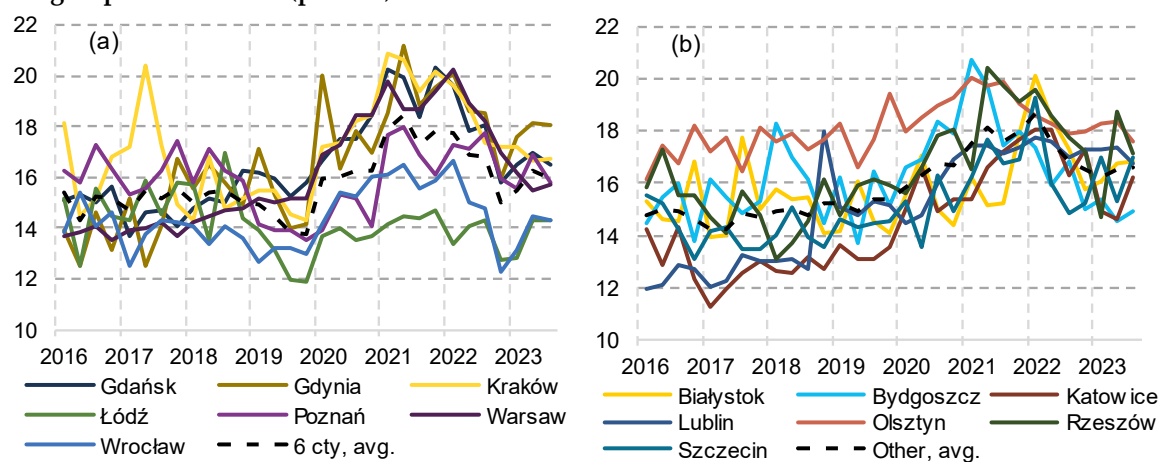
Źródło: NBP

Figure 80 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 81 Estimated timing of return on investment in the group of 6 cities and in Warsaw (panel a) and in the group of other cities (panel b)



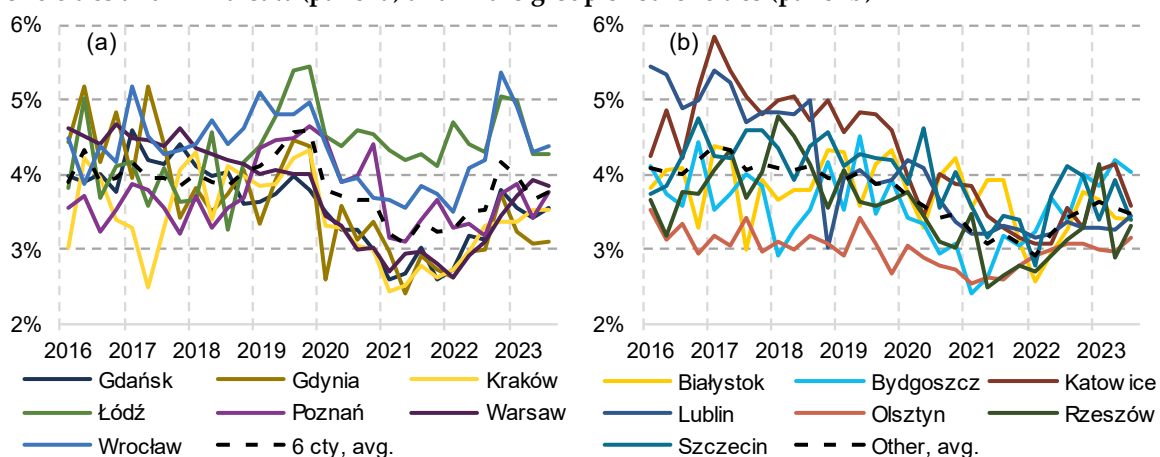
Source: NBP

Table 27 Return on equity (ROE, in %) on a fully cash-funded housing investment (LTV = 0%) in selected cities

Quarter	Białystok	Bydgoszcz	Gdańsk	Gdynia	Katowice	Kraków	Lublin	Łódź	Olsztyn	Poznań	Rzeszów	Szczecin	Wrocław	Warszawa	6 cities	Other
2020 Q1	3.8%	3.4%	3.5%	2.6%	4.0%	3.3%	4.2%	4.5%	3.0%	4.5%	3.8%	3.9%	4.4%	3.4%	3.8%	3.7%
2020 Q2	3.3%	3.3%	3.3%	3.6%	3.4%	3.3%	4.1%	4.4%	2.9%	3.9%	3.4%	4.6%	3.9%	3.3%	3.7%	3.6%
2020 Q3	4.0%	2.9%	3.3%	3.1%	4.0%	3.1%	3.6%	4.6%	2.8%	4.0%	3.1%	3.6%	4.0%	3.0%	3.7%	3.4%
2020 Q4	4.2%	3.1%	3.0%	3.4%	3.9%	3.0%	3.4%	4.6%	2.7%	4.4%	3.0%	4.0%	3.7%	3.0%	3.7%	3.5%
2021 Q1	3.6%	2.4%	2.6%	3.0%	3.9%	2.4%	3.2%	4.3%	2.5%	3.2%	3.5%	3.6%	3.7%	2.7%	3.2%	3.2%
2021 Q2	3.9%	2.6%	2.7%	2.4%	3.5%	2.5%	3.2%	4.2%	2.6%	3.1%	2.5%	3.2%	3.6%	3.0%	3.1%	3.1%
2021 Q3	3.9%	3.2%	3.0%	2.9%	3.3%	2.8%	3.3%	4.3%	2.6%	3.4%	2.6%	3.4%	3.9%	3.0%	3.4%	3.2%
2021 Q4	3.1%	3.1%	2.6%	2.7%	3.1%	2.6%	3.3%	4.1%	2.8%	3.7%	2.8%	3.4%	3.8%	2.8%	3.2%	3.1%
2022 Q1	2.6%	3.2%	2.7%	2.6%	3.1%	2.7%	3.2%	4.7%	2.9%	3.3%	2.7%	2.8%	3.5%	2.6%	3.3%	2.9%
2022 Q2	2.9%	3.7%	3.2%	3.0%	3.1%	3.0%	3.2%	4.4%	3.0%	3.4%	2.9%	3.7%	4.1%	2.9%	3.5%	3.2%
2022 Q3	3.3%	3.4%	3.1%	3.0%	3.6%	3.3%	3.4%	4.3%	3.1%	3.2%	3.1%	4.1%	4.2%	3.1%	3.5%	3.4%
2022 Q4	3.8%	4.0%	3.8%	3.7%	4.3%	3.4%	3.3%	5.1%	3.1%	3.7%	3.3%	4.0%	5.4%	3.5%	4.2%	3.5%
2023 Q1	3.7%	3.9%	3.6%	3.2%	4.1%	3.4%	3.3%	5.0%	3.0%	3.9%	4.2%	3.4%	4.9%	3.7%	4.0%	3.6%
2023 Q2	3.4%	4.2%	3.4%	3.1%	4.2%	3.5%	3.3%	4.3%	3.0%	3.4%	2.9%	3.9%	4.3%	3.9%	3.7%	3.5%
2023 Q3	3.4%	4.0%	3.6%	3.1%	3.6%	3.5%	3.4%	4.3%	3.2%	3.8%	3.3%	3.4%	4.4%	3.8%	3.8%	3.5%

Source: NBP

Figure 82 Return on Equity (ROE, %) on a fully cash-funded housing investment (LTV = 0%) in the group of 6 cities and in Warsaw (panel a) and in the group of other cities (panel b)



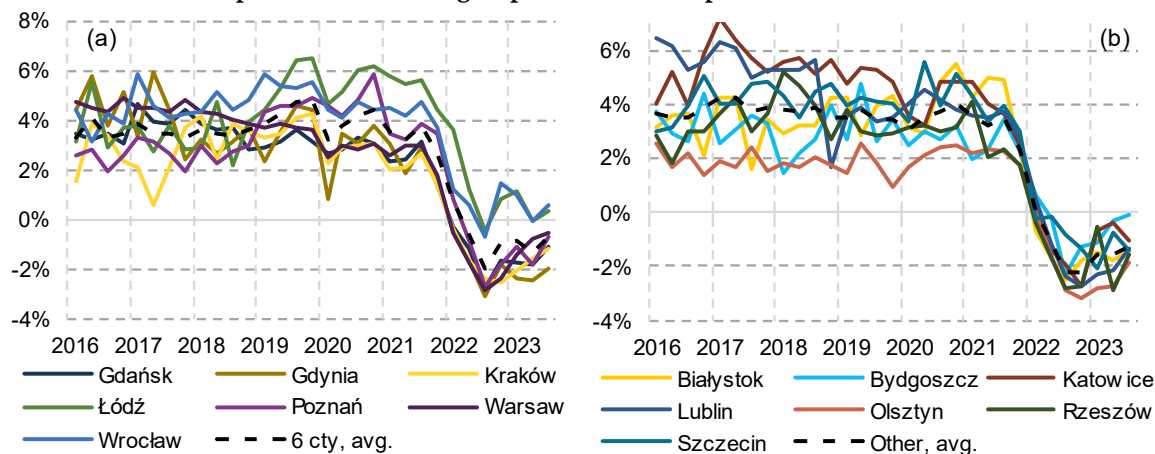
Source: NBP

Table 28 Return on Equity (ROE, %) in the case of a leveraged housing investment (LTV = 50%) in selected cities

Quarter	Białystok	Bydgoszcz	Gdańsk	Gdynia	Katowice	Kraków	Lublin	Łódź	Olsztyn	Poznań	Rzeszów	Szczecin	Wrocław	Warszawa	6 cities	Other
2020 Q1	3.2%	2.5%	2.6%	0.8%	3.6%	2.3%	4.0%	4.7%	1.7%	4.6%	3.2%	3.4%	4.4%	2.5%	3.2%	3.1%
2020 Q2	2.9%	3.0%	2.9%	3.5%	3.2%	2.9%	4.5%	5.1%	2.1%	4.2%	3.2%	5.6%	4.1%	3.0%	3.8%	3.5%
2020 Q3	4.8%	2.7%	3.4%	3.1%	4.9%	3.0%	4.1%	6.1%	2.4%	4.8%	3.0%	3.9%	4.8%	2.8%	4.2%	3.7%
2020 Q4	5.5%	3.2%	3.1%	3.8%	4.8%	3.0%	3.8%	6.2%	2.5%	5.9%	3.1%	5.1%	4.5%	3.1%	4.4%	4.0%
2021 Q1	4.3%	1.9%	2.3%	3.1%	4.9%	2.0%	3.6%	5.8%	2.2%	3.5%	4.1%	4.3%	4.5%	2.6%	3.5%	3.6%
2021 Q2	5.0%	2.3%	2.4%	1.9%	4.0%	2.1%	3.5%	5.5%	2.3%	3.3%	2.1%	3.4%	4.2%	3.0%	3.2%	3.2%
2021 Q3	4.9%	3.5%	3.1%	2.9%	3.7%	2.7%	3.7%	5.6%	2.2%	3.8%	2.4%	3.9%	4.8%	3.0%	3.8%	3.5%
2021 Q4	2.4%	2.3%	1.4%	1.7%	2.5%	1.4%	2.7%	4.4%	1.7%	3.5%	1.8%	3.0%	3.7%	1.8%	2.7%	2.3%
2022 Q1	-0.7%	0.7%	-0.3%	-0.6%	0.3%	-0.3%	0.5%	3.6%	0.0%	0.8%	-0.4%	-0.3%	1.2%	-0.6%	0.7%	0.0%
2022 Q2	-1.7%	-0.2%	-1.2%	-1.7%	-1.4%	-1.7%	-1.2%	1.2%	-1.6%	-0.9%	-1.7%	-0.2%	0.6%	-1.7%	-0.6%	-1.1%
2022 Q3	-2.5%	-2.3%	-2.8%	-3.1%	-1.9%	-2.4%	-2.3%	-0.4%	-2.9%	-2.7%	-2.8%	-0.8%	-0.7%	-2.9%	-2.0%	-2.2%
2022 Q4	-1.8%	-1.3%	-1.7%	-1.8%	-2.7%	-2.6%	-2.7%	0.8%	-3.2%	-1.8%	-2.7%	-1.3%	1.4%	-2.4%	-0.9%	-2.2%
2023 Q1	-1.5%	-1.1%	-1.7%	-2.4%	-0.7%	-2.1%	-2.3%	1.2%	-2.8%	-1.1%	-0.5%	-2.0%	1.0%	-1.4%	-0.8%	-1.6%
2023 Q2	-1.8%	-0.3%	-1.8%	-2.5%	-0.4%	-1.6%	-2.2%	-0.1%	-2.7%	-1.8%	-2.9%	-0.8%	0.0%	-0.8%	-1.3%	-1.6%
2023 Q3	-1.4%	-0.1%	-1.1%	-2.0%	-1.0%	-1.2%	-1.3%	0.3%	-1.9%	-0.7%	-1.6%	-1.4%	0.6%	-0.5%	-0.7%	-1.2%

Source: NBP

Figure 83 Return on Equity (ROE, %) in the case of a leveraged housing investment (LTV = 50%) in the group of 6 cities, Warsaw (panel a) and in the group of other cities (panel b)



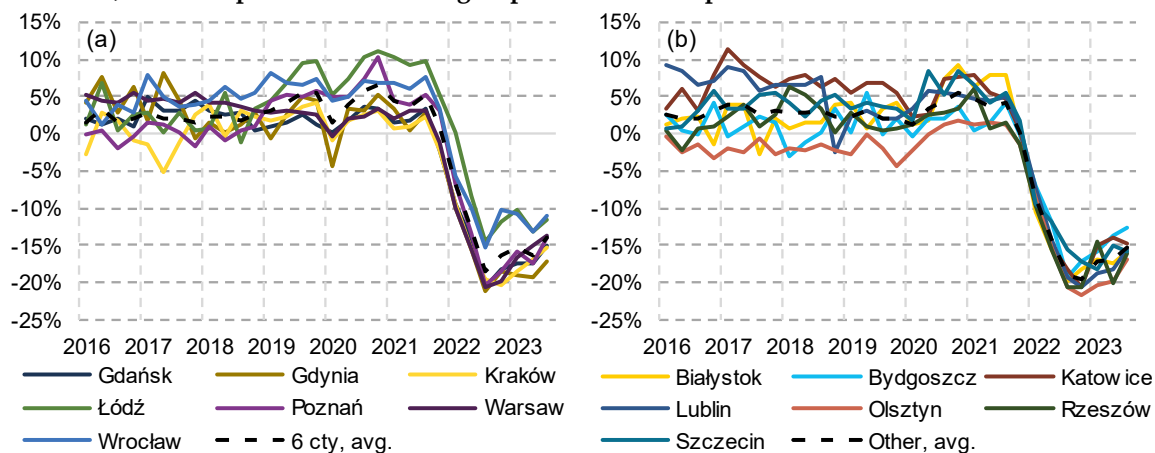
Source: NBP

Table 29 Return on equity (ROE, in %) on a leveraged housing investment (LTV = 80%) in selected cities

Quarter	Białystok	Bydgoszcz	Gdańsk	Gdynia	Katowice	Kraków	Lublin	Łódź	Olsztyn	Poznań	Rzeszów	Szczecin	Wrocław	Warszawa	6 cities	Other
2020 Q1	1.4%	-0.4%	0.1%	-4.5%	2.4%	-0.9%	3.5%	5.1%	-2.3%	5.0%	1.4%	1.9%	4.5%	-0.3%	1.6%	1.1%
2020 Q2	1.8%	2.1%	1.7%	3.3%	2.6%	1.8%	5.9%	7.3%	-0.2%	4.9%	2.6%	8.5%	4.9%	2.0%	4.0%	3.3%
2020 Q3	7.3%	2.0%	3.7%	3.1%	7.5%	2.7%	5.6%	10.4%	1.3%	7.3%	2.8%	5.1%	7.2%	2.4%	5.7%	4.5%
2020 Q4	9.3%	3.6%	3.3%	5.2%	7.6%	3.2%	5.1%	11.0%	1.9%	10.3%	3.4%	8.4%	6.8%	3.4%	6.6%	5.6%
2021 Q1	6.4%	0.6%	1.5%	3.4%	7.8%	0.7%	4.6%	10.3%	1.2%	4.4%	6.0%	6.5%	6.9%	2.1%	4.5%	4.7%
2021 Q2	8.0%	1.5%	1.7%	0.4%	5.6%	0.9%	4.5%	9.4%	1.5%	3.8%	0.8%	4.1%	6.1%	3.1%	3.7%	3.7%
2021 Q3	7.9%	4.3%	3.4%	2.8%	4.8%	2.3%	4.9%	9.7%	1.2%	5.2%	1.5%	5.5%	7.6%	3.1%	5.2%	4.3%
2021 Q4	0.2%	0.0%	-2.3%	-1.6%	0.4%	-2.2%	1.0%	5.3%	-1.4%	3.0%	-1.4%	1.7%	3.5%	-1.3%	0.9%	0.1%
2022 Q1	-10.4%	-7.0%	-9.5%	-10.1%	-7.9%	-9.5%	-7.4%	0.3%	-8.7%	-6.7%	-9.7%	-9.3%	-5.7%	-10.1%	-6.9%	-8.6%
2022 Q2	-15.6%	-11.9%	-14.4%	-15.5%	-15.0%	-15.5%	-14.3%	-8.3%	-15.4%	-13.6%	-15.7%	-11.8%	-9.9%	-15.7%	-12.9%	-14.2%
2022 Q3	-19.9%	-19.2%	-20.6%	-21.3%	-18.4%	-19.6%	-19.4%	-14.6%	-20.8%	-20.3%	-20.6%	-15.6%	-15.3%	-20.8%	-18.6%	-19.1%
2022 Q4	-18.4%	-17.1%	-18.1%	-18.5%	-20.8%	-20.3%	-20.8%	-11.9%	-21.8%	-18.5%	-20.7%	-17.3%	-10.3%	-19.9%	-16.3%	-19.6%
2023 Q1	-16.9%	-16.0%	-17.5%	-19.1%	-15.0%	-18.4%	-18.9%	-10.3%	-20.3%	-15.9%	-14.5%	-18.3%	-10.7%	-16.7%	-15.3%	-17.1%
2023 Q2	-17.5%	-13.7%	-17.5%	-19.2%	-13.9%	-17.0%	-18.4%	-13.2%	-19.8%	-17.5%	-20.2%	-14.9%	-13.1%	-15.0%	-16.3%	-16.9%
2023 Q3	-15.8%	-12.6%	-15.0%	-17.3%	-14.9%	-15.2%	-15.6%	-11.5%	-17.0%	-14.0%	-16.2%	-15.8%	-10.9%	-13.6%	-14.0%	-15.4%

Source: NBP

Figure 84 Return on Equity (ROE, %) in the case of a leveraged housing investment (LTV = 80%) in the group of 6 cities, Warsaw (panel a) and in the group of other cities (panel b)



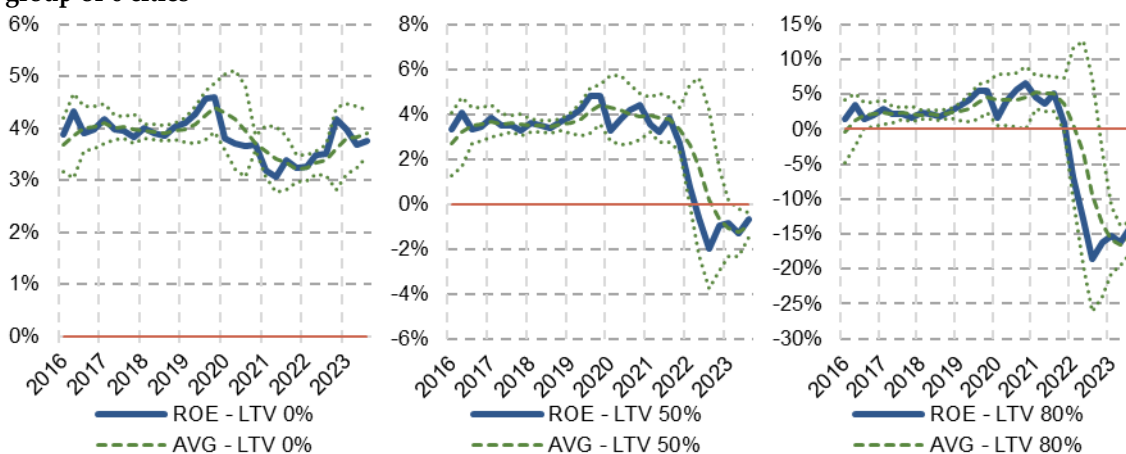
Source: NBP

Figure 85 Comparison of Return on Equity (ROE, in %) on a housing investment at selected levels of LTV, Warsaw



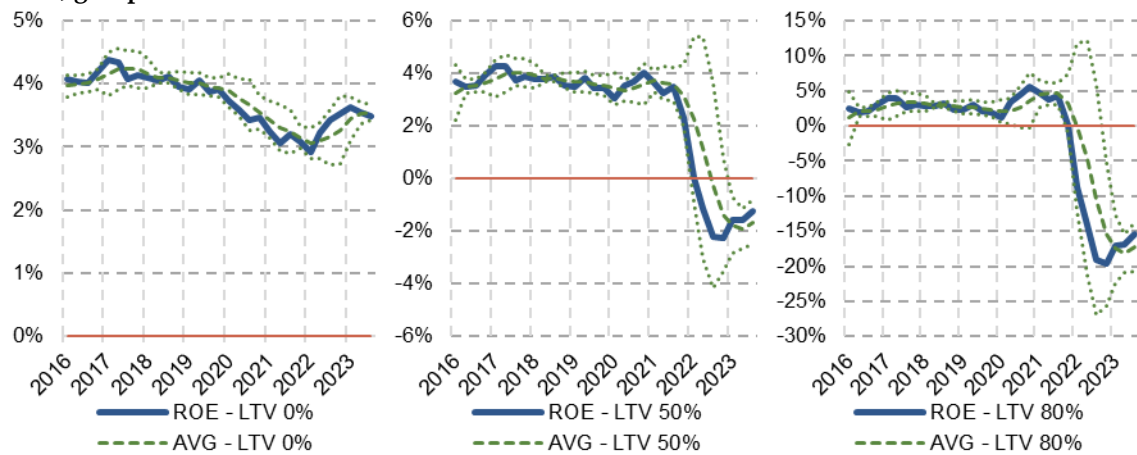
Source: NBP

Figure 86 Comparison of Return on Equity (ROE, in %) on a housing investment at selected levels of LTV, group of 6 cities



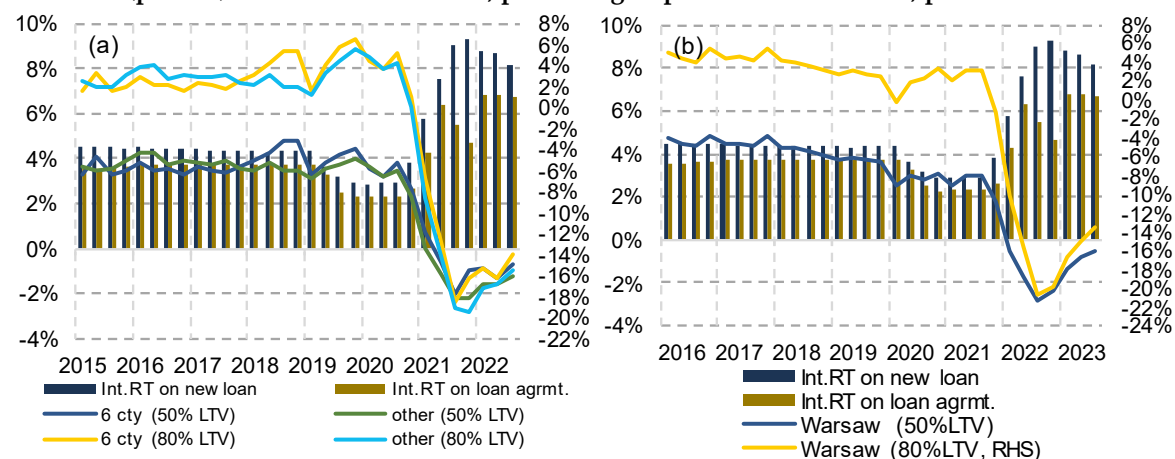
Source: NBP

Figure 87 Comparison of the return on equity (ROE, in %) on a housing investment at selected levels of LTV, group of other cities



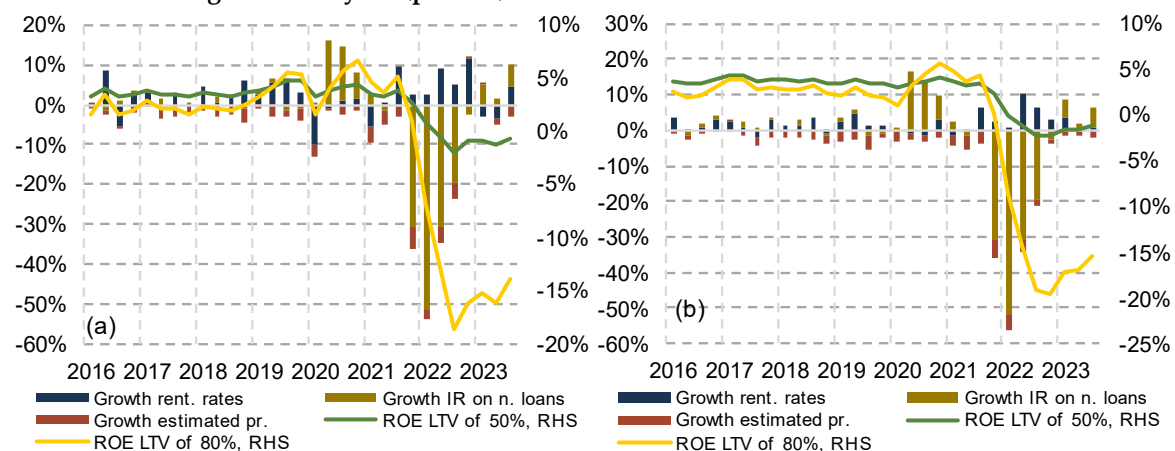
Source: NBP

Figure 88 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



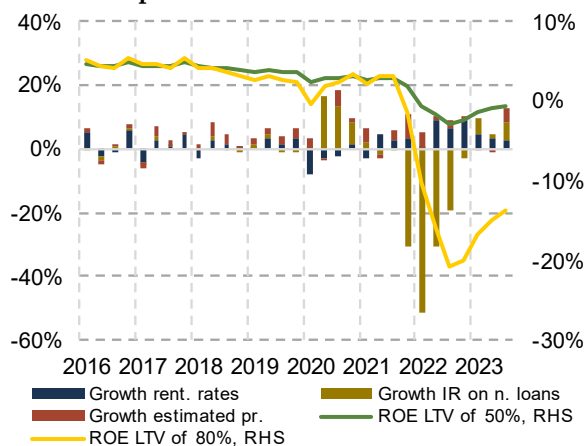
Source: NBP

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



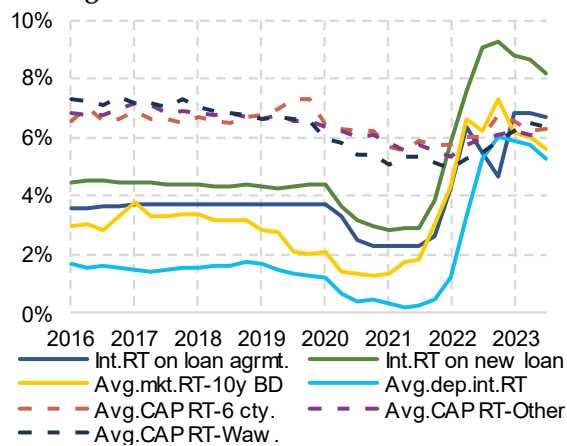
Source: NBP

Figure 90. Estimated ROE for LTV 50% and 80% and the impact of quarterly changes in interest rates on new housing loans, estimated housing transaction prices and rental rates in Warsaw



Source: NBP

Figure 91. 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. Extended analysis of the standing of developers, the residential and non-residential construction industry and related entities

Analysis of the financial standing of developers³⁸

According to the financial data presented in F01 reports until September 2023, in the group of bigger developers (employing over 49 staff) the decline in the level of development projects in progress continued in 2023 Q3 (by 3% q/q and 11% y/y). The significantly lower number of dwellings started than the number of completed dwellings is a confirmation of the low level of developers' investment activity for the fifth quarter in a row. According to the Statistics Poland data, the number of dwellings for sale or rent whose construction was started in the period January-September 2023 was 15% y/y lower, despite a growth of 31% q/q in 2023 Q3. In many local markets the lower growth in new supply compared to demand resulted in limited availability of dwellings offered for sale. The small number of new investment projects resulted from the fact that some developers were unable to start new projects (no land, investments with permits, high investment costs in relation to the financial situation). The persistence of problems in restoring the production capacity are indicated by the 29% y/y decline in the number of permits issued for the construction of dwellings for sale or rent in the period January-September 2023, despite a slight increase (by 5%) in 2023 Q3 and a decrease in the reserves of construction land (among larger developers, the value of the "land reserves" declined by 4% at the end of September 2023 compared to June 2023 and by 24% y/y). Companies with an established, stable financial position effectively launched projects, adjusting supply to the growing demand driven by buyers purchasing

³⁸ The calculations and the conclusions presented in this edition of Information are primarily based on data stated 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 Q2.

housing with bank loans and those with cash. Apart from the varying economic standing of companies, uncertainty of sales opportunities in 2024 is an important factor deterring some developers from excessive investment in successive projects.

The continued improvement in home sales in 2023 Q3 is confirmed by the results published by the 17 largest housing developers, including those listed on the Catalyst market and the Stock Exchange (sales of 7,416 units; an increase of 82% y/y and 17% q/q). The main factors driving demand in 2023 Q3 were the possibility of financing home purchases for buyers' own use under the "2% Safe Mortgage" programme and the sustained investment of funds in housing real estate, including purchasing housing for rent.

The analysis of the financial data available up to September 2023 showed a continued relatively good economic condition of larger developers in 2023 Q3, their stable financial liquidity and a negligible decline in Return on Sales. Slightly higher sales revenues in the past four quarters than in earlier periods, amid a shrinking number of projects in progress, confirm that the developers handed over a high number of dwellings to buyers and completed building projects on schedule. However, they had difficulties in starting new investment projects and adopted a cautious approach to increasing projects in progress given the expectation of continued increase in costs. Compared to the previous quarter, the lower value of total revenues (a fall of 2%) alongside higher total costs (an increase of 3%) resulted in a lower net financial result (by 11%) and return on sales (ROS 15% in 2023 Q3 compared to 18% in 2023 Q2). At the end of 2023 Q3, 81% of the larger developers posted a positive financial result compared to 72% in the previous quarter and 80% in 2022 Q3.

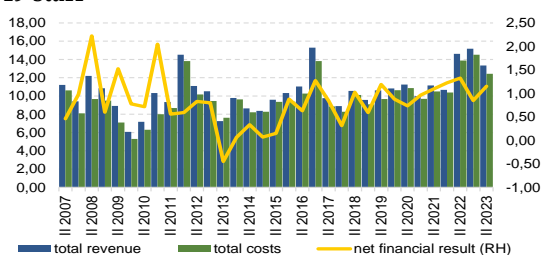
The stock of completed dwellings at the end of 2023 Q2 and Q3 was lower than the average for the years 2020-2022. Significant sales of completed dwellings and those under construction have shortened the average inventory turnover period to 176 days. The stock of bank loan debt declined slightly following a rise in the previous quarter. The value of capital expenditure declined significantly. Labour productivity continued to improve as the number of people employed declined further, which reduced payroll expenses. Return on assets was stable (2.4% ROA) as was the structure of assets, with a large share of fixed assets (39%), followed by projects in progress (29%), receivables from customers (14%) and cash (12%). The receivables collection period shortened (to 71 days) and the short-term liabilities settlement period decreased slightly (to 176 days). Equity remained the main source of financing, despite a fall in its share by 3 p.p. (to 52% in the structure of liabilities). Along with a significant number of homes handed over to customers in recent quarters, financing from prepayments from buyers decreased (a fall of 6.5 p.p. y/y; to 12% at the end of 2023 Q3). On the other hand, liabilities to suppliers increased (to 21% in liabilities) following a slight adjustment in the three previous quarters, which might indicate that developers delayed payments in order to ensure financial liquidity. They continued to record favourable debt and equity coverage ratios, despite a slight deterioration. Debt securities issued increased only slightly and remained at a very low, insignificant level (3% in liabilities). The value of bonds of developers listed on the Catalyst market increased by 12% q/q along with a slight increase in the number of issuers and a negligible adjustment of the average interest rate on coupons.

According to financial data available until June 2023, a dozen or so developers listed on the WSE recorded sustained growth in the value of inventories in 2023 Q2, the majority of which were projects in progress, which confirms the sound financial standing of the developers, high production potential and adjustment of supply to growing demand. They maintained the most favourable operating cost ratio of the three groups of

companies analysed (0.69) and the shortest receivables collection period (40 days). Similarly to the other groups of developers, they reduced their capital expenditure. Positive net cash flow from operating and investment activities as well as stable profitability ratios indicate that their financial standing is sound. The negative cash flow from financial activities is a result of the payment of profits and a partial repayment of liabilities incurred, which is confirmed by a slight fall in the stock of loans and debt securities. Equity is the main item in the structure of liabilities (42% share), as well as a high and stable level of prepayments of customers (21%) and a slightly higher level of liabilities to suppliers than in the previous two quarters (21%).

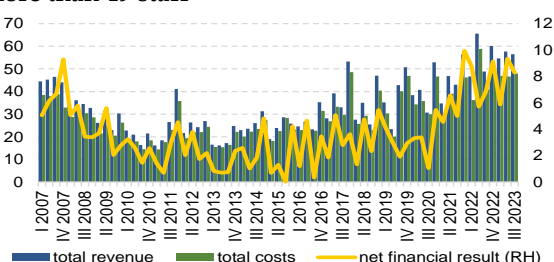
Small developers (with 9-49 staff) varied in terms of financial condition. In the financial data for the first half of 2023 they reported a high and growing level of projects in progress, a low and stable level of completed dwellings and a slight fall in construction land reserves and cash. A decline in the share of equity (to 36% of total liabilities) and a rise in the share of external debt, including mainly from bank loans (to 23%) worsened the debt to equity ratios, debt service coverage ratios, and liquidity ratios. They were at a low but safe level in the first half of 2023.

Figure 92 Economic indicators of developers with 9-49 staff



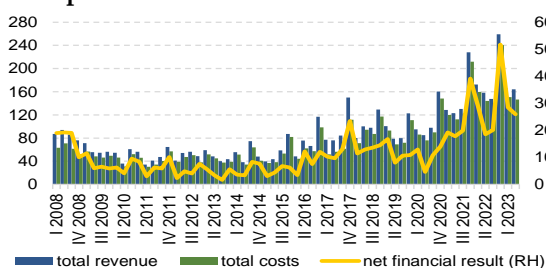
Source: NBP based on Statistics Poland (F01)

Figure 93 Economic indicators of developers with more than 49 staff



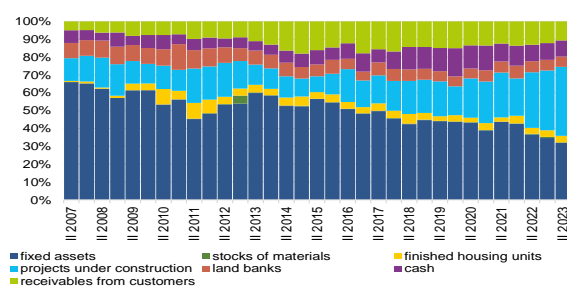
Source: NBP based on Statistics Poland (F01)

Figure 94 Economic indicators of WSE-listed developers



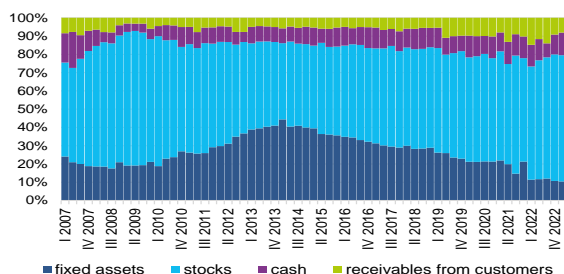
Source: NBP based on Quant Research sp. z o.o.

Figure 95 Structure of assets of developers with 9-49 staff



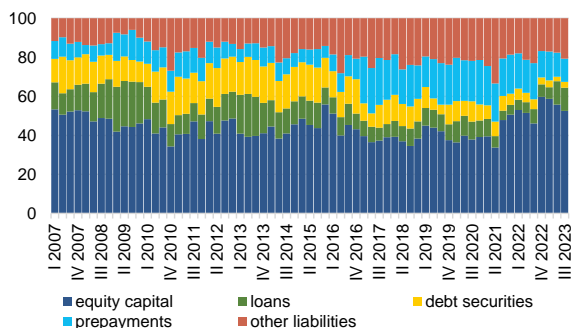
Source: NBP based on Statistics Poland (F01)

Figure 96 Structure of assets of WSE-listed developers



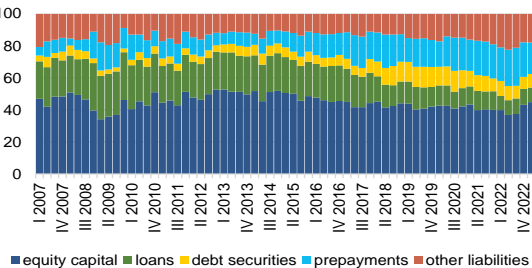
Source: NBP based on Quant Research sp. z o.o.

Figure 98 Structure of liabilities of developers with more than 49 staff



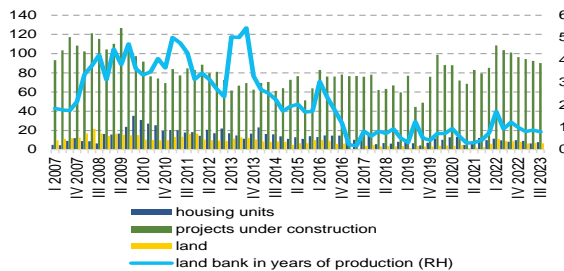
Source: NBP based on Statistics Poland (F01)

Figure 100 Structure of liabilities of WSE-listed developers



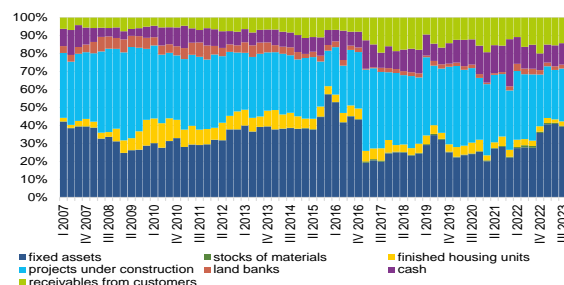
Source: NBP based on Quant Research sp. z o.o.

Figure 102 Situation of developers with more than 49 staff



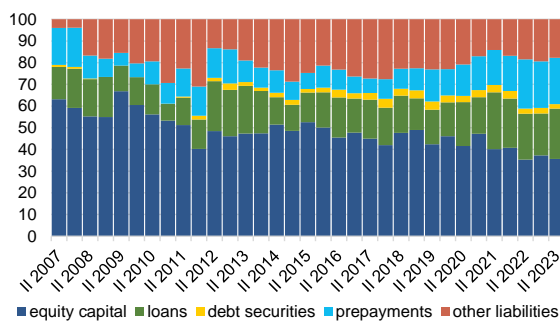
Source: NBP based on Statistics Poland (F01)

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



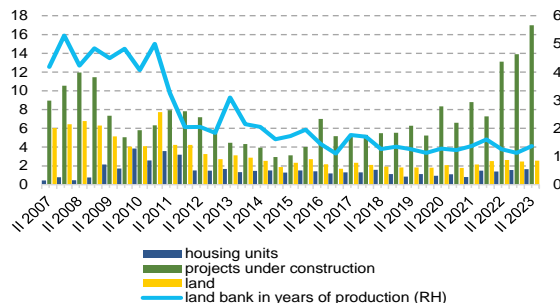
Source: NBP based on Statistics Poland (F01)

Figure 99 Structure of liabilities of developers with 9-49 staff



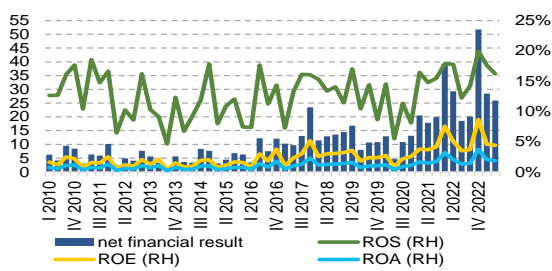
Source: NBP based on Statistics Poland (F01)

Figure 101 Situation of developers with 9-49 staff

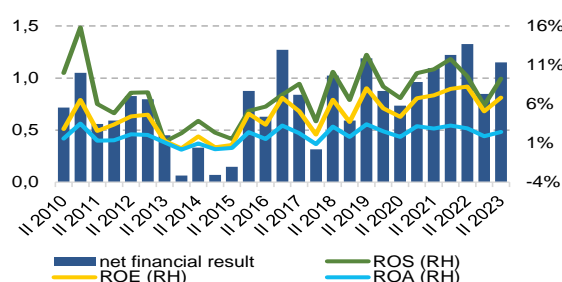


Source: NBP based on Statistics Poland (F01)

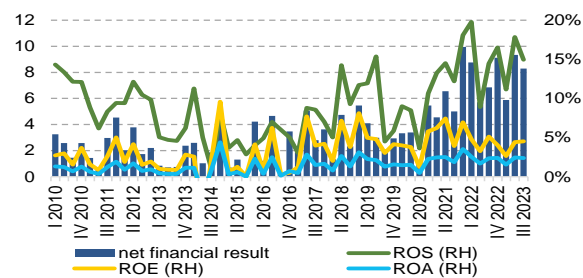
Figure 103 Profitability of operations of WSE-listed developers



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

Figure 104 Profitability of operations of developers with 9-49 staff

Source: NBP based on Statistics Poland (F01)

Figure 105 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 companies³⁹

The first half of 2023 saw an economic recovery in the residential and non-residential construction industry, after negative indicators which prevailed in 2022. The recovery stemmed from the increase in demand in the housing market, which created conditions for starting new investment projects and improving the portfolio of orders for construction services. As a result of adjusted assessments and forecasts, building construction companies undertook prudential measures, as evidenced by the financial data for 2023 Q3 reported in F01 reports. The average revenues of larger companies increased by 25% y/y on a relatively low reference level, but declined slightly (2%) in quarter-on-quarter terms. The pressure of rising costs of wages (33% y/y) and third-party services (24% y/y) combined with low growth in the costs of energy and materials (5% y/y) resulted in lower profit margin at an average level of 5.5% compared to 9.9% a year earlier and a 21% lower net financial result in year-on-year terms. Compared to the situation a year ago, we saw a significant decrease in the upward pressure on prices of own services exerted by costs of energy and materials consumed, and as regards the previous quarter in the upward pressure on wages and prices of third party services.

Uncertainty regarding the demand for construction services may, in the long run, limit the space for construction companies to obtain an inflation premium. Return on Sales (ROS) determined on the basis of the average value of the net financial result and sales revenues amounted to 5.6%, which is more than 2 percentage points lower than the average for the last 2 years. Return on Sales generated in the period from January to September 2023 differed significantly in the analysed group (16% of companies achieved ROS ranging from 0% to 2%). A higher ROS was achieved with higher revenues.

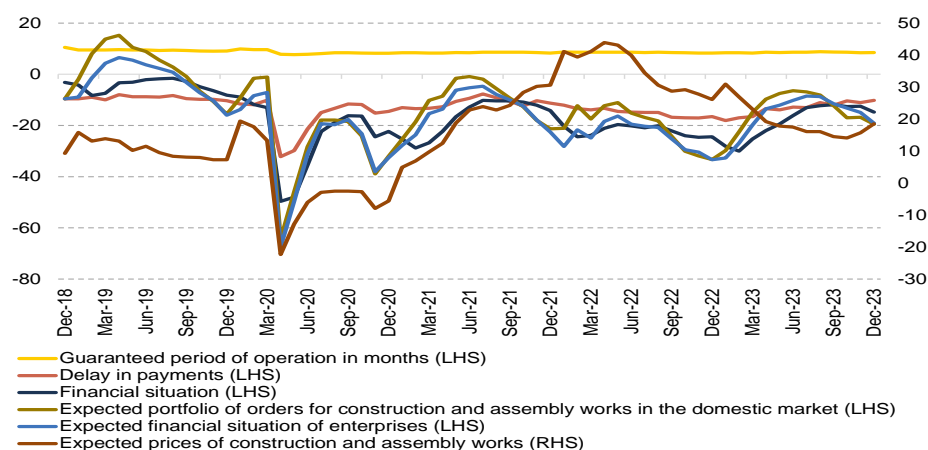
Compared to the previous quarter, there was a significant decrease in the share of receivables in total assets from the record high of 37% observed previously to 34%, which is the average for the last two years. This decline was driven by a shorter receivables collection period of 89 days, which still remains longer than the average for the past two years i.e. 84 days. The shortening of this period amid higher than average share of finished products in total assets may indicate only a slightly smaller scale of problems in settling accounts with contractors than previously. Problems with receivables collection could translate into a 4 p.p. increase in the

³⁹ The calculations and the conclusions presented in this edition of Information are primarily based on data stated 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 at quarterly intervals), which are involved in residential and non-residential building construction (PKD 41.20).

share of trade payables in total liabilities (to 46%) while extending the payables settlement period to 133 days (this order of magnitude was recorded in 2020 during the pandemic). A high level of liabilities was observed amid a significant level of cash (17% of total assets). On the one hand, very big differences in the cash balance between companies (in 32% of companies its share exceeded 20%) allowed some companies to generate financial revenues that had a significant impact on the financial result. On the other hand, such a situation may be a sign of an absence of new orders, the execution of which would require cash expenditure. A high share of cash was largely observed among companies that generated relatively low revenues. As a result of changes in the method of financing operations by postponing payment on trade credit, with a simultaneous decrease in the share of loan debt, the share of external capital increased to 55% of total liabilities for the second consecutive quarter. The average values of Return on Equity (ROE) at 4.2% and Return on Assets (ROA) at 1.6% declined both in y/y and q/q terms and in comparison with the previous, reaching levels close to the lows recorded in the last two years. The increase in the share of external capital in the financing of operations resulted in a deterioration in debt ratios, which, however, remained at a level that guarantees comfortable payment of liabilities. The liquidity ratios declined for another consecutive quarter, yet they also remained at safe levels. As the situation in construction industry was uncertain, given the relative stabilization of costs and the lack of a satisfactory pool of new orders, larger companies built up a financial cushion.

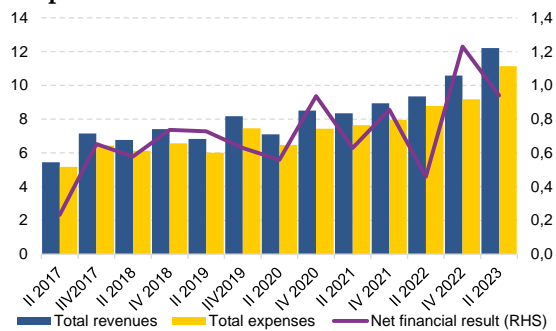
The financial data of small companies for the first half of 2023 compared to the first half of 2022 showed that the transfer of risk associated with increased costs to subcontractors resulted in lower profitability than in the last two years. Only 63% of small companies achieved a positive financial result, with significant differences in Return on Sales between individual companies. The decline in sales resulted in an increase in finished products and a high level of receivables (27%), with 37% of companies having a 50% share of receivables in the asset structure. Problems with debt collection resulted in an increase in the share of payables to 40% of total liabilities. The weaker situation of large companies, shown by data for 2023 Q3, may result in a deterioration of the condition of a significant number of small companies.

Figure 106 Business conditions in the construction industry



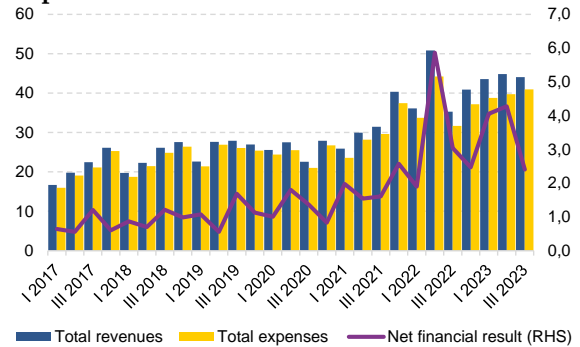
Source: NBP based on Statistics Poland

Figure 107 Economic indicators of construction companies with 9-49 staff



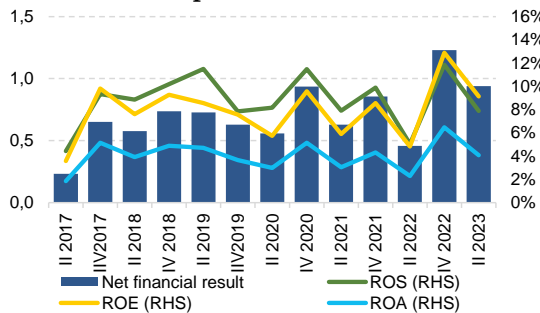
Source: NBP based on Statistics Poland

Figure 108 Economic indicators of construction companies with more than 49 staff



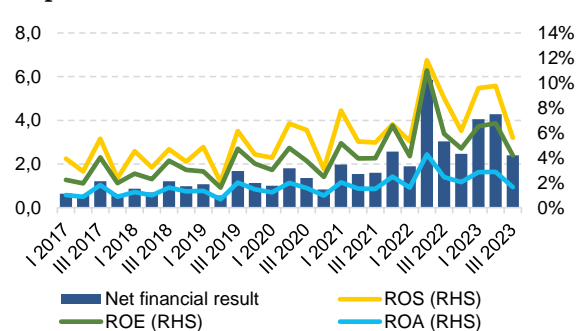
Source: NBP based on Statistics Poland

Figure 109 Profitability of operations of construction companies with 9-49 staff



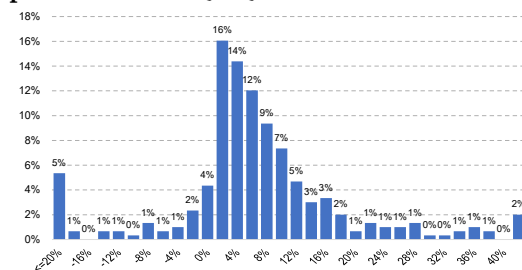
Source: NBP based on Statistics Poland

Figure 110 Profitability of operations of construction companies with more than 49 staff



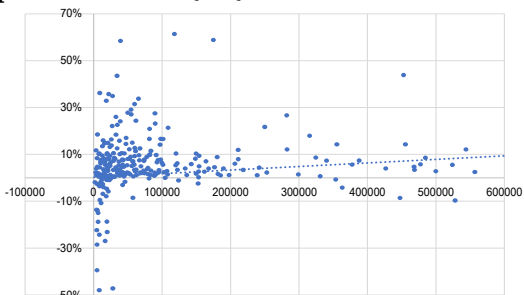
Source: NBP based on Statistics Poland

Figure 111 Distribution of Return on Sales of construction companies employing more than 49 persons in 2023 Q1-Q3



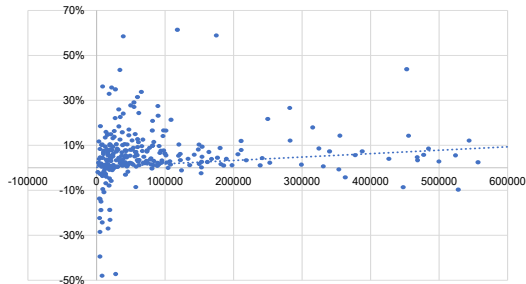
Source: NBP based on Statistics Poland

Figure 112 Statistical dispersion of ROS and revenues of construction companies employing more than 49 persons in 2023 Q1-Q3



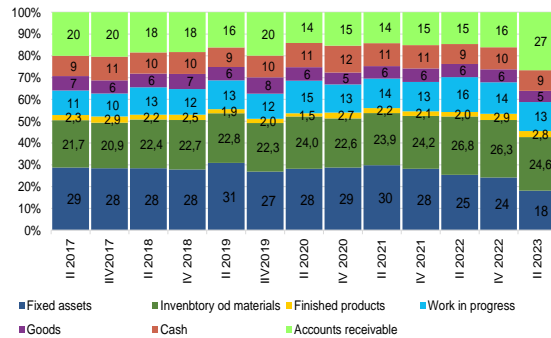
Source: NBP based on Statistics Poland

Figure 113 Statistical dispersion of the share of cash in total assets and revenues of construction companies with more than 49 staff in 2023 Q1-Q3



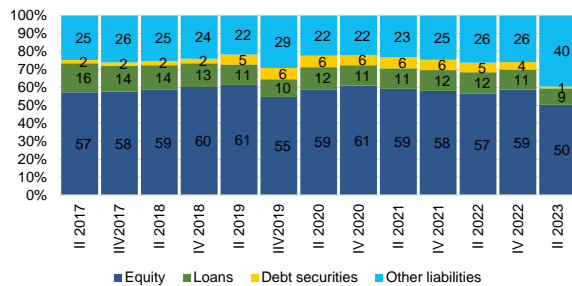
Source: NBP based on Statistics Poland

Figure 115 Structure of assets of construction companies with 9-49 staff



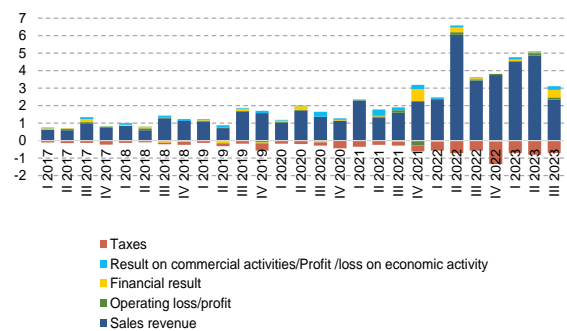
Source: NBP based on Statistics Poland

Figure 117 Structure of liabilities of construction companies with 9-49 staff



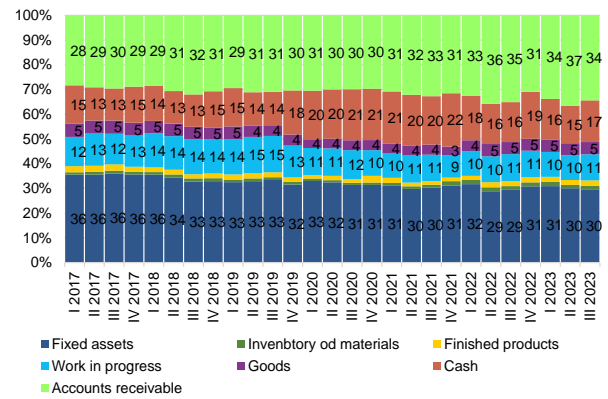
Source: NBP based on Statistics Poland

Figure 114 Breakdown of net financial result of construction companies with more than 49 staff



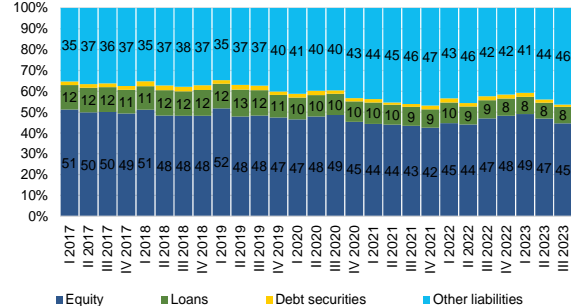
Source: NBP based on Statistics Poland

Figure 116 Structure of assets of construction companies with more than 49 staff



Source: NBP based on Statistics Poland

Figure 118 Structure of liabilities of construction companies with more than 49 staff



Source: NBP based on Statistics Poland

Analysis of the financial situation of building materials wholesalers⁴⁰

A smaller scope of works in the residential and non-residential construction industry resulted in the persistently low level of 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 September 2023, compared to the corresponding period of 2022, increased by an average of 6% in almost all commodity groups surveyed, compared to a 27% y/y increase from January to September 2022. Prices of materials increased by 14% in the period January-March 2023 and by 9% in the period January-June 2023, showing a continued decline in their growth rate in 2023 Q3.

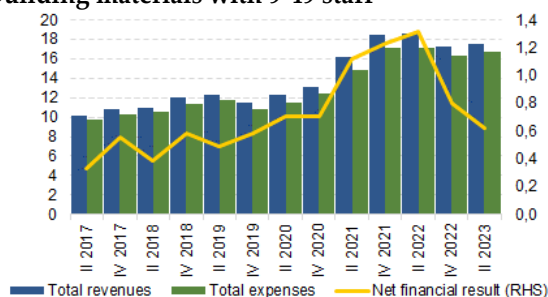
The analysis of the data of large building materials wholesalers (with more than 49 staff) disclosed in F01 reports until September 2023 showed a slight deterioration in their overall financial condition in 2023 Q3 compared to the previous quarter, including profitability, despite average liquidity remaining at a similar and favorable level. A higher increase in total expenses than in total revenues resulting in a marked decrease in net financial result (by 42%), is hardly a cause for optimism. The overall condition, including liquidity and profitability, of small building materials wholesalers (with 9-49 staff) is slightly better than that of large companies. In the group of large wholesalers there was a slightly higher, yet still low, percentage of companies with a positive net financial result (72.9% in 2023 Q3 compared with 65.7% in 2023 Q2 and 92.3% in 2022 Q3), showing considerable differences in the economic situation between companies. A lower net financial result and the persistently small percentage of wholesalers with a positive financial result means that most companies achieved less satisfactory profit margins on building materials than in previous periods. In this group, profitability ratios deteriorated compared to the previous quarter, remaining below those recorded in the previous quarter and a year ago (1.9% ROS, 2.0% ROE and 1.0% ROA in 2023 Q3 compared to 3.4% ROS, 3.5% ROE and 1.7% ROA in 2023 Q2 and 3.4% ROS, 3.2% ROE and 1.6% ROA in 2022 Q3). Average liquidity in the group of large wholesalers remained at a favorable level, similar to the previous quarter. A slight decrease in the inventory of goods compared to the previous quarter may be due to the adjustment of building materials wholesalers to the situation in the housing market (fewer projects started), but their share in the asset structure remained high (23.5%). The inventory turnover cycle, the receivables collection period and the payables settlement period improved. Equity was a stable and main source of financing (50% of total liabilities at the end of September 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 increased slightly in the first half of 2023. The share of receivables in total assets and the share of payables in total liabilities increased. The total debt, assets-to-equity and debt-to-equity ratios remained at a good and safe level. On the other hand, profitability ratios compared to the previous and the

⁴⁰ The calculations and the conclusions presented in this edition of Information are primarily based on data stated 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 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 September, June and March 2023, and September 2022, PSB Handel Group, October, July and April 2023, and October 2022).

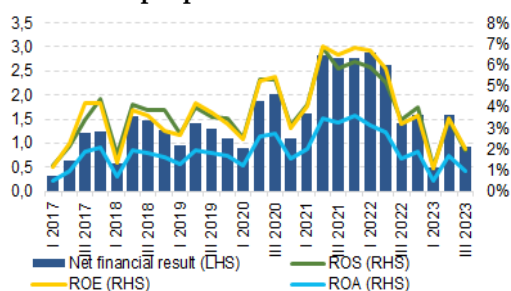
corresponding half-year period worsened, while they are more satisfactory than in the group of large wholesalers.

Figure 119 Economic indicators of wholesalers of building materials with 9-49 staff



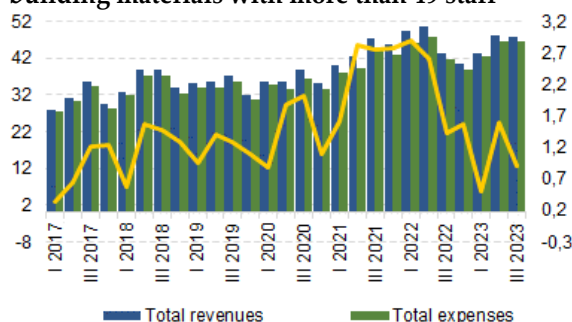
Source: NBP based on Statistics Poland (F01)

Figure 121 Profitability of operations of wholesalers of building materials employing more than 49 people



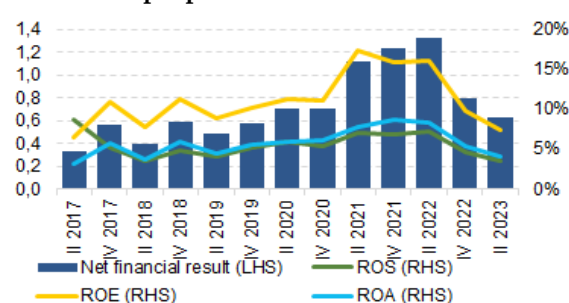
Source: NBP based on Statistics Poland (F01)

Figure 120 Economic indicators of wholesalers of building materials with more than 49 staff



Source: NBP based on Statistics Poland (F01)

Figure 122 Profitability of operations of wholesalers of building materials employing from 9 to 49 people



Source: NBP based on Statistics Poland (F01)

Analysis of the financial situation of building materials manufacturers⁴¹

In 2023 Q3, 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.

The financial data of larger manufacturers for 2023 Q3 showed a decline in total revenues (by 4%) and total expenses (by 5%) and an increase in net financial result (by 8%) compared to the corresponding period in 2022. At the end of 2023 Q3, the percentage of profitable larger companies was 77%, which means that there was a significant percentage of companies with a negative net financial result (23%) and that the situation of building materials manufacturers varied. In earlier periods, i.e. 2017-2022, the percentage of profitable larger manufacturers was considerably larger (an average of 82%). In 2023 Q2, a slightly better ROS (10.3% compared to 9.2%) and a similar ROE (5.0% compared to 4.9%) and ROA (2.9% compared to 2.9%) were achieved in a year-on-year terms. Good turnover ratios (receivables collection cycle of 48 days and payables settlement period of 80 days) and a short inventory turnover cycle (52 days) continued. At the end of September 2023, operations were largely financed with equity (61% of total liabilities). Debt resulting from bank loans remained

⁴¹ The calculations and the conclusions presented in this edition of Information are primarily based on data stated 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 in quarterly intervals), which are involved in building materials manufacturing (PKD 1623, 2223, 2320, 2332, 2351, 2352, 2361, 2362, 2363, 2364).

at the previous quarter's level, i.e. approx. 14% of total liabilities (an increase of 2 pp. compared to the levels recorded in 2021-2022). The financial reports of smaller companies for the first half of 2023 revealed comparable levels of total revenues and total expenses in year-on-year terms, with an 8% decline in the net financial result. The financial situation of smaller manufacturers was slightly worse as their Return on Sales (ROS) was significantly lower (6.5% in the first half of 2023). On the other hand, Return on Equity (ROE) of 6.8% and Return on Assets (ROA) of 4.3% were more favorable than in the group of larger manufacturers. The operating expense ratio remained at 0.93 and the percentage of profitable companies continued at 65%.

Figure 123 Economic indicators of producers of building materials with more than 49 staff

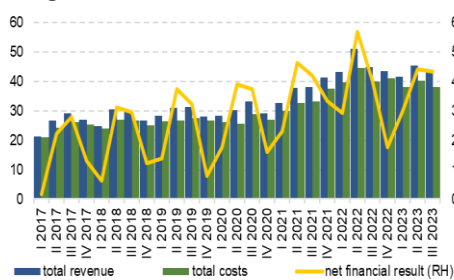
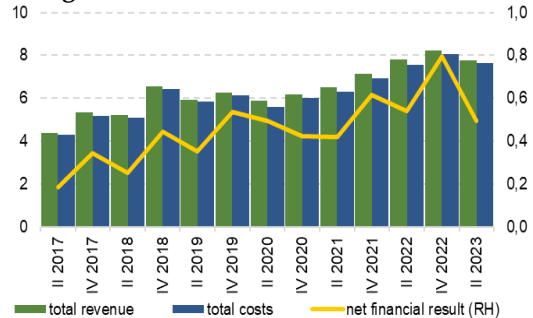


Figure 124 Economic indicators of producers of building materials with 9-49 staff



Source: NBP based on Statistics Poland (F01)

Source: NBP based on Statistics Poland (F01)

Figure 125 Profitability of operations of producers of building materials with more than 49 staff

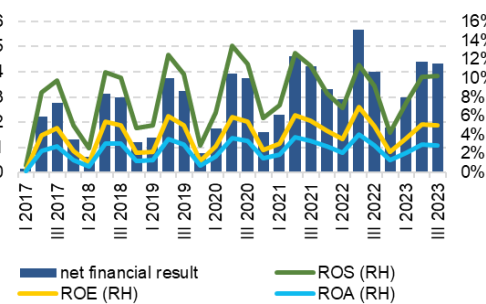
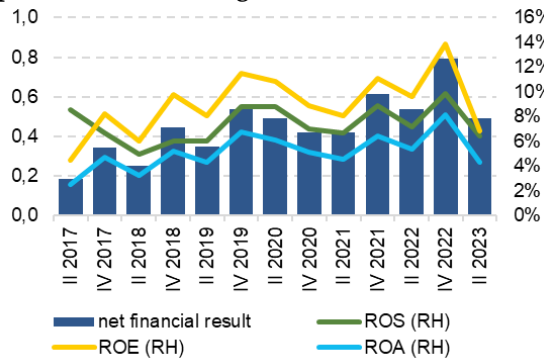


Figure 126 Profitability of operations of producers of building materials with 9-49 staff



Source: NBP based on Statistics Poland (F01)

Source: NBP based on Statistics Poland (F01)

Figure 127 Liquidity indicators of producers of building materials with more than 49 staff

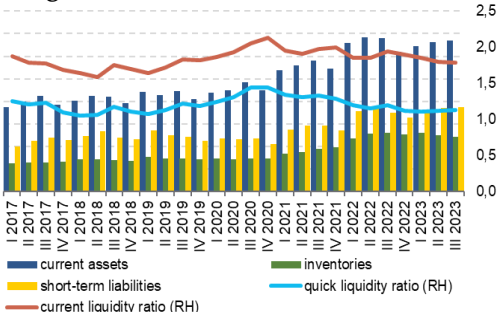
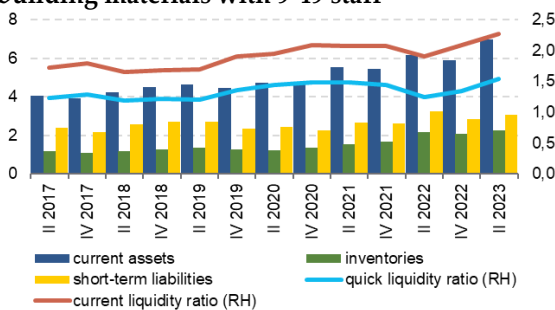


Figure 128 Liquidity indicators of producers of building materials with 9-49 staff



Source: NBP based on Statistics Poland (F01)

Source: NBP based on Statistics Poland (F01)

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